



An EU – Concerted Action

Gender, Culture and Alcohol Problems: A Multi-national Study

**Project Final Report
January 2005**

Kim Bloomfield
Allaman Allamani
Francois Beck
Karin Helmersson Bergmark
Ladislav Csemy
Irmgard Eisenbach-Stangl
Zsuzsanna Elekes
Gerhard Gmel
Florence Kerr-Corrêa
Ronald Knibbe
Pia Mäkelä
Maristela Monteiro
Maria Elena Medina Mora
Sturla Nordlund
Isidore Obot
Moiria Plant
Giora Rahav
Martha Romero Mendoza

Gender, Culture and Alcohol Problems: A Multi-national Study

Project Final Report January 2005

Kim Bloomfield
Allaman Allamani
Francois Beck
Karin Helmersson Bergmark
Ladislav Csemy
Irmgard Eisenbach-Stangl
Zsuzsanna Elekes
Gerhard Gmel
Florence Kerr-Corrêa
Ronald Knibbe
Pia Mäkelä
Maristela Monteiro
Maria Elena Medina Mora
Sturla Nordlund
Isidore Obot
Moiria Plant
Giora Rahav
Martha Romero Mendoza

**Institute for Medical Informatics, Biometrics & Epidemiology,
Charité Universitätsmedizin Berlin**

Co-ordinating Centre for the Concerted Action Project "Gender, Culture and Alcohol Problems: A Multi-national Study":

Institute for Medical Informatics, Biometrics & Epidemiology, WE 10
Hindenburgdamm 30
12200 Berlin
Germany

Members of EU-Concerted Action „Gender, Culture and Alcohol Problems: A Multi-national Study”:

Kim Bloomfield, Dr. P.H. (project coordinator)

Charité Universitätsmedizin Berlin
Campus Benjamin Franklin
Institute for Medical Informatics, Biometrics &
Epidemiology
Hindenburgdamm 30
D-12200 Berlin / GERMANY

Department of Health Promotion Research
University of Southern Denmark
Niels Bohrs Vej 9
6700 Esbjerg, / DENMARK

Allaman Allamani, M.D.

Azienda Sanitaria di Firenze
Centro Alcológico Integrato
Villa Basilewsky,
Via Lorenzo il Magnifico 104
50129 Firenze / ITALY

Francois Beck, Ph.D.

Pôle Enquêtes en population générale
Observatoire Français des Drogues et
Toxicomanies (OFDT)
105, rue Lafayette- 3ème étage
75010 Paris / FRANCE

Karin Helmersson Bergmark, Ph.D.

Stockholm University
Department of Sociology
S-10691 Stockholm
SWEDEN

Ladislav Csemy

Prague Psychiatric Centre
Addiction Studies Unit
Ustavni 91
181 03 Praha 8 / CZECH REPUBLIC

Irmgard Eisenbach-Stangl, Ph.D.

Ludwig-Boltzmann-Institut
für Suchtforschung
Mackgasse 7-11
A-1239 Wien / AUSTRIA

Zsuzsanna Elekes, Ph.D.

Budapest University of Economics, Sociology
and Social Policy
Fovam tir 8
H-1083 Budapest / HUNGARY

Gerhard Gmel, Ph.D.

Swiss Institute for the Prevention of Alcohol and
Drug Problems (SIPA)
Av. de Ruchonnet 14
CH-1001 Lausanne / SWITZERLAND

Florence Kerr-Corrêa, M.D., Ph.D.

Professor of Psychiatry
Faculdade de Medicina de Botucatu - UNESP
C.P. 540-Botucatu-São Paulo
BRAZIL

Ronald Knibbe, Ph.D.

Universiteit Maastricht
Section Medical Sociology/ IVO-UM
P.O. Box 616
6200 MD Maastricht
THE NETHERLANDS

Pia Mäkelä, Ph.D.

National Research and Development Centre for
Welfare and Health, STAKES
Social Research Unit for Alcohol Studies
P.O. Box 220
FIN - 00531 Helsinki / FINLAND

Maristela Monteiro, MD, Ph.D.

World Health Organization
Management of Substance Dependence
20 Ave. Appia
1211 Geneva 27
SWITZERLAND

Maria Elena Medina Mora, Ph.D. /

Martha Romero Mendoza Ph.D.
Mexican Institute of Psychiatry
Division of Epidemiological and Social Research
Calzada Mexico Xochimilco 101
14370 MEXICO

Sturla Nordlund

National Institute for Alcohol and Drug Research
PB 565
Sentrum
N-0105 Oslo / NORWAY

Isidore Obot, Ph.D., M.P.H.

World Health Organization
Management of Substance Dependence
20 Ave. Appia
1211 Geneva 27 / SWITZERLAND

Dr. Moira Plant

Alcohol & Health Research Trust
Glenside Campus
Blackberry Hill, Stapleton
Bristol, BS16 1DD / UNITED KINGDOM

Giora Rahav, Ph.D.

Tel Aviv University
Department of Sociology
Tel Aviv 69978
ISRAEL

Additional Co-Authors of the Concerted Action Project "Gender, Culture and Alcohol Problems: A Multi-national Study":

Mieke Derickx

University of Maastricht
Department of Medical Sociology
P.O. Box 616
6200 MD Maastricht / THE NETHERLANDS

Jürgen Eckloff

Charité Universitätsmedizin Berlin
Campus Benjamin Franklin
Institute for Medical Informatics, Biometrics & Epidemiology, WE 10
Hindenburgdamm 30
D-12200 Berlin / GERMANY

Kathryn Graham, Ph.D.

Centre for Addiction and Mental Health
100 Collip Circle, Suite 200
London, Ontario
N6G 4X8 CANADA

Ulrike Grittner

Charité Universitätsmedizin Berlin
Campus Benjamin Franklin
Institute for Medical Informatics, Biometrics & Epidemiology, WE 10
Hindenburgdamm 30
D-12200 Berlin / GERMANY

Isabella Hager

Ludwig-Boltzmann-Institut
für Suchtforschung
Mackgasse 7-11
A-1239 Wien / AUSTRIA

Thomas Karlsson

National Research and Development Centre for Welfare and Health, STAKES
Social Research Unit for Alcohol Studies
P.O. Box 220
FIN - 00531 Helsinki / FINLAND

Stephanie Kramer

Charité Universitätsmedizin Berlin
Campus Benjamin Franklin
Institute for Medical Informatics, Biometrics & Epidemiology, WE 10
Hindenburgdamm 30
D-12200 Berlin / GERMANY

Ludwig Kraus

IFT-Institut für Therapieforchung
Parzivalstr. 25
80804 München
GERMANY

Hervé Kuendig

Swiss Institute for the Prevention of Alcohol and Drug Problems
Av. de Ruchonnet 14
CH-1001 Lausanne / SWITZERLAND

Sandra Kuntsche

Swiss Institute for the Prevention of Alcohol and Drug Problems
Av. de Ruchonnet 14
CH-1001 Lausanne
SWITZERLAND

Jurkka Näsänen

Alcohol and Drug Research Group
STAKES
P.O. Box 220
FIN - 00531 Helsinki
FINLAND

Monica Nordvik

Department of Sociology
Stockholm University
S-10691 Stockholm
SWEDEN

Esa Österberg

National Research and Development Centre for Welfare and Health, STAKES
Social Research Unit for Alcohol Studies
P.O. Box 220
FIN - 00531 Helsinki
FINLAND

Martin Plant

Alcohol & Health Research Trust
Glenside Campus
Blackberry Hill
Stapleton
Bristol, BS16 1DD
UNITED KINGDOM

Robin Room, Ph.D.

Centre for Social Research on Alcohol & Drugs
Stockholm University
Sveaplan
Stockholm
S-106 91
SWEDEN

Fabio Voller

Social Epidemiology Unit
Regional Health Agency of Tuscany
Viale Milton 7,
50129 Florence
ITALY

Richard Wilsnack Ph.D.

Department of Neuroscience
University of North Dakota
School of Medicine and Health Sciences
P.O. Box 9037
Grand Forks, ND 58202-9037
USA

Acknowledgements

This project was supported by the European Commission, Research Directorate-General, through its Quality of Life and Management of Living Resources research program with contract number QL4-CT-2001-01496.

Additional funding for the coordination of the project, as well as for German scientific participation in the study, was provided by a grant from the German Federal Ministry of Health and Social Security. Special thanks are due to Dr. Ludwig Kraus of the Institute of Therapy Research for his generosity in providing the German team with the necessary national survey and expert advice in analysing the data set properly. Further support for specific aspects of the wider coordination efforts in Berlin were generously provided by a grant from the University of North Dakota (subcontract no. 422, UND Fund 4153-0425). We are very grateful to Prof. Dr. Sharon Wilsnack for securing and arranging for this supplementary support which has been extremely useful, especially in the end phase of the project. Furthermore, we are extremely appreciative of the consistent support and assistance which Prof. Dr. Sharon Wilsnack, Prof. Dr. Richard Wilsnack, and Dr. Arlinda Kristjanson provided, as did the rest of their team at the Department of Neuroscience, University of North Dakota School of Medicine & Health Sciences.

We are also very grateful to Drs. Maristela Monteiro and Isidore Obot of the World Health Organisation and to Prof. Dr. Robin Room of the University of Stockholm for their advisory role as members of the project steering committee of which Prof. Dr. Sharon Wilsnack, as well as project study partners Prof. Dr. Ronald Knibbe, Dr. Gerhard Gmel and Prof. Dr. Kim Bloomfield, were also members.

The coordination of project was located at and conducted from the Institute for Medical Informatics, Biometry and Epidemiology of the Free University of Berlin (Director: Prof. Dr. Thomas Tolxdorff) within the Department for Medical Statistics and Epidemiology (Dept. head: Prof. Dr. Peter Martus). We are grateful for the support provided by Prof. Dr. Tolxdorff and Prof. Dr. Martus during the course of the study. Additionally, we are appreciative of the University of Southern Denmark, Institute of Public Health (Director: Prof. Dr. Bernard Jeune) for their flexibility in allowing the coordinator of this project, Prof. Dr. Kim Bloomfield, to lead the project from both Denmark and Berlin, Germany.

We would like to acknowledge particular funding sources of some of the individual study country surveys. The participation of Switzerland and the centralised databank management was financed by the Swiss Federal Office for Education and Science (contract no. 01.0366) (Dr. Gerhard Gmel, study partner). Additional support was provided by the University of North Dakota (subcontract no. 254, amendment no. 2, UND Fund 4153-0425). The Swiss survey was conducted by the Swiss Federal Statistical Office.

The Amsterdam Group, the University of West England, Bristol, and the Alcohol Education and Research Council provided support for the survey conducted in the United Kingdom (Prof. Dr. Moira Plant, study partner).

For conducting the survey in Brazil, additional support was provided by Fundação de Amparo à Pesquisa do Estado de São Paulo (Fapesp 00/03150-6) (Prof. Dr. Florence Kerr-Correa, study partner).

The Israeli survey was funded by the Anti-Drugs Authority of Israel (Prof. Dr. Giora Rahav, study partner).

The Swedish survey was supported by the Swedish Ministry of Health and Social Affairs (Dr. Karin Helmersson Bergmark, study partner).

The French survey ("Health Barometer 2000") was funded by the Prevention and Health Education National Institute (INPES) with a grant to the French Monitoring Center on Drugs and Drug Addiction (OFDT) (Dr. Francois Beck, study partner).

Several colleagues, cooperating with the project but not official study partners, contributed to the chapters in this report. Their names are listed as authors in the chapter reports to which they contributed. We are most grateful for their contributions and very collegial support.

Finally, the members of the Berlin coordination team were indispensable to the good organisation of the project, and we are very grateful to them having conducted such a fine job. Ms. Stephanie Kramer acted as project manager and efficiently kept all study partners informed and essential activities on track and on time. Ms. Friederike Fröhner, administrative assistant, managed the coordinator's office, logistically organising all project meetings and maintaining financial records and administrative correspondence. Ms. Ulrike Grittner, research assistant, conducted particular analyses and assisted with the centralised data bank maintenance. Mr. Jürgen Eckloff, student assistant, contributed technical support for the coordination of the project.

The consortium

Contents

INTRODUCTION	11
CHAPTER 1: DATA CENTRALIZATION.....	23
CHAPTER 2: DRINKING PATTERNS	49
Drinking and gender differences in drinking in Europe. A comparison of drinking patterns in European countries.	
CHAPTER 3: DRINKING CONTEXTS	73
Drinking contexts in European countries.	
CHAPTER 4: ALCOHOL-RELATED PROBLEMS	89
The Alcohol Use Disorder Identification Test (AUDIT) in general population surveys in European countries: a first evaluation of the reliability.	
CHAPTER 5: ALCOHOL-RELATED VIOLENCE	103
A comparison of alcohol related aggression in six European countries.	
CHAPTER 6: SOCIAL INEQUALITIES.....	117
Social inequalities in alcohol consumption and alcohol-related problems in the study countries.	
CHAPTER 7: SOCIAL ROLES	137
How do social roles and social stratification influence women's and men's alcohol consumption? A cross-cultural analysis..	
CHAPTER 8: SOCIETAL-LEVEL FACTORS	163
The influence of societal-level factors on men's and women's alcohol consumption and alcohol problems.	
ANNEX: COUNTRY REPORTS.....	189
APPENDIX A1: RECOMMENDATIONS FOR THE USE OF DRINKING INDICATORS	218
APPENDIX A2: HOW TO READ THE CODEBOOK?	229
APPENDIX A3: CODEBOOK (QUESTIONS ONLY)	245
APPENDIX A4: DESCRIPTION OF DRINKING INDICATORS	280
APPENDIX A5: DOCUMENTATION FOR VARIABLE NAMES OF DRINKING INDICATORS (8 CHARACTERS)	320
APPENDIX A6: OVERVIEW WORKDECKS	322
APPENDIX A7: SAMPLING DESIGN QUESTIONNAIRE.....	327
APPENDIX B: DRINKING CONTEXTS	332
APPENDIX C: ALCOHOL-RELATED VIOLENCE	335
APPENDIX D: SOCIAL INEQUALITIES.....	340
APPENDIX E: SOCIETAL-LEVEL FACTORS.....	341

Introduction

Kim Bloomfield

1 BACKGROUND

The gender gap in drinking behaviour is one of the few universal gender differences in human social behaviour. In general population studies throughout the world, as compared to women, men are more often drinkers, consume more alcohol, and cause more problems by doing so (Almeida et al., 2004; Fillmore et al., 1991; Hao et al., 2004; Jhingan et al., 2003; Kebede & Alem, 1999; McKee et al., 2000; Perdrix et al., 1999; Rijken et al., 1998; Sieri et al., 2002; Yamamoto et al., 1993). However, the size of these gender differences varies greatly from one society to the other. Neither the universality nor the variability of these gender differences has been adequately explained (R. Wilsnack et al., 2000).

Gender differences in alcohol use can be seen as one way in which societies have symbolised and regulated gender roles. Cultural differences in normative drinking patterns help to reveal how (and to what extent) societies differentiate gender roles, for example, by making drinking behaviour a demonstration of masculinity (Campbell, 2000; Driessen, 1992; MacDonald, 1994; Roberts, 2004) or by an expectation that women abstain from alcohol or curb their consumption as a symbol of subservience or to prevent sexual autonomy (Martin, 2001; Nicolaides, 1996; Willis, 1999). Therefore, better understanding of how men's and women's drinking patterns differ is an important key to answering broader questions of how and why and to what extent societies try to get women and men to behave differently (Gefou-Madianou, 1992; McDonald, 1994; Murdock, 2002; Wilsnack & Wilsnack, 1997).

Gender differences in alcohol use have bolstered costly biases in how societies identify and try to control alcohol-related problems. On the one hand, the association of heavy drinking with displays of masculinity or male camaraderie may encourage male drinkers to deny or minimize problems or risks resulting from their drinking, or to regard drunken behaviour as normal or permissible, even when it leads to violence (Graham & Wells, 2003; Greenfield & Rogers, 1999; Tomsen, 1997). On the other hand, assumptions that women do not drink heavily may initially lead to women's drinking problems being minimized or ignored (for example, by medical practitioners; Brienza & Stein, 2002; Svikis & Reid-Quinones, 2003; Weisner & Matzger, 2003), but when women's alcohol abuse or dependence becomes conspicuous, the social reaction may shift from indifference to outrage and efforts to punish women who drink in socially disapproved ways (Abel & Kruger, 2002; Blume, 1997; De Ville & Kopelman, 1998; McLaughlin, 1991).

A step in improving understanding of how gender and culture combine to affect alcohol use and abuse has been undertaken by the concerted action "Gender, Culture and Alcohol Problems" funded by the European Commission (contract QLG4-CT-2001-01496) which has examined differences in drinking behaviour amongst men and women in 13 European and two non-European countries. By examining gender differences in alcohol use amongst several European countries, this project provides a unique opportunity to focus on a part of the world which contains an interesting spectrum of countries with

regard to gender equality. Several Nordic countries, which are among those with a very high degree of gender equality, have been included in the study. The project, though, has attempted to represent most regions of the European Union, and in addition, has two non-European countries. Thus, with such a spectrum of levels of gender equality among various societies, the project has had the promise to reveal how gender differences in drinking behaviour may be linked to the level of gender equality in a country.

Important features of this study have been the use of centralised data analysis and standardised measures. With these, the project has made a step to improve upon previous international and European alcohol research with the goal to better inform European public health policy. This is done by identifying gender differences in "at-risk" subgroups and by seeking to better specify and understand the differing correlates and conditions of problematic alcohol use between the genders, not only on the individual level but on the societal level as well.

The successfully completed precursor to this project, the concerted action "Alcohol consumption and alcohol problems in European countries" (Biomed II Programme, contract numbers BMH4-CT-96-0179 and IC20-CT96-0051) (Ahlström et al, 2001; Allamani et al, 2001; Bloomfield et al, 2001; Cipriani et al, 2001; Gmel et al, 2000; Knibbe & Bloomfield, 2001; Plant et al, 2000), also investigated determinants of women's alcohol consumption as well as gender differences in alcohol use across nine European countries. This completed study was a solid first step in devoting research attention to women's drinking behaviour and gender differences in alcohol consumption across a number of European countries. The limitations of that study, however, were that (1) a rather small number of countries were available to represent the main drinking cultures found in Europe, (2) the main focus of the project was on women's drinking behaviour and gender differences were not systematically examined, (3) previously collected data sets were used for the analysis, where the number of commonly measured variables was rather limited, especially in measuring alcohol-related problems, and (4) the data were not analysed centrally but by the individual study partners.

Such challenges experienced by the previous study have been addressed in the present study, thereby giving it a more robust design. This has been done, first, by increasing the number of study countries. The current project includes the study countries of Austria, Czech Republic, Finland, France, Germany, Hungary, Israel, Italy, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom. In addition, two countries outside of Europe, Brazil and Mexico, have participated in the study¹, as has the World Health Organisation (WHO) in an advisory capacity. This wider range of societies has aided in conducting more reliable analyses and in corroborating gender differences in drinking behaviour. The second challenge, to widen the examination to gender differences in drinking behaviour, has been met by the inclusion of data sets which contain information on both men and women in all study countries. The third challenge experienced in the previous concerted action, that of the relatively few directly comparable original variables available for secondary analysis, is corrected by the extensive efforts of the partners of the current study to collect fresh data with standard measures for the main variables of interest. This has been achieved through consultations among the study partners and colleagues in our sister project "GENACIS" (see below) to develop a recommended

¹ It was originally planned that Canada, the United States and Russia would also participate. However, due to international juridical and contractual hurdles, these countries had to withdraw.

set of standard questions to be applied in new data collecting efforts. Finally, in contrast to the previous concerted action, where data for each specific research question were analysed either by the research task co-ordinator responsible or by the study partner, the current data have been centralised and analyses were carried out centrally with the professional guidance of the project's data bank coordinator in Lausanne, Switzerland. This has improved the degree of uniformity, reliability and validity of the results.

The current project has been affiliated with a larger international research endeavour, entitled "GENACIS" (Gender, Alcohol, and Culture: An International Study). This is a larger, ongoing project that is investigating gender differences in alcohol use and misuse across a larger range of countries much beyond those in Europe. Thus, aside from the countries involved in the current EU concerted action, the GENACIS study countries include Argentina, Australia, Belize, Canada, Costa Rica, Denmark, Iceland, India, Ireland, Japan, Kazakhstan, Nicaragua, Nigeria, Peru, Russia, Spain, Sri Lanka, Switzerland, Uganda, Uruguay, and the United States. Participation of these countries is funded through the U.S. National Institute on Alcohol Abuse and Alcoholism (Research Grant No. R21 AA12941) and the World Health Organisation with funding earmarked for developing countries. Through this opportunity to collaborate with a larger, more comprehensive study, a common "core" questionnaire was developed for implementation in those countries planning to collect new survey data. It was encouraged that each study use as much if not all of this new questionnaire. However, if surveys were financed by national governments or health agencies, it was often the case that other priorities existed in what kind of health data would be collected, and in some cases only a selection of items from the project's core questionnaire could be included. Nevertheless the use of a standardised questionnaire represents a significant step forward in unifying alcohol survey data within Europe.

2 RESEARCH OBJECTIVES

The specific research objectives of the present concerted action "Gender, Culture and Alcohol Problems" have been:

1. To compare within countries men's and women's drinking patterns and drinking contexts; to compare across countries men's and women's drinking patterns and contexts, and gender differences in drinking patterns and contexts. Previous international studies have compared men's and women's drinking patterns by constructing common reporting units from existing survey data. But, different countries have used different questions, response categories, and assumptions in past surveys, limiting the ability of researchers to derive comparable measurements of drinking. Where it has been possible, the current study has collected data based on the same methods of measuring drinking behaviour which allows comparisons to be analysed more directly and offers a new and more informative source of data on alcohol consumption for reference use in the European Union. Additionally, analyses have included examining gender differences in drinking contexts. Research has shown that the time, place and person with whom one consumes alcohol influence the amount consumed and possibly the amount of risk carried by such a drinking situation. To our knowledge, this is one of the first studies to examine drinking contexts and gender differences in drinking contexts internationally.

2. To compare within countries men's and women's alcohol-related problems, to compare across countries the prevalence of men's and women's alcohol problems, and gender differences in problem prevalence. Such comparisons have been difficult across countries because countries typically have looked most closely at somewhat different lists of behavioural problems and symptoms of alcohol dependence. Apart from methodological studies such as those for developing the AUDIT (Alcohol Use Disorders Identification Test) questionnaire, our current analyses are among the first cross-national comparisons of prevalence rates, particularly for comparing women's and men's experiences. As in the case of measuring alcohol consumption, efforts to use of a standard instrument across the study countries have offered a new and informative source of data on alcohol abuse and alcohol dependence for reference use in the European Union.

3. To compare, within countries and across countries, the experience of violence in close relationships as related to men's and women's drinking behaviour. Although the involvement of alcohol in violent crime varies, it has been estimated that on average 50% of violent crimes involve drinking by the offender, the victim or both. One area of particular significance for understanding the role of alcohol is violence between intimates, because most violence against women occurs in the context of an intimate relationship. Fairly consistent findings indicate that marital aggression is associated with heavier drinking, particularly high quantity per occasion, for both men and women. The current study has examined both this relationship and alcohol-related violence in general in those study countries which have gathered specific data on this question.

4. To compare, within countries and across countries, gender differences in social inequalities in alcohol use and abuse, and to compare gender differences in the influence of combinations of social roles on heavy use. Social inequalities in alcohol use and abuse. Few studies have explicitly examined social inequalities in alcohol use and abuse in detail. However, most general studies that have investigated the influence of socio-economic factors on alcohol use have found a relationship opposite to that found in the general health inequalities literature; i.e., those with lower SES (e.g., education, profession) are more often abstainers from alcohol. Moreover, some studies have also found that women of higher SES tend to report more alcohol-related problems and symptoms and consume more alcohol than women of lower SES. Since such research has been quite limited, the current study has systematically examined the unique nature of social inequalities in alcohol use and abuse and the gender differences across the study countries. Social roles. Previous research suggests that heavy drinking and alcohol-related problems are associated with having few social roles and responsibilities rather than having many roles to perform, but in general this appears to be more relevant for men than for women. Recent findings from the precursor study point to intriguing differences in the combinations of social roles associated with heavy drinking among women in five different European countries, suggesting that a uniform "risk" profile for hazardous drinking does not exist across Europe. Information on how men and women combine family and work roles is important for understanding the development of drinking patterns and the adverse effects of alcohol consumption. The current study has gone beyond its precursor to examine what combinations of social roles for both men and women are related to higher risk for hazardous alcohol use and abuse.

5. To analyse how societal-level factors (e.g., gender equality, drinking culture norms) predict women's and men's alcohol use and alcohol-related problems in various regions of Europe and elsewhere. Over the several decades of international alcohol research, it has become well known that differing drinking cultures exist. Moreover, gender and political science research have attempted to characterise the world's countries by the social position of women to aid in specifying the development of gender-relevant policies. These two societal-level dimensions, drinking culture and the social position of women, have particular relevance in helping to explain, on a “higher” level, the results found in an international study. The diversity of countries in our project and our affiliate GENACIS project have allowed analyses of societal characteristics (a) as possible predictors of patterns of men's and women's alcohol consumption and related problems across societies, and (b) as possible modifiers of associations with individual-level predictors, for women and men in each society studied. This information is informative in helping to develop a social and health policy within the European Union which can be more regionally, culturally and gender-sensitive.

3 SUMMARY OF KEY RESULTS

Below is summary of the key results of the analyses conducted to answer the above-mentioned main research objectives of the study. Chapters 2 and 3 are related to our first research objective, that of examining the drinking patterns and drinking contexts across countries; Chapter 4 is the product of the analyses conducted to answer our second objective of comparing the experience of alcohol-related problems across countries. Chapter 5 deals with examining alcohol-related violence, the subject of our third research objective, while Chapters 6 and 7 report on the findings of our fourth objective regarding social inequalities in alcohol consumption and alcohol-related problems and cultural differences in how social roles and social stratification are related to alcohol consumption. Finally, Chapter 8 takes a comprehensive view of how societal-level factors, in particular gender equality and also modernisation, are correlated with drinking behaviour on an international level, our fifth research objective.

Preceding these chapters is a detailed section (Chapter 1) which describes the data centralisation procedures and other methodological aspects of the study including the construction of common variables used in the centralised data analyses.

An additional report is included as an annex. It contains in-depth profiles of selected study countries (Austria, Finland, France, Germany, Italy and the United Kingdom) with regard to other descriptive alcohol-related data available for examination. These reports were compiled as an aid to the reader to help interpret the quantitative results found in the preceding chapters and as a possible launching point for more qualitative studies of gender differences in drinking behaviour in the future.

Drinking patterns

The purpose of this chapter was to compare drinking habits and to examine differences between drinking cultures in different regions and countries of Europe; to examine gender differences in drinking habits and to compare them over countries and drinking cultures.

- Clear gender ratios exist for all drinking measures (except wine drinking) and ratios were larger the more extreme the behaviour (e.g., heavy episodic drinking, abstinence).
- Country and regional differences were less clear: no country represented an “ideal type” of drinking culture. Nonetheless, in general there was more daily light drinking integrated into everyday life in the Mediterranean countries and more heavy episodic drinking connected with weekends and celebrations in the North.
- Gender differences for engagement with alcohol and frequency of drinking were smaller in the Nordic countries.
- Gender ratios did not seem to change systematically with age, except that there was less difference between young men and women than between older men and women with regard to heavy episodic drinking.

Drinking contexts

The aim of this chapter was to compare the prevalence of different drinking contexts and to compare gender differences in the drinking contexts in selected European countries. The research questions to be answered were: (1) Is drinking most integrated into social activities in Southern European countries, less integrated in Central European countries and least integrated in the Nordic countries? (2) Is the pattern of integration similar for both genders, independent of the level of the drinking frequency in that country? (3) Is age associated with drinking contexts in a similar way in all study countries?

- In general, in Southern Europe drinking was found to be integrated into many social activities. In Central European countries the degree of integration of drinking was lower, but higher than in the Nordic countries.
- In most study countries, the pattern of integration was similar for both genders. However, in the Czech Republic and in Hungary, workmates were more often favoured by men as a drinking companion than was the spouse. In these countries, drinking seems to be more related to men's social life rather than domestic life, as in the other study countries.
- In all study countries, age was partly related to drinking contexts in a similar way. The youngest age group did not report drinking at a meal and at home as often as the older groups, but they drank more often at parties, bars and with their friends. As age increased the importance of the spouse as a drinking companion increased.
- The degree of gender similarity in drinking patterns varied between study countries. The gender ratios in drinking context variables were very low in Iceland, Norway, and Sweden. They were of medium size in Finland, Germany, the Netherlands, and the United Kingdom, and highest in the Czech Republic and Hungary.

Alcohol-related problems – a validity test of the AUDIT in European countries

The purpose of this chapter was to examine the AUDIT (Alcohol Use Disorders Identification Test) with respect to the following questions: (1) what differences are there between countries on the items constituting the AUDIT and which gender differences are there within countries on these items?, (2) Do countries differ in the extent to which the set of items constitute a (statistically) reliable scale?, and

(3) Do countries differ in how the drinking indicators used in the AUDIT contribute to the reliability of the AUDIT?

- On the item level there are large differences between countries in how many suffer from the consequences measured by the AUDIT.
- In all countries a higher proportion of men report problems than women.
- There was variation in gender ratios among the individual items of the AUDIT with behavioural items having larger ratios than more “internally subjective” items.
- The variation over countries in pattern of responses to the items indicates that a relatively small set of problems included in the AUDIT is responsive to national differences in problem drinking.
- The gender sensitivity of the AUDIT should be examined further in future research.

Alcohol-related aggression

The aim of this chapter was to assess the relationship between alcohol consumption, gender and aggression across different countries. It was hypothesised that (1) heavy drinkers will be more likely than lighter drinkers to report alcohol-related aggression among both men and women, and (2) men will be more likely to engage in alcohol-related aggression than women.

Partner aggression:

- Alcohol consumption is related to partner aggression, with current drinkers more likely to report aggression than abstainers and heavy drinkers more likely to report partner aggression than non-heavy drinkers.
- Heavy drinkers are more likely to report aggression and getting into fights, among both men and women and across all countries.
- Partners of heavy drinkers are also more likely to report aggression.
- Aggression appears to be related to younger age.

General violence:

- The proportion of those becoming more aggressive when drinking is much higher for heavy drinkers than non-heavy drinkers, among both men and women and across countries.
- In general more men than women were likely to report aggressive behaviour
- The prevalence of getting into a fight when drinking was much higher for heavy drinkers than non-heavy drinkers.
- There is also a large and consistent effect within countries for men to get into a fight when drinking more often than women.
- No pattern of alcohol-related violence could be discerned among the study countries. This is most likely because the number of countries involved is small and because the measurement instrument varied across study countries.
- It is important to remember that these associations are correlational and do not prove a causative role of alcohol in aggression.

Social inequalities in drinking behaviour

The purpose of this chapter was to determine whether social inequalities exist in alcohol use and abuse among men and women in the study countries, and if there are differences in these inequalities between the genders and across countries.

- In general the same patterning of inequalities exists for drinking status among both men and women within a given country.
- For heavy drinking, the genders diverge and in several countries higher educated women are those most likely to drink heavily, while among men there are several countries in which the lower educated are more at risk.
- For heavy episodic drinking, no real social differences were evident among women in the study countries, but in several countries a social gradient was observable with lower educated men more at risk for heavy episodic drinking than higher educated men.
- This same patterning was also found for reported alcohol-related problems for five of the study countries.

Social roles and social stratification

The purpose of this chapter was to investigate the following questions in relation to the prevalence of various measures of drinking behaviour: (1) Is social stratification more important for men, whereas family roles are more important for women?, (2) Does the same multiple role hypothesis apply for men and women?, (3) Are there country differences with regard to the impact of social stratification and multiple roles on alcohol consumption?, (4) Can these differences be explained by structural variables at the aggregate level, such as gender equity?

- Social stratification is not the sole determinant of drinking behaviour among men, and family roles are not only important for women, but also for men.
- No single role theory was consistently supported across all countries or within a country for both genders.
- As compared to men, women of higher education seem to be more at risk to drink heavily and employed women are more at risk for heavy episodic drinking. However, these tendencies were less apparent in the Nordic countries.
- It appears that in almost all countries, women without children were relatively more vulnerable for heavy drinking and heavy episodic drinking compared to men.
- Differences between countries appear to be explained partly by macro-level factors such as how well developed the social welfare system of a country is and how much gender equity exists in a country.

Societal-level factors

This chapter examined the similarities and differences in men's and women's rates of alcohol consumption and problems, and their association with other societal-level characteristics of 29 countries.

- In all countries the prevalence of drinking was higher for men than for women.
- Among current drinkers men had higher rates than women of weekly drinking, of heavy episodic drinking and of consuming high volume of alcohol per year.
- The prevalence of current drinking was strongly correlated with economic development: the higher the per capita income and its correlates (urbanisation, divorce rates, low fertility), the higher the rate of current drinking for both men and women. This, however, did not hold for indicators of intensity of drinking.
- Men's liver cirrhosis mortality was negatively associated with indicators of modernisation and economic development. This was not the case for women's cirrhosis. Death rates from vehicle crashes were negatively correlated with modernisation, and this was stronger for men than women.
- The more modernized a country, the lower the difference in current drinking rates between men and women. This, however, did not hold for measures of intensity of drinking.
- Likewise, the more gender equity in a country, the lower the difference between men and women in current drinking rates and measures of alcohol consequences. Again, this did not hold for measures of intensity of drinking.

4 CONCLUDING REMARKS AND CONSIDERATIONS FOR FUTURE RESEARCH

The results reported in this study confirm the very clear existence of gender differences in drinking behaviour amongst 12 European and two non-European countries. Although this finding is not new, it has become apparent through our research that there are indeed factors which influence the degree and nature of these differences across the various countries. One of the most noticeable factors observed has been that the more gender equality exists in a country, the smaller the gender differences in drinking behaviour. This finding can be seen in particular in the results presented in Chapter 3 (Drinking patterns), Chapter 4 (Drinking contexts in European countries), Chapter 7 (Social inequalities in alcohol consumption and alcohol-related problems), Chapter 8 (How do social roles and social stratification influence women's and men's alcohol consumption?), and Chapter 9 (The influence of societal-level factors on men's and women's alcohol consumption and alcohol problems). In most cases we find that the smallest gender differences in drinking behaviour can be found in the Nordic countries, followed by western and central European countries, in the analyses conducted in this concerted action.

At first glance, this finding may appear banal. But it is a finding which reoccurs throughout the present study with differing analysis techniques and with varying groups of study countries. This, firstly, can confer a measure of validity and credibility; thus it appears to be a valid finding. Secondly, to observe that the "gender gap" in drinking behaviour is related to the gender equality of a society is interesting in so far that one may then begin to hypothesise or look for confirmation of similarities in other social and health behaviours (e.g., nutrition, smoking, other life style factors). It would indeed be interesting to know which behaviours are influenced by or correlated with gender equality and which are not (and ultimately why not). Finally, our results do not tell us in any detail how gender differences in drinking behaviour decrease. Is it because women are drinking more in the countries where the differences are smaller, or alternatively, are the differences smaller because men happen to be drinking less or

experiencing fewer problems? This is indeed an important question that has implications for future alcohol and public health policy in that it is crucial to know who may be drinking more or less when gender differences converge. We hope our study provides an interesting and provocative point of departure for European alcohol researchers, as well as alcohol researchers in general, from which to conduct future studies that can take these considerations into account.

5 A NOTE ON AUTHORSHIP

The first author of each chapter has been the coordinator (or in the case of Chapters 3 and 7, sub-coordinator) for that particular “work package” that contained the relevant research objective. Additional authors listed in a particular chapter represent other colleagues at the coordinator’s institute, other consortium colleagues or colleagues of the broader GENACIS project who contributed substantially to the chapter report.

All partners of this concerted action, however, have been involved in the preparation of this report. At various stages of the project, they have given crucial feedback and additional information for the accurate interpretation of the data and analyses pertaining to their countries.

6 ACKNOWLEDGEMENT

Many thanks to Prof. Dr. Sharon Wilsnack who contributed to and reviewed this text.

7 REFERENCES

- Abel, E.L., & Kruger, M. (2002). Physician attitudes concerning legal coercion of pregnant alcohol and drug abusers. *American Journal of Obstetrics and Gynecology*, 186, 768-772.
- Ahlström, S., Bloomfield, K., & Knibbe, R. (2001). Gender differences in drinking patterns in nine European countries: Descriptive findings. *Substance Abuse*, 22, 69-85.
- Allamani, A., Voller, F., Kubicka, L., & Bloomfield, K. (2000). Drinking cultures and the position of women in nine European countries. *Substance Abuse*, 21, 231-247.
- Almeido-Filho, N., Lessa, I., Magalhaes, L., Araujo, M.J., Aquino, E.A., Kawachi, I., & James, S.A. (2004). [Alcohol drinking patterns by gender, ethnicity, and social class in Bahia, Brazil]. *Revista de Saude Publica*, 38, 45-54.
- Bloomfield, K., Gmel, G., Neve, R., & Mustonen, H. (2001). Investigating gender convergence in alcohol consumption in Finland, Germany, the Netherlands and Switzerland: A repeated survey analysis. *Substance Abuse*, 22, 39-53.
- Blume, S.B. (1997). Women and alcohol: Issues in social policy. In R.W. Wilsnack & S.C. Wilsnack (Eds.), *Gender and alcohol: Individual and social perspectives* (pp. 462-489). New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- Brienza, R.S., & Stein, M.D. (2002). Alcohol use disorders in primary care: Do gender-specific differences exist? *Journal of General Internal Medicine*, 17, 387-397.

- Campbell, H. (2000). The glass phallus: Pub(lic) masculinity and drinking in rural New Zealand. *Rural Sociology*, 65, 562-587.
- Cipriani, F., Landucci, S. & Bloomfield, K. (2001). „Alcohol-related mortality in Europe: A tentative analysis from the EU Project “Alcohol consumption and alcohol problems among women in European countries”. *Substance Abuse*. 22: 55-67.
- DeVile, K.A., & Kopelman, L.M. (1998). Moral and social issues regarding women who use and abuse drugs. *Obstetrics and Gynecology Clinics of North America*, 25, 237.
- Driessen, H. (1992). Drinking on masculinity: Alcohol and gender in Andalusia. In D. Gefou-Madianou (Ed.), *Alcohol, gender and culture* (pp. 71-79). New York: Routledge.
- Fillmore, K.M., Hartka, E., Johnstone, B.M., Leino, E.V., Motoyoshi, M., & Temple, M.T. (1991). A meta-analysis of life course variation in drinking. *British Journal of Addiction*, 86, 1221-1268.
- Gefou-Madianou, D. (1992b). Alcohol commensality, identity transformations and transcendence. In D. Gefou-Madianou (Ed.), *Alcohol, gender and culture* (pp. 1-34). New York: Routledge.
- Gmel, G., Bloomfield, K., Ahlström, S., Choquet, M., & Lecomte, T. (2000). Women's roles and women's drinking: A comparative study in four European countries. *Substance Abuse*, 21, 249-264.
- Graham, K., & Wells, S. (2003). “Somebody's gonna get their head kicked in tonight!”: Aggression among young males in bars --- a question of values? *British Journal of Criminology*, 43, 546-566.
- Greenfield, T.K., & Rogers, J.D. (1999a). Alcoholic beverage choice, risk perception, and self-reported drunk driving: Effects of measurement on risk analysis. *Addiction*, 94, 1735-1743.
- Hao, W., Su, Z.H., Liu, B.L., Zhang, K., Yang, H.Q., Chen, S.Z., Biao, M.Z., & Cui, C. (2004). Drinking and drinking patterns and health status in the general population of five areas of China. *Alcohol and Alcoholism*, 39, 43-52.
- Jhingan, H.P., Shyangwa, P., Sharma, A., Prasad, K.M.R., & Khandelwal, S.K. (2003). Prevalence of alcohol dependence in a town in Nepal as assessed by the CAGE questionnaire. *Addiction*, 98, 339-343.
- Kebede, D., & Alem, A. (1999). The epidemiology of alcohol dependence and problem drinking in Addis Ababa, Ethiopia. *Acta Psychiatrica Scandinavica*, 100 Suppl. 397, 30-34.
- Knibbe, R.A., & Bloomfield, K. (2001). Alcohol consumption estimates in surveys in Europe: Comparability and sensitivity for gender differences. *Substance Abuse*, 22, 23-38.
- Martin, A.L. (2001). *Alcohol, sex, and gender in late Medieval and early Modern Europe*. New York: Palgrave MacMillan.
- McDonald, M. (Ed.). (1994). *Gender, drink and drugs*. Providence, RI: Berg.
- McKee, M., Pomerleau, J., Robertson, A., Pudule I., Grinberga, D., Kadziauskiene, K., Abaravicius, A., & Vaask, S. (2000). Alcohol consumption in the Baltic Republics. *Journal of Epidemiology and Community Health*, 54, 361-366.
- McLaughlin, P.M. (1991). Inebriate reformatories in Scotland: An institutional history. In Barrows, S. & Room, R. (Eds.), *Drinking: Behavior and belief in modern history* (pp. 287-314). Berkeley: University of California Press.
- Murdock, C.G. (2002). *Domesticating drink: Women, men and alcohol in America, 1870-1940*. Baltimore, MD: Johns Hopkins University Press.
- Nicolaides, B.M. (1996). The state's “sharp line between the sexes”: Women, alcohol and the law in the United States, 1850-1980. *Addiction*, 91, 1211-1229.

- Perdrix, J., Bovet, P., Larue, D., Yersin, B., Burnand, B., & Paccaud, F. (1999). Patterns of alcohol consumption in the Seychelles Islands (Indian Ocean). *Alcohol and Alcoholism*, 34, 773-785.
- Plant, M.L., Miller, P., Thornton, C., Plant, M.A., & Bloomfield, K. (2000). Life stage, alcohol consumption patterns, alcohol-related consequences, and gender. *Substance Abuse*, 21, 265-282.
- Rijken, T., Velema, J. P., & Dijkstra, R. (1998). Alcohol consumption in the rural population of Misungwi subdistrict in Mwanza Region, Tanzania. *Journal of Studies on Alcohol*, 59, 146-151.
- Roberts B. (2004). Drinking like a man: The paradox of excessive drinking for 17th-century Dutch youths. *Journal of Family History*, 29, 237-252.
- Sieri, S., Agudo, A., Kesse, E., Klipstein-Grobusch, K., San Jose, B., Welch, A. A., & Krogh, V. (2002). Patterns of alcohol consumption in ten European countries participating in the European Prospective Investigation into Cancer and Nutrition (EPIC) Project. *Public Health Nutrition*, 5 (Special Issue), 1287-1296.
- Svikis, D.S., & Reid-Quinones, K. (2003). Screening and prevention of alcohol and drug use disorders in women. *Obstetrics and Gynecology Clinics of North America*, 30, 447-468.
- Tomsen, S. (1997). A top night: Social protest, masculinity, and the culture of drinking violence. *British Journal of Criminology*, 37, 90-102.
- Weisner, C., & Matzger, H. (2003). Missed opportunities in addressing drinking behavior in medical and mental health services. *Alcoholism: Clinical and Experimental Research*, 27, 1132-1141.
- Willis, J. (1999). Enkurma sikitoi: Commoditization, drink, and power among the Maasai. *International Journal of African Historical Studies*, 32, 339-358.
- Wilsnack R.W. & Wilsnack, S.C. (Eds.) (1997). *Gender and alcohol: Individual and social perspectives*. New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- Wilsnack, R.W., Vogeltanz, N.D., Wilsnack, S.C., Harris, T.R., et al. (2000). Gender differences in alcohol consumption and adverse drinking consequences: Cross-cultural patterns. *Addiction*, 95, 251-265.
- Yamamoto, J., Silva, J.A., Sasao, T., Wang, C., & Nguyen, L. (1993). Alcoholism in Peru. *American Journal of Psychiatry*, 150, 1059-1062.

Chapter 1

Data Centralization

Gerhard Gmel, Sandra Kuntsche, Hervé Kuendig, Ulrike Grittner, Jürgen Eckloff & Kim Bloomfield

1 INTRODUCTION

The Data Editing Research Project (see Bethlehem, 1997) came to the conclusion that survey processing should follow the principles of the Business Process Redesign (BPR, see Hammer & Champy, 1993), hence it needs an organization which aims at satisfying one or more of the following conditions:

Concentration: All data processing activities with respect to a survey should be concentrated as much as possible in one department.

Standardization of hardware: All data processing activities should be carried out as much as possible on the same type of computer platform.

Standardization of software: All data processing activities should be carried out with standard software instead of tailor-made software.

Integration: All software required for data processing must be part of an integrated system using machine readable metadata information containing all required information about the survey. This metadata definition must be used by all systems and departments as the main source of information about the survey.

The idea of data centralization and data management in the present project (The EU-concerted action “Gender, Culture and Alcohol Problems”) comes close to fulfilling these criteria. Though surveys were conducted in each country, at least beginning with the creation of a pooled databank, the above-mentioned criteria were largely applied. Data were processed in one department, using the same computer platform and standard software for processing the data. Also, a common set of metadata definitions was developed. Metadata are “data about data” (van der Berg, de Feber & de Graaf, 1992) and contain information required for collecting, processing and publishing survey data. We follow Bethlehem (1997) that this should contain:

- a) *Definitions of survey variables:* Each variable must have an identifying name with a domain of valid values.

- b) *Data model*: This describes the relationships between variables in terms of groups, e.g. multiple response formats or item batteries for scales, but also nested variable sets (e.g. sets of variables for drinkers only).
- c) *Route instructions*: Route instructions define the order in which and the conditions under which questions were asked (e.g. skips).
- d) *Relationships*: Whenever relationships impose restrictions on the values of a variable (e.g., drinking of spouses was only available for individuals living in a steady partnership) these restrictions must be specified to carry out inconsistency checks.
- e) *Computations*: Often survey variables are not the direct response to a question, but are derived as a new variable by means of arithmetic expressions (e.g. construction of volume of drinking from drinking frequencies and quantities).
- f) *Links to other files*: Originally this point refers to longitudinal data sets, i.e. it must be assured that panel data can be combined. In the context of the present study this relates to the merging of different country datasets or the merging of special workdecks with other workdecks (for the meaning of workdecks see below).
- g) *Other*: Relationship to variables across surveys, information about the sampling design, etc.

As outlined by Bethlehem (1997) the data model is the backbone to many problems related to complex surveys, because it is hard to keep track of the overall structure of all variables, potential skips and nested data. She recommends grouping of data and metadata in a modular way, allowing concentration on a limited group of variables at the time and to see at a glance their relevant structural relationships. This concept was used in the data centralization process by constructing different subgroups of variables, thematically related – so-called workdecks.

The data centralization of the present study was conducted in four major steps that comprised all the 7 points mentioned by Bethlehem (1997) above. The first step consisted of identifying variables that were comparable across datasets. This phase is described in more detail in the subsection “**Coding**” and ended by attributing unique variable names to the survey variables used in the study by also reflecting item batteries for scales and multiple response questions, and the creation of a codebook (see the “definition of survey variables”, “computations” and parts of the “data model” in the terminology of Bethlehem (1997)).

In the second phase, data sets were edited to reduce inconsistencies, including the follow-up of skip (or route) instructions or restrictions on values (see “data model”, “route instructions” and “relationships” in the terminology of Bethlehem (1997)). This step is described in more detail under “**Data Editing**”.

The third step consisted of creating new variables (see “computing” in the terminology of Bethlehem (1997)). The measurement of alcohol consumption requires the combining of different variables, e.g. the multiplication of annual frequencies and usual quantities to yield a volume measure. A nomenclature was developed also to construct unique variable names for these newly created variables, and thus repeated the “Coding” step for this set of variables.

Both the creation of variables and their coding is described under “**Construction of drinking indicators**”. This step concluded developing “**Recommendations for the use of drinking indicators within and across countries**” (see appendix A1).

Finally, “**Links to other files**” (Bethlehem, 1997) were provided. This included 1) the creation of workdecks across countries, and the development of a data model that allowed the linking of

workdecks. Workdecks are subgroups of variables which are thematically interrelated (e.g. variables for drinking indicators, sociodemography, or drinking consequences). 2) Additional information was collected about the different surveys and archived, mainly the collection of questionnaires in original language and their translations, and the description of the sampling design and the use of corresponding weighting variables to account for the sampling design.

2 CODING

In general, coding is understood as the process whereby raw survey data, usually responses to open-ended questions, are classified and transformed into a form that can be used for final estimation and tabulating of data. In the present project, coding is more understood as the process to provide variable names across different surveys with partly different questionnaires, which could be used by other researchers to run their analysis in a decentralized way. Thus, the task was to develop a *Nomenclature* of variable names that makes it easy for other researchers to a) find similar items across surveys, and b) to directly identify differences in items and questions which were intended to measure the same construct.

To understand the rationale behind the coding procedure it is important to know that not all countries used the GENACIS core instrument, but some countries provided survey data on alcohol consumption whereby country-specific questionnaires were used. However, many of the surveys' questions were related or comparable to questions asked in the core instrument, but these questions were not exactly the same. Deviations from the core instrument were, for example, related to different wording of the question or different response formats (see examples below).

2.1 Nomenclature for survey variable names

This section describes the coding of variable names. In principle, four major types of variables were dealt with: a) core variables that use the exact core question with same question wording and response formats, b) comparable variables but with different question wording and/or different response formats, c) variables that had to be constructed from different questions to become comparable to the core instrument, and d) additional items not related to the core instrument.

Only three of them can be found in the codebook (see current version of the codebook under www.genacis.org), the fourth type describes variables that are not related to the core questionnaire, but had some relevance as regards the association with alcohol consumption. These variables can be found on www.genacis.org and are called "additional variables". Their variable names begin all with "add" for "additional".

We will focus on the first three types. A more detailed explanation is given in appendix A2. The three major types all have a common structure. This structure consists of a variable name with 7 characters

- a) Mandatory:** the "root" of each variable label = 4 characters (position 1-4 of variable label)
[EXAMPLE: SEDU]

b) Optional: some variables consist of sub-questions or multiple response questions. For each sub-question or multiple answer category 1 additional character (a to z) is reserved for the variable label (position 5 of variable label) [EXAMPLE: NMLCA, NMLCB, etc.]

c) Optional: some variables differ from the core and therefore received a country-specific code (position 6 and 7 of the variable label) [EXAMPLE: SEDU_15]

The root: The root consisting of four letters was given to each question in the core questionnaire. It includes two different parts:

1. The first character signifies the variable group (for example: S for sociodemographic variables):

S	Sociodemographic
W	Work experiences
N	Social networks
D	Drinking variables
F	Familial and other drinking contexts
C	Drinking consequences
I	Intimate relations
V	Violence
H	Health and lifestyle

2. The other three characters signify the unique part of the label of each variable in the corresponding group (for example: edu for education).

Each question in the core questionnaire is labeled accordingly, and the label can be found in the right upper corner of the question boxes for the core instrument (appendix A3).

For example:

Question 3 of the expanded core questionnaire asks about the formal education of respondents and is part of the variable group: (Socio) Demographics – first letter of the variable code: **S**. The variable's specific code (three letters) is **EDU**, and thus the root for variable name (corresponding to the variable name of a core instrument question is **SEDU**. In the codebook the variable would be described as follows, with the variable name in the right upper corner:

3.	What is the highest grade or year of school you have completed?	SEDU
	No formal schooling	1
	8th grade or less	2
	Some high school	3
	High school diploma or G.E.D	4
	Some college or 2 year degree	5
	Bachelor's degree	6
	Graduate or professional school	7

2.2 Sub-questions or multiple response questions

Some variables represent a sub-question or multiple response questions, for example, the question 28 of the expanded core questionnaire reads:

28. How many times during the last 30 days have you had informal and supportive contacts with the following persons, including letters, phone calls, or e-mails?	NLMC				
	Daily or almost every day	Several times a week	Once or twice a week	One to three times in the last 30 days	Not at all during the last 30 days
a. Your spouse/ partner/romantic (non-cohabiting) partner	5	4	3	2	1
b. Your child/children	5	4	3	2	1
c. Other female members of the family	5	4	3	2	1
d. Other male members of the family	5	4	3	2	1
e. Someone at work	5	4	3	2	1
f. Female friend(s) or acquaintance(s)	5	4	3	2	1
g. Male friend(s) or acquaintance(s)	5	4	3	2	1
h. A doctor or a health worker	5	4	3	2	1
i. Others	5	4	3	2	1

There are 9 different sub-question (a to i) which have all the same character to signify the variable group (N = Social Networks) and the same three characters to specify the variable in question 28 (LMC for letter, mails, calls). To enable the reader to discriminate the 9 different sub-questions a 5th letter has to be used.

This letter is numbered accordingly to the sub-questions a to i in the core instrument. The variable name for sub-question a (Your spouse/ partner/ romantic (non-cohabiting) partner) is then NLMCA, sub question b is named NLMCB and so on. The same applies to multiple response questions (see appendix A2).

For all variables that were asked in the same way as the core (with same wording and response formats) the variable name uses 5 characters only.

For most variables, however, not all countries used the core instrument. A typical example is education. Almost no country collects data on education in the same way, also related to different educational systems. Most countries, however, had a comparable question. To mark in the variable name already that there are differences to the core, a country identifier was added as 6th and 7th character of the variable name. For example the core question reads:

3.	What is the highest grade or year of school you have completed?	SEDU
	No formal schooling	1
	8th grade or less	2
	Some high school	3
	High school diploma or G.E.D	4
	Some college or 2 year degree	5
	Bachelor's degree	6
	Graduate or professional school	7

In e.g. Hungary, however, a slightly different version was used:

- What is the highest grade of school you have completed?

less than 8 th grade	1
8 th grade	2
worker training school	3
secondary school final examination	4
bachelor's degree	5
master's degree	6
no response	99

Decision for the codebook: In Hungary the question is almost the same, although answer categories are different, but in general the question is comparable. The Hungarian question was assigned the same root of the core (i.e. SEDU). The underline character () is the “wild card” for sub-questions or multiple response questions, which was not needed for the question on education. The variable label required, however, a country code (here 15 for Hungary), because the variable does not perfectly match the core questionnaire. Therefore the Hungarian variable on education was labeled SEDU_15.

Each country has a unique country code. These codes can be found in the Codebook and are as follows:

PARTICIPATING COUNTRIES:	COUNTRY CODE
Switzerland	01
Germany	02
Italy	03
France	04
UK	06
Israel	07
Mexico	08
Sweden	09
Finland	10
Norway	11
The Netherlands	12
Austria	13
Czech Republic	14
Hungary	15
Brazil	17

Remarks Only countries of the EU-study listed; country codes are therefore not consecutively numbered because of countries being part of the wider GENACIS study but not listed here

Of course, for item batteries with sub-questions or for multiple response questions the 5th position has not an underline character as in the Hungarian example of education, but letters A; B; C; etc.

To give an example, the core questionnaire (question 42; see appendix A3) asks about harmful effects in 7 different areas (sub-questions a to g). The variable names of the core questions would be CHEFA-CHEFF. The core questions reads as follows:

42.	During the last 12 months, has YOUR drinking had a harmful effect	CHEF
a. on your work, studies or employment opportunities?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
b. on your housework or chores around the house?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
c. on your marriage/intimate relationships?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
d. on your relationships with other family members, including your children?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
e. on your friendships or social life?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
f. on your physical health?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
g. on your finances?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3

In the Finnish questionnaire, for example, no corresponding items could be identified for the first 5 core questions (CHEFA-CHEFE), but there were two questions on physical health and financial problems asked as follows:

- Have you, during the last 12 months, had health troubles which you believe to have been caused by your use of alcohol?

yes	1
no	2
- How often during the last 12 months has it occurred that due to your drinking you have had trouble with your finances?

never	1
1-2 times	2
3 times or more	3

Thus, the Finnish data set had two questions on harmful effects that asked questions on consequences related to the core, but with slightly different wording or different response formats. Therefore, the first question described above received additionally to the root name CHEFF a country specific numeric code (09 for Finland: CHEFF09) to signify the differences compared to the GENACIS core questionnaire. The same was done to the second variable.

In some cases, even new variables had to be constructed by means of other variables. For this third type of variables the same labeling system of 7 characters was used. The additional questions used to

construct this variable are shown in the country specific appendices (fourth type of questions, for an explanation see appendix A2).

To give an example, the core question CINJ (question 45 of the GENACIS core; C for part of the **C**onsequences section and INJ as specific code for the question about **I**nJuries) asked “Have you or someone else been injured as a result of your drinking” with response formats “Yes, during the last year”, “Yes, but not in the last year”, and “Never”. The US National 9 survey has two sets of questions that permitted the construction of a similar variable. The first set asked for answers on two statements:

- a) “My drinking contributed to getting involved in an accident in which someone was hurt or property, such as a car, was damaged”, and
- b) “My drinking contributed to getting hurt in an accident in a car or elsewhere”.

For both questions an additional probe asked “Was that during the past 12 months”?

A second set of items asked “In the last 12 month did you have an injury for which you thought about getting treatment, whether or not you actually did get treatment”, with the probe “in the 6 hours before the most recent injury, did you drink any alcoholic beverages – even one drink?”

Decision for the codebook: It was decided to base a comparable measure on the first set of items, because the second was too restrictive as regards a) only the most recent injury, and b) the association with potential treatment. For the first set all four variables (two questions and the two past 12 months probes) were combined into a single variable with the same answer categories as for the core. Both questions were used because the first referred to someone else being hurt, and the second to the drinker being hurt.

Comparable to the Finnish example above, the variable name in the US case was constructed that describes a) the relation to the core instrument (C for part of the consequences section and INJ as specific code for the question about injuries) and b) its deviation from the core instrument (by adding a unique country code (26 for USA). Thus, the variable label became CINJ_26. The corresponding response codes were shown in the codebook, and the original variables to construct this single variable are shown in the country-specific appendix.

With the US an example of a country outside the EU-project (but inside the wider GENACIS project) was used, because examples from EU-countries for this type of variables were too complicated to be described here (but see codebook and country appendices at www.genacis.org). For example, in Switzerland, 8 questions were used to measure the current educational status, and an indicator comparable to the core was constructed by means of these 8 questions.

2.3 Identification of survey variables

The identification of variables and the coding of variable names were performed in four steps, first research assistants of the data centralization team were assigned to questionnaires of countries and followed the coding rules (see appendix A2 for a description of the coding system for variables, and appendix A3 for the corresponding codebook for the core instrument). In a second step the leader of data centralization independently controlled the coding rules and the questionnaires for each country to avoid differences in understanding of rules between research assistants. Thus, the process of selection of variables started from the questions in the core instrument and attempted to identify corresponding variables in the country-specific datasets. However, whenever variables were identified that were relevant to the study of alcohol consumption and harm (e.g. “have you discussed your

alcohol problems with a religious leader”), but were not part of the core instrument, these variables were also captured and archived in a country-specific appendix.

In a third step an administrative project assistant created the corresponding codebooks and the country-specific appendices. This can be seen as a second control check, because the same administrative project assistant performed the creation of all codebooks for all countries and thus very quickly became familiar with the concepts and differences in wording of items. As the fourth step, all country-specific codebooks were combined into a project codebook and country-specific appendices were stored into a joint document (see www.genacis.org). This codebook again follows the core instrument. For each core question the original question with corresponding variable name and coding of corresponding response formats were listed. This final step, however, was done after the data were edited accordingly.

3 DATA EDITING

Following the Federal Committee on Statistical Methodology (1990) we understand editing as *“Procedures designed and used for detecting erroneous and/or questionable survey data (survey response data or identification type data) with the goal of correcting (manually and/or via electronic means) as much erroneous data (not necessarily all of the questioned data) as possible, usually prior to data imputation and summary procedures”* (Quoted from Lyberg & Kasprzyk, 1997, p. 355).

Data editing aimed at ensuring validity and consistency of individual data records, guaranteeing consistent cross-tabulations at all levels of detail, is referred to as **micro-editing**. By contrast, approaches which ensure the reasonableness of data aggregates are called macro-editing or aggregate editing (Granquist & Kovar, 1997). **Macro-editing**, i.e. editing of aggregated data of suspicious subsets (e.g., related to regions or interviewers) commonly requires sophisticated background knowledge of the situation in the corresponding countries or the data collection processes, and was thus not part of the work of the data centralization group. However, aggregates of edited data were sent to the survey leaders for a validity control in these countries.

Commonly, a first step of micro-editing is a clerk’s review of a sample of questionnaires to check the quality of the data to provide feedback on omissions, errors or misunderstood instructions. At the second step, a review of selected key items for legibility and consistency on all questionnaires has to be undertaken (Lyberg & Kasprzyk, 1997). These two first phases should also include reconciliation procedures involving respondent contacts to decide about whether data should be corrected or not. Those procedures were not part of the data centralization process and had to be done by the survey leaders in the respective countries. The data editing procedures described here were related to datasets that were pre-processed by the survey leaders and used computer based checks to identify suspicious and inconsistent data and invalid or missing entries, and thus was predominantly located at the third step of the micro-editing approach described by Lyberg & Kasprzyk (1997).

Editing always creates the risk of “overediting”, e.g. distorting true data by fitting them to models of “clean data”. This can happen with editing of inconsistent data.

For example, assume the situation that alcohol-related consequences were asked to current drinkers only. Now, first the variable to define whether someone was a current drinker, a former drinker, or a lifetime abstainer was edited, and later on, as the second step, the variables of consequences of current drinkers, whereby lifetime abstainers or former drinkers should have missing values. Setting

values on consequences of non-current drinkers to missing may be a “correct” edit, e.g. if former drinkers answered the question because they did not understand the skip instruction to mean current drinkers only, but an over edit if a current drinker was falsely edited to be a former drinker during the first step.

To avoid overediting, related data (e.g. drinking indicators and alcohol-related consequences) were cross-checked before edits were undertaken.

In addition, many final survey estimates would not have been different had the editing process been curtailed. Granquist and Kovar (1997) therefore suggest to concentrate resources on areas with high impact is a workable solution. This approach was followed by putting most effort into the data editing of alcohol consumption variables and consequences. Other variables, e.g. drinking contexts were then evaluated with respect to the consumption variables. Remaining inconsistent cases were commonly left unedited.

3.1 Skip instruction checks

In a first step, tests for skip instructions were done to identify whether missing values were really missing or related to skips, e.g. never drinkers should have missing values for all questions related to current alcohol consumption. Missing values were replaced by unique codes such as 9 or 99 (or 0 for e.g. drinking frequency) to facilitate completeness checks. For cases with missing values on e.g. drinking variables were left missing if the variable to identify skips was also missing.

3.2 Completeness checks

A first run of editing tested for completeness of responses. A first definition of drinking status and skip instructions was applied first to distinguish between “good” missings (e.g. to abstainers not getting question on alcohol consumption) and “real” missings (e.g., variables for which valid answers should exist). Across all variables the number of missing responses was calculated, and cases with missing values on 50% of the valid questions were deleted from the data set. Only few countries and less than 1% of the sample size within each country were affected by this step.

3.3 Range of variables checks

All variables were run for range checks which commonly meant a frequency tabulation of values to see whether all codes in the data file for a variable have also a counterpart in the questionnaire provided by each country. Out of range codes were discussed with the corresponding survey leaders. Common findings across many countries were

- a) *Additional codes not mentioned in the questionnaire or in the corresponding country codebook related to coding of unanswered questions (e.g. codes for “don’t know”, “missing”, “active refusal”):* Those were often related to country-specific coding of skips (e.g. inapplicable because of a skip), coding of a “don’t know” category, not mentioned in the questionnaire, or differential coding of “missings” (e.g. unspecified missings and a particular code for active refusals of a particular, often sensitive question).

- b) *Additional codes not related to unanswered questions:* These codes were either real coding errors, or codings that deviated from the questionnaire or the provided codebook. An example would be the coding of 1 to 5 instead of an indicated coding from 0 to 4 in the questionnaire, resulting in an additional code of 5 (and a missing code of 0).
- c) *Lack of response categories that should be in the dataset:* Those were mostly related to receiving wrong or incomplete information from survey leaders. For example, one country sent data which came from another study, another country had already merged categories with only few responses into fewer categories (resulting in lack of codes of the original variable for categories which were combined). More often, however, countries did not send their final questionnaire version but either an intermediate version or simply the core questionnaire without mentioning those items or variables that had actually been rephrased with other answer categories.

Out-of range corrections were only done if there was sufficient information in correspondence with the survey leaders how this had to be changed (e.g., changing codes from 0 to 4 into 1 to 5). Otherwise (e.g. a code of 8 when there should be only codes between 1 and 6) were changed to missing values, if no further specification from survey leaders could be obtained how these codes should be changed.

3.4 Consistency checks

This was the most labor intensive part of the data centralization process. Consistency checks involved mainly variables related to alcohol consumption, which will be described in more detail below, but also involved other variables, e.g. cross-checking whether variables related to partners/spouses were answered only by respondents who indicated having such a personal relationship.

The most important part, however, was the editing of alcohol consumption variables. The first step was to identify drinkers and abstainers and, among the latter, former drinkers and lifetime abstainers, if possible. Inconsistencies occurred e.g. when individuals indicated to be current drinkers, but had no values on alcohol consumption or related consequences, or indicated alcohol consumption or alcohol related consequences, but not to be drinkers.

The basic principle to change values was that at least two independent sources of information (in addition to drinking status) should consistently point to the most likely “true” drinking status. Most surveys had different sets of variables usable to cross-validate drinking status, e.g. drinking frequencies for different recall periods (e.g. 12 months and 30 days), or questions on both alcohol consumption and related consequences. No hard, universal rules could be applied for this data editing process, but some examples may describe the process of decision making (Table 1).

In these examples, a set of potential questions for cross-validation was used, whereby not all, but at least three questions (or blocks of related questions, e.g. frequency and quantity of drinking to measure alcohol consumption) were asked in the survey: A question on current drinking (e.g., Have you consumed alcohol during the past 12 months?), a question on former drinking (e.g., Have you ever consumed alcohol in your life?), questions on alcohol consumption (frequency, quantity) in a) past 12 months and b) past 30 days, questions on alcohol related consequences (intended to current drinkers only).

It should be noted that the examples relate to datasets where inconsistencies occurred and thus skip instructions were not correctly followed by the respondents (postal), the interviewer (face-to-face), or

no CATI system (telephone interviewing) was used, wrongly applied or could not be applied because the skip question was not answered.

In a second step, inconsistencies were corrected as regards the remaining drinking variables, whereby the edited drinking status was used as the main indicator. In the aforementioned examples, only the consumption values (12 month consumption) of the fourth example would have been changed to zero consumption. However, compared with edited datasets, in any analysis stratified by drinking status (e.g. mean volume among drinkers) calculations based on unedited consumption values would not have resulted in different estimates among drinkers (because they occurred among abstainers) and would have led to positive values - and thus inconsistent values - of alcohol consumption among abstainers.

Further data editing, including missing value imputation, was conducted for the drinking variables. This is described in more detail below (see “**Construction of drinking indicators**”).

Table 1. Examples for consistency checks and decisions for changing variable values

Example	Current drinking status (CDS)	Former drinking	Alcohol consumption (30 days)	Alcohol consumption (12 months)	Conseq.	Decision to change (CDS)	Rationale
1	drinker	MV	-	yes	MV	unchanged	No inconsistencies with drinking, but missing consequences
2	abstainer	MV	MV	MV	yes	unchanged	Inconsistency with consequences, but not with drinking, missing data on former drinking, respondent might have attributed consequences to former drinking
3	drinker	-	no	no	no	changed	Coding error for current drinker, might have been a former drinker
4	abstainer	yes	no	yes	no	unchanged	Inconsistencies for 12 month drinking, but not for consumption in past 30 days. Respondent may have stopped consumption past year or misunderstood the reference period; high likelihood of being a non-problematic ex-drinker.
5	MV	yes	-	yes	yes	changed to drinker	No inconsistencies; former drinking question asked because of no skip possible, and thus response is indicative for consuming alcohol
6	abstainer	yes	yes	yes	no	changed to drinker	Inconsistencies with drinking and consequences; but respondent answers all questions on drinking and consequences; high likelihood of miscoding of drinking status
7	drinker	MV	no	no	MV	changed	Inconsistencies, but consistent no alcohol consumption, and no responses to consequences; high likelihood of miscoded drinking status
8	MV	MV	-	no	MV	changed to abstainer	No consumption, and missings on all other variables; high likelihood of being abstainer

- : question not in survey

MV: missing value

no/yes: questions were asked and clear answers as regards either consumption or consequences could be obtained

3.5 Data capture

Data capture is commonly understood as the process in which information recorded from the questionnaire is converted to a format that can be interpreted by the computer. In the present study, surveys were transmitted to data centralization already in a computerized format, and therefore this part of data capture was completed by survey leaders. After identification of variables and coding of names, data capture in the present study meant the assigning of the same numerical values to the same categories. To give a simple example, sex often has codes such as 0 and 1 but also 1 and 2. We therefore recoded all surveys in a way that being female was consistently coded 2 for females and 1 for males. Other examples were the attribution of a consistent value across surveys to missing answers, or the coding of questions like those of the AUDIT. The AUDIT consists of 10 items, which have scores that should range from 0 to 4 to construct a summary scale across the ten AUDIT items ranging from 0 to 40 (Babor *et al.*, 1989) (, 1989). In some countries the ranges for the single items were, however, from e.g. 1 to 5 not in line with the range needed to construct an AUDIT summary score. Such a recoding was only done for items which were directly comparable (see appendix A2 for the meaning of directly comparable) across all surveys, and thus usually involved standardized instruments such as the AUDIT.

The basic principle for data capture was, however, to leave codes for variable categories in their original form, e.g. as delivered by the survey leaders, and to describe the corresponding codes in the codebook (see current version of the codebook under www.genacis.org). This was done to leave the opportunity for other researchers to classify categories according to their analysis needs, e.g. to re-group categories, to merge categories into a single category, or to create extra categories across countries for which the researcher decided that the wording of categories was too vague in one country to be sufficiently matching with similar codes in other countries (see Lyberg & Kasprzyk, 1997).

3.6 Construction of drinking indicators

The construction of drinking indicators followed the **general** rules of coding and data editing. However, it deserved some particular rules and particular data handling, and is thus described here in an extra section.

It is widely accepted that measurement of alcohol consumption needs the consideration of the particular drinking behaviors in each country (Bloomfield *et al.*, 2003, Knibbe & Bloomfield, 2001). Therefore, measurement instruments must and should vary across countries. Thus, in the present study rarely did two countries use exactly the same, unique instrument. But even if similar instruments were used, they deviated in several respects across countries. The following aspects had to be taken into account:

- different general instruments, e.g. Graduated-Frequency (GF) versus Quantity-Frequency (QF) instruments;
- generic (all beverages combined) versus beverage-specific measurements;
- different drink sizes and/or “standard drinks”;

- different recall periods, e.g. consumption “yesterday”, “in the past 7 days”, “in the past 30 days”, or “in the past 12-months”;
- single measurement instruments versus multiple measurements with different instruments, e.g. past 30 days and past 12 months measurement, or measurement with GF and QF;
- different response formats for single items, e.g. open versus closed answer categories for drinking quantities, or different categories for drinking frequencies.

As a consequence, it was no longer desirable to only identify variables “comparable” to the core questionnaire, but to provide researchers with all available instruments that measure alcohol consumption. This was done also to leave the door open for researchers to choose the indicators most suitable for their corresponding research question. The following indicators were constructed:

- drinking status (drinker, former drinker, abstainer)
- Overall frequency of drinking
- Beverage-specific frequencies and quantities
- Volumes of drinking
- Usual quantity of drinking
- Frequency of risky single occasion drinking (RSOD, also called heavy episodic or binge drinking)

3.7 Some general rules

First, one of the major rules was to keep the creation of indicators consistent within each instrument. This meant, for example, that if both frequencies and quantities were measured with different recall periods, e.g. past 30 days and past 12 months, also the corresponding volume measures were constructed as one volume based on past 30 month questions only, and a second volume measure based on questions related to the past 12 months recall. Similarly, GF-type measures were not mixed with QF-type measures. Hence, if different alcohol consumption measurement instruments were available, newly created indicators (e.g. volume based on quantity and frequency questions) were not constructed by mixing questions across different instruments but separate indicators were constructed, whenever possible. To give a counterexample, in France quantities of alcohol consumption were based on the consumption “yesterday” and “last Saturday” but frequencies of drinking were asked with a 12-month recall period, and thus, to yield an estimate of annual volume questions from different instruments had to be combined. For all countries, however, a so called “optimal measure” was constructed additionally to the separate measures, e.g. by replacing missing values on one measure with those of the other. This is described in more detail under the subsection “data editing and coding of alcohol consumption measures”.

Second, it was attempted to make instruments as comparable as possible across countries, by applying the same rules for the coding of drinking status, drinking frequencies, drinking quantities and volumes across different country-specific measurement instruments. For each country the construction of drinking indicators was documented (see appendix A4).

Drinking status: Where possible, abstention was defined as abstention in the past 12 months, and in addition abstainers were differentiated between former drinkers and lifetime abstainers. In a few countries (e.g. Austria), abstention referred to a shorter period (past 3 months) or no distinction between former drinkers and abstainers was possible (e.g. Israel or Austria).

Frequencies of drinking: Because of differences in recall periods, a simple code of e.g. “4 times” had different meanings whether asked in a 7 day measure or a 12 month measure. Thus, as a data harmonization step all frequency measures were projected to “annual frequencies of drinking days”. Therefore, frequencies with a notation of “weekly” were multiplied by 52, and with a notation of “monthly” were multiplied by 12.

When categories used a wider range (e.g. once to three times a month) midpoints were used. The category “every day or nearly every day” was set to 6 times a week. If “every day (or daily, etc.)” was a separate category this was set to 365 days a year. Particular treatment was necessary for “not directly quantifiable” categories such as “less often”, several times per week”, etc. In such a case, the midpoint between adjacent categories was used. To give an example, in Switzerland, “several times a week” was a category between “once a day” and “once or twice a week”. Thus, this category covered the range of three to six times a week with a midpoint of 4.5 times a week. Similarly, the category “less than once a week” was a category between “once a week” and “never” and thus the midpoint between 3 times a month (=36 times a year) and “once a year” was used. Table 2 gives an example of conversion into annual frequencies.

Table 2. Example of response alternatives for drinking frequencies and conversion into numeric values of annual frequencies

Core	Annual frequencies of drinking days	Switzerland	Annual frequencies of drinking days
Every day or nearly every day	$6 \cdot 52 = 312$	Three times a day	365
Three or four times a week	$3.5 \cdot 52 = 182$	Twice a day	365
Once or twice a week	$1.5 \cdot 52 = 78$	Once a day	365
Once to three times a month	$2 \cdot 12 = 24$	Several times a week	$4.5 \cdot 52 = 234$
Seven to eleven times past 12 month	9	Once or twice a week	$1.5 \cdot 52 = 78$
Three to six times past 12 month	4.5	Less than once a week	18.5
Twice past 12 month	2		
Once past 12 month	1		
never past 12 months (additional question distinguishing lifetime abstinence and ex-drinking)	0	Abstainer past 12 months (additional question distinguishing lifetime abstinence and ex-drinking)	0

Quantities of drinking: Differences in measurements of quantities were related to whether the concept of “standard drinks” (e.g. for generic measures where each “drink” is assumed to contain the same amount of pure ethanol) was used or quantities were asked for differing, beverage-specific drink sizes (e.g., a pint of beer, a glass of wine, or directly given in liters e.g. half a liter of cider). To harmonize these different measures, quantities were converted into grams of pure ethanol. In the case of standard drinks, survey leaders were asked to provide the corresponding grams of pure ethanol for a standard drink (commonly 10 or 12 grams). As regards beverage-specific measures survey leaders had to provide a) the drink sizes for different beverages and b) the ethanol content of beverages. To give an example, in Hungary the volume % of ethanol was assumed to correspond to 11.5% for wine,

5% for beer and 40% for spirits. A “drink” of wine was 100ml, 500ml for beer and 50ml for spirits. Thus, with one ml of pure ethanol being 0.793 grams of pure ethanol, a drink of beer contained $0.05 \times 500 \times 0.793 = 19.83$ grams of pure ethanol.

The number of drinks was either asked in an open-ended format or with closed-ended categories. For the latter, the highest quantity category was commonly open to the higher side, e.g. 5 bottles of beer **or more**. To take the “or more” into account, the following algorithm was developed. An additional amount was added to the highest defined amount (in the example 5 bottles of beer). This was defined as the half amount of the difference between the highest defined amount and the midpoint of the adjacent category. To give an example for 5 bottles of beer: if the adjacent category was 3-4 bottles then for the upper category 0.75 bottles were added ($0.5 \times (5 - 3.5) = 0.75$) resulting in 5.75 bottles for the upper category.

Volume of drinking: Volumes of drinking were calculated as the total volume consumed in grams of pure ethanol in the past 12 months and hence projected to an annual volume if based on a shorter recall measure (e.g. a measure based on past 30 days). In the generic QF approach this corresponded to the multiplication of the usual frequency with the usual quantity measured in standard drinks. In beverage-specific approaches, beverage-specific frequencies were multiplied with corresponding quantities and summed across beverages. In some countries, however, quantities were asked for occasions and not for drinking days (see e.g. the example of Switzerland above with twice a day resulting in 730 occasions). For these countries number of occasions and not the number of drinking days were multiplicatively combined with corresponding quantities.

A particular case is volume measures derived from the GF approach. The GF is a self-report method of measuring alcohol consumption that uses a series of questions to probe the frequency of consuming different levels of quantities (Greenfield, 2000). It starts with assessing the maximum quantity consumed (i.e., maximum number of drinks per day) in a given reference period, usually the past 12 months. The follow-up questions ask the number of days on which different mutually exclusive amounts of alcohol have been consumed, beginning with the highest quantity category followed by lower categories (e.g. the number of days in the past year with at least 12 drinks, at least 8 but less than 12 drinks, at least 5 but less than 8, at least 3 but less than 5, at least 1 but less than 3 were consumed). Frequencies were multiplied with the corresponding quantities and summed across all quantity levels. Sometimes, however, the frequencies for the different, though mutually exclusive quantities, summed to more than 365 drinking days, e.g. because of “poor math” of the respondents. For those cases, frequencies were reduced by a constant factor in such a way that their sum was exactly 365. To give an example, if the sum of frequencies across different quantity levels was 400, all frequencies were scaled down by the factor $365/400$.

Usual quantities: Usual quantities theoretically should indicate the amount of alcohol consumed on days when drinking has occurred. In a generic QF measure this corresponds to the quantity question. For beverage-specific QF and GF approaches, however, there is no direct measure of usual quantities; hence they were derived indirectly by dividing the annual volume by the number of drinking days. For the beverage-specific QF, the maximum frequency of a generic frequency question and the beverage-specific frequencies were used (in some countries without the generic frequency question, only the maximum of beverage-specific questions was used). This was necessary because a) the highest beverage-specific frequency may not reflect the overall frequency of drinking, since individuals, for example, may drink only beer some days, while only wine on other days. The sum of

beverage-specific frequencies would however overestimate the overall drinking frequency for individuals who drink more than one type of beverage on the same day, and b), the generic frequency alone was not used because in some countries certain individuals reported a higher beverage-specific frequency (e.g. for wine) than a generic frequency (= frequency for all beverages combined), for example, because they may forget their glass of wine with meals with a generic question, or do not consider some alcoholic beverages as being alcohol (e.g., low volume beers).

For the *GF*, frequencies were summed across graduated quantities. As noted earlier, summing drinking frequencies across different quantity levels may result in more than 365 drinking days a year for the *GF* measure. There is no clear suggestion in the literature how to deal with this obvious over reporting. In the present study, for drinkers with annual frequencies above 365 drinking days all frequencies at different quantity levels were “adjusted” by the same factor.

Appendix A1 details, which variables of volumes and frequencies should be used to derive an estimate of a “usual quantity on days when drinking” for each country.

Frequency of risky single occasion drinking. Questions to create this variable were based on either a single item asking for the frequency of drinking a certain amount (e.g. 5 or more drinks, 8 or more drinks, etc.), or, in the *GF* approach, on the adjusted sum of frequencies for quantity levels exceeding 4 drinks.

3.8 Data editing and coding of alcohol consumption measures

Data editing: Alcohol consumption measures were edited for those individuals identified as current drinkers. Editing of alcohol consumption measures is of particular importance because several variables (e.g. beverage-specific frequencies and quantities) have to be combined to construct more complex indicators, as e.g. annual volume based on beverage-specific questions. Standard statistical software, however, renders summary measures as missing if only one of the components is missing. This can lead to high percentage of overall missing values (see e.g. Gmel, 2001). In most cases the loss of respondents as missings due to missing values on one of the components is counterproductive and unnecessary. To give a hypothetical example of a consumer who usually drinks beer and wine and provides all the necessary information (quantities, frequencies) for these beverages. Sometimes, however, this consumer also has a sip of cider, but was unable to indicate the “usual amount” of cider as an annual average. These rare sips over the year would have only marginally changed the overall volume of ethanol intake of this respondent, but as a result of combining measures across beverages in standard software calculations the consumption of this individual would have been missing because of a missing value for cider consumption. As shown by Gmel (2001) respondents usually have more difficulties in indicating a usual quantity than the corresponding frequency. In addition, differences in volumes are commonly more strongly related to drinking frequencies than to quantities (Gmel & Rehm, in press). Frequencies also are more variable than quantities in a sample. Thus, more errors can occur by imputing a frequency than a quantity. In addition, a missing value can simply mean that the corresponding beverage was not consumed, e.g. a frequency of 0 and a missing value on the corresponding quantity.

To avoid unnecessary missing values the following strategy was adopted.

- Missing values were imputed only for quantities, and only when the corresponding frequencies were indicated. The imputed value was the median quantity of valid values of respondents with the same drinking frequency. Commonly this was the lowest possible quantity that respondents could indicate. To give an example, a respondent indicates drinking 78 days a year beer, but did not respond to the quantity question for beer. In this case the median quantity of all beer drinkers with 78 beer drinking days **and** valid answers on the quantity question for beer was imputed.
- For missing frequencies the corresponding quantities were set to missing. This has no effect on volume measures because the product of frequency and quantity would also be missing, even with a valid quantity.
- For frequencies being 0 the corresponding quantity was also set to 0. This would again not change the volume, because the product of any value with 0 would similarly be 0. The rationale behind this is that alcohol consumers may not have consumed the beverage in the respective recall period, e.g. past 30 days, but indicate the usual amount when drinking it (e.g. in the past 12 months).
- For the summation of beverage-specific volumes only beverages were added that had valid values after editing on both quantity and frequencies. Thus, the volumes of valid beverages were used to calculate an overall volume instead of rendering the whole case missing because of missings on a single beverage.

In general, this imputation strategy changed only marginally sample means or prevalences, but increased the sample size valid for cross tabulations. In addition to the “pure” measures, i.e. respecting the reference period (e.g. 30 days or 12 months), a so-called mixture measure was developed. After data editing within variables with the same recall period, missing values for e.g. volume were imputed across instruments as follows. The shortest recall period (7 days) was used as a starting point, missing values of this recall period were imputed with the next shortest period (commonly 30 days), and so on until the longest period (12 months) was reached. The rationale behind this is that shorter recall periods usually yield more accurate measures of alcohol consumption, because of fewer memory deficits of respondents, or less response burden, because respondents do not have to average changing consumption patterns over a long period such as a year. The disadvantage of short recall periods is that infrequent drinkers are misclassified as abstainers and that time frame for alcohol consumption does not match the time frame commonly used for the occurrence of consequences (commonly 12 months). Hence this approach was seen as a compromise between accuracy of alcohol measurement, reduction of missing values and matching of the time frames of exposure and outcome (Gmel & Rehm, in press). It is important to note that if “pure” measures existed, both the mixture and the pure measure were made available. In some countries, however, only mixture measures existed, i.e. measures that had to use frequencies and quantities with different recall periods. Some countries also used measures where volume of drinking was based on the past 7 days for those drinkers who had consumed alcohol in the past 7 days, but on consumption in the past 12 months for those who drink alcohol but had no alcohol consumption in the past 7 days. The latter can similarly be seen as mixed measures, because the reference period changes between different respondents.

Coding: Because of the differences in measurement instruments, a special coding system for the variable names of drinking indicators was developed. This coding of variable labels reflected a) the alcohol measure (frequency, quantity, volume, drinking status, RSOD), the underlying measurement

instrument (e.g., GF versus QF); the recall period (yesterday, past 7 day, past 30 days, etc.) and whether the measures were derived from GENACIS core questions or country-specific questionnaires by adding the country code. This coding system is described in more detail in appendix A5.

3.9 Links to other files: workdecks, archiving, and sample description

Workdecks: The organization of the project requests decentralized analysis of hypotheses, meaning that analysis of data were not done centrally in Lausanne but by different researchers all over the world. Commonly, analyses to test specific hypotheses can be performed with subsets of variables. These subsets of variables consisted of variables related to thematic topics, e.g. violence, alcohol-related consequences or health and lifestyle. The use of subsets of variables instead of the full dataset has several advantages:

- They are easier to exchange electronically because of smaller file sizes.
- Researchers do not have to examine the full data models for each country, but can concentrate on the data model related to their corresponding workdeck (Bethlehem, 1997).
- Data models only have to be developed for interrelated variables in these subsets.
- Errors in the data or the data model are easier to identify and to correct in smaller subsets of variables compared to the total set of all variables across all countries, which improves the overall data quality.

Therefore, subsets of variables oriented to the different subsections of the questionnaire were constructed. These subsets are called workdecks. The following workdecks were created:

Workdeck 1: Sociodemographics (e.g., age sex, education, income)

Workdeck 2: Drinking indicators (e.g., drinking status, frequencies, quantities, volumes)

Workdeck 3: Drinking consequences (e.g., consequences at work, health consequences)

Workdeck 4: Violence (e.g., partner violence, sexual abuse, alcohol use before incident).

Workdeck 5: Drinking contexts (e.g., drinking location, time of drinking, drinking motives).

Workdeck 6: Intimate relationships and sexuality (e.g., partnership satisfaction).

Workdeck 7: Health and Lifestyle (BMI, other substance use, help seeking).

In each of the workdecks additional basic variables were provided, e.g., country code, sex, age, weights (to account for sampling design) and drinking status. More importantly, however, each workdeck contained an additional variable that uniquely identifies individuals across surveys. This identification variable could be used to merge different workdecks for more refined analyses. For example, this variable could be used to merge the workdeck “drinking consequences” with that of “drinking indicators” to analyze e.g., whether consequences are related more often to a particular beverage type, RSOD or volume of drinking.

For each of the workdecks the data centralization group developed an overview table that indicates which variables were available for which country, and whether the variables were based on the GENACIS core questionnaire, or based on country-specific measurements. This was done to facilitate for researchers working with the workdecks the choice of the appropriate set of variables for their analyses. The overviews can be found in appendix 6.

Archiving: Besides databases, several other documents about each survey were collected. Survey leaders had to provide

- a) the questionnaire in both the original language, and an English translation of it;
- b) information about standard drink measures used in their country and/or common vessel sizes and alcohol contents for the different beverages asked in the study;
- c) background on the methodology of the field work in the countries, particularly the sampling design, but also information on non-response and other fieldwork related issues.

All documents were stored in the database with a particular link to the corresponding country. To collect information about fieldwork and sampling design a questionnaire was developed and sent to the survey leaders (see appendix A7).

Sampling design: Survey leaders were asked to give information about the survey fieldwork, particularly the sampling design. The following topics were addressed:

- a) Survey mode (e.g., telephone, face-to-face)
- b) Administration mode (e.g., interviewer-administered, self-administered answer sheets)
- c) Fieldwork agency (e.g., commercial pollsters, federal offices)
- d) Representativity of the sample (regional, national)
- e) Sampling frame (e.g., telephone registers)
- f) Stratification and Clustering
- g) Multi-stage and single-stage sampling
- h) Non-response and refusal conversion
- i) Weighting (pi-weights and post-stratification-weights)
- j) Length of field phase

Table 3 gives an overview about the samples used in the present study.

4 CONCLUSIONS AND RECOMMENDATIONS















Data centralization has been proven to be a major step forward for international collaborative projects. The advantages are manifold, and only four will be highlighted here. First, it creates a central contact point for all researchers in the project and thus facilitates dealing with problems with datasets. Researchers do not have to contact all survey leaders separately but can contact the data centralization office directly. This is also a very efficient procedure, because problems have to be solved only once and can then be communicated to all researchers who want to work with the database. In a decentralized project, each survey leader would probably have to answer the same question several times to the different researchers working with the data. Second, the team of the data centralization has accumulated a lot of knowledge about each of the datasets in the database, and thus can very efficiently prepare smaller datasets (workdecks) for more specific analysis. Hence, researchers who want to test specific hypothesis do not have to understand the full complexity (data model) of each of the separate complete datasets. Third, it guarantees a consistent treatment of variables. For, example the construction of drinking indicators leaves a certain elbowroom, and therefore, different researchers may use this elbowroom differently. This could lead to conflicting or even contradictory results depending on how each researcher interpreted this elbowroom. Data centralization assures that all researchers in a project work with the same definitions and the same constructed variables, and thus increases consistency of findings across different analyses. The use of consistent rules to create e.g. drinking indicators across countries also reduces measurement errors in



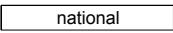




cross-country comparisons. To give a simple example, a drinking frequency of “daily or almost daily” is not operationalized by 6 times per week in one country and 7 times per week in another country, because of different interpretations of different researchers, what “daily or almost daily” measures. Fourth, the documentation of the database is facilitated, e.g. it is much easier to construct overviews of existing datasets, comparable variables across datasets, etc. than in a decentralized project, because all the information is in one hand.

There is one major disadvantage of data centralization: it is time-consuming at the beginning. This means that not all surveys can be included the same time in the database or all workdecks can be prepared at once. As a result, not all hypotheses or research questions can be analyzed and tested the same time. For example, the sequential construction of workdecks, e.g. first a drinking indicators workdeck, second a sociodemographic workdeck, third a consequence workdeck means that also the analysis has to be organized around this sequence. In the example, first only manuscripts can be prepared that relate sociodemographics with alcohol consumption and later on associations between drinking patterns and consequences can be analyzed. This implies that some researchers have to wait with their analyses until the corresponding workdeck can be created. Such delays can only be avoided with the increase of resources for data centralization, however, to the risk to increase inconsistencies between staff members of the data centralization team. In the present study, four people worked on data centralization with different tasks, which is seen as an optimum to guarantee sufficient communication between staff members to guarantee consistent treatment of datasets.

Of course, an efficient data centralization also depends on the commitment of the survey leaders within each country. There is no way out of multiple loops in communication between survey leaders and the data centralization team until a consent is reached that the data structure of datasets but also the whole process of conducting a survey in each country is fully understood by the data centralization team. One experience in the current project was that not only clear rules for data editing, coding, etc. have to be developed but also clear rules about the tasks expected to be performed at the survey site and the data centralization site. A prominent example was the collection of information about the survey sampling design. Concepts such as stratification, multi-stage sampling or response rates are sometimes not fully understood by survey leaders, and thus either information about the sampling design was not consistently collected at each survey side or survey leaders had difficulties to communicate these concepts to the data centralization team. One recommendation for future international projects therefore is to develop clearer rules for the communication between survey sites and data centralization sites in general at the beginning of collaborative project, and particularly to assure a common language for concepts of survey sampling. This may mean that responsible persons such as statisticians of field work agencies of each survey site should be included *a priori* in the collaborative project.

Table 3. Example for an overview of sampling characteristics

	region	survey		sampling design	response rate	age range	n	n men	n women
		year	mode						
Austria		1993		quota sampling stratified by age, sex, profession, region, number of inhabitants of place of residence	quota	15+	7.483	3.529	3.954
Brazil	Botucatu	01/02)		quota sampling stratified by age and sex	quota	18+/17+	525/733	194/368	331/365
Czech Republic		2002		170 randomly selected electoral districts in all 14 regions of the country	72.6	18-64	2.526	1.244	1.282
Finland		2000		CAPI; based on the Finnish population register; PSU: individuals	79.41	16-70	1.932	945	987
France		1999		CATI; based on telephone register; 2-stage; PSU: household; stratified by geographical area	71.32	12+	13.685	6.027	7.658
Germany		2000		based on population register; 2-stage; PSU: communities; stratified by regional criterias	51.4	18-60	8.147	3.688	4.459
Hungary		2001		based on data from the Election Office; PSU: individuals; strata: regions(rural)/destricts(city)	quota	19-65	2.292	1.094	1.198
Israel		2001		strata: community size; 4-stage (communities,geographic points, household, individual)	^A	18-40	6.004	2.611	3.393
Italy	Tuscany	01-'02		PSU: individuals; stratified by municipalities, age, and sex; 10 municipalities were chosen	61.0	18+	3.275	1.612	1.663
Mexico		1998		3-stage (geostatistic areas or blocks, dwellings, individuals); stratified by regions	no info	18-65	5.711	2.382	3.329
Norway		1999		3-stage (communities, households, individuals); stratified by community; individuals by last birthday	quota	15+	2.170	1.034	1.136
Sweden		2002		based on Statistics Sweden register of total pop.; PSU: individuals	69.2	17+	5.472	2.656	2.816
Switzerland		1997		based on telephone register; 2-stage (housholds, individuals); strata: cantons	68.4	15+	12.994	5.755	7.239
The Netherlands	Limburg	1999		based on population register; strata: community	71.0	16-69	4.222	2.008	2.214
UK		2000		CAPI; PSU: area (wards), individuals by quota sampling	quota	18+	2.001	963	1.038

	regional	survey 	face-to-face
	national	mode: 	face-to-face + self-administration of sensitive variables (alcohol, drugs)
			telephone survey
			postal
			mixed (telephone + postal)

PSU: primary sampling unit

^A only estimate from other surveys, probably as low or even lower than 60%

5 REFERENCES

- Babor, T. F., De La Fuente, J. R., Saunders, J. B. & Grant, M. (1989). *Audit - The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Health Care*. Geneva: World Health Organization, Division of Mental Health.
- Bethlehem, J. (1997). Integrated control systems for survey processing. In: Lyberg, L. E., Biemer, P. P., Collins, M., De Leeuw, E., Dippo, C., Schwarz, N. & Trewin, D. (Eds.) *Survey Measurement and Process Quality*, pp. 371-392. New York, NY: John Wiley & Sons, Inc.
- Bloomfield, K., Stockwell, T., Gmel, G. & Rehn, N. (2003). International comparison of alcohol consumption. *Alcohol Research and Health*, 27, 95 - 109.
- Federal Committee on Statistical Methodology (1990). *Data Editing in Federal Statistical Agencies*. Statistical Policy Working Paper 18. Washington, DC: Office of Management and Budget.
- Gmel, G. (2001). Imputation of missing values in the case of a multiple item instrument measuring alcohol consumption. *Statistics in Medicine*, 20, 2369-2381.
- Gmel, G. & Rehm, J. (in press). Measuring alcohol consumption. *Contemporary Drug Problems*
- Granquist, L. & Kovar, J. G. (1997). Editing of survey data: how much is enough? In: Lyberg, L. E., Biemer, P. P., Collins, M., De Leeuw, E., Dippo, C., Schwarz, N. & Trewin, D. (Eds.) *Survey Measurement and Process Quality*, pp. 415-435. New York, NY: John Wiley & Sons, Inc.
- Greenfield, T. K. (2000). Ways of measuring drinking patterns and the difference they make: experience with graduated frequencies. *Journal of Substance Abuse*, 12, 33-49.
- Hammer, M. & Champy, J. (1993). *Reengineering the Corporation: A Manifesto for Business Revolution*. London: Nicholas Brealey Publishing.
- Knibbe, R. A. & Bloomfield, K. (2001). Alcohol consumption estimates in survey in Europe: comparability and sensitivity for gender differences. *Substance Abuse*, 22, 23-38.
- Lyberg, L. E. & Kasprzyk, D. (1997). Some aspects of post-survey processing. In: Lyberg, L. E., Biemer, P. P., Collins, M., De Leeuw, E., Dippo, C., Schwarz, N. & Trewin, D. (Eds.) *Survey Measurement and Process Quality*, pp. 353-370. New York, NY: John Wiley & Sons, Inc.
- van der Berg, G. M., De Feber, E. & de Graaf, P. (1992). *Analysing Statistical Data Processing*. New Technologies and Techniques for Statistics, Proceedings of the Conference. Luxembourg: Eurostat.

Chapter 2: Drinking patterns

Drinking and gender differences in drinking in Europe A comparison of drinking patterns in European countries

Pia Mäkelä, Gerhard Gmel, Ulrike Grittner, Hervé Kuendig, Sandra Kuntsche, Kim Bloomfield, Robin Room

1 INTRODUCTION

An examination of sales statistics reveals that the large differences in the level of per capita consumption of alcohol between European regions have diminished over time. If western Europe is divided into a northern tier of countries where spirits used to be the predominant alcoholic beverage, a southern tier of Mediterranean countries where wine predominates, and a tier in between of countries where beer predominates, the convergence is mostly due to an increase in consumption in traditional beer-drinking countries and former spirits-drinking countries until the 1970's, and a decrease in consumption in the traditional wine-drinking countries thereafter (Leifman 2002a, Sulkunen 1983). Also the differences in beverage preferences between the regions have diminished so that at least in relative terms the popularity of traditional beverages in each region has decreased and the share of new beverage types has increased (Leifman 2002a, Sulkunen 1983). Even though differences between regions in volume of drinking and in beverage preferences are still clear in spite of homogenisation, the question arises whether there remain substantive differences between drinking cultures among European countries. Has convergence resulted in a situation where the cultural position of drinking would seem to be similar across European countries? Survey data can shed some light on this question, and also on gender and age patterns of drinking.

Numerous typologies of the cultural position of drinking have been proposed in the literature, as recently reviewed by Room and Mäkelä (2000). In the European context, probably the most used and well known is the division between wet and dry societies. Traditionally, wet (as opposed to dry) drinking cultures were characterized by a weak (strong) temperance tradition, a high (low) volume of consumption, a low (high) proportion of abstainers, frequent fairly heavy drinking (infrequent very heavy or binge drinking), a high (low) level of problems related to chronic heavy drinking and a low (high) level of alcohol poisoning (Room and Mitchell 1972). Mediterranean countries have been presented as the main representatives of wet countries and the Nordic countries as representatives of

dry countries. The wet-dry continuum as such is problematic in today's Europe, where differences in volume and abstention no longer differentiate the traditional wet and dry countries.

Other typologies would make related divisions. Ullman (1958) spoke about "integrated" and "unintegrated" drinking customs. Mäkelä's (1983) angle was to separate different use-values of alcohol. The two most relevant ones for European drinking cultures are the use of alcohol as a nutrient and the use of alcohol as an intoxicant. An often-used typology, already mentioned, is the division of countries into "beer", "wine" and "spirits" cultures, according to the traditionally dominant beverage type (Sulkunen 1976, 1983). Partanen's (1991) analysis extracted two important dimensions of drinking cultures: the culture's "engagement with alcohol" and the typicality of "serious drinking", that is, drinking to intoxication. Similarly, Room and Mäkelä (2000) end their review by suggesting two most central dimensions of drinking cultures: the regularity of drinking and the extent of drunkenness.

The first aim of this paper is to compare drinking habits and the current differences between drinking cultures in different regions and countries in Europe. We try to describe as well as possible the two central elements of drinking cultures that were identified in the literature (1) involvement with alcohol (measures available for this are: abstention, frequency of drinking overall, to some extent also the volume of drinking) and (2) drunkenness, binge drinking, or more generally the quantity of drinking on a drinking day. In addition, we examine (3) the differences in beverage choices (beverage-specific frequency and volume), which is also an important element of drinking cultures.

On the basis of previous findings we expect that in the Mediterranean traditionally wine-drinking countries there should be more daily light or moderate drinking integrated into everyday life; i.e. that the frequency of drinking overall and that of drinking wine should be the highest there while the frequency of binge drinking and the quantities drunk per drinking day should be lowest. Similarly, we expect that binge drinking would be more common and the frequency of drinking lower in northern (former spirits-drinking) countries, while the traditional beer countries of middle Europe are expected to lie somewhere in between these two drinking cultures.

Our second interest lies in the gender differences observed in drinking habits and their comparison over countries and drinking cultures. It is of interest to see whether the gender differences in drinking are universal in that they apply to all (European) countries studied and to all measures of drinking, and to compare the magnitude of gender differences across countries and drinking measures. Have the typologies of European drinking cultures been implicitly based on the drinking of males, with a different patterning found among women, or are the cultural differences replicated in each gender?

The present analysis is part of the Gender, Alcohol and Culture: An International Study (GENACIS). This is an international collaborative study with multiple parts, one part of which is an EU-funded project focusing on comparisons between European Union member states or associated countries. The GENACIS project includes a common core questionnaire, applied as faithfully as possible in new datasets collected after its inception. However, a number of the datasets considered in the present analysis were collected before the project was fully under way, so that the availability of an item for a country, and the degree of comparability between countries varies from item to item.

The regions and countries to be included in the present analyses are the following: Former spirits-drinking countries in northern Europe -- Finland, Iceland, Norway, Sweden ('North'); Mediterranean, traditionally wine-drinking countries in the south of Europe -- France, Italy and Spain ('South'); and the larger group of European countries between these regions, which are mainly traditionally beer-drinking countries in central or western Europe -- Austria, the Czech Republic, Germany, Hungary, The Netherlands, Switzerland, UK ('Middle'); Israel was also included in the analyses ('other'). The age-range covered in the paper is 20-64 years, which is common for all countries included in the analysis (with the exception of Germany, where data are for respondents aged 20-59, and Israel, where the age range is 20-40).

2 PREVIOUS EUROPEAN COMPARISONS

A number of studies have been published where drinking habits in some European countries have been compared. However, as a recent review of all the survey-based studies of drinking habits in 15 European countries showed, studies including a relatively wide range of European countries and also a good selection of measures of drinking are rare (Simpura and Karlsson 2001). Among the more ambitious research projects is the comparison, based on existing surveys, of drinking patterns and problems, with an emphasis on women's drinking, in 9 European countries carried out in connection with the EU BIOMED II programme (Bloomfield et al. 1999, Ahlström et al. 2001). The countries included were Finland, Sweden (Göteborg, women only; 25-year olds as the youngest age group), Czech Republic (only ages 32-43 years), Germany, Scotland (Edinburgh and Glasgow, only ages 16-30 years), the Netherlands, Switzerland, France, and Italy (Florence, excluding young people under 30 years). In the report that described drinking patterns, the measures examined were the rate of abstinence, overall frequency of drinking, overall and beverage-specific volume of drinking, and the proportion of heavy drinkers (Ahlström et al. 2001). According to the results, the rate of abstention was not particularly dependent on the drinking culture, whereas the frequency of drinking was the highest in the south and lowest in the north; among men the most popular beverage type was in accordance with the image we have of the respective drinking cultures (wine in Italy and France; beer and wine in Switzerland; beer in the rest of the countries), while among women there were deviations from this pattern: beer in Finland, beer and wine in the Czech Republic, and wine in the rest of the countries.

Two other comparisons have included countries from different regions in Europe. A Dutch research group analysed the Eurobarometer data on the 12 EC countries in 1988 (Denmark, West Germany, the Netherlands, UK, Ireland, Belgium, Luxembourg, France, Italy, Greece, Spain, and Portugal). The range of countries covered southern and middle Europe relatively well, but no northern drinking culture was represented. Measures of drinking were abstinence, frequencies of drinking wine and beer, and the context of wine and beer consumption (lunch / dinner / other). (Hupkens et al. 1993, Knibbe et al. 1996) According to the results, a larger proportion of older people than of young people consumed wine, and they did so more often than young people; a larger proportion of young than old drank beer. Men and women differed less in the frequency of drinking the beverage type that was new in the drinking culture than in the frequency of the traditional beverage type.

The most recent comparison that included countries from different regions of Europe was the so-called ECAS (European Comparative Alcohol Study) survey (Hemström, Leifman & Ramstedt 2002, Leifman 2002b). The countries selected in the comparison were Finland and Sweden as former spirits-drinking countries, former West Germany and the UK as traditional beer-drinking countries, and France and Italy as traditional wine-drinking countries. Measures of drinking covered in the summary report (Hemström et al. 2002) were abstinence, overall frequency of drinking, quantity drunk per drinking occasion, proportion of binge drinking occasions, gender and age differences in the volume of drinking overall and of drinking different beverage types, and the contexts of drinking. The comparison was made difficult by the fact that the response rate varied between about one-third (Germany, UK, Italy) and well over one-half (Finland, Sweden) and, particularly, that the coverage rate (volume of drinking in the survey as percent of official statistics) varied between about one-third (Germany, France) and an exceptionally high 96% (UK). According to the results, regular drinking was most common in southern Europe and least common in northern Europe, while the quantity reported to be drunk per occasion was the highest in northern Europe and UK. Only in these latter three countries did the youngest age group drink the most – both per occasion and on an annual basis. However, the frequency of heavy drinking occasions was the highest among young people (18-29) in all countries (with the exception of Italy).

Such a comparison was also possible among pupils aged 15-16 in the European School Survey on Alcohol and Other Drugs (ESPAD) study (Hibell et al., 1999). Among the EU countries represented in the current paper, regular drinking (10 times or more during the last 30 days) appeared to be frequent in Denmark, U.K. and Czech Republic. In contrast, very few students reported such behaviour in the Nordic countries (Finland, Iceland, Sweden and Norway). Frequent binge drinking and subjective intoxication were reported most in Denmark, U.K., the Nordic countries and the Czech Republic, and less in Hungary, France and Italy.

In addition to these studies representing a wide selection of European countries, there are others with a more limited selection of countries, representing a narrower range of drinking cultures: Hauge and Irgens-Jensen (1986, 1987) and Mäkelä et al. (1999, 2001) reported comparisons of Nordic countries; Hanhinen's (1995) comparison included Nordic countries, Italy, and Germany; Knibbe and Lemmens (1987) compared the Netherlands, Germany and Switzerland; and in the comparisons reported by Fillmore et al. (1995, 1997) and Wilsnack et al. (2000), some European countries were included in a more global framework. The latter report was particularly about gender differences in drinking and included same data from the Czech Republic (Prague), Finland, the Netherlands and Sweden (Göteborg women) as in the BIOMED II report by Ahlström et al. (2001). The report by Wilsnack et al. (2000) also included data on amount drunk per occasion. According to these results, the amount drunk per occasion among women was higher in Finland and Sweden than in the Netherlands and the Czech Republic, while among men the amount drunk per occasion was higher in Finland and the Czech Republic than in the Netherlands.

The contribution of the current report as compared to previously published reports is that it includes a better selection of drinking measures and countries with national data; it also takes a closer look at gender differences; additionally the data come from recent surveys conducted in years 1997-2002

(Austrian data is from 1993), use comparable age groups, and have been analysed centrally by one team, which improves comparability.

3 DATA AND METHODS

3.1 Data

Table 1 describes the samples used in the comparison. The surveys were independently conducted in the different countries, but the data were centrally analysed. The data were collected in all countries in the last few years of the 1990s or early 2000s, with the exception of Austria, where the data was collected in 1993. Most samples were national, with the exceptions of the Netherlands (data from a region in the southeast of the Netherlands) and Italy (data from the Tuscany region). Survey modes and the sizes of the samples varied between the countries. Response rates in those countries for which the data exist suggest relatively high response rates in general (around 70%, with exceptions).

Two sets of coverage rates are also shown in Table 1. We did not have the sales data for the regions in Italy and the Netherlands that were included in the survey, and therefore the coverage rates in these countries should be regarded with caution. For example, the Italian (Tuscany) high coverage rate may be accounted for by the fact that the numerator applies to a central wine region with a higher than average consumption while the denominator applies to whole of Italy. The first coverage rate is derived simply as the mean of estimated volume of drinking divided by estimated per capita sales. These show wide variation.

The second coverage rates are otherwise similar, but an estimate of unrecorded alcohol consumption (including, for example, imported, home-made and illicit alcohol) (Leifman 2001; WHO Global Burden of Disease Study, WHO Geneva) has been added to the denominator. The estimates of unrecorded consumption have large margins of error as compared to sales statistics, and these errors differ in size and direction from one country to another. Hence, the second coverage rate is not necessarily always better than the first one, but together they give a better picture of the coverage of the current data than either one alone. The variation in the coverage rates decreases when estimates of unrecorded consumption are incorporated. The coverage rates adjusted for unrecorded consumption are generally around 50%. These levels are typical of alcohol surveys. The coverage rate for Hungary is much lower than average (18%) and it is, after taking estimates of unrecorded consumption into account, clearly greater than average for Israel (124%), Italy (69%), the Czech Republic (69%), and Norway (67%).

The comparison of the two different coverage rates implies that in Norway and Sweden the high coverage rate is mostly accounted for by a higher than average level of unrecorded alcohol consumption. The differences in the coverage rates warn us against comparing the levels of consumption over countries on the basis of the survey estimates and also against uncritical comparison of other measures that are closely dependent on the volume of drinking.

3.2 Measurement

The main instruments used for measuring alcohol consumption varied from one country to another. Beverage-specific quantity-frequency questions were used in the Nordic countries (Finland, Iceland, Norway, Sweden), the Czech Republic, Germany and Switzerland, usually with an additional question on overall frequency. The time reference was implicitly or explicitly 12 months in Finland, Iceland, Sweden and the Czech Republic. In Norway the respondent could choose between a 1-month and a 12-month reference time, and in Germany and Switzerland a longer reference time (12 months) was only used if there was no consumption in a shorter reference time (7 days in Switzerland, 1 month in Germany). In Austria questions were asked on overall quantity and frequency in the preceding 7 days, on frequency of drinking in the past 3 months and beverage-specific quantity yesterday. The Hungarian survey used questions on 1 month beverage-specific frequency, beverage-specific quantity on last drinking occasion and 12-month overall frequency. The Netherlands had frequency and quantity in weekdays and weekends. The UK used 12-month overall frequency, 7-day recall and quantity on last drinking occasion. For France there was 12-month and 7-day beverage-specific frequency, beverage-specific quantity yesterday and overall quantity last Saturday. For Italy, no frequency data was available, but an estimate of 12-month beverage-specific volume could be used. In Spain, beverage-specific usual quantity and generic frequency were used. For Israel, beverage-specific frequency (1 month and 12 months) and overall quantity on last drinking occasion were used. The measurements and the variation within them will be described in more detail in connection with the results.

4 RESULTS

4.1 Data

In different countries there was variation in the kind of a question used to estimate proportion of abstainers. In some countries, the definition of abstinence was based on one question on overall frequency, whereas in others it is based on beverage-specific frequencies of drinking. In most cases, there was an explicit time reference to the previous 12 months, while in Switzerland this was implicit.

The estimated percentages in Table 2a imply that the proportion of current abstainers is relatively low throughout Europe among men (4-14%; exceptions are Spain 27% and Israel 26%), while there is much more variation in the proportion among women (6-31%; Spain 49% and Israel 45%). The same was true for life-time abstaining. Most typically, the ratio of female to male abstainers was around two, with smaller ratios observed particularly in northern Europe.

In northern and former eastern Europe (Czech Republic and Hungary), and additionally in UK and Spain among women, the proportion of abstainers increased with increasing age, while in other countries there was no such relationship (Table 2b). The male-female ratio of abstainers did not change systematically with age.

4.2 Overall frequency of drinking

In most countries respondents were questioned on overall frequency of drinking. In France and Norway, the maximum of beverage-specific frequencies was used instead. In Sweden, there was only a very crude measurement of overall frequency, and hence we used the maximum of this overall frequency and beverage-specific frequencies. In the Netherlands, one question was on how many weekdays the respondent drinks on the average and another on how many weekend days. The overall frequency was derived as the sum of these. The most common reference period was 12 months or 'usually' (Finland, Iceland, Sweden, Czech Republic, the Netherlands, Switzerland, UK). In Norway, the respondent could choose between a 1-month and a 12-month reference period. In Austria, Germany, France and Hungary, the frequency came from a shorter time frame (7 days, 30 days, 7 days and 30 days, respectively), but if this was zero, a longer time frame was used (3 months, 12 months and 12 months, 12 months, respectively).

In table 3a, we have depicted the frequencies in two ways: first, by the mean of the frequencies and, second, by the proportion of the respondents who report weekly drinking. Each of these two approaches entails limitations, but different ones. The mean values are relatively strongly influenced by maximum values, and there was some variation in the answer alternatives for maximum frequency that could be reported (e.g. 'three times a day' in Switzerland = 365 per year vs. 'daily or almost daily' in several countries = 312 times per year). In nearly all countries, weekly drinking could be clearly defined (either 'once a week' or '1-2 times a week' etc. as answer alternatives; in Norway the question was open-ended and an annual frequency of 48 or more times was defined as weekly), but the proportions of weekly drinkers are to some extent also influenced by the next answer alternative offered to the respondents (which varied from 'several times per month' in one country to 'less often' in another). However, if results on both measures point in the same direction, this increases our confidence in the results.

Among both men and women the frequency of drinking was greatest in "middle" and southern Europe (Austria, Germany, the Netherlands, Switzerland, France, and Spain), where men reported drinking on the average once in two to three days and women reported drinking once in four to six days. Drinking frequency was clearly lower in northern Europe and Hungary (although in Hungary this could be a biased result due to the low coverage rate) (Table 3a).

Mean frequency of drinking was estimated to be 40% - 250% higher among men than among women. The gender ratio of drinking frequency was greater than average in the former eastern European countries – the Czech Republic and Hungary – and lower than average in the northern countries. The gender ratio did not change systematically with drinking frequency.

The proportion of weekly drinkers varied between countries and genders in a similar manner as did the mean frequency, although the difference between northern Europe on the one hand and middle and southern Europe on the other was somewhat smaller than for mean frequency.

The connection between drinking frequency and age varied systematically between the regions (Table 3b). In northern countries frequency tended to be either relatively independent of age or increase only

slightly with age; in the former eastern European countries and in the UK and Austria, frequency increased slightly with age. In middle Europe in general, and in France in particular, a pattern of strongly increasing drinking frequency with age was most common. Thus, the differences between European regions were also most pronounced in the oldest age group. This may be a reflection of drinking being more closely integrated with meals in southern Europe and it being less integrated into everyday life and more closely connected to celebrating or special occasions in northern Europe. The more the drinking pattern is connected with celebrating, the more it can be expected to be concentrated in younger age groups and to become a less popular activity with ageing. In contrast, when drinking is integrated with meals, there is no particular reason to expect it to become less popular with ageing but rather vice versa.

4.3 Frequency of drinking by beverage type

The frequency of drinking different beverage types could only be compared between certain countries (Table 4). France and Switzerland showed the highest and northern Europe together with the Czech Republic the lowest frequency of drinking wine, with Germany closer to the northern countries. Among men, the highest frequency of drinking beer was reported in middle Europe (Czech Republic, Germany, Switzerland). Among women, Swedes reported clearly the lowest rates of drinking beer. Like the Swiss and French women, the Swedish had a strong preference for wine. The drinking of spirits was not most frequent in any one region of Europe, but the highest reported frequencies were found among men in France, Switzerland, the Czech Republic, and Norway.

The gender difference in mean drinking frequency was by far the lowest for wine; France and Switzerland, where the frequency of drinking wine was the highest, were the only countries with a clear gender difference (Table 4). The gender ratio was generally larger for beer than for spirits, although in northern Europe in age groups over 35 years the gender difference was quite similar for both beer and spirits (tables by age group not shown).

The phenomenon of increasing drinking frequency with age was in great part accounted for by the strong increase in frequency of wine drinking with age, although the frequency of drinking spirits generally slightly increased with age as well (data not shown).

There was no systematic age pattern in the male-female ratio of drinking frequency either overall or for any specific beverage type.

4.4 Amounts drunk by beverage type

There was a large amount of variation between countries in terms of how quantities of alcohol consumed were measured -- only rarely was a direct question on a typical quantity used. We start by looking at those countries that had beverage-specific information and continue by examining what can be said about differences in quantities over beverage types.

The Nordic countries, the Czech Republic, Germany and Switzerland had beverage-specific questions on usual quantity of drinking. Additionally, Austria and France asked about quantities drunk yesterday; Hungary asked about beverage-specific quantities drunk on last drinking occasion. In Table 5 only those respondents have been included who reported some quantity for the beverage type being analyzed. For example, in Austria and France all those who did not drink wine 'yesterday' were excluded from the analysis of wine drinking quantity. Hence, the measurements in the different countries should be roughly comparable even though there may be some bias in the comparison of Austria, France and Hungary as compared to the other countries due, for example, to memory effects or a systematic difference in how the amounts on the previous drinking occasion are reported as compared to a more abstract 'typical' occasion.

Which beverages did men and women report drinking in the largest quantities (given that they drank the beverage at all)? Among men, in most cases beer was the beverage drunk in the largest quantities (Sweden, Austria, Czech Republic, Hungary, Germany, Switzerland; Table 5). French men drank wine in the largest quantities and Norwegian, Finnish and Icelandic men spirits. Among women, the beverage that was reported to be drunk in largest quantities varied more but in half of the cases was wine (Sweden, Austria, Czech Republic, Germany, France).

Gender differences in the amounts of beer and spirits drunk were clear. Thus, men reported drinking beer and spirits much more often than women (Table 4), and when they did, they reported drinking it in larger quantities (Table 5), although the gender difference for frequency was more considerable than for quantity. For wine the situation was different: men and women reported drinking wine equally often (Table 4) except in wine-drinking countries where men reported larger frequencies, and when wine was drunk, the difference between men and women in the quantities drunk was again very small, with some exceptions, among them France.

In cases where typical amounts decreased with age, this could be mainly attributed to decreasing amounts of beer drunk; for wine such a decrease in amount drunk was rather an exception to the rule; in France amounts even increased with age (data not shown).

4.5 Amounts drunk over beverage type

The beverage-specific quantities alone, without combining them with data on frequency of drinking these beverages, give us little information about the overall quantity of alcohol drunk on a typical drinking occasion in the different countries. The typical or usual quantity drunk can be estimated in several ways. For Hungary (where beverage-specific quantities on the last drinking occasion were asked) and for Spain (where we had beverage-specific quantities on a 'usual drinking occasion'), these estimates were summed to get an estimate of typical quantity. For the Netherlands, usual quantity was estimated as the weighted sum of reported typical quantities on weekdays and weekends (with corresponding frequencies as weights). For France, we combined the estimated quantity yesterday, with weight 5/7, with the estimated quantity on last Saturday (weight 2/7) (when all

quantities were 0, the observation in the French data as well as in all other data was dropped from the analysis).

In the other countries, the estimate of usual amount was obtained by dividing volume by frequency of drinking (for details about the measurement of volume, see next section). This was done in two ways. First, we calculated volume (=sum of the products of beverage-specific quantities and frequencies) divided by the sum of beverage-specific frequencies. This is the same as the weighted sum of beverage-specific quantities, with beverage-specific frequencies as the weight. Second, we calculated volume divided by an estimate of overall frequency, with the frequency estimated as the maximum of overall frequency and beverage-specific frequencies. Estimated overall frequency was smaller than the sum of beverage-specific frequencies (either due to memory bias or because different beverages are drunk on the same drinking occasion), and hence the first option generally resulted in estimates of overall quantity 30-40% smaller than the second. Only the second measure was available in countries that do not have beverage-specific data. Whenever available, both measures are shown in Table 6a.

The estimates on quantity were derived in such diverse ways in the different countries that we avoid direct comparison of countries but instead concentrate on comparing gender and age ratios. Men reported drinking 30%-140% larger quantities of alcohol than women (Table 6a). This result was not very sensitive to the choice of the denominator when estimating quantity per drinking day. No clear regional pattern was observed in the gender differences.

In general, the typical quantities drunk diminished with age; exceptions were women in Austria, Germany, and Hungary; and both men and women in France (Table 6b). The countries with the greatest reduction with increasing age in reported quantities (Norway, Sweden, Iceland, UK, Finland among both women and men) are those where drinking has traditionally been least integrated into daily life.

The male/female ratio of quantities drunk did not systematically change by age (Table 6b).

4.6 Volume

Volume was based on beverage-specific usual quantity – usual frequency questions in the four Nordic countries, the Czech Republic, Germany and Switzerland; in France, Hungary, the Netherlands and Spain, a modification of the same principle was used (France: quantities based on yesterday's consumption and frequencies on previous 7 days; Hungary: quantities based on last occasion, frequency not beverage-specific; the Netherlands: generic quantity and generic frequency were separately asked for weekdays and weekends; Spain: beverage-specific usual quantity and overall frequency). In Italy, volume estimate was based on beverage-specific volume estimates (estimated by respondents). In Austria the estimate was based on consumption during the 7 days preceding the interview; in the UK volume was based either on the preceding 7 days or a quantity-frequency estimate (if the respondent was not a weekly drinker or if that estimate was 0).

Due to the differences in measurements and in coverage rates already noted in the methods section, we concentrate here on gender ratios and age patterns, which should be less affected by differences in coverage rates.

In most countries, men reported drinking from two to even close to four times as much alcohol as did women (Table 7a). When the data were restricted to drinkers only, mean volume increased more among women than men (due to the higher rate of abstainers among women) and consequently the gender ratios decreased particularly in countries with higher rates of abstention. If a crude assumption is made that women constitute 50% of the population, the proportion of all alcohol consumed by women can be calculated on the basis of reported volume (Table 7a). There were no systematic differences between the different regions in this proportion; it varied between 12% in Hungary and one-third in Sweden and on average was around one-fourth.

The gender ratios for various beverage types varied in a similar way to frequencies of drinking (Table 7a): the highest gender ratios were observed for beer, and in some countries (Finland, Iceland, Norway, Italy) also for spirits, and the lowest for wine. When looking at the proportion of respondents who reported a relatively large volume of drinking (20 grams per day, which roughly corresponds to two drinks a day), the gender ratio was much higher than for mean consumption, and it was even higher when a higher cut-off (30 grams per day; data not shown) was selected.

Different regions in Europe showed clearly different patterns for changes in volume of drinking related to age (Table 7b). A pattern of decreasing volume by age was most common among men and women in northern countries. In the former eastern European countries (Czech Republic and Hungary) the peak was observed in the middle age group (35-49). In countries of middle Europe, the most common pattern was a slight increase in volume with age. In southern Europe the volume of drinking most often clearly increased with age, particularly among men.

Gender ratios did not change systematically with age.

4.7 Heavy episodic drinking

Again, survey questions on the frequency of drinking a large amount of alcohol on one occasion varied from one country to another with regard to the cut-point used when defining 'large' (see Tables 8a and 8b for the cut-points) and in the way the question was formulated. Therefore, we again focus on within-country comparisons of gender and age groups.

Most often, the frequency of drinking a given number of drinks (e.g. 5, 6 or 8 drinks) was asked. In Norway, there were three beverage-specific questions, with the cut-point given in litres. In Tables 8a and 8b the maximum of these frequencies was used (which results in a conservative estimate). In Hungary, the frequency used was the sum of frequencies of drinking 3-5 drinks and the frequency of drinking 6 or more drinks (where one drink is about 20 grams).

Whether heavy episodic drinking was measured by mean frequency of drinking a specified amount of alcohol on one occasion or by the proportion of respondents who reported drinking that amount monthly, men reported this activity approximately 3-6 times more often than did women (Table 8a). In northern Europe the ratio was somewhat smaller than in other countries, i.e. there was a smaller difference between men and women in drinking large amounts of alcohol. This was the case in all age groups (Table 8b).

In northern Europe there was a clear age gradient in the frequency of heavy drinking such that the frequency decreased with increasing age among both men and women (Table 8b). This was also the case in Switzerland and Israel, but not in the rest of the countries (Czech Republic, Hungary, Germany, and the Netherlands), where no systematic age pattern in heavy episodic drinking was evident.

The gender ratio increased with age throughout Europe, i.e. in the older age groups the gender gap in heavy episodic drinking was even more pronounced than among younger age groups.

5 DISCUSSION

The results obtained for the different drinking measures will be summarised here, first, with regard to what they tell us about gender differences in Europe and, second, with regard to what they tell us about regional or country differences in drinking habits.

5.1 Gender differences in drinking in Europe

The three central elements of drinking cultures that were discussed in the introduction are also relevant with regard to gender differences in drinking: 1) involvement with alcohol (abstinence, frequency of drinking, and to some extent volume of drinking), 2) drinking large amounts of alcohol on one occasion and 3) beverage choice. The questions we want to answer are: what kinds of gender differences are observed throughout Europe, and to what extent are there systematic differences between regions or countries in these gender differences? And to what extent do generations differ in this respect?

In all aspects measuring involvement with alcohol (abstinence, frequency, volume), in quantities drunk and in heavy episodic drinking there were clear and large gender differences throughout Europe. This result is in accordance with what has been observed elsewhere (Fillmore et al. 1997, Wilsnack et al. 2000). A typical male/female ratio was 2-3, although much variation was observed by country and measure of drinking; e.g. the gender ratio was generally somewhat higher for the frequency of drinking than it was for the quantity of drinking, and it was still higher for the frequency of heavy episodic drinking. The more extreme the behaviour was the higher was the gender ratio. Hence, higher gender ratios would have been obtained for e.g. heavy episodic drinking if the cut-point defining this behaviour had been set higher.

With regard to beverage types, there were pronounced gender differences for beer in particular but also for spirits, with men drinking these beverages more frequently, in larger quantities per drinking day, and in higher volumes. In contrast, women generally drank wine as often as did men, and also in equally large quantities. In men's drinking world wine, as compared to beer, is a beverage that is drunk in smaller quantities per occasion, which probably often means that it is drunk in different settings -- wine probably often consumed with meals; in women's drinking world wine is drunk in equally large or even larger quantities per drinking day than beer, which suggests that women drink wine outside of meals more often than men.

France was an exception with regard to wine. The frequency of drinking wine was the highest there, but it was also the beverage drunk in largest quantities per drinking day among French men (elsewhere it was drunk in clearly smaller quantities than beer), and the quantities of wine drunk per drinking day even increased with age (whereas elsewhere and also for other beverages in France the quantities decreased or remained at the same level). This is at least partly due to a generational effect: new generations still appreciate wine but increasingly choose quality wines rather than table wines and drink smaller quantities than previous generations (Beck & Legleye 2005). Reflecting this somewhat masculine characteristic (i.e. high quantities) of the wine drinking culture in France, men's wine drinking frequency also exceeded women's to a greater extent than elsewhere.

Hupkens et al. (1993) found that men and women differed less in the frequency of drinking the beverage type that was new in the drinking culture than in the frequency of the traditional beverage type. The current results tend to point more towards the gender differences being smallest for wine, whether or not it is a new beverage in the drinking culture.

Men's and women's difference in involvement with alcohol was smaller than average in northern countries. This could be seen both from results on abstaining and on frequency of drinking. Similarly, women's and men's difference in the frequency of heavy episodic drinking was the smallest in northern countries, which could be seen in all age groups. In contrast, gender ratios for quantity per drinking day did not differ systematically among different regions in Europe.

Across all different aspects of drinking examined here, there were surprisingly little systematic differences between age groups in the gender ratios. No systematic age patterns in the gender ratios were observable for abstaining, frequency of drinking overall or by beverage type, quantity per drinking occasion, or volume of drinking. Hence, it seems that even though many aspects of *drinking* change with age, women's and men's changes occur so that their *relative standing* remains stable, not strongly or systematically changing either with changing generations or with the life cycle.

The only dimension of drinking where a clear age pattern of gender differences was observed was the frequency of heavy episodic drinking: young men and women seem to be more alike, or rather somewhat less different, in heavy episodic drinking than are older age groups.

5.2 Differences between countries in drinking habits

We expected to find that there would be more daily light drinking integrated into everyday life in Mediterranean countries (a higher frequency of drinking overall and of drinking wine and smaller quantities of alcohol drunk on one occasion) and that alcohol would be less integrated into everyday life, more reserved for special occasions and drunk, on the average, in larger quantities on a drinking day in the northern countries, with middle European countries somewhere in between. Were these expectations confirmed in our data, and was this the case for both men and women? Are younger generations more similar across countries than older generations?

The aforementioned three aspects of drinking are of interest here, too: involvement with alcohol, drinking large amounts of alcohol on a drinking day and beverage choice. However, differences in measurement between countries pose difficulties for comparing, for instance, the level of heavy episodic drinking or volume of consumption. Therefore, comparison of reported levels of heavy episodic drinking will not be used, but differences between countries in the age patterns of abstinence, frequency, volume and heavy episodic drinking are interpreted as telling us something about how much drinking is centred around heavy episodic drinking in the different countries.

The results on regional differences in the frequency of drinking confirmed expectations and previous results (Ahlström et al. 2001, Hemström et al. 2002): the highest frequency of drinking was reported in southern and middle European countries, while the lowest frequency of drinking was reported in northern countries. Abstinence rates did not co-vary with frequency of drinking. Hence, in the European context, abstinence can no longer be viewed as a feature characterizing and distinguishing different drinking cultures, as it was in the past (Room and Mitchell 1972).

The observed regional differences in preferred beverage types were also in agreement with what was previously known. Drinking wine was most common in France and Switzerland, while it was least common in northern European countries and the Czech Republic. This can be assumed to reflect differences in how often wine is used as a mealtime beverage as well, even though drinking with meals was not specifically measured. Beer was reported to be drunk most frequently in middle Europe (Czech Republic, Germany, Switzerland) among men, and among women as well in some Nordic countries. There was no trace any longer, in the parts of Europe included in the study, of any particular 'spirits-drinking zone': the countries where spirits were reported to be drunk most frequently were found in different regions of Europe.

The examination of age patterns offers the last piece of evidence on differences in drinking habits in European countries. The interpretation of these results on age patterns can be illuminated by taking two hypothetical extreme cases of drinking cultures that are characterized by different use-values of alcohol (see Mäkelä 1983). In the first hypothetical drinking culture drinking only serves the function of an intoxicant, i.e. it is only drunk for its mood-changing effects, with nearly all drinking taking place in connection with weekends and special events and in relatively large amounts ('mood-changing model'). In this case, one would expect strong age patterns in drinking, with fewer abstainers in younger age groups, particularly among women, because refusing to drink to intoxication would in this

hypothetical extreme case mean abstention, and in the older generations, particularly among women, attitudes towards intoxication can be assumed to be stricter and the interest in this kind of drinking behaviour lower. Volume of drinking, frequency of drinking overall and of heavy episodic drinking would be expected to decrease with age, because drinking at parties and celebrations can be assumed to be more important for younger than for older people. In the other hypothetical drinking culture the sole use-value of alcohol would be that of a nutrient, with alcohol (mainly wine) only drunk in connection with meals for its nutritional and gastronomic properties ('nutritional model'). In this case the age pattern would be very different: when people get married, have children and start spending more time at home and around the kitchen table, alcohol's function as a mealtime beverage becomes more important. Hence, in this case there might not be very strong age patterns in abstinence, but frequency and to some extent volume of drinking would increase with age. In practice these two models exist simultaneously in all countries, but are more or less pronounced.

The results indicated that in northern Europe and in the UK, and to some extent also in the former eastern European countries, there was more youthful drinking: the proportion of abstainers was lower in the younger age groups in the north, east, and the UK; frequency of drinking did not increase considerably with age; volume decreased with age in northern Europe and in the UK and showed an inverse U-shape in the former eastern European countries; in northern Europe the frequency of heavy episodic drinking decreased with age, and the quantities reported to be drunk per drinking day decreased by age most in northern Europe and the UK. For southern Europe (which was in some cases represented by France only) the results were rather the opposite, and for middle European countries somewhere in between.

Hence, none of the countries examined here were such extreme cases as depicted by our 'mood-changing model' and 'nutritional model', but all countries are mixtures of these two patterns. However, there were more traces of the mood-changing model in Northern European countries and the UK, and to some extent also in former eastern European countries, while the Mediterranean countries in particular, and to some extent the Middle European countries, were somewhat closer to the nutritional model.

5 REFERENCES

- Ahlström S, Bloomfield K, Knibbe R (2001) Gender differences in drinking patterns in nine European countries: descriptive findings. *Substance Abuse* 22(1), 69-85.
- Beck, F., Legleye, S. (2005). Epidemiological elements. In: Angel, P., Richard, D., Valleur, M., *Drug addictions*, Masson, Paris.
- Bloomfield, K., Ahlström, S., Allamani, A., Choquet, M. et al. (1999). Alcohol consumption and alcohol problems among women in European countries. *Project final report*. Berlin: Institute for Medical Informatics, Biostatistics & Epidemiology, Free University of Berlin.
- Fillmore, K.M., Golding, J.M., Kniep, S., Leino, V.E., Shoemaker, C., Terry, H., Ager, C.R., Ferrer, H.P. (1995). Gender differences for the risk of alcohol-related problems in multiple national contexts. in Galanter, M. (ed.) *Recent Developments in Alcoholism*, volume 12. Women and alcoholism, pp. 409-439. New York: Plenum.
- Fillmore, K.M., Golding, J.M., Leino, V.E., Motoyoshi, M., Shoemaker, C., Terry, H., Ager, C.R., Ferrer, H.P. (1997). Patterns and trends in women's and men's drinking. In: Wilsnack, R.W., Wilsnack, S.C. (ed.) *Gender and alcohol. Individual and social perspectives*, 21-48. *Rutgers Center of Alcohol Studies*, New Brunswick.
- Hanhinen, S. (1995). Nordic, Italian, and German drinking habits: A comparison between surveys made since the 1980s. *Nordisk Alkoholtidskrift* (Nordic Alcohol Studies), 12 (English Supplement):14-28.
- Hauge, R., Irgens-Jensen, O. (1986). The relationship between alcohol consumption, alcohol intoxication and negative consequences of drinking in four Scandinavian countries. *British Journal of Addiction*, 81, 513-524.
- Hauge, R., Irgens-Jensen, O. (1987). *Alkoholen i Norden* [Alcohol in the Nordic countries]. Helsinki, Alko and NAD.
- Hemström, Ö., Leifman, H. & Ramstedt, M. (2002). The ECAS-survey on drinking patterns and alcohol-related problems. In: Norström, T. (ed.) *Alcohol in postwar Europe. Consumption, drinking patterns, consequences and policy responses in 15 European countries*. *National Institute of Public Health*, Stockholm, 2002, p. 115-136.
- Hibell, B., Andersson, B., Ahlström, S., Balakireva, O., Bjarnasson, T., Kokkevi, A., Morgan, M., (2000). The 1999 ESPAD Report, Alcohol and Other Drug Use Among Students in 30 European Countries, *CAN*, Stockholm.
- Hupkens, C.L., Knibbe, R.A., Drop, M.J. (1993). Alcohol consumption in the European community: uniformity and diversity in drinking patterns. *Addiction* 88(10):1391-404.
- Knibbe, R.A., Drop, M.J., Hupkens, C.L. (1996). Modernization and geographical diffusion as explanations for regional differences in the consumption of wine and beer in the European # Community. [Journal Article] *Substance Use & Misuse*. 31(11-12):1639-55.
- Knibbe, R., Lemmens, P. (1987). Korrelate des Alkoholkonsums in der Schweiz, Deutschland und den Niederlanden, [Correlators of alcohol consumption in Switzerland, Germany and the Netherlands] *Drogalkohol*, 11, 27-41.
- Leifman, H. (2001). Estimations of unrecorded alcohol consumption levels and trends in 14 European countries. *Nordic Studies on Alcohol and Drugs*, 18, 54-70.
- Leifman, H. (2002a). Trends in population drinking. In: Norström, T. (ed.) *Alcohol in postwar Europe. Consumption, drinking patterns, consequences and policy responses in 15 European countries*. National Institute of Public Health, Stockholm, p. 49-81.
- Leifman, H. (2002b). A comparative analysis of drinking habits in six EU-countries in the year 2000. *Contemporary Drug Problems* 29(3), 501-548.
- Mäkelä, K. (1983). The uses of alcohol and their cultural regulation. *Acta Sociologica* 26:21-31.

- Mäkelä, P., Fonager, K., Hibell, B., Nordlund, S., Sabroe, S., Simpura, J. (1999). J. Drinking habits in the Nordic countries. National Institute for Alcohol and Drug Research, *SIFA rapport 2/99*, Oslo 1999.
- Mäkelä, P., Fonager, K., Hibell, B., Nordlund, S., Sabroe, S., Simpura, J. (2001). Episodic heavy drinking in four Nordic countries: a comparative study. *Addiction* 96(11): 1575-1588, 2001.
- Partanen, J. (1991). Sociability and intoxication: Alcohol and Drinking in Kenya, Africa, and the Modern World, vol. 39, Helsinki: *Finnish Foundation for Alcohol Studies* (distributed by Rutgers University Center of Alcohol Studies, New Brunswick, NJ).
- Room, R., Mäkelä, K. (2000). Typologies of the cultural position of drinking. *Journal of Studies on Alcohol* 61(3):475-83.
- Room, R., Mitchell, A. (1972). Notes on cross-national and cross-cultural studies, *Drinking and Drug Practices Surveyor* 5:14, 16-20.
- Simpura, J., Karlsson, T. (2001). Trends in drinking patterns in fifteen European countries, 1950 to 2000. A collection of country reports. *STAKES*, Helsinki.
- Sulkunen, P. (1976). Drinking patterns and the level of alcohol consumption: An international overview. In: Gibbins, R.J., Israel, Y., Kalant, H., Popham, R.E., Schmidt, W., Smart, R.G. (eds.) *Research advances in Alcohol and Drug Problems* vol 3, New York: John Wiley & Sons, pp. 223-281.
- Sulkunen, P. (1983). Alcohol consumption and the transformation of living conditions. A comparative study. In: Smart, R.G., Glaser, F.B., Israel, Y., Kalant, H., Popham, R.E., Schmidt, W. (eds.) *Research Advances in Alcohol and Drug Problems*, Vol. 7, pp. 247-297, New York: Plenum.
- Ullman, A.D. (1958). Sociocultural backgrounds of alcoholism, *Annals of the American Academy of Political and Social Science* 315:48-54.
- Wilsnack, R., Vogeltanz, N.D., Wilsnack, S.C., Harris, T.R. (2000). Gender differences in alcohol consumption and adverse drinking consequences: cross-cultural patterns. *Addiction* 95(2), 251-65.

6 TABLES AND FIGURES

Table 1. Survey characteristics

Country	Year	Sampling frame	Survey mode	N men 20-64 years	N women 20-64 years	Response rate, %	Coverage rate	
							A*	B*
Finland	2000	National	Face-to-face	832	829	79	54	42
Iceland	2001	National	Postal+telephone	970	1086	71 / 57	63	54
Norway	1999	National	Face-to-face (with self-administration)	799	867	quota	91	68
Sweden	2002	National	Telephone	2085	2138	69	78	59
Austria	1993	National	Face-to-face	2937	3083	quota	61	57
Czech R.	2002	National	Face to face	1172	1201	73**	74	68
Germany	2000	National	Postal	3580	4327	51	57	53
Hungary	2001	National	Face-to-face (with self-administration for alcohol questions)	1055	1157	quota	24	19
Netherlands	1999	Regional (a region in the south east of the Netherlands)	Postal	1723	1911	71	57	54
Switzerland	1997	National	Telephone	4516	5332	68	55	53
UK	2000	National	Face to Face and CAPI	775	811	quota	63	53
France	1999	National	Telephone	4725	5899	71	51	47
Italy	2001- 2002	Regional (Tuscany)	Postal+ telephone	1311	1319	61	80	69
Spain	2002	Regional (Galicia, Valencia, Cantabria)	Face-to-face (sensitive questions self-administered)	688	689	quota	43	40
Israel	2001	National	Face-to-face	2383	3032	60	199	125

* A: estimated mean / recorded consumption; B: estimated mean / (recorded + estimated unrecorded consumption); Unrecorded: Leifman 2001; WHO Global Burden of Disease Study, WHO Geneva

** Only refusals were counted as non-response

Table 2a. The proportion of abstainers (%)

				Lifetime abstainers		
	Men	Women	Ratio	Men	Women	Ratio
Finland	7	8	1.1	3	4	1.6
Iceland	11	12	1.1	4	5	1.3
Norway	6	6	1.1	1	2	1.4
Sweden	8	15	1.8	3	6	1.9
Austria	-	-	-	6	16	2.8
Czech R.	9	20	2.2	3	5	1.9
Germany	4	6	1.4	1	3	1.9
Hungary	9	26	2.8	5	19	3.8
Netherlands	14	31	2.2	5	14	2.7
Switzerland	9	22	2.4	5	17	3.1
UK	8	16	1.9	8	13	1.7
France	4	9	2.1	1	3	2.3
Italy	9	23	2.5	6	18	3.1
Spain	27	49	1.8	9	20	2.3
Israel	26	45	1.8	-	-	-

Table 2b. Current abstainers (%) by age group and sex

	Men			Women			Ratio		
	20-34	35-49	50-64	20-34	35-49	50-64	20-34	35-49	50-64
Finland	4	7	10	6	5	12	1.6	0.7	1.2
Iceland	9	9	15	10	10	20	1.0	1.0	1.3
Norway	5	5	9	5	4	12	1.1	0.8	1.3
Sweden	6	8	10	13	14	17	2.3	1.6	1.7
Austria	7	5	5	17	12	19	2.4	2.6	3.8
Czech R.	9	7	12	14	19	28	1.6	2.6	2.4
Germany	5	4	5	6	4	8	1.3	1.2	1.7
Hungary	6	11	12	17	24	37	3.0	2.3	3.1
Netherlands	17	10	17	32	25	39	1.9	2.4	2.3
Switzerland	10	8	9	23	20	22	2.2	2.5	2.4
UK	7	10	8	10	13	25	1.5	1.3	3.0
France	4	4	5	11	7	8	2.7	1.7	1.8
Italy	11	8	9	22	22	24	2.1	2.7	2.8
Spain	26	27	28	41	49	58	1.6	1.8	2.1
Israel	23	33	-	45	47	-	1.9	1.4	-

Table 3a. Overall frequency of drinking (mean, times per year). All respondents.

	Mean frequency				% weekly drinkers		
	Men	Women	Ratio		Men	Women	Ratio
Finland	81	43	1.9		59	36	1.6
Iceland	50	28	1.8		38	20	1.9
Norway*	58	32	1.8		51**	27**	2.0
Sweden*	63	42	1.5		39	25	1.6
Austria	175	79	2.2		82	57	1.5
Czech R.	113	45	2.5		64	30	2.1
Germany	144	80	1.8		71	47	1.5
Hungary	78	23	3.5		46	13	3.7
Netherlands	129	74	1.7		75	52	1.4
Switzerland	151	77	2.0		73	44	1.6
UK	104	73	1.4		64	47	1.4
France*	177	94	1.9		87	63	1.4
Italy							
Spain	141	56	3		63	32	2.0
Israel							

* Frequency is the maximum of beverage-specific frequencies; for Sweden the maximum of overall and beverage-specific frequencies.

** Frequency of drinking was an open-ended question; 'weekly' was defined as 48 times or more often per year

Table 3b. Overall frequency of drinking (mean, times per year) by age and sex. All respondents.

	Men			Women			Ratio		
	20-34	35-49	50-64	20-34	35-49	50-64	20-34	35-49	50-64
Finland	76	86	80	43	44	41	1.8	2.0	1.9
Iceland	48	54	48	27	31	26	1.8	1.7	1.8
Norway*	49	62	66	29	36	32	1.7	1.7	2.0
Sweden	51	62	75	33	43	49	1.6	1.4	1.5
Austria	160	186	184	70	87	81	2.3	2.1	2.3
Czech R.	93	126	123	40	55	39	2.3	2.3	3.1
Germany	120	154	167	65	89	89	1.8	1.7	1.9
Hungary	58	91	90	20	24	23	2.9	3.8	3.8
Netherlands	96	134	154	47	88	86	2.1	1.5	1.8
Switzerland	113	156	192	56	80	100	2.0	1.9	1.9
UK	94	100	119	69	76	74	1.4	1.3	1.6
France*	125	178	243	66	96	129	1.9	1.9	1.9
Italy									
Spain	107	150	180	48	64	56	2.2	2.3	3.2
Israel									

* Frequency is the maximum of beverage-specific frequencies.

Table 4. Mean frequency of drinking (times per year) by beverage type. All respondents.

	BEER			WINE			SPIRITS		
	Men	Women	Ratio	Men	Women	Ratio	Men	Women	Ratio
Finland	65	21	3.1	16	16	1.0	18	7	2.8
Iceland	40	17	2.4	20	18	1.1	14	7	2.0
Norway	47	19	2.5	22	22	1.0	21	9	2.5
Sweden	26	8	3.4	27	32	0.9	18	8	2.2
Austria									
Czech R.	112	27	4.1	23	27	0.8	28	12	2.4
Germany	114	32	3.5	41	50	0.8	21	10	2.0
Hungary									
Netherlands									
Switzerland	95	19	4.9	113	82	1.4	34	13	2.7
UK									
France	69	16	4.2	146	77	1.9	50	21	2.4
Italy									
Spain									
Israel									

Table 5. Mean quantities per drinking day by beverage type. Beverage-specific drinkers only.

	BEER			WINE			SPIRITS		
	Men	Women	Ratio	Men	Women	Ratio	Men	Women	Ratio
Finland	39	21	1.8	26	21	1.3	49	24	2.0
Iceland	36	28	1.3	29	27	1.1	68	44	1.6
Norway	41	29	1.5	36	31	1.1	62	32	1.9
Sweden	61	29	2.1	35	35	1.0	45	27	1.7
Austria*	40	24	1.7	36	25	1.4	29	22	1.3
Czech R.	57	26	2.2	49	41	1.2	44	29	1.5
Germany	37	19	2.0	33	37	0.9	15	12	1.3
Hungary**	31	15	2.1	19	10	1.8	22	14	1.6
Netherlands									
Switzerland	25	19	1.4	20	16	1.2	17	15	1.1
UK									
France*	11	7	1.4	26	15	1.8	13	10	1.3
Italy									
Spain									
Israel									

* Based on quantity yesterday; ** Based on beverage-specific quantities in the previous drinking occasion.
In other countries based on the usual or typical quantities.

Table 6a. Quantity per drinking day. Mean values (grams of pure alcohol). Drinkers only. See text for details of measurement.

	Mean overall quantity			Quantity with sum of frequencies as denominator		
	Men	Women	Ratio	Men	Women	Ratio
Finland	59	34	1.7	42	24	1.8
Iceland	65	52	1.3	43	34	1.3
Norway	79	52	1.5	43	30	1.4
Sweden	78	53	1.5	43	32	1.3
Austria	43	28	1.6			
Czech R.***	78	51	1.5	59	36	1.6
Germany	45	36	1.2	38	32	1.2
Hungary*	35	15	2.4			
Netherlands**	41	25	1.6			
Switzerland	33	20	1.7	26	17	1.6
UK	56	31	1.8			
France*	33	18	1.9	26	13	2.0
Italy						
Spain**	37	27	1.3			

* Based on quantity on a specific drinking occasion in the near past;

** based on reported usual quantities, summed over beverage types (Spain) or weekend/weekday categories (Netherlands); others are derived as volume divided by estimated overall frequency.

*** Quantity per drinking occasion

Table 6b. Mean quantity (grams of pure alcohol) per drinking day by age and sex. Drinkers only.

	Men			Women			Ratio		
	20-34	35-49	50-64	20-34	35-49	50-64	20-34	35-49	50-64
Finland	72	54	52	41	34	28	1.7	1.6	1.8
Iceland	64	44	38	47	34	30	1.4	1.3	1.3
Norway	96	76	53	67	46	35	1.4	1.6	1.5
Sweden	107	70	55	64	52	44	1.7	1.4	1.3
Austria	45	44	40	29	29	25	1.6	1.5	1.6
Czech R.	85	80	68	56	52	43	1.5	1.6	1.6
Germany	48	42	43	36	35	36	1.3	1.2	1.2
Hungary*	39	35	30	15	16	14	2.7	2.2	2.2
Netherlands**	47	39	36	29	24	22	1.6	1.6	1.6
Switzerland	37	33	30	21	19	18	1.8	1.7	1.6
UK	67	54	45	38	31	23	1.8	1.8	1.9
France*	31	33	37	18	18	18	1.8	1.8	2.0
Italy									
Spain**	44	32	31	34	23	20			

* Based on quantity on a specific drinking occasion in the near past;

** based on reported usual quantities, summed over beverage types (Spain) or weekend/weekday categories (Netherlands); others are derived as volume divided by estimated overall frequency.

*** Quantity per drinking occasion

Table 7a. Male/female ratio of mean volume, and the proportion that exceeds 20 grams of pure alcohol per day.

	Male/female ratio of mean volume:					% drunk by women	% exceeding 20 g per day (All respondents)		
	All respondents	Drinkers only	Beer	Wine	Spirits		Men	Women	Ratio
Finland	3.1	3.0	4.7	1.4	4.5	25	20	3	6.3
Iceland	2.2	2.2	2.8	1.2	2.7	31	11	2	4.6
Norway	2.7	2.7	3.4	1.2	5.0	27	15	3	5.4
Sweden	2.0	1.8	6.2	0.9	2.3	33	15	3	5.5
Austria	3.8	3.4				21	35	6	6.0
Czech R.	3.8	3.3	8.1	1.0	3.3	21	42	10	4.2
Germany	2.2	2.2	5.3	0.8	2.7	31	32	11	3.0
Hungary	7.3	5.8				12	12	1	13.4
Netherlands	2.8	2.2				26	26	6	4.1
Switzerland	2.9	2.5	7.2	1.7	2.9	25	25	5	5.3
UK	2.5	2.3				29	29	9	3.3
France	3.7	3.5	7.9	3.7	3.7	21	33	7	4.6
Italy	2.6	2.2	2.8	2.5	3.5	28	35	9	3.9
Spain	3.5	2.5				22	23	4	5.8
Israel	3.2	2.3				24	11	3	4.2

Table 7b. Median volume (grams per day) of drinking by age and sex. Drinkers only.

	Men			Women			Ratio		
	20-34	35-49	50-64	20-34	35-49	50-64	20-34	35-49	50-64
Finland	9.7	9.6	5.5	2.9	2.2	1.8	3.3	4.4	3.1
Iceland	6.2	7.4	5.3	2.6	2.5	2.1	2.4	3.0	2.5
Norway	8.2	7.4	5.0	3.0	2.5	1.6	2.7	2.9	3.1
Sweden	9.1	7.4	7.1	4.0	3.8	3.0	2.2	1.9	2.3
Austria	14.2	17.1	14.2	2.8	2.8	2.8	5.0	6.0	5.0
Czech R.	16.0	22.9	14.7	2.9	3.8	2.7	5.5	6.0	5.4
Germany	11.3	12.5	14.5	3.7	4.8	4.6	3.0	2.6	3.2
Hungary	2.5	5.0	4.6	0.5	0.7	0.5	4.8	7.7	8.7
Netherlands	10.7	11.4	12.9	3.2	4.3	5.0	3.3	2.7	2.6
Switzerland	9.8	11.6	13.9	3.8	4.2	5.6	2.6	2.8	2.5
UK	11.4	8.8	9.1	3.2	3.4	3.4	3.6	2.6	2.7
France	5.0	8.4	23.5	1.5	2.3	2.7	3.3	3.6	8.7
Italy	9.9	13.6	31.3	2.2	3.5	12.8	4.6	3.9	2.4
Spain	10.7	16.7	17.1	4.3	4.4	4.3	2.5	3.8	4.0
Israel	3.3	2.3		0.9	0.6		3.7	3.8	

Table 8a. Mean frequency (times per year) of episodic heavy drinking and the proportion (%) that drinks X number of drinks monthly. All respondents.

Country (cut-point X *)	Frequency of X+			% drinking X+ monthly		
	Men	Women	Ratio	Men	Women	Ratio
Finland (6+; 60g)	16.9	5.3	3.2	45.6	13.0	3.5
Iceland (5+; 65g)	17.3	7.0	2.5	37.8	17.5	2.2
Norway (70 / 75 / 110g)	9.5	3.1	3.0	20.7	7.5	2.8
Sweden (5+; 60g)	12.2	3.8	3.2	17.8	3.5	5.1
Czech R. (5+; 100 / 95 / 80g)	19.6	3.7	5.2	26.1	7.9	3.3
Hungary (3+; 60g)	38.3	7.8	4.9	36.5	7.6	4.8
Austria						
Germany (5+; 70g)	23.5	4.7	5.0	40.2	11.9	3.4
Netherlands (6+; 60g)	27.0	5.6	4.8	31.3	8.0	3.9
Switzerland (8+; 80g)	3.7	0.7	5.7	6.7	1.1	6.0
UK						
France						
Italy						
Israel (5+; 60 g)	4.2	1.4	3.1	16.4	6.0	2.7

* In number of drinks and in approximate grams, separately by beverage (beer, wine and spirits) when these were asked separately. Standard drink size varies from one country to another.

Table 8b. Mean frequency of episodic heavy drinking by age and sex. All respondents.

Country (cut-point X *)	Men			Women			Ratio		
	20-34	35-49	50-64	20-34	35-49	50-64	20-34	35-49	50-64
Finland (6+; 60g)	18.6	18.6	13.4	6.5	6.2	3.2	2.9	3.0	4.2
Iceland (5+; 65g)	21.2	15.9	14.5	10.0	5.8	4.4	2.1	2.7	3.3
Norway (70 / 75 / 110g)	11.4	10.7	4.4	4.6	2.8	1.3	2.5	3.9	3.5
Sweden (5+; 60g)	16.6	12.4	7.7	6.5	3.1	1.9	2.6	4.1	4.1
Czech R. (5+; 100 / 95 / 80g)	15.6	26.0	16.9	4.1	4.4	2.5	3.8	6.0	6.6
Hungary (3+; 60g)	25.4	47.4	44.6	8.1	5.3	10.3	3.2	8.9	4.3
Austria									
Germany (5+; 50 / 100 / 25g)	23.4	24.3	22.5	5.0	4.6	4.5	4.7	5.3	5.0
Netherlands (6+; 60g)	26.0	25.9	29.4	5.6	6.6	4.0	4.6	3.9	7.3
Switzerland (8+; 80g)	5.0	3.5	2.5	0.9	0.7	0.3	5.3	5.4	7.7
UK									
France									
Italy									
Israel (5+; 60g)	4.7	3.1		1.6	0.9		2.9	3.6	

* In number of drinks and in approximate grams, separately by beverage (beer, wine and spirits) when these were asked separately. Standard drink size varies from one country to another.

Chapter 3: Drinking contexts

Drinking contexts in European countries

Salme Ahlström, Gerhard Gmel, Pia Mäkelä and Jurkka Näsänen

1 INTRODUCTION

When we try to explain social behaviour of any sort, we usually seek to isolate its occurrence and limit its variation to two sets of factors: person factors and environmental factors (i.e. the situation or context). The conceptual and empirical focus of my paper is on the environmental factors. However, while context may hold the key to understanding drinking behaviour, no single idiom describes context. Rather, the term is a convenient label for a variety of behavioural concomitants and antecedents.

Richard Jessor (1981) has reviewed the different ways researchers have thought about and done research on drinking contexts. One level of analysis of environmental contexts seeks to capture the shared or consensual *meanings* of a situation, the "label" it carries for those who participate in it.

The notion of a "meal" is an example of the consensual meaning of a situation that carries with it implications for drinking. Another notion is a "party". People know what a meal and a party are and know that certain kinds of behaviour are permitted at parties that may not be permitted in other settings. Both "meal" and "party" have a symbolic meaning and thereby implicate the kind of behaviour expected to occur.

The most obvious way to describe the environment is to specify where the drinking occurs. The location can be private: one's own home or a friend's home; or public: a bar, pub, disco, or restaurant.

Another approach would be to classify the drinking companions. Does drinking occur with the spouse, other family members, friends, colleagues, or on one's own?

In contrast to these three levels of descriptive concepts about the environment, Jessor reminds us that there is a fourth level that is explicitly theoretical. This would be an attempt to use certain abstract dimensions or underlying attributes that can be applied to all situations irrespective of their shared significance, location, time, or company. At this third level, then, the focus is on terms like *social controls and norms* or *availability of alcohol*.

Our aim in the present paper is to compare the prevalence of different drinking contexts and to compare gender differences in the drinking contexts in European countries. The contexts examined in this paper can be divided into three broad categories: (1) circumstance (meal; party or celebration), (2) location (private locations: own home or friends' home; public locations: workplace; bar, pub or disco) and (3) drinking company (spouse or partner; other family member; other friends; colleagues or schoolmates; alone).

The following 10 European countries have been included: Iceland, Norway, Sweden, Finland, the United Kingdom, Germany, the Czech Republic, Hungary, Spain, and Italy. The main target is to study gender differences between these countries. Comparison of data varies depending on the availability of different variables in these countries.

On the basis of previous research (Ahlström-Laakso 1976, Hupkens et al.1993) the first research question is: Is drinking most integrated into social activities in Southern European countries, less integrated in Central European countries and least integrated in the Nordic countries?

The second research question is: Is the pattern of integration similar for both genders, independent of the level of the drinking frequency in that country?

On the basis of previous research (e.g. Ahlström et al. 2001) the third research question is: Is age associated with drinking contexts in a similar way in all study countries?

2 DATA AND METHODS

The surveys have been described in detail in Chapter 1 (Data Centralization) of this report.

2.1 Age and gender

The age ranges of respondents in the study country samples varied. For the present analysis, respondents from 20–64 years of age were selected in order to increase comparability. Three age groups were used: 20–34 years, 35–49 years and 50–64 years.

2.2 Drinking contexts

Drinking contexts were described by using two questions from the GENACIS Core questionnaire. The question formulations in individual countries may have deviated somewhat from this common formulation.

The first question was: "Thinking back over the last 12 months, about how often did you drink in the following circumstances? Think of all the times that apply in each situation. For example, having a

drink with a meal in your own home should be included under both '(a) at a meal', and '(c) in your own home':

- a. At a meal
- b. At a party or celebration
- c. In your own home
- d. At a friend's home
- e. At your workplace
- f. In a bar/pub/disco
- g. In a restaurant

The second question was: "How often in the last 12 months have you had a drink when you were with the following persons? Think of all the times that apply for each person. For example, having a drink with your spouse or partner and friends should be included under both (a) with your spouse or partner, and (d) with friends":

- a. With your spouse/partner/romantic (non-cohabiting) partner whether or not other people present
- b. With a family member other than your spouse/partner/romantic (non-cohabiting) partner
- c. With people you work with
- d. With friends other than your spouse or partner
- e. When no one happened to be with you

In the GENACIS core questionnaire answers to both questions were coded according to: never in the last 12 months (1); once or twice in the last 12 months (2); three to six times in the last 12 months (3); seven to eleven times in the last 12 months (4); one to three times a month (5); once or twice a week (6); three or four times a week (7); every day or nearly every day (8). However only in the UK and Spain was core questionnaire implemented fully for both questions. In the other countries, there were no identical frequency categories available. In order to increase comparability, answers were re-coded with the aim of transforming each frequency category into days per year. The new values were chosen so that they could be understood as approximate values for class interval midpoints. Coding to days for core questionnaire answers and other details on comparability is given in Appendix B.

2.3 Statistical analyses

The mean of context-specific drinking days was calculated by gender and age among the drinking population (i.e. excluding those who had not consumed any alcohol during the past 12 months). Because this study is concerned with gender comparisons, it devotes special attention to gender ratios - that is, to the mean of men's drinking contexts to those of women. In ranking the context variables, we tried to avoid claiming two prevalence rates to be different when the estimates differed only marginally. In practice, our rule of thumb was that differences of less than 15 percent were ignored.

In order to simplify the comparison of the results by age groups age ratios were calculated - that is, the mean of the second and third age group was divided by that of the first age group.

3 RESULTS

3.1 Meals and Parties

In Table 1 the proportion of men and women and the prevalence of drinking at a meal was highest in wine countries—in other words, in Spain and Italy—than in Central European countries and was lowest in Nordic countries. The gender ratio was very high in Hungary, quite high in the Czech Republic, and lowest in the United Kingdom, Sweden and Iceland (Table 1).

The prevalence of drinking at a meal was lowest in the youngest age group in the Nordic countries and in other study countries increased with age (Table 7).

The prevalence of drinking at a party or celebration was very low in all study countries (Table 1). The gender ratio was highest in the United Kingdom and Spain and lowest in Sweden and the Czech Republic (Table 1).

The prevalence of drinking at a party was in most study countries highest in the youngest age group (Table 7).

3.2 Private places

The results for drinking at own home were similar to the results for drinking with meals. The prevalence of drinking at own home was very high in the wine countries Spain and Italy; and low in Iceland and Hungary (Table 2). The gender ratio was highest in Hungary and lowest in the United Kingdom and Sweden (Table 2).

While the prevalence of drinking at home and drinking with meals were in general close to each other, the deviations from this pattern were of interest. In Finland the gap between these two prevalence rates was greatest in the direction that drinking at home was more prevalent than drinking with meals. In contrast, in the Czech Republic, Hungary, Spain and Italy it was more common to drink with meals than at home.

In all study countries, the prevalence of drinking at own home was lowest in the youngest age group (Table 8).

The prevalence of drinking at a friend's home was low in all study countries (Table 2). The gender ratio was highest in Hungary and Spain and lowest in Sweden. In all study countries, the prevalence of drinking at a friend's home was lowest in the oldest age group (Table 8).

3.3 Public places

The prevalence of drinking at own workplace was very low in all study countries (Table 3). It was highest in Spain and non-existent in Finland. The gender ratio was highest in Spain and Hungary (Table 3).

In the United Kingdom, the prevalence of drinking at the workplace was highest in the youngest age group and in the Czech Republic and in Spain, in the middle age group (Table 9).

The prevalence of drinking in a bar, pub, or disco was highest in Spain and in the United Kingdom and lowest in Sweden, Iceland and Finland (Table 3). The gender ratio was highest in Hungary (Table 3).

In the Nordic countries and in the United Kingdom, the prevalence of drinking in a bar, pub, or disco was highest in the youngest age group (Table 9).

The prevalence of drinking in a restaurant was low in all study countries (Table 3). It was highest in Spain and lowest in Finland. The gender ratio was highest in Hungary and Spain.

In Sweden and in the United Kingdom, the prevalence of drinking in a restaurant was highest in the youngest age group, in Spain in the middle age group (Table 9).

3.4 Drinking companions

The results for drinking with spouse, partner or romantic, non-cohabiting partner were also similar to the results on drinking at home or drinking with meals, with drinking with partner usually somewhat less prevalent than drinking at home. The UK was an exception in that there drinking with partner was slightly more common than drinking at home. The prevalence of drinking with partner was highest in Spain and next highest in the United Kingdom (data was not available for Italy), and quite low in other study countries (Table 4). The gender ratio was highest in Spain and Hungary and lowest in the United Kingdom (Table 4). In all study countries, except Finland and the Czech Republic, the prevalence of drinking with spouse or partner increased with age.

The prevalence of drinking with a family member other than spouse, partner or romantic partner was highest in Spain and lowest in Sweden and Finland (Table 4). The gender ratio was highest in Spain and lowest in Finland (Table 4). In Spain among men, the prevalence of drinking with a family member other than their spouse or partner increased by age.

The prevalence of drinking with friends other than their spouse or partner was highest in Spain and lowest in Sweden and Finland (Table 4). The gender ratio was highest in Spain and lowest in Sweden and Finland (Table 4). In all study countries, except in the Czech Republic and among Hungarian men, the prevalence of drinking with friends other than their spouse or partner was highest in the youngest age group.

The prevalence of drinking with colleagues or schoolmates was highest in Spain and lowest in Finland (Table 4). The gender ratio was highest in Hungary and lowest in Sweden and Norway (Table 4).

The prevalence of drinking alone was highest among Spanish men and lowest among Swedish men. The prevalence was low among women in all study countries. The gender ratio was highest in Hungary and lowest in Norway (Table 4). In all study countries among men, the prevalence of drinking without any company increased with age. Among women, the same pattern was found in most study

countries, but in Norway and the United Kingdom highest prevalence was found in the middle age group.

3.5 Most frequent drinking contexts

In the comparisons above, those countries that have a high frequency of drinking were often found to have high context-specific frequencies as well. In addition to this comparison of absolute frequencies we were interested in looking at the relative frequencies: which contexts are most and least common in different countries? The rank order of frequency of drinking in the contexts of 'meals', 'own home' and 'bar/pub' are given in Table 5 (the inclusion of other contexts would have increased the number of empty cells and would hence have complicated the comparability of the rank orders). In the Nordic study countries and in the United Kingdom, own home is the most common drinking place and drinking at a meal is the next common context. In Spain, the Czech Republic and Hungary, drinking at a meal is the most common context. In all study countries the pattern was similar for both genders.

3.6 Most frequent drinking companions

The rank order of drinking companions is given in table 6. In the Nordic countries, the United Kingdom and Spain, the most common drinking companion among men is the spouse or partner and the next common a workmate. In the Czech Republic and Hungary the most common drinking companion is a workmate and the next common the spouse or partner. In all study countries, the most common drinking companion among women is the spouse or partner and the next common a workmate. The pattern of the most frequent drinking companions is similar for both genders in the Nordic countries and the United Kingdom, but different in the Czech Republic, Hungary and Spain.

4 DISCUSSION

It is difficult to systematically compare the study countries because not all countries had all the necessary data. In addition, the categories were not identical. However, tentative answers to our research questions could be found.

In Southern Europe, in our study countries Spain and Italy, drinking was found to be integrated into many social activities. In Spain, one often reported drinking at meals, in private and public places, and with everyone from spouse to colleagues or schoolmates.

In Central European countries, in our study countries Germany, the United Kingdom, the Netherlands, the Czech Republic, and Hungary, the degree of integration in drinking was lower. But it was higher than in the Nordic countries, our study countries Iceland, Norway, Sweden, and Finland.

In addition, there were differences among the Central European countries as well as among the Nordic countries. For instance, the frequency of drinking at a friend's home was higher in Hungary than in the Czech Republic. In Norway and in Sweden, the frequency of drinking in a restaurant was much higher than in Finland.

In most study countries, the pattern of integration was similar for both genders. However, in the Czech Republic and in Hungary, workmates were more often favoured by men as a drinking companion than was the spouse. In these countries, drinking seems to be more related to men's social life than to the domestic life than in the other study countries.

In all study countries, age was partly related to drinking contexts in a similar way. The youngest age group did not report drinking at a meal and at home as often as the older ones, but they drank more often than the older age groups at parties and bars and with their friends. As age increased the importance of the spouse as a drinking companion increased.

But there were interesting exceptions. Schoolmates and colleagues were important drinking companions for young men in the United Kingdom, but in the Czech Republic and in Spain for middle-aged men.

One interesting result which needs to be commented on is the age group differences among women in the frequency of drinking alone. In all study countries, the prevalence of drinking alone increased by age, but not in Norway and in the United Kingdom where highest prevalence was found among the middle age group. A likely explanation is a generational effect that is stronger than the age effect: even if in the individuals' life courses drinking alone would increase with age, the older women drink so little that in comparison to the younger cohorts, who drink more in any context, the age pattern cannot be detected.

The degree of gender similarity in drinking patterns varied between study countries. The gender ratios in drinking context variables were very low in Iceland, Norway, and Sweden. They were of medium size in Finland, Germany, the Netherlands, and the United Kingdom. Highest gender ratios were found in the Czech Republic and Hungary. Our hypothesis, which needs to be looked at in a multi-level analysis, is that this is related to the gender equality in these countries.

5 REFERENCES

- Ahlström, S., Bloomfield K., Knibbe R. (2001). Gender differences in drinking patterns in nine European countries: descriptive findings. *Substance Abuse*, 22(1), 69-85.
- Ahlström-Laakso S. (1976). European drinking habits: A review of research and some suggestions for conceptual integration of findings. In: Everett MV, Waddell JO, Heath DB (eds) *Cross-Cultural Approaches to the Study of Alcohol: An Interdisciplinary Perspective*, 119-132. *Mouton (distributed in the US by Aldine, Chicago, IL), The Hague and Paris*.
- Jessor R. (1981). Some Problematic Aspects of Research on Drinking Contexts. In Harford TC, GAines LS (eds.) *Social Drinking Contexts, Proceedings of a Workshop September 17-19, 1979, Washington, DC*, 228-233. *US Government Printing Office, Washington, DC*.
- Hupkens C.L., Knibbe R.A., Drop M.J. (1993). Alcohol consumption in the European community: uniformity and diversity in drinking patterns. *Addiction*, 88(10):1391-404.

6 TABLES

Table 1. Drinking at a meal and at a party among men and women, number of days in last 12 months, mean and gender ratio

Country	Meal			Party		
	Men	Women	Ratio	Men	Women	Ratio
Iceland	20	15	1.3	8	6	1.4
Sweden	41	34	1.2	15	14	1.1
Finland	17	9	1.9			
U.K.	57	54	1.1	18	13	1.4
Germany	36	17	2.1			
Czech Rep.	100	41	2.4	11	9	1.2
Hungary	66	24	2.7			
Spain	157	87	1.8	17	12	1.4
Italy	178	130	1.4			

Table 2. Drinking in private places among men and women, number of days in last 12 months, mean and gender ratio

Country	Own home			Friend's home		
	Men	Women	Ratio	Men	Women	Ratio
Iceland	33	20	1.6	8	7	1.3
Sweden	47	37	1.3	15	15	1.0
Finland	57	32	1.8	5	4	1.4
U.K.	79	71	1.1	19	15	1.3
Germany	45	24	1.8			
Czech Rep.	63	31	2.0	12	10	1.2
Hungary	37	7	5.1	16	8	2.1
Spain	140	83	1.7	16	9	1.8
Italy	152	97	1.6			1.3

Table 3. Drinking in public places among men and women, number of days in last 12 months, mean and gender ratio

Country	Workplace			Bar, pub, disco			Restaurant		
	Men	Women	Ratio	Men	Women	Ratio	Men	Women	Ratio
Iceland	3	1	3.5	13	8	1.5			
Norway							20	17	1.2
Sweden	3	1	2.5	11	8	1.4	10	8	1.3
Finland	0	0	1.1	19	9	2.1	3	2	1.6
U.K.	8	4	2.3	57	25	2.3	15	11	1.4
Czech Rep.	11	5	2.3						
Hungary	7	1	7.1	43	8	5.2	7	3	2.5
Spain	20	2	11.7	89	38	2.4	25	12	2.1

Table 4. Drinking companions among men and women, number of days in last 12 months, mean and gender ratio.

Country	Spouse, partner			Family member			Friends			Workmate			None		
	Men	Women	Ratio	Men	Women	Ratio	Men	Women	Ratio	Men	Women	Ratio	Men	Women	Ratio
Norway	43	35	1.2	12	10	1.1	16	12	1.3	24	18	1.4	22	14	1.6
Sweden	43	36	1.2	8	8	1.0	9	7	1.3	10	8	1.2	9	5	1.8
Finland	42	32	1.3	10	6	1.6	8	3	2.5	18	8	2.3	19	7	2.7
U.K.	81	75	1.1	22	14	1.6	15	6	1.6	38	24	1.6	27	15	1.8
Germany													23	7	3.5
Czech Rep.	35	30	1.2	13	10	1.3	24	7	3.6	43	10	4.2	27	13	2.2
Hungary	25	18	1.4	17	7	2.4	20	2	9.1	40	9	4.3	39	4	9.0
Spain	123	82	1.5	35	30	1.2	59	13	4.5	72	32	4.7	52	11	4.7

Table 5. Most frequent drinking contexts in last 12 months, by gender, rank order

	Men			Women		
Country	Meal	Own home	Bar, pub	Meal	Own home	Bar, pub
Iceland	2	1	3	2	1	3
Sweden	2	1	3	2	1	2
Finland	2	1	2	2	1	2
U.K.	2	1	2	2	1	3
Czech Rep.	1	2	•	1	2	•
Hungary	1	3	2	1	2	2
Spain	1	2	3	1	2	2

Table 6. Most frequent drinking companions in last 12 months, by gender, rank order

	Men				Women			
Country	Spouse	Family member	Friends	Workmate	Spouse	Family member	Friends	Workmate
Norway	1	4	3	2	1	4	3	2
Sweden	1	2	2	2	1	2	2	2
Finland	1	3	4	2	1	3	4	2
U.K.	1	3	4	2	1	3	4	2
Czech Rep.	2	4	3	1	1	2	3	2
Hungary	2	4	3	1	1	3	4	2
Spain	1	4	3	2	1	2	3	2

Table 7. Drinking at a meal and at a party among men and women, mean number of days (in bold) in last 12 months by country, and ratio of means by age group (age group 20-34=1.0).

Country	Meal		Party	
	Men	Women	Men	Women
Iceland	20	15	8	6
20-34	1.0	1.0	1.0	1.0
35-49	1.7	1.5	0.6	0.6
50-64	1.5	1.2	0.5	0.6
Sweden	41	34	15	14
20-34	1.0	1.0	1.0	1.0
35-49	1.8	1.7	0.6	0.6
50-64	1.9	1.9	0.7	0.8
Finland	17	9		
20-34	1.0	1.0		
35-49	1.6	1.1		
50-64	1.4	1.2		
U.K.	57	54	18	13
20-34	1.0	1.0	1.0	1.0
35-49	1.3	1.4	0.5	0.9
50-64	1.4	1.7	0.5	0.5
Germany	36	17		
20-34	1.0	1.0		
35-49	2.0	1.9		
50-64	2.4	2.5		
Czech Rep.	100	41	11	9
20-34	1.0	1.0	1.0	1.0
35-49	1.4	1.6	1.1	1.0
50-64	1.5	1.5	0.7	0.9
Hungary	66	24		
20-34	1.0	1.0		
35-49	2.2	1.6		
50-64	2.9	3.4		
Spain	157	87	17	12
20-34	1.0	1.0	1.0	1.0
35-49	2.1	2.1	0.7	0.7
50-64	2.8	2.7	0.8	0.5
Italy	178	130		
20-34	1.0	1.0		
35-49	1.4	1.8		
50-64	1.7	2.2		

Table 8. Drinking in private places among men and women, mean number of days (in bold) in last 12 months by country, and ratio of means by age group (age group 20-34=1.0).

Country	Own home		Friend's home	
	Men	Women	Men	Women
Iceland	33	20	8	7
20-34	1.0	1.0	1.0	1.0
35-49	1.4	1.6	0.6	0.7
50-64	1.2	1.2	0.3	0.5
Sweden	47	37	15	15
20-34	1.0	1.0	1.0	1.0
35-49	1.8	1.6	0.8	0.8
50-64	1.9	1.9	0.7	0.8
Finland	57	32		
20-34	1.0	1.0		
35-49	1.6	1.2		
50-64	1.6	1.3		
U.K.	79	71	19	15
20-34	1.0	1.0	1.0	1.0
35-49	1.3	1.3	0.6	1.0
50-64	1.4	1.5	0.5	0.7
Germany	45	24		
20-34	1.0	1.0		
35-49	1.5	1.4		
50-64	1.8	1.5		
Czech Rep.	63	31	12	10
20-34	1.0	1.0	1.0	1.0
35-49	1.6	2.1	1.1	0.9
50-64	1.9	2.1	0.6	0.7
Hungary	37	7		
20-34	1.0	1.0		
35-49	2.1	1.1		
50-64	2.1	2.0		
Spain	140	83	16	9
20-34	1.0	1.0	1.0	1.0
35-49	2.1	1.8	0.9	0.4
50-64	2.7	2.4	0.8	0.3
Italy	152	97		
20-34	1.0	1.0		
35-49	1.6	1.8		
50-64	2.1	2.2		

Table 9. Drinking in public places among men and women, mean number of days (in bold) in last 12 months by country, and ratio of means by age group (age group 20-34=1.0).

Country	Workplace		Bar, pub, disco		Restaurant	
	Men	Women	Men	Women	Men	Women
Iceland	3	1	13	8		
20-34	1.0	1.0	1.0	1.0		
35-49	0.8	1.2	0.4	0.5		
50-64	0.4	0.4	0.3	0.5		
Sweden	3	1	11	8	10	8
20-34	1.0	1.0	1.0	1.0	1.0	1.0
35-49	0.4	1.1	0.4	0.4	0.7	0.7
50-64	1.6	0.9	0.2	0.1	0.6	0.6
Finland	0	0				
20-34	1.0	1.0				
35-49	0.8	3.5				
50-64	0.4	2.2				
U.K.	8	4	57	25	15	11
20-34	1.0	1.0	1.0	1.0	1.0	1.0
35-49	0.8	0.4	0.7	0.7	0.6	0.7
50-64	0.7	0.4	0.9	0.6	0.6	1.1
Czech Rep.	11	5				
20-34	1.0	1.0				
35-49	1.7	1.3				
50-64	0.7	0.5				
Hungary	7	1	43	8	7	3
20-34	1.0	1.0	1.0	1.0	1.0	1.0
35-49	0.9	0.3	0.9	0.2	0.5	0.5
50-64	0.7	0.1	0.9	0.1	1.2	0.2
Spain	20	2				
20-34	1.0	1.0				
35-49	2.2	0.7				
50-64	1.3	2.7				

Table 10. Drinking companions among men and women, mean number of days (in bold) in last 12 months by country, and ratio of means by age group (age group 20-34=1.0).

Country	Spouse, partner		Family member		Friends		Workmate		None	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Norway	43	35	12	10	24	18	16	12	22	14
20-34	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
35-49	1.5	1.3	1.3	0.9	0.9	0.9	0.9	0.8	1.6	1.7
50-64	1.8	1.4	0.8	0.8	0.8	0.7	0.8	0.6	2.0	1.1
Sweden	43	36	8	8	10	8	9	7	9	5
20-34	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
35-49	1.6	1.5	1.1	1.0	0.6	0.4	0.5	0.4	0.9	2.6
50-64	1.7	1.7	1.4	1.0	0.7	0.3	0.6	0.3	1.3	6.1
Finland	42	32								
20-34	1.0	1.0								
35-49	1.5	1.1								
50-64	1.4	1.2								
U.K.	81	75	22	14	38	24	15	6	27	15
20-34	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
35-49	1.1	1.3	0.7	0.7	0.8	0.8	0.5	0.7	1.2	1.8
50-64	1.2	1.4	0.9	1.0	0.9	0.7	0.4	0.6	1.5	1.3
Germany										
20-34										
35-49										
50-64										
Czech Rep.	35	30	13	10	43	10	24	7	27	13
20-34	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
35-49	1.2	1.3	1.0	1.4	1.2	0.9	1.1	1.3	2.4	3.3
50-64	1.1	0.9	0.9	1.0	1.1	0.6	0.6	0.6	3.2	3.4
Hungary	25	18								
20-34	1.0	1.0								
35-49	2.5	1.9								
50-64	3.0	3.2								
Spain	123	82	35	30	72	32	59	13	52	11
20-34	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
35-49	2.1	2.2	1.4	0.9	0.9	0.8	1.1	0.5	1.1	1.2
50-64	2.5	2.4	1.6	1.2	0.8	0.3	1.0	0.6	1.4	2.3

Chapter 4: Alcohol-related problems

The Alcohol Use Disorder Identification Test (AUDIT) in general population surveys in European countries: a first evaluation of the reliability

Ronald A. Knibbe, Mieke Derickx, Sandra Kuntsche, Ulrike Grittner, Kim Bloomfield

1 INTRODUCTION

Prevalence estimates of problem drinking are mostly made on the basis of self reports of respondents in general population surveys. Biomedical markers for alcohol misuse have as a limitation that the time span over which alcohol misuse can be detected is restricted and covers only a restricted range of the variety of alcohol related problems (Beresford et al, 1990).

Generally speaking, two strategies have been used to measure problem drinking in population surveys. The first strategy is to focus upon the variety of problems possibly due to alcohol consumption and establish how often these occur. The advantage of a more elaborate measurement of alcohol related problems is that a more complete overview of the types of problems associated with alcohol consumption is provided. This allows for example to specify which type of alcohol related problems dominate in a particular subpopulation, region or country. The disadvantage is of course that it requires many questions. The second strategy is to reduce the variety of consequences to a limited set of items which allows establishing reliably and validly whether someone is a problem drinker. The advantage of a limited set of items to screen for problem drinking is its brevity. However, the disadvantage is of course that such an instrument is limited in taking into account the variability in the types of problems associated with alcohol consumption.

This variability is important both within and between countries. For example within some subpopulations or countries drunkenness, violence and accidents may be the most prevalent types of

alcohol related problems; in other subpopulations chronic health consequences due to excessive consumption and work related problems may be the most prevalent problems. Short screening instruments pre-suppose a uniformity in alcohol related problems within general populations. Considering the differences in drinking patterns there may be more variety in types of alcohol related problems within countries (for example between men and women, younger and older people, social classes) but especially between countries (e.g. Mediterranean countries with a higher daily consumption of wine, and Scandinavian countries with a higher frequency of risky single occasion drinking) than short screening instruments are able to cover.

Within the European context there are several countries which have a more or less established research tradition into alcohol consumption and alcohol related problems. However, there is a large variety in items countries use to estimate prevalence of problem drinking (Knibbe et al, 2003). This variety is mostly not much of a problem if evaluated from the limited perspective of each particular study. Thus, the comparability with outcomes from other studies in the same country may be seen as much more important than comparability with studies from other countries. However, there is an increasing demand for comparable prevalence estimates from different countries of Europe. The increasing number of countries of the EU may play a role in that. However, more important is a somewhat increased recognition on the European level that alcoholic beverages have not only an economic aspect but also a public health aspect. To substantiate the public health aspects of alcohol consumption on the European level, comparable estimates of alcohol misuse and problem drinking are required. The main question in this paper is whether the Alcohol Use Disorder Inventory Test (AUDIT) could possibly be an instrument to provide comparable estimates of problem drinking in general populations of different European countries. General population surveys from 10 European countries will be used in which all or most of the 10 items of the AUDIT were measured in a comparable way.

Compared with other well known screening instruments like Cage (Mayfield et al, 1974), SAAST (Davis et al, 1987), SMAST (Selzer et al, 1975) the most distinguishing characteristics of the AUDIT are that

- it has been developed to detect problem drinking in a general treatment setting; several countries were involved in the development of the AUDIT;
- it includes two types of consequences: dependence symptoms (not being able to stop, failing normative expectations and morning drinking) and harmful consequences (e.g. black outs, guilt, injuries)
- it includes also aspects of drinking pattern (e.g. frequency of drinking and quantity per occasion) (Babor et al, 2001).

The usefulness of the AUDIT in different national and cultural contexts was an important issue in the development of the AUDIT. From that point of view it is well documented how useful the instrument is in different countries. (Babor et al, 2001). However, the AUDIT was not developed to provide prevalence estimates in general populations and, with few exceptions (e.g. Ivis et al 2000), was not used for that purpose. When using it to estimate prevalence rather than for (early) detection in a treatment setting, there are two main points to consider. Firstly, the interpretation of responses to the AUDIT items is more controlled in treatment settings than in general population surveys. Secondly,

populations entering treatment settings are, compared with general populations, more likely to score uniformly rather high. We expect that in general populations there is more variation both in number of items scored and in frequency of experiencing harmful consequences. In a cross national context this variation in consequences and interrelationships between consequences is likely to be larger than in more select samples.

Differences between countries on the item level indicate national or cultural differences in the specific type of consequence most likely to be associated with alcohol misuse. Therefore such variations give a first indication of the sensitivity of the AUDIT for (sub) cultural differences in problems associated with drinking. A point of special attention in this paper will be gender differences within countries on the item level. It is well known that men and women may differ in which specific problems alcohol use may lead to. Because in almost all studies women drink less than men, such differences would not appear for some consequences as a higher prevalence among women. A better indication of the extent to which the selection of items is sensitive for gender differences is the gender ratio where items with the lowest gender ratio indicate consequences women are more likely to report.

To evaluate the whole set of items we will analyze the extent to which the items of the AUDIT constitute a scale in each of the countries. When countries differ in this aspect it will mean that scores on the AUDIT have to be interpreted differently. In countries in which the items together constitute a strong scale from a statistical point of view, one can conclude that all items indicate the same concept and drinkers can be rank ordered in severity of problems according to their score. However, countries in which the items taken together do not create a strong scale, it is doubtful whether the items all indicate the same concept and the score on the set of items does not indicate or indicates much less reliably differences in severity of alcohol problems. Of course, differences between countries in the extent the items taken together are a statistically reliable scale also influence the comparability of AUDIT scores between countries. When analyzing the reliability of the whole set of items, special attention will be paid to the contribution of the drinking indicators of the AUDIT to the reliability of the scale. The drinking indicators have been interpreted as indicating the risk on problem drinking rather than problem drinking itself. In a treatment setting such a distinction is very useful to decide which action to take. However, from a more conceptual point of view it may be that risk –indicated by the drinking indicators of the AUDIT- is a different concept from consequences or alcohol related problems. If these are different concepts it would not increase the statistical reliability of a scale when the drinking indicators are included.

The following research problems will guide the analysis on the items of the AUDIT:

- What differences are there between countries on the items constituting the AUDIT and which gender differences are there within countries on these items?
- Do countries differ in the extent the set of items constitute a (statistically) reliable scale?
- Do countries differ in how the drinking indicators used in the AUDIT contribute to the reliability of the AUDIT?

2 DATA AND METHODS

This study is based on data from the broader GENACIS project (see Chapter 2 – Data Centralization - for more information). The analyses were limited to the present European Union project study countries only. A common questionnaire (GENACIS core questionnaire) was used in most of the countries. Basic characteristics concerning the data sets are summed up in table 1.

Table 1. Survey characteristics

Country	Year	Sampling frame	Age range	Survey mode	Response rate
Switzerland	1997	National	15+	Telephone	68.4 %
Spain	2002	Regional	18+	Face to face (sensitive questions self administered)	quota
UK	2000	National	18+	Face to face and CAPI	quota
Sweden	2002	National	17+	Telephone	69.2 %
Finland	2000	National	16-70	Face to face	79.4 %
The Netherlands	1999	Regional	16-69	Postal	71.0 %
Czech Republic	2002	National	18-64	Face to face	72.6 %
Hungary	2002	National	19-65	Face to face	quota
Iceland	2001	National	18-75	Mixed (half/half postal and telephone survey)	71.0 %/ 56.6 %

The age range is about similar with the youngest age category being between 15 (e.g. Switzerland) and 19 years (e.g. Hungary) and the oldest being 64 years (Czech Republic) or older (all other countries). All surveys include both sexes and the survey year is between 1997 (Switzerland) and 2002 (e.g. Czech Republic). Table 1 shows that countries differ in mode of interview and non response rates. Therefore, surveys may differ in under-reporting of consequences (e.g. more under reporting in face to face interviews than in postal interviews) and the extent of selective non-response among heavier drinkers. We will not go into these issues here, except to point out that direct comparisons of prevalences between countries should be made with caution. For our main purpose, a first exploration of aspects of reliability, the main point is whether these surveys cover most of the variation in drinking pattern and consequences of these populations. We assume that in this respect all surveys included here are adequate.

The AUDIT consists of 10 questions of which 7 concern alcohol related consequences and 3 questions alcohol use (see tables 2 and 3). Of the 10 countries included in this study, 4 countries have included all 7 consequence items of the AUDIT; 4 countries have 6 consequence items and 1 country only 5. Table 2 shows which countries have which items. The drinking consequences were asked with direct questions (e.g. How often during the last year have you found that you were not able to stop drinking once you had started?). In all countries, except the Netherlands, the answers to the consequence items contained 5 categories ranging from 'never' to 'daily or almost daily'. However, there were considerable differences in the precise cut off points used in each country. To make the answers to these items comparable we dichotomized the answers in: "never" or "at least once in the last 12 months". There were also slight differences in the wording of questions and answer categories used to measure the drinking indicators. However, despite these differences it was possible to construct variables which were comparable over countries.

When the AUDIT is used for detection in a treatment setting the consequence items 1 to 8 (see table 2) score on a 0 to 4 scale, whereas the categories of the last 2 questions score 0 (never), 2 (yes, but not in the past year), and 3 (yes, during the past year). A sum score of 8 (men) or 7 (women) is indicative of hazardous or harmful drinking; a score of 13 or higher is indicative for alcohol related harm. However, as mentioned above, to increase comparability, we had to simplify all answer categories to questions about consequences to two response categories (never/at least once in the last 12 months). A score of 1 on consequences in our analysis covers a score of 1-4 according to the original response categories.

In all analyses, abstainers, defined as not having consumed alcoholic beverages in the last 12 months, are excluded. The data have been analyzed with SPSS 11.0 (SPSS, 2002). Cross tabulations were used when comparing prevalence on the level of items. To analyze the extent to which the items of the AUDIT constitute a scale and how much the drinking indicators contribute to this scale a reliability analysis (Cronbach's alpha) was used. A standardized alpha requires an about similar variance on the item level. It is clear that this condition is not met (see table 3). Therefore the alpha, rather than the standardized item alpha, was used as an indicator for reliability.

Table 2. Prevalences and Gender ratios for AUDIT indicator of consequences

	Switzerland			Spain			U.K.			Sweden			Finland			The Netherlands			Czech Rep.			Hungary			Iceland		
M=Male F=Female R=Gender Ratio	M	F	R	M	F	R	M	F	R	M	F	R	M	F	R	M	F	R	M	F	R	M	F	R	M	F	R
Unable to stop	5.9	2.2	2.7	5.2	4.7	1.1	12.4	6.4	1.9	6.8	4.0	1.7	16.0	8.5	1.9	6.4	6.6	1.0	8.9	4.4	2.0	6.0	2.4	2.5	14.1	7.3	1.9
Normative Expect	8.0	2.7	3.0	7.0	5.3	1.3	16.5	8.1	2.0	12.0	5.2	2.3	13.7	6.9	2.0				26.8	11.7	2.3	6.0	1.8	3.3	15.9	8.9	1.8
Morning drinking	1.4	0.2	7.0	2.6	1.7	1.5	4.0	1.0	4.0	2.6	0.4	6.5	14.8	3.2	4.6				17.6	4.7	3.7	8.9	2.2	4.1	11.0	2.4	4.6
Guilt/ Remorse	6.4	2.3	2.8	7.5	6.5	1.2	16.5	11.1	1.5	9.9	6.8	1.5	39.4	25.9	1.5	9.3	7.1	1.3	29.9	18.9	1.6	6.6	2.3	2.9	26.4	19.3	1.4
Blackout	7.6	1.8	4.2	10.4	7.7	1.4	25.7	12.8	2.0	18.0	9.2	2.0	42.6	18.0	2.4	16.5	9.3	1.8	30.8	14.3	2.2	8.7	3.0	2.9	22.1	13.4	1.7
Injured	1.6	0.7	2.3	4.2	1.3	3.2				3.3	1.4	2.4	21.5	10.7	2.0	1.9	2.3	0.8	19.7	6.1	3.2	0.9	0.4	2.3	9.2	4.9	1.9
Comments	5.6	2.1	2.7	5.1	4.3	1.2				4.7	2.1	2.2	17.6	5.6	3.1	8.8	3.2	2.8									

3 RESULTS

3.1 Consequences measured with the AUDIT

In table 2 the proportion of men and women and the gender ratio in each country reporting consequences are presented. If we focus on men first, it appears that black out is the most often reported consequence except in Switzerland, Hungary and Iceland where it is the second most often reported after normative expectations (Switzerland), morning drinking (Hungary) and guilt/remorse (Iceland). Although there is some uniformity over countries in which consequence men are most likely to report, differences in prevalence on each of the consequences are large. For example for black outs the prevalence among men ranges from 42.6% (Finland) and 30.8% (Czech Republic) to 8.7% (Hungary) and 7.6% (Switzerland). For women there is somewhat more variability in items most often reported as a consequence. Blackouts are the consequence most often reported by women in 5 countries (UK, Sweden, Netherlands, Spain and Iceland); in Finland and Czech Republic it is the second most often reported consequence. Guilt or remorse is the most often reported consequence by women in Finland and the Czech Republic and the second most often reported consequence in Spain, U.K., Sweden and Hungary.

For most items the gender ratios are higher than 2.0. In all countries except Hungary and the Netherlands, the gender ratios of “guilt and remorse” are smaller than for the other consequences. For “morning drinking” the gender ratio tends to be highest ranging from 1.5 (Spain) to 8.0 (Sweden). In most countries (almost) all items show gender differences of 2 or higher. The exceptions are Spain, Iceland and the Netherlands. In Spain and Iceland only for 1 of the 7 (Spain), 6 (Iceland) or 5 (Netherlands) items is a gender ratio higher than 2 found. Gender differences tend to be highest in Switzerland (2.3-7.0) and Hungary (2.4-4.3).

3.2 AUDIT indicators for drinking

In table 3 the prevalences for the AUDIT indicators for drinking are presented.

Table 3. Prevalences and Gender Ratio's for AUDIT indicators of drinking

	Switzerland			Spain			U.K.		
M=Male F=Female R=GenderRatio	M	F	R	M	F	R	M	F	R
Freq: $\geq 2/\text{week}$	79.4	55.6	1.4	59.0	28.0	2.1	63.7	44.4	1.4
Quantity/ Occasion: ≥ 5	11.6	2.5	4.6	19.6	6.4	3.1	7.0	1.0	7.0
≥ 6 drinking $\geq 1/\text{month}$	7.6	1.2	6.3						

	Sweden			Finland			The Netherlands		
M=Male F=Female R=GenderRatio	M	F	R	M	F	R	M	F	R
Freq: $\geq 2/\text{week}$	20.3	12.5	1.6	60.6	37.2	1.6	48.7	25.1	1.9
Quantity/ Occasion: ≥ 5	27.1	7.7	3.5	39.4	16.9	2.0	23.5	5.8	4.1
≥ 6 drinking $\geq 1/\text{month}$	34.3	12.5	2.7	53.5	18.4	2.9	30.9	7.9	3.9

	Czech Republic			Hungary			Iceland		
M=Male F=Female R=GenderRatio	M	F	R	M	F	R	M	F	R
Freq: $\geq 2/\text{week}$	62.0	30.7	2.0	43.2	11.2	3.9	36.8	18.8	2.0
Quantity/ Occasion: ≥ 5	60.2	24.9	2.4	19.0	1.7	11.2	33.1	21.3	1.6
≥ 6 drinking $\geq 1/\text{month}$	26.2	8.0	3.3	35.3	9.2	3.8	35.3	18.0	2.0

In all countries the drinking indicator on which the highest percentage scores is frequency of drinking, except Sweden where the percentage drinking 5 or more glasses per occasion exceeds the percentage drinking ≥ 2 times a week. In Switzerland the percentage of men and women drinking ≥ 2 times a week is highest. The lowest percentages of drinking ≥ 2 times a week are found in Sweden and (for women only) Hungary.

Drinking 5 or more glasses per occasion (quantity/occasion) is most often reported by men and women in Czech Republic (60.2% and 24.9%) followed by Iceland (men: 33.1%; women: 21.3%) and Finland (men: 39.4%; women: 16.9%). For 6+ drinking the highest percentages are found for men and women in Finland, Iceland and Sweden. In all countries gender differences are lowest for frequency of drinking. In Hungary comparatively high gender ratios are found for all drinking indicators. Compared with table 3, much higher percentages score on the drinking indicators. This indicates already to some extent that the consequence items select much more specific categories of drinkers than the drinking indicators do. To which extent the combination in one scale of very sensitive indicators like the drinking indicators and much more specific indicators like the consequences included in the AUDIT improves the reliability is one of the subjects of the next section.

3.3 Reliability of the AUDIT in European countries

Table 4 offers an overview of the AUDIT items covered in each country (labeled by +) and two Cronbach alpha coefficients for each country: one computed with consequences only and one computed with both consequences and drinking indicators. We have also specified in the table the worst items from a statistical point of view. The criterion was that exclusion of these items would increase the Cronbach alpha value.

Table 4. Reliability of AUDIT items

	Switzer- land	Spain	U.K.	Sweden	Finland	Nether- lands	Czech Republ.	Hungary	Iceland
Unable to stop	+	+	+	+	+	+	+	+	+
Normative Expect	+	+	+	+	+	-	+	+	+
Morning drinking	+	+	+	+	+	-	+	+	+
Guilt/remorse	+	+	+	+	+	+	+	+	+
Blackout	+	+	+	+	+	+	+	+	+
Injured	+	+	-	+	+	+	+	+	+
Comments	+	+	-	+	+	+	-	-	-
Freq: ≥ 2 /week Audit 3-4	+	+	+	+	+	+	+	+	+
Quantity/ Occasion: ≥ 5 Audit 2-4	+	+	+	+	+	+	+	+	+
≥ 6 drinking \geq 1/month Audit 2-4	+	-	-	+	+	+	+	+	+
Alpha Cronbach: Conseq. Only	0.61	0.70	0.74	0.69	0.78	0.59	0.75	0.68	0.73
Alpha Cronbach: + <i>drink. Indic.</i>	0.58	0.62	0.69	0.71	0.81	0.63	0.77	0.68	0.76
Worst items	injury critic freq.		freq.	freq.	injury freq.		injury	injury freq.	guilt/ remorse

Cronbach's alpha, computed with only the consequence items, is lower in Switzerland (0.61) and the Netherlands (0.59) compared to all other countries (0.68-0.78). For the Netherlands this is mostly due to the smaller number of items. When for countries other than the Netherlands Cronbach's alpha is computed for the same selection of consequences, the differences between countries in the alpha are less than <0.05 (results not presented). For Switzerland it can be concluded that, compared with other European countries, the interrelations between the consequence items are lower than in all other countries.

The inclusion of the drinking indicators in the scale leads in three countries (Switzerland, Spain, U.K.) to a lower Cronbach alpha. In one country (Hungary) Cronbach's alpha does not change and in 5 countries (Sweden, Finland, Netherlands, Czech Republic and Iceland) the alpha only marginally increases.

Inspection of how each item contributes to Cronbach's alpha shows that in 5 countries (Switzerland, U.K., Sweden, Finland, Hungary) the alpha would actually improve when frequency of drinking is left out. Another item which in 4 of the 9 countries (Switzerland, Finland, Czech Republic, and Hungary) decreases Cronbach's alpha is injury due to drinking.

To sum up these results: in Switzerland the consequence items of the AUDIT perform less well as a scale than in the other countries. When the drinking indicators and consequences are combined, the items indicating alcohol consumption do not contribute or only marginally contribute to Cronbach's alpha. This appears to be the case especially for frequency of drinking. Another item which in most countries does not contribute to a more reliable measurement is injury due to drinking.

4 DISCUSSION

On the level of the individual consequence items, the countries differ not very greatly in which consequence is most likely to be reported. For men this is in most countries "having black outs". Among women "black outs" and "guilt and remorse" are most often reported. Although differences in which consequence is most likely reported are not very large, the countries differ considerably in the percentages reporting consequences. In Finland and Czech Republic percentages of men and women reporting consequences tend to be highest while in Switzerland, Spain and Hungary mostly smaller percentages of men and women report consequences. On the item level there is at face value enough variation over countries in pattern of responses to the consequences and gender differences in consequences to trust that the set of items indicating consequences is responsive to national and gender differences in problem drinking. Of course this responsiveness does not mean that the selection of items adequately measures problem drinking in each of the countries. This point can be illustrated with the outcome that in 4 of the 9 countries injury due to drinking decreases the Cronbach's alpha. This indicates that in 4 of the 9 countries the selection affirming injuries does not overlap or only minimally overlaps with the selection reporting the other consequences. Or, to say it differently, in those four countries injury due to drinking cannot be interpreted in terms of adding to severity of problems as measured with the other consequence items. This outcome reminds us of a limitation of short screening instruments. The variability in alcohol related problems across countries may be larger than a short screening instrument is able to cover.

For the drinking indicators much higher percentages scoring above cut off points were found, especially for frequency of drinking twice a week or more often.

The main outcomes on the reliability analysis are:

- In Switzerland Cronbach's alpha is lower than in the other countries.
- Combining the drinking indicators with the consequences in one scale leads either to a decreased reliability coefficient or only a marginally improved coefficient.
- The worst items in terms of decreasing the reliability coefficient are "frequency of consumption" (in 5 countries) and "injury" (in 4 countries).

It is clear that the whole AUDIT should not be used to derive reliable estimates of problem drinking in a cross national context. However, the outcomes also show that the AUDIT is a very promising starting point to provide cross national comparisons for problem drinking if:

- Only the consequence items are used; and the drinking indicators are not used to determine the prevalence.
- Injury is not included as a consequence item to determine the prevalence.
- When interpreting cross national prevalence differences between countries, the interrelations between consequences are taken into account.

Considering the large variety in drinking patterns within Europe and the large variety of ways in which drinking can lead to harmful effects, it is a good start that a relatively small selection of consequences seems to reliably indicate problem drinking in several countries. Of course it does not solve the problem that from a more national perspective, other instruments may more reliably indicate the prevalence of problem drinking. Also, the problem of cross national and/or cultural variability in interrelations between consequences is an important issue. From a methodological point of view the way forward is probably that the relationship be investigated between nationally favored measurements of problem drinking and an international standard of items reliably indicating problem drinking. In that way cross national comparable prevalence estimates could be made, but also the loss of information for each country when using the international standard can be specified. Additionally, an important next step is to examine the AUDIT further with regard to its gender sensitivity across countries. This would be an appropriate undertaking for the broader GENACIS project which has access to a larger number of country data sets with adequate sample sizes for both men and women that is a necessity for such an analysis.

5 REFERENCES

- Babor T.F., Higgins-Biddle J.C., Saunders JB, Monteiro M.G.(2001) The Alcohol Use Disorder Identification Test; guideline for use in primary care. *WHO, Dep. of Mental health and substance dependence. Geneva.*
- Beresford T.P., Blow F.C., Hill E., Singer K., Lucey M.R. (1990) Comparison of CAGE questionnaire and computer assisted laboratory profiles in screening for covert alcoholism. *Lancet*, 336, 482-485
- Davis L.J., Hurt R.D., Morse R.M., Brien P.C.(1987) Discriminant analysis of the Self administered Alcoholism Screening Test. *Alcohol, Clinical and Experimental Results*, 11, 269-273
- Ivis F.J., Adlaf E.M., Rehm J.(2000) Incorporating the AUDIT into a general population telephone survey: a methodological experiment. *Drug and Alcohol Dependence*, 60, 97-104.
- Knibbe RA, Derickx M., Gmel G., Bloomfield K.(2003) The measurement of alcohol related problems in general population surveys in European countries. *Paper presented at the Genacis meeting, November 2003, Berlin*
- Mayfield D., McLeod G., Hall P.(1974) The cage questionnaire: Validation of a new alcoholism screening instrument. *Am. J. Psychiatry*, 131, 1121-1123
- Saunders J.B., Aasland O.G., Amundsen A., Grant M.(1993) Alcohol consumption and alcohol related problems among primary health care patients: WHO Collaborative Project on Early Detection of Persons with harmful alcohol consumption I. *Addiction*, 88, 348-362

Saunders J.B., Aasland O.G., Babor T.F., de la Fuente J.R., Grant M.(1993) Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption II. *Addiction*, 88, 791-804

Selzer M.L., Vinokur A., van Rooijen L.(1975) A self administered Short Michigan Alcoholism Screening Test (SMAST.) *J. Stud Alcohol*, 36, 117-126

SPSS Inc. (2002). SPSS 11.0 for Windows. Chicago, IL: *SPSS Inc.*

Chapter 5: Alcohol-related violence

A comparison of alcohol-related aggression in six European countries

Karin H. Bergmark, Kathryn Graham and Monica Nordvik

1 INTRODUCTION

Violence is an important public health issue, because of its effect on victims and the related costs for society and inflicted individuals, and also because of the fear or sense of insecurity it brings to the community (Golding, 1996). Many studies have found a link between drinking and violent/aggressive behaviour (see e.g. Graham et al., 1996; Maffli & Zumbunn, 2002; Pernanen, 1996), and about 50% of violent crimes involve a perpetrator and/or victim who has consumed alcohol prior to the incident, although this percentage varies across countries (Graham & West, 2001; Murdoch et al., 1990). At the same time, it is clear that alcohol consumption is neither a necessary nor a sufficient cause of violence (see e.g. Plant et al., 2002).

Although alcohol is not a sufficient cause of aggression, it does appear to play a contributing role. Bushman (1997) concluded, from a meta-analysis of over 60 experimental studies in the field of human aggression and alcohol that alcohol contributes to aggression in a causal way. However, the relationship between alcohol consumption and aggression is moderated by a number of factors including provocation (Bushman, 1997) and other factors in the environment (Graham et al., 1980; Homel & Clark, 1994), as well as by characteristics of the drinker – such as aggressive personality (see review by Graham et al., 1998), including a stronger effect of alcohol on aggression for men than for women (Bushman & Cooper, 1990; Giancola et al., 2002).

Aggression and violence encompass a wide range of behaviors. The nature and form of aggression tends to vary according to perpetrator, victim, and situation, e.g. domestic violence versus a fight between teenage boys outside a disco on a Friday night (Graham & Wells, 2001; Graham et al., 2002). Also, the frequency of violence varies among cultures, countries, groups and times. In the Nordic countries comparatively few people responding to surveys report incidents of violence during the last 12 months. In Norway, 3% of the adult population reported having experienced violence during the last 12 months, in 1989-90 (Pernanen, 1996). The corresponding figures for Sweden and Finland were 2.7% and 3.5% respectively. In the U.S. and New Zealand – by comparison – 12-month prevalence of violence victimisation exceed 5%. Figures from different studies, however, show

considerable variation in rates, partly due to differences in questions used to measure violence. For example, another Swedish study from 1991 found that 7% of Swedes claimed to have been subjected to violence or threats of violence during the last 12 months, and despite comparable rates of violence in Norway and Sweden, fear for violence is more common in Sweden (29% of women) than in Norway (15%, Pernanen, 1996).

The culturally-based differences in drinking patterns are undisputed (see e.g. MacAndrew & Edgerton, 1969; Wilsnack et al., 2000), and cultural context is an important factor in the occurrence of alcohol related violence (see e.g. Lenke, 1989; Murdoch et al., 1990; Room & Rossow, 2001). Drawing on a discussion by Room and Mäkelä (2000) on “banalized drinking,” we could expect a less pronounced relationship between alcohol and violence in a “wet” culture, where alcohol and drinking tend to be more common and “banalized”.

In a Swiss study (Maffli & Zumbrunn, 2002) a group of women and men in treatment for alcohol related problems displayed very high prevalences of domestic violence experiences. This is in line with previous research findings that individuals who become aggressive when they drink are more likely than nonaggressive drinkers to report a history of heavy drinking or alcohol problems (Graham et al., 1998; Graham & West, 2001).

2 AIMS FOR THE PRESENT STUDY

The primary aim for the present study is to assess the relationship between alcohol consumption, gender and aggression across different countries. We hypothesize that (1) heavier drinkers will be more likely than lighter drinkers to report alcohol-related aggression for both men and women and (2) that men will be more likely to engage in alcohol-related aggression than women.

3 DATA AND METHODS

A set of questions relating to different kinds of aggression and violence from partner/to partner by subject and possible connections to drinking form the basis for this chapter, together with two other items from the questionnaire – measuring alcohol-related aggression. Information on variables and countries included in the analysis is presented in Appendix C.

3.1 Data on partner violence

There is no existing standardized measure for assessing partner aggression that allows investigation of the role of alcohol at the time of the incident. The widely used Conflict Tactics Scale (CTS, Straus et al., 1996) does not focus on the process of particular incidents of partner aggression. In addition, the CTS may produce misleading findings that imply that gender differences in violence are minimal (Dobash et al., 1992; Kaufman, Kantor & Jasinski, 1998).

In the approach used by Harris (1992) and more recently by Gondolf and Beeman (2003), and Leonard, Quigley and Collins (2002), the respondent is asked to describe “the most aggressive thing

that has ever been done to you". This approach allows further probing regarding details about specific incidents (such as whether the participants had been drinking) and was, therefore, adapted for use in the GENACIS project to apply to someone in an intimate relationship. A two-year time frame was chosen to maximize the period time covered in order to capture as many incidents as possible while ensuring that the incident was sufficiently recent to be accurately recalled and also relevant to the respondent's current circumstances. Respondents were asked whether the incident they described was by a current partner as well as frequency of aggression by current partner.

To assess the relationship between alcohol use and the nature of aggression, respondents were asked whether they or the other party involved had been drinking at the time of the incident. To assess the impact and severity of aggression, respondents were asked to rate the severity of the partner's aggression and their own aggression toward a partner from (1) minor to (10) life-threatening.

3.2 Alcohol-related aggression data

Two items from other sections of the questionnaire were included in the analyses (see Appendix): (1) When you drink, how true is it that you generally become more aggressive toward other people (usually true or sometimes true vs. never true)? (2) In the last 12 months, have you gotten into a fight while drinking?

A version of question 1 was asked by four countries: UK (asked of current and former drinkers), Sweden (asked of sub sample of current drinkers), Czech Republic (asked of everyone), and Hungary (asked of everyone??). The Swedish survey used slightly different wording -- "drinking generally makes you more aggressive toward other people". For Finland a mixture of two items were used to construct a dichotomous (yes or no) indicator for becoming aggressive in connection with alcohol consumption. These two items were:

Next I shall mention some situations which may arise when using alcohol. Mark for each whether you have found yourself in similar situations during the past 12 months...

- A) you have been caught in a scuffle or fight?
- B) quarrel or argument

A version of question 2 was included in surveys from six countries (Germany, UK, Sweden, Finland, Norway, Czech Republic); however, the samples and format of the question varied. The German survey used the wording "physical altercation due to alcohol". Finland used the wording "Next I shall mention some situations which may arise when using alcohol. Mark for each whether you have found yourself in similar situations during the past 12 months -- Have you been caught in a scuffle or fight?" Norway used the wording "In connection with your own use of alcohol have you over the last 12 months come to blows or got into a fist fight". For most countries, the question was asked only of those who consumed alcohol in the past 12 months. In the UK, however, former drinkers were also asked the question and in Norway all respondents were asked.

3.3 Measures of drinking

Three indicators of drinking pattern were used for the study: (1) abstainer vs. current drinker; (2) “risky drinking” – average consumption of more than 20 grams of pure alcohol per day for women or more than 40 grams of alcohol per day for men¹; (3) heavy episodic drinking² monthly or more often.

3.4 Data analyses

Descriptive results are presented on all variables by gender and country, by whether the respondent is a risky drinker and by abstainer/drinker status where appropriate. Logistic regression analyses were used in the analyses of partner aggression to evaluate the role of gender, age, drinking pattern and partner’s drinking within the same model.

4 RESULTS

The results are presented in two parts. The first part focuses on experiences of partner aggression based on responses from the Czech Republic and the United Kingdom. The second part includes responses to two indicators of alcohol-related aggression: becoming more aggressive when drinking and getting into a fight after drinking.

Part 1. Partner aggression

Figure 1 shows the percent of male and female respondents who reported being the victim of physical aggression by a spouse/romantic partner in the previous two years for the UK and the Czech Republic, with the darker parts of the bars indicating the proportion who reported that this aggression was severe (i.e., rated the aggression as ≥ 5 on a scale of 1-10). In the UK, more men than women reported that their partner had been aggressive while the opposite was true for the Czech Republic. Severe aggression was less frequent than nonsevere, especially for partner aggression reported by Czech men. In general, women reported more severe aggression by partners than did men.

In terms of frequency of aggression by current partner, most times the aggression was by the current partner, with female respondents being more likely than male respondents in both countries to report that the aggressor was a current partner (70% for UK men, 81.3% for UK women, 74.8% for Czech men and 77.3% for Czech women). As shown in Figure 2, UK respondents were more likely than Czech respondents to report that physical aggression by the current partner had happened once in the past two years, while Czech men and women were more likely to report that physical aggression had happened two or more times, with substantial proportions reporting that aggression had happened 4

¹ To construct these indicator different questions were used for different countries, see chapter one.

² Definition of “heavy episodic drinking” varies between countries. Most use about 60 grams of alcohol as cut off point.

or more times (21.4% of Czech women and 14.1% of Czech men).

Figure 3 shows the proportion of respondents and/or partners who were drinking at the time of the incident among those who reported aggression by a partner. As shown in this Figure, overall, alcohol was more likely to be involved in incidents reported by Czech men and women than by men and women from the UK. Among male respondents from the UK who reported any alcohol use at the time of the aggression, most said that both had been drinking; for male respondents from the Czech Republic, most reported that only they were drinking at the time (i.e., the male respondent was drinking and the partner was not at the time that the partner was physically aggressive toward the respondent). Women from both the UK and the Czech Republic were more likely than their male counterparts to report that only the partner was drinking at the time that he was aggressive toward them. As shown in Figures 4 and 5, current drinkers were more likely than abstainers and risky drinkers were more likely than non-risky drinkers to report aggression by a partner. This effect was similar for those who reported partner aggression based on whether their partner was a risky drinker (See Figure 6).

Logistic regression analysis, with partner aggression (experience of partner aggression or not, last 2 years) as the criterion variable and age, gender, binge drinking (only available for the Czech Republic), risky drinking, and partner's risky drinking as predictor variables, led to similar results for both countries. Younger age, and heavier drinking (by respondent as well as partner to respondent) were related to reports of partner aggression. In addition, gender was significantly related to experiencing partner aggression in the Czech Republic when age and drinking pattern were controlled for, with females more likely to report aggression by a spouse or partner. While men in the UK were more likely than women to report partner aggression overall, this difference became nonsignificant when age and drinking variables were controlled for.

Part 2. Becoming more aggressive when drinking and fights after drinking

How true is it that when you drink you become more aggressive toward other people?

Figure 7 shows the proportion of male and female respondents in each country who reported becoming more aggressive toward other people at least sometimes when they drank, by whether the respondent was a risky or non-risky drinker. As shown in this Figure, rates of becoming more aggressive when drinking are much higher for risky drinkers among both women and men. Within each country, there was a general pattern for a larger proportion of men to report becoming aggressive when drinking, except that the proportion who became aggressive when drinking was actually higher among risky drinking women in the UK and Finland than among their male counterparts. Gender differences in becoming aggressive when drinking appeared strongest for the Czech Republic and Hungary.

Finnish figures are surprisingly high, especially as respondents in Finland were asked about "last year" instead of "generally".

In the last 12 months, have you had any of the following experiences ... Have you gotten into a fight while drinking?

Figure 8 shows a very strong and consistent effect of risky drinking, with getting into a fight when drinking much higher for men who consume more than 40 g. of alcohol per occasion and women who consume more than 20 g than for men and women who consume less than these amounts. There was also a large and consistent effect within countries for men to be more likely than women to get into a fight while drinking. There were considerable differences in overall rates across different countries, with Germany especially low; however, it should be noted that country differences on this variable may be partly attributable to differences in wording of this question and whether the question was asked of both current and former drinkers.

5 CONCLUDING REMARKS

Alcohol consumption was related to spouse/partner aggression, with current drinkers more likely than abstainers to have experienced partner aggression and risky drinkers more likely than nonrisky to report partner aggression, even when age and gender of the respondent were controlled for. Most respondents reported aggression by a current partner and risky drinking by the spouse/partner was also predictive of aggression by the partner. In terms of becoming aggressive when drinking and getting into fights, these behaviours were much more likely among risky than non-risky drinkers for both men and women and across all countries. While these results are correlational and do not necessarily mean that alcohol causes aggression, they are consistent with much other research showing a link between drinking pattern and aggression (Pernanen, 1991).

In general, alcohol-related aggression was more likely among males than females from the same country, with the exception of partner aggression by the UK (higher for female partners although this effect disappeared in the multivariate model) and becoming aggressive when drinking which was higher for female risky drinkers than for male risky drinkers in the UK and Finland.

Country differences need to be interpreted with caution given differences in wording of items and sampling. With this caveat, the following trends seemed apparent. First, about the same proportion of women in the UK reported partner aggression as did women in the Czech Republic; however, women in the Czech Republic reported more frequent aggression by their current spouse and were more likely to report that only the partner had been drinking when he was aggressive. Men in the UK were more likely than men in the Czech Republic to report aggression by their partner and were more likely to report that both had been drinking, while Czech men were more likely to report that only they themselves had been drinking. Finally, alcohol was more likely to be involved in partner aggression among Czech respondents (both men and women) than among respondents from the UK. While the differences in findings for these countries should be interpreted with caution, they suggest that country differences in partner aggression are related to both gender and drinking.

Country differences on becoming aggressive when drinking and getting into fights are even more difficult to interpret as there were considerable variations in who was asked the question and wording of the question. There was some evidence that gender differences in becoming aggressive when drinking were greater in the Czech Republic and Hungary and lesser in the UK, Sweden and Finland. Despite overall country differences in fights after drinking and variations in methods and measures,

the rates among male risky drinkers in the UK, the Czech Republic, Norway and Sweden tended to be similar. These results demonstrate the importance of controlling for both gender and level of alcohol consumption when comparing across different countries.

6 REFERENCES

- Bushman, B. J. (1997). Effects of Alcohol on Human Aggression – Validity of Proposed Explanation, in; Galanter, M (ed) *Recent Developments in Alcoholism, vol 13: Alcoholism and Violence*, New York: Plenum Press.
- Bushman, B. J. & Cooper, H. M. (1990). Effects of Alcohol on Human Aggression: An Integrative Research Review, *Psychological Bulletin* 107: 341-354.
- Craven, D. (1997) *Sex Differences in Violent Victimization 1994*, U.S. Bureau of Justice Statistics (Special Report, NCJ-164508).
- Dobash, R. P., Dobash, R. E., Wilson, M., & Day, M. (1992). The myth of sexual symmetry in marital violence. *Social Problems*, 39, 71-91.
- Giancola, P. R.; Helton, E. L.; Osborne, A. B.; Terry, M. K.; Fuss, A. M. & Westerfield, J. A. (2002). The Effects of Alcohol and Provocation on Aggressive Behavior in Men and Women, *Journal of Studies on Alcohol* 63: 64-73.
- Golding, A. (1996). Violence and Public Health, in Eling, C & Golding, A (eds.) *Violence as a Public Health Issue*, the Royal Society of Medicine Press Limited, International Congress and Symposium series 222.
- Gondolf, E. W. and A. K. Beeman (2003). "Women's accounts of domestic violence versus tactics-based outcome categories." *Violence Against Women* 9(3): 278-301.
- Graham, K., LaRocque, L., Yetman, R., Ross, T.J., & Guistra, E. (1980). Aggression and barroom environments. *Journal of Studies on Alcohol*, 41, 468-485.
- Graham, K.; Wells, S. & Jelley, J. (2002). The Social Context of Physical Aggression Among Adults, *Journal of Interpersonal Violence* Vol 17 No 1: 64-83
- Graham, K. & Wells, S. (2001). The Two Worlds of Aggression for Men and Women, *Sex Roles* Vol 45 Nos 9/10: 595-622
- Graham, K. & West, P. (2001). Alcohol and Crime: Examining the Link, in: Heather, N.; Peters, T. J. & Stockwell, T., *International Handbook of Alcohol Dependence and Problems*, John Wiley & sons Ltd.
- Graham, K.; Leonard, K. E.; Room, R.; Wild, T. C.; Pihl, R. O.; Bois, C. & Single, E. (1998). Current Directions in Research on Understanding and Preventing Intoxicated Aggression *Addiction* 95 No 5: 659-676.
- Graham, K.; Schmidt, G. & Gillis, K. (1996). Circumstances when Drinking Leads to Aggression: an Overview of Research Findings, *Contemporary Drug Problems* 23: 493-557.
- Harris, M. B. (1992). Sex, race, and experiences of aggression. *Aggressive Behavior*, 18, 201-217.
- Homel, R. and J. Clark (1994). "The prediction and prevention of violence in pubs and clubs." *Crime Prevention Studies* 3: 1-46.
- Homel, R.; Tomsen, S. & Thommeny, J. (1992). Public Drinking and Violence: Not Just an Alcohol Problem, *Journal of Drug Issues* 22 No 3: 679-697.
- Kaufman Kantor, G. & Jasinski, J. L. (1998). Dynamic and risk factors in partner violence. In J. L. Jasinski & L. M. Williams (Eds.) *Partner violence. A comprehensive review of 20 years of research*. Thousand Oaks, CA, Sage.
- Lenke, L (1989) *Alcohol and Criminal Violence: Time Series Analyses in a Comparative Perspective*, diss Stockholm University, Edsbruk: Almqvist & Wiksell International.

- Leonard, K. E., Quigley, B. M. & Collins, R. L. (2003). "Drinking, personality, and bar environmental characteristics as predictors of involvement in barroom aggression." *Addictive Behaviors* 28: 1681-1700.
- MacAndrews, C. & Edgerton, R.B. (1969). *Drunken comportment. A social explanation*. Chicago: Aldine.
- Maffli, E. & Zumbunn, A. (2002). *Experiences of Domestic Violence Reported by Clients Attending help for Alcohol Related Problems in the Zurich Area*, paper presented at the 28th Annual Alcohol Epidemiology Symposium of the Kettil Bruun Society for Social and Epidemiological Research on Alcohol, Paris, June 2002.
- Murdoch, D.; Pihl, R. O. & Ross, D. Alcohol and Crimes of Violence: Present Issues, *International Journal of the Addictions* 25 No 9: 1065-1081.
- Pernanen, K. (1996). *Sammenhengen Alkohol – Vold* (the Relation between Alcohol and Violence), Oslo: SIFA report No 3/96.
- Pernanen, K (1991) *Alcohol in Human Violence* New York: Guilford Press
- Plant, M.; Plant, M. & Thornton, C. (2002). People and Places: Some Factors in the Alcohol-Violence Link, *Journal of Substance Use* 7: 207-213.
- Room, R. & Rossow, I. (2001). The Share of Violence Attributable to Drinking, *Journal of Substance Use* Vol 6 No 4: 218-228.
- Room, R. & Mäkelä, K. (2000). Typologies of the cultural position of drinking, in *Journal of Studies of Alcohol* 61 No 3:475-483.
- Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The revised Conflict Tactics Scales (CTS2). *Journal of Family Issues*, 17, 283-316.
- Wilsnack, R.; Vogeltanz, N.; Wilsnack, S. C. & Harris, T. R. (2000). Gender Differences in Alcohol Consumption and Adverse Drinking Consequences: Cross-Cultural Patterns, *Addiction* 95: 251-265.

7 TABLES AND FIGURES

Figure 1. Percent of respondents who reported that the most physically aggressive thing done to him or her during the last 2 years by someone who was or had been in a romantic relationship with him/her showing percent who rated aggressive act as non-severe aggression (i.e., < 5 on a scale of 1-10 where 1 is minor aggression and 10 is life-threatening aggression) or severe (≥ 5)

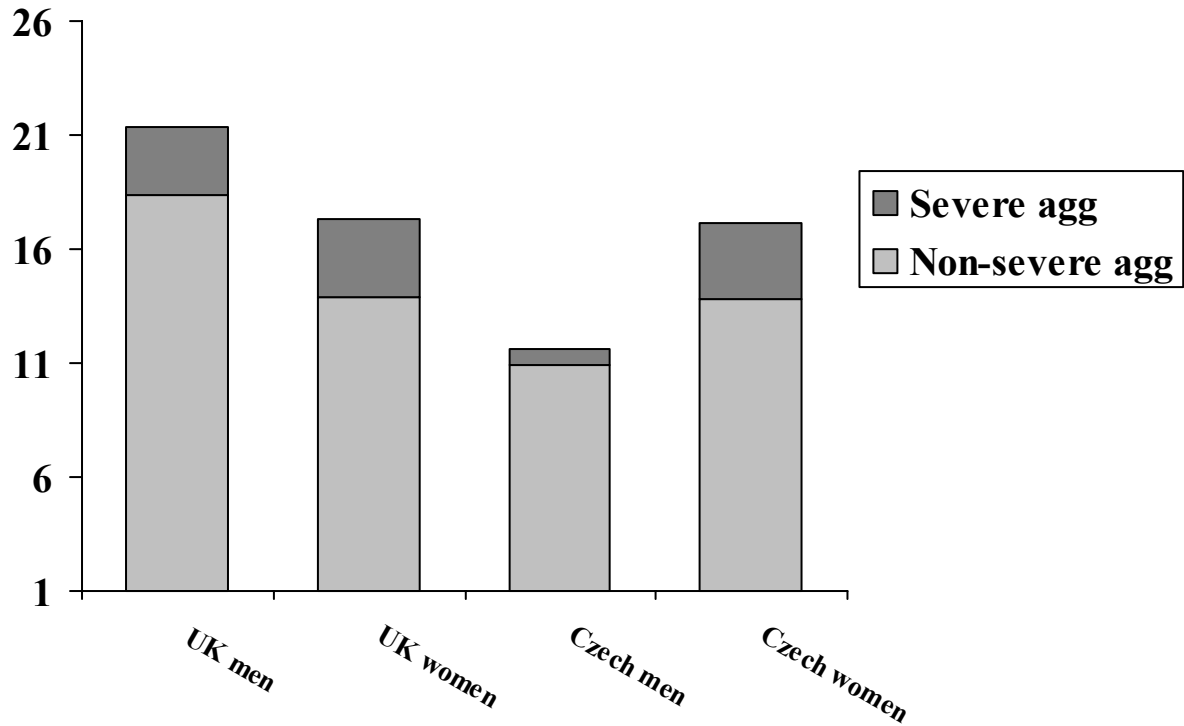


Figure 2. Percent reporting whether the aggressive was done by the respondent's current spouse/partner showing whether this person had been physically aggressive toward the respondent once in the past 2 years, 2-3 times or 4 or more times

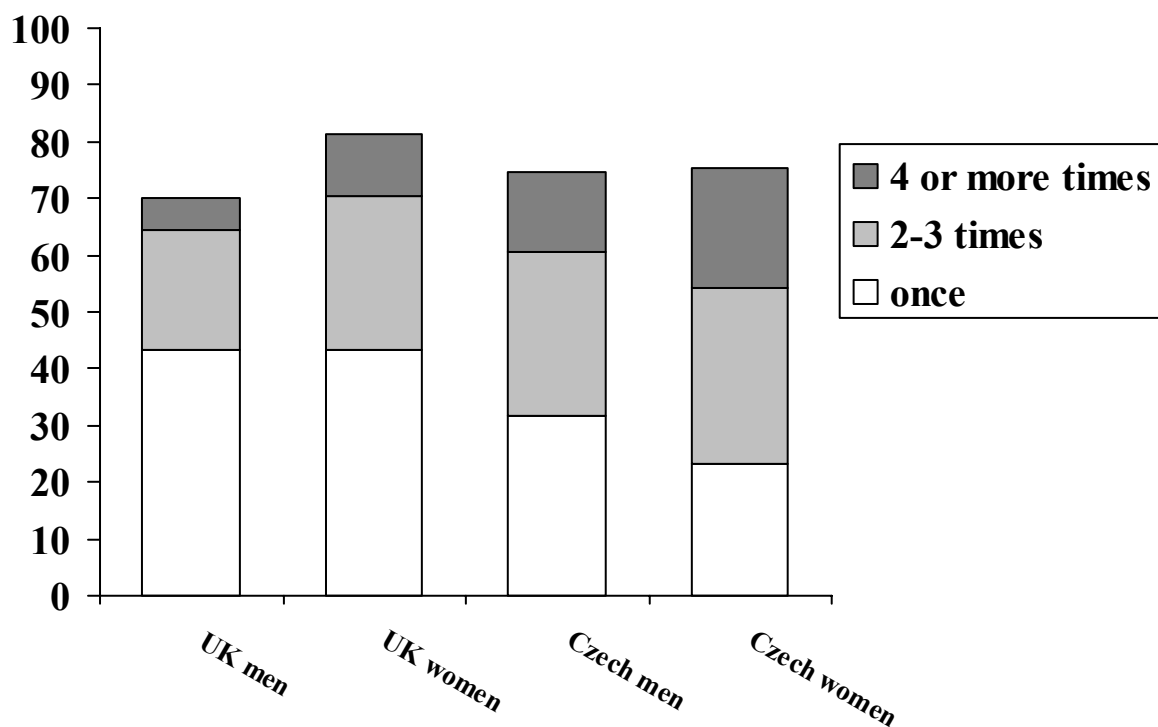


Figure 3. Percent of incidents involving alcohol showing whether both respondent and partner had been drinking, respondent only drinking, or partner only drinking

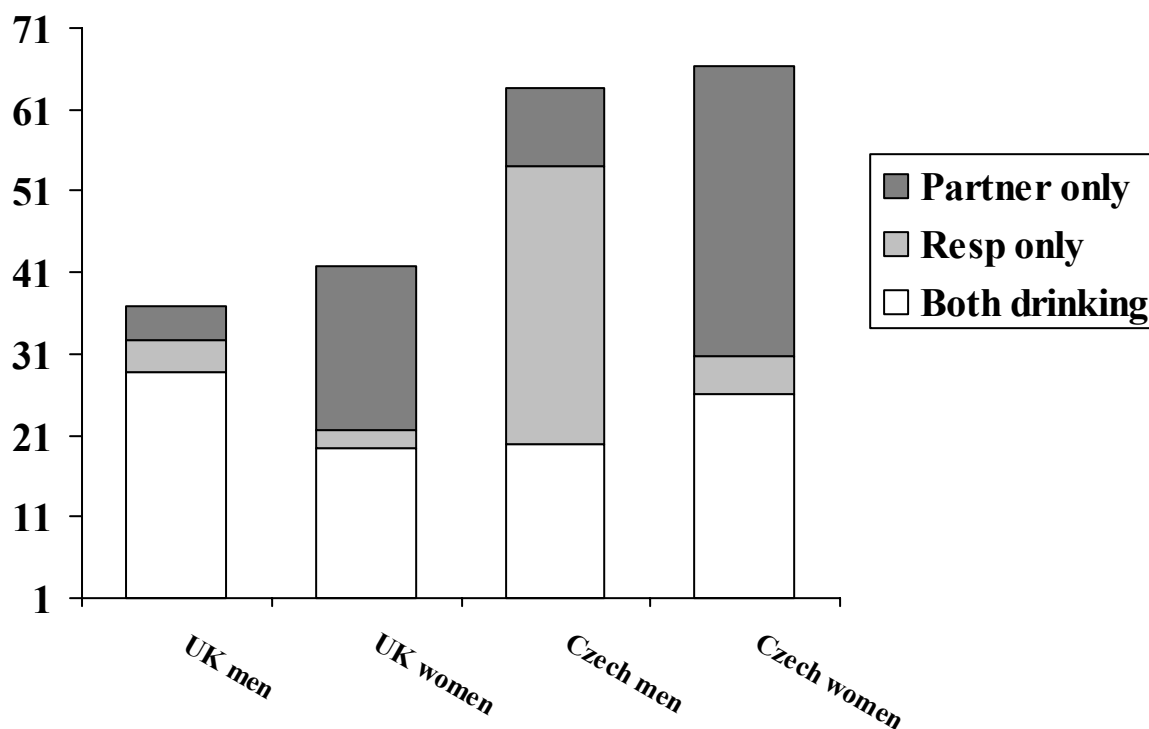


Figure 4. Percent of abstainers, former drinkers and current drinkers who reported physical aggression by partner

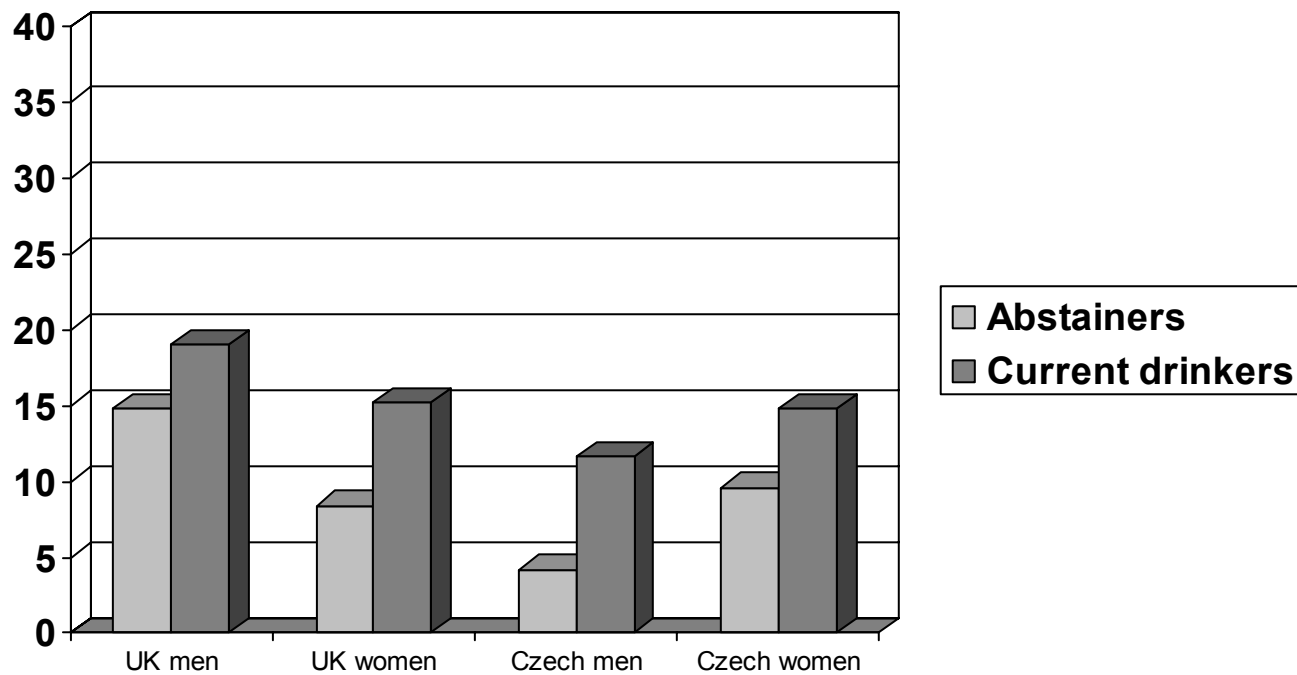


Figure 5. Percent of risky drinkers (> 20 g. alcohol daily for women and > 40 g. for men) versus non-risky drinkers who reported physical aggression by partner

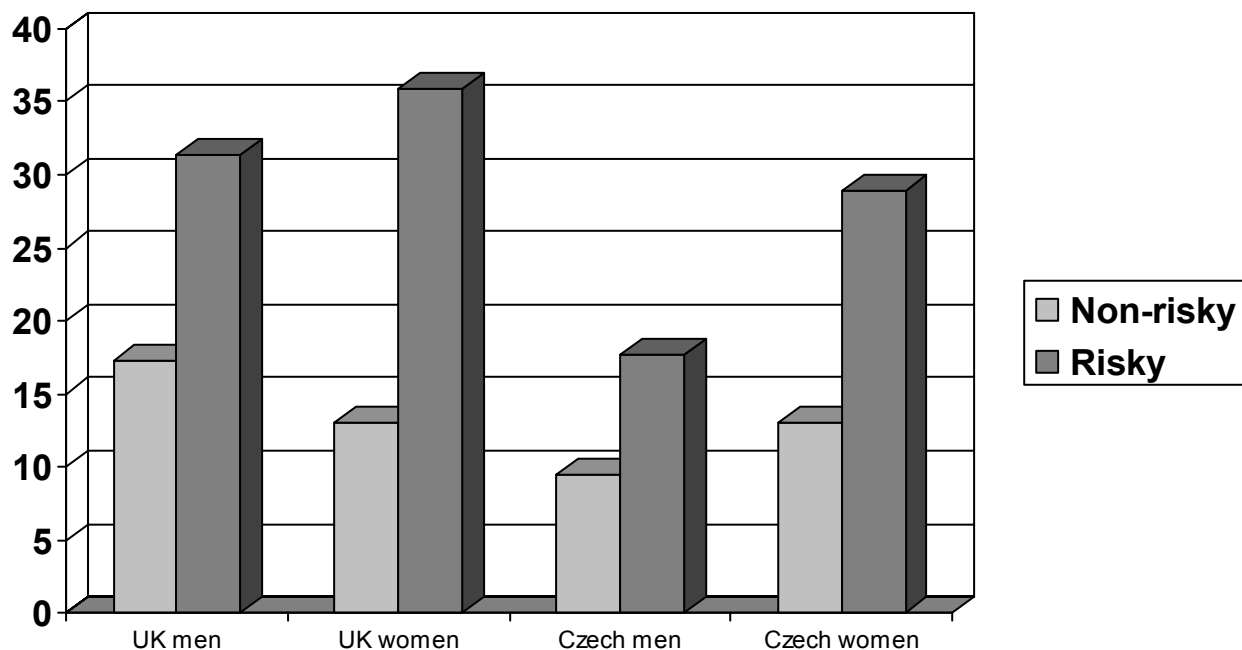


Figure 6. Percent of partners of respondents reporting aggression who were risky drinkers (> 20 g. alcohol daily for women and > 40 g. for men) versus non-risky drinkers

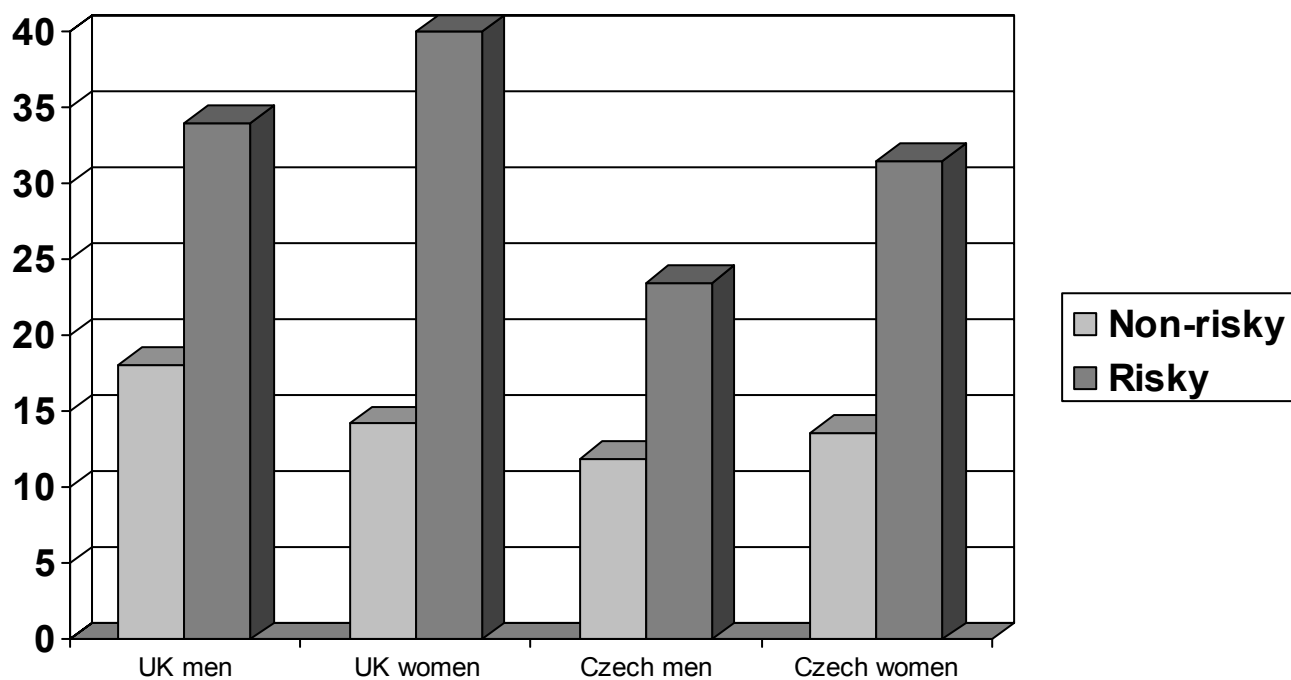


Table 1. Logistic regression, victims of violence, by partner (*Current drinkers only!*)

	Czech Republic				United Kingdom			
	<i>B</i>	<i>S.E</i>	<i>Sig</i>	<i>exp(B)</i>	<i>B</i>	<i>S.E</i>	<i>Sig</i>	<i>exp(B)</i>
Age	-0.018	0.006	0.003	0.982	-0.053	0.005	0.000	0.948
Gender	0.369	0.151	0.014	1.446	-0.221	0.139	0.112	0.802
Binge	0.567	0.189	0.003	1.763	<i>Not available for UK</i>			
Risk	0.383	0.187	0.040	1.467	0.774	0.188	0.000	2.168
Partner Risk	0,848	0.172	0.000	2.336	0.944	0.272	0.001	2.570
MODEL:			0.000				0.000	

AGE=ascending

GENDER= 1 =male (ref. cat.), 2=female

BINGE= 0=less than monthly (ref. cat.), 1=at least monthly

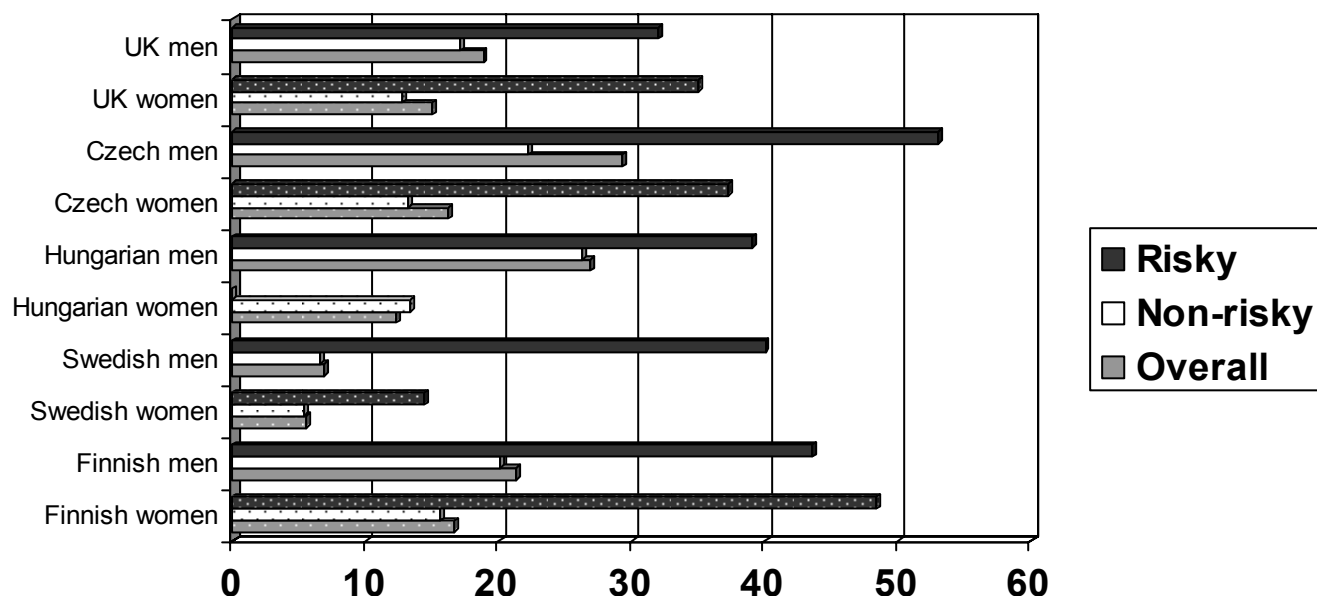
RISK= 0=less than 20g/day for women and less than 40g/day for men (ref. cat.), 1=21g+/day for women and 41g+/day for men

PARTNER RISK= 0=less than 20g/day for women and less than 40g/day for men (ref. cat.), 1=21g+/day for women and 41g+/day for men.

No significant interaction effects

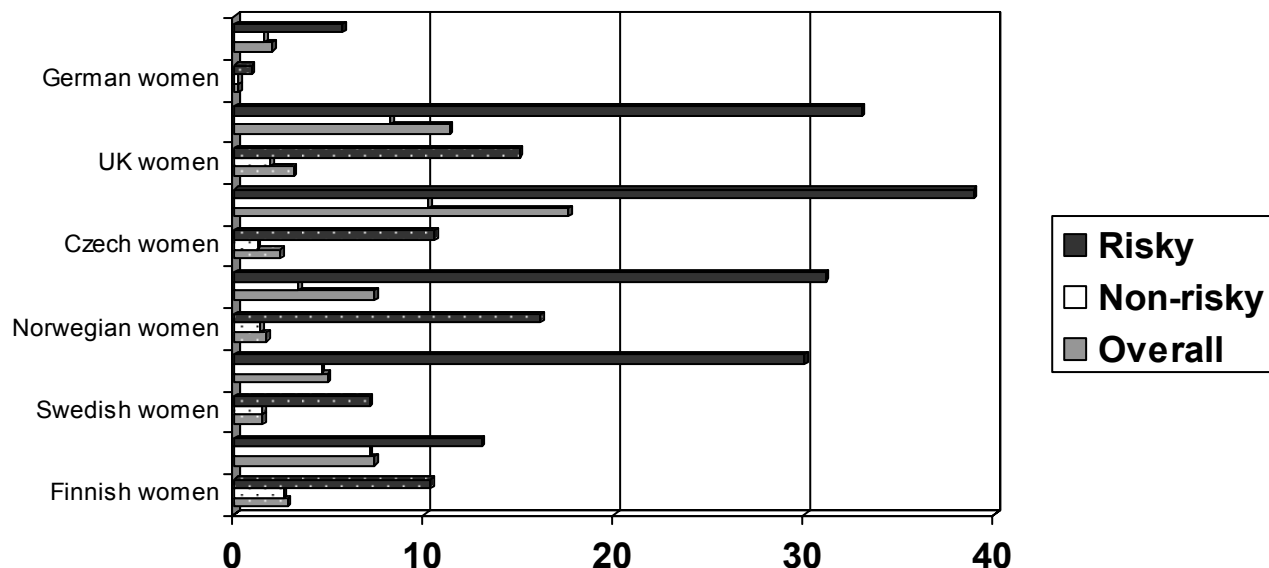
NOTE! Assuming heterosexual partnerships!

Figure 7. Percent of male and female respondents who reported that it was usually true or sometimes true that they become more aggressive toward other people when they drink by whether or not the respondent reported risky level of drinking (>20 g for females and >40 g. for males)



UK: Asked of current and former drinkers.
Hungary: No Hungarian women reported risky drinking.
Sweden: Asked of current drinkers only.

Figure 8. Percent of male and female respondents who reported getting into a fight while drinking by whether they reported risky drinking (>20 g for females and >40 g. for males) (Current drinkers only)



Note: Survey question different in Germany (physical altercation due to alcohol), Finland (caught in a scuffle or fight) and Norway (come to blows or got into a fist fight)
UK: Former drinkers as well as current drinkers were asked this question.
Sweden: Those who consumed alcohol less than once a month or not more than 2 drinks per occasion not asked.

Chapter 6: Social inequalities

Social Inequalities in Alcohol Consumption and Alcohol-related Problems in the Study Countries of the EU concerted action “Gender, Culture and Alcohol Problems: A Multi-national Study”

Kim Bloomfield, Ulrike Grittner, Stephanie Kramer, Gerhard Gmel & Jürgen Eckloff

1 INTRODUCTION

Within epidemiological research social inequalities in health status and mortality have been extensively studied (e.g., Mackenbach et al, 1997; Kunst et al, 1995, 1996; Marmot et al, 1984, 1991). In alcohol research, the role of socio-economic determinants in alcohol use and misuse as well as alcohol-related mortality and morbidity has also been the subject of numerous studies (e.g., van Oers et al, 1999; Mäkelä, 1999; Harrison & Gardiner, 1999; Hemmingson et al 1997; Midanik & Clark, 1994). Although not always referred to as research on “social inequalities,” such studies have examined differing prevalences of alcohol consumption and alcohol-related problems by social class in different population groups. It has been found in North America, for example, that household income, education and employment status are positively associated with current drinking status and more frequent drinking, but are negatively correlated with measures of heavier drinking such as weekly heavy drinking (Midanik & Clark, 1994; Greenfield et al, 2000).

European research has also found an association between socio-economic factors and alcohol use. Van Oers et al (1999) reported that in the Netherlands lower educational status was positively related to abstinence among both men and women, but that very excessive drinking was more prevalent in the lowest educational group of men. Among women educational level was negatively associated with psychological dependence and symptomatic drinking while among men it was negatively associated with social problems. In reviewing census data and hospital discharge records in 13 counties in Sweden Hemmingson et al (1997) reported that compared to men and women in higher positions, those in blue collar positions or lower white-collar positions had an increased likelihood of receiving alcoholism-related diagnoses (alcoholic psychosis, alcoholism, alcohol intoxication) or a diagnosis of liver cirrhosis.

Marmot (1997) examined data from the Whitehall II Study with regard to social inequalities in drinking behaviour and found variations in the prevalence of alcohol consumption by occupational grade. As

with van Oers et al (1999), who examined educational status, Marmot found higher rates of abstinence for both sexes among those in the lower occupational grades. Among men in the higher occupational grades more were moderate drinkers, but the proportion of heavier drinkers was nearly constant from highest to lowest grades. Among women, however, there was not only a higher proportion in the higher grades that drank moderately, but also a much higher rate for heavier drinking for this group. For men there was no substantial difference in the proportion of those reporting two or more positive answers to the CAGE screening questionnaire, but among women, a clear positive relationship was evident. In another study, Kunst et al (1996) found differing associations between heavy drinking and educational level among men and women in eight European countries. Heavy drinking episodes (i.e., four glasses or more per day) were more common among men with lower educational levels. Among women, no substantial differences could be found.

Bloomfield et al (2000) investigated social inequalities in drinking behaviour in a sample of the German general population and found in comparison with men of high socio-economic status (SES), men of middle SES had increased odds of heavy episodic drinking (measured as 5+ drinks a day at least once a week) and of a positive score on the Alcohol Use Disorders Identification Test (AUDIT) (Babor et al, 2001) hazardous use measure, while men of lower SES had higher odds for dependence symptoms. Women of middle SES had significantly lower odds for reporting items of the CAGE alcohol screening instrument (Bradley et al, 1998) and DSM-IV alcohol abuse criteria in comparison to women of high SES. Thus, women of lower and higher SES resembled each other in drinking behaviour. For men, no identifiable pattern was found. The lack of clear social inequalities among the consuming German general population could be due to the widespread integration of alcohol drinking in everyday life.

Concerning inequalities in alcohol-related mortality, a Finnish study (Mäkelä, 1999) found that lower socio-economic groups had higher rates of both acute and chronic alcohol-related mortality. However, Harrison & Gardiner (1999) in Great Britain reported that although alcohol-related mortality rates were higher for those in manual occupations compared to those in non-manual occupations, age and sex strongly influenced the degree of this difference. Younger men, aged 25-39, with unskilled manual jobs were 10-20 times more likely to die of an alcohol-related cause than men in the professional classes. But among men aged 55 to 64 years manual labourers experienced a death rate of only 2.5 to 4 times higher than that of professionals. Among women a similar relationship was found only for in younger age groups; among the older groups those in professional positions had a greater likelihood of dying of an alcohol-related cause than those employed in manual labour.

“Gender, Culture and Alcohol Problems: A Multi-national Study” is a European Union concerted action. The consortium includes study partners with representative general population data sets from thirteen EU member or associated states - Austria, Czech Republic, Finland, France, Israel, Italy, the Netherlands, Norway, Sweden, United Kingdom, Switzerland, Germany and Hungary and two non-European countries: Mexico and Brazil. As noted in the introduction, the original study began with a broader spectrum of European and non-European countries which was intended for a better investigation of differences in drinking cultures and the social position of women on a cross-national basis. Due to juridical and logistical complications, several non-European study countries had to

withdraw as formal partners of the project. Thus, the final count of study partners includes a curious but interesting mixture of these 13 European countries and two Latin American countries. The surveys from all these studies had the required data for the present analysis and thus could be included in the present chapter which reports on one of the specific research objectives: that of investigating social inequalities in alcohol use and misuse cross-culturally as well as across the genders.

2 METHODS

2.1 Data

Table 1 describes the samples used in the comparison. The surveys were independently conducted in the different countries, but the data have been centrally archived in a project data bank by the project data centralisation coordinator in Lausanne, Switzerland. The project data centralisation coordinator has also standardised as many variables as possible across the data sets (see Chapter 1 of this report for more information). Most of the data were collected in the late 1990s and early 2000s. Most samples were national, with the exceptions of Netherlands (data from Limburg region) and Italy (data from the Florence/Tuscany region). Survey modes and the sizes of the samples varied between the countries. Response rates in those countries for which the data exist suggest relatively high response rates in general (around 70%); in Germany the response rate remained below 50%.

2.2 Age and gender: survey characteristics

The age ranges of respondents in the study country samples varied. For the present analysis we selected only respondents between 25 and 59 years of age in order to increase comparability and also to focus on those of working age who have completed their education (Table 1).

Table 1. Survey characteristics of EU Project Alcohol & Gender study countries

Country	Year	sampling frame	survey mode	response rate	Age: 25-59*		
					cases	men	women
Switzerland	1997	national	telephone	68.4%	8160	3768	4392
Germany	2000	national	postal	51.4%	7001	3203	3798
Italy	2001 / 2002	regional (Florence / Tuscany)	postal + telephone	61.0%	2092	1041	1051
France	1999	national	telephone	71.3%	8725	3904	4821
UK	2000	national	face to face and CAPI	quota	1299	633	666
Israel	2001	national	face to face	<60%	3665	1609	2056
Mexico	1998	national	face to face	no info	3988	1633	2355
Sweden	2002	national	telephone	69.2%	3423	1685	1738
Finland	2000	national	face to face / self admin.	79.4%	1339	681	658
Norway	1999	national	face to face / self admin.	quota	1407	670	737
Netherlands	1999	regional	postal	71.0%	3038	1410	1628
Austria	1993	national	face to face	quota	2282	2313	4595
Czech Republic	2002	national	face to face	72.6%	1861	915	946
Hungary	2001	national	face to face / self admin.	quota	1758	830	928
Brazil	2001	regional (Botucatu, all urban area residents)	face to face	quota	607	265	342

*The sample size was restricted to age 25-59 for better comparability

2.3 Socioeconomic status measured through attained education

Socio-economic stratification is one factor in exposure to disease that has been examined to explain why rates of disease vary by social group (Berkman & Kawachi, 2000). Various terms, reflecting different traditions and conceptualisations have been used in epidemiological literature to describe the social and economic factors influencing health and illness, including social class, social stratification, social inequality, social status and socio-economic status (Lynch & Kaplan, 2000).

Socioeconomic status is typically operationalised using income, education or occupation (Jöckel et al., 1998). In the present study we chose education as the main indicator of SES. Education has a practical advantage over income insofar as in many study countries income information is sensitive and thus can be difficult to obtain in general population surveys. Indeed, in the surveys from the participating study countries, education was the most widely asked indicator of socioeconomic status and had the fewest number of missing responses. Also, compared to other indicators such as occupational prestige, education has been said to more accurately convey what it is about social position that may be causally related to increased risk (Marmot, 1996). Finally, as many women do not have direct access to income and are less likely to be employed than men, education has been proposed as a better measure of women's social status.

2.4 Measuring education

Education is generally measured in one of two ways in comparative analyses: either by years of schooling or by means of a categorization scheme (Bloomfield, 1998). Years of education may appear to be straightforward and easily quantifiable; however, it can be less reliable for international comparisons as countries' educational systems can vary greatly (Braun & Müller, 1997). Moreover, even within the same country, years of education, which measures only one dimension of education, does not necessarily indicate the credentials obtained or reflect the quality of education. And, even where educational levels may be quite accurately ascertained, the *meaning* of various levels may change over time so that within one country educational status may vary by age cohort.

Nearly all questionnaires used in this study asked about level of education attained rather than years of schooling completed. Thus it was possible to apply a standardised classification system based on level of education attained. Perhaps the most widely used classification, and the one we chose to use, is the ISCED-97 (International Standard Classification of Education).

The ISCED, which was originally developed in 1976, was revised most recently in 1997. The ISCED-97 typology has several advantages. First, it offers a standardised classification for the majority of project countries (with the exception of Brazil and Israel). Second, it combines several dimensions: years of education, credentials, and type of education (general vs. vocational). Categories also take into consideration the *content* of the programmes: starting age, entrance qualifications, certificates, and a programme's orientation to specific occupations. Using the ISCED-97 as a starting point, we

worked together with the study leaders from each country to apply the categorisation to their respective samples and create education variables for each country.

The ISCED-97 manual breaks down education into seven main categories: 0 Pre-primary, 1 Primary, 2 Lower secondary, 3 Upper secondary, 4 Post-secondary, 5 First stage tertiary, 6 Second stage tertiary. For our analyses we collapsed these seven categories into three main categories (low, middle and high), defining the categories where possible so that the bulk of the respondents (approx. 40-50%) fell into the middle category.

As our study includes 15 EU and non-EU countries, the distribution of educational levels among respondents in the participating countries varied. In a few study countries the vast majority of the population receives only compulsory education while in others the distribution is such that most respondents received at least some secondary education. Thus, we had to devise a way to apply the three categories to all project countries while taking into consideration the varying distributions within them.

We addressed this by creating two separate sets of countries: each grouping had a low, middle and high category, but for one group of countries the division between the low and middle educational levels was drawn at primary school while for the other it was drawn between lower and upper secondary school (see Table 2).

Table 2. Explanation of categorisation of study countries via ISCED-97 classification

GENACIS levels of education for Italy, Mexico, The Netherlands, Brazil		ISCED-97 levels of education		GENACIS levels of education for Switzerland, Germany, France, UK, Sweden, Finland, Norway, Czech Republic, Hungary, Israel, Austria
Low: (0/1)	←	0 Pre-primary	→	Low: (0/1/2)
		1 Primary		
Middle: (2/3/4)	←	2 Lower secondary	→	
		3 Upper secondary		Middle: (3/4)
		4 Post-secondary		
High: (5/6)	←	5 First stage tertiary	→	High: (5/6)
		6 Second stage tertiary		

Table 3 shows the frequencies and distributions for all fifteen official EU project study countries. For most of the countries, the middle education category has the highest frequency (range: from 42.5% in Finland to 72% in the Czech Republic). There were three exceptions, however: in Austria, Mexico and Brazil the majority of respondents had attained only the lowest educational level, so that the middle grouping was smaller.

Table 3. Categorisation of education-variable by study country

age:25-59	Low (%)	n (unweighted)	Middle (%)	n (unweighted)	High (%)	n (unweighted)
	Pre/ primary / lower secondary education		upper secondary education		tertiary education	
Switzerland	17.6	1354	61.1	5087	21.3	1719
Germany	6.1	445	56.2	3910	37.6	2594
France	16.8	1398	52.7	4540	28.9	2618
United Kingdom	26.3	342	44.0	572	29.6	385
Israel	18.0	591	57.4	2180	24.6	893
Sweden	12.5	427	54.0	1863	30.9	1040
Finland	22.4	300	42.5	569	35.1	470
Norway	22.5	314	42.7	596	34.8	485
Austria	60.0	2759	36.6	1684	3.3	152
Czech Rep.c	8.4	156	72.0	1339	19.7	366
Hungary	21.3	330	62.6	1071	16.1	356
Italy	14.1	294	71.1	1484	14.8	309
Mexico	45.3	1853	41.0	1583	13.7	552
The Netherlands	11.7	342	71.6	2096	16.7	490
Brazil	57.0	346	31.1*	189	11.9	72

*for Brazil: including the highest grade of the primary level (10.9% of the respondents)

2.5 Alcohol consumption

For the analysis we used as dependent variables the current drinking status, heavy episodic drinking (or binge drinking) and heavy drinking in terms of volume.

Current drinking status: Abstainers are defined as those who had not consumed alcohol in the last 12 months. "Current drinkers" were those who had consumed alcohol at least once during this time.

Heavy episodic drinking: The variable for heavy episodic or binge drinking was also dichotomised. Respondents were divided into two groups: those who had drunk "x" glasses on one occasion more often than once a month and those who had not. The definition of binge drinking varied between countries: 3 or more glasses in Hungary, 5 or more glasses on one occasion in Germany, Israel, Sweden, Brazil, Mexico, 6 or more glasses on one occasion in Finland and the Netherlands, or 8 or

more glasses in Switzerland. For Brazil the binge variable is constructed using the graduated frequency question. The surveys in Norway and the Czech Republic used a beverage-specific binge measure. An overall binge measure was thus calculated using the highest reported number of 5+ drinking occasions for a single beverage. The questionnaires from Italy, France, Austria and the UK did not include a question about heavy episodic drinking.

Because of different drink sizes and differing alcohol content of the beverages, the binge measure represents varying pure alcohol intake. In Hungary, Finland, Israel, the Netherlands, Brazil and Sweden the cut point for binge drinking is approximately 60 grams of ethanol, in Mexico 65 grams, in Germany and Norway at the average 70 grams, in Switzerland 80 grams, and in the Czech Republic 90 grams.

Heavy volume consumption: Heavy consumption was defined as ethanol intake of more than 20 grams per day for women and more than 30 grams per day for men (British Medical Association, 1995) on average. The volume (per day) measure is defined as the summary of beverage-specific volume measures for Switzerland, Germany, Italy, France, Israel, Sweden, Finland, Norway, Austria, Mexico the Czech Republic and Hungary. For Great Britain, the Netherlands, Brazil and a part of the Swedish sample the volume measure is based on an overall and not a beverage specific question. For a part of the Finnish sample (where the beverage-specific volumes are missing) and for Mexico the volume measure is based on the graduated frequency measure (see Chapter 1 for more information on the construction of the drinking measures).

2.6 Consequences

Several of the EU project study countries included the AUDIT or parts of it in their survey questionnaires. The AUDIT was developed and tested internationally through a WHO-supported initiative (Saunders et al, 1993a & b), has proven to be a valid screening tool (e.g., Conigrave et al, 1995) and has been translated into several languages.

Among those study countries, which had included the AUDIT, we chose to examine only those questions that ask about consequences of drinking behaviour. The original AUDIT contains questions on heavy episodic drinking, frequency and amount of alcohol consumption. There is growing concern that the total AUDIT score is dominated by the first three consumption items, and therefore does not measure much more than drinking behaviour such as frequency of drinking in international comparative studies (Gmel, Heeb & Rehm, 2001; Ivis & Rehm, 2000). It was possible only in five of the fifteen project countries (Switzerland, Sweden, Finland, Czech Republic, and Hungary) to look at comparable consequence questions for six items from the AUDIT (although there are actually seven consequence items total, but only three countries had these seven items). Because of differently formulated answer categories we constructed dichotomised variables to categorise people who reported these individual consequences at least once over the last twelve months and people who did not. The actual wording of the questions differed slightly across the study countries. We looked at the

prevalence of having two or more positive answers to the six consequence-items. Those AUDIT items used in our analyses follow:

During the last 12 months have you...

1. ...at least one time found that you were not able to stop drinking once you had started?
2. ... at least one time failed to do what was normally expected from you because of drinking?
3. ... at least one time needed a first drink in the morning to get yourself going after a heavy drinking session?
4. ... at least one time had a feeling of guilt or remorse after drinking?
5. ... at least one time been unable to remember what happened the night before because you had been drinking?
6. ... or someone else been injured as a result of your drinking?

2.7 Statistical analyses

Basic prevalence (e.g. percentages) was calculated for abstention, heavy drinking, and heavy episodic drinking with the respective survey sample as the base (i.e., drinkers and non-drinkers combined). To use the general population as the denominator is an important consideration when investigating social inequalities in drinking behaviour from a Public Health and population health research perspective, as it is well known (and confirmed again here) that there are less current drinkers among those of lower social status. These lower drinking rates can “inflate” rates of heavy drinking and heavy episodic drinking among those in lower socio-economic strata if current drinkers are taken as the denominator for calculating such measures. Only for the drinking-related consequences have we decided to use drinkers only as the population base for calculating problem rates.

Logistic regression was performed to calculate age adjusted odds ratios for abstention, heavy drinking and heavy episodic drinking. The analyses were made separately for men and women and for the different countries. The reference group was the highest educational level and is not shown in the figures.

3 RESULTS

3.1 Abstention

Among women in Brazil, Germany, the Netherlands, Israel, France, Hungary, Italy, the UK and Mexico there were significant inequalities in abstention by educational attainment. In all cases the odds of being an abstainer were the highest in the lowest educational groups. No differences in the likelihood of being an abstainer with regard to educational status were found for Norway, Finland, Austria and

the Czech Republic. There was a statistically significant difference in abstention between only the lowest and highest educational categories in Sweden and Switzerland (Figure 1). A table with the basic prevalence for all measures and countries is provided for reference in Appendix D.

Figure 1. Odds ratios for abstention by educational level, women

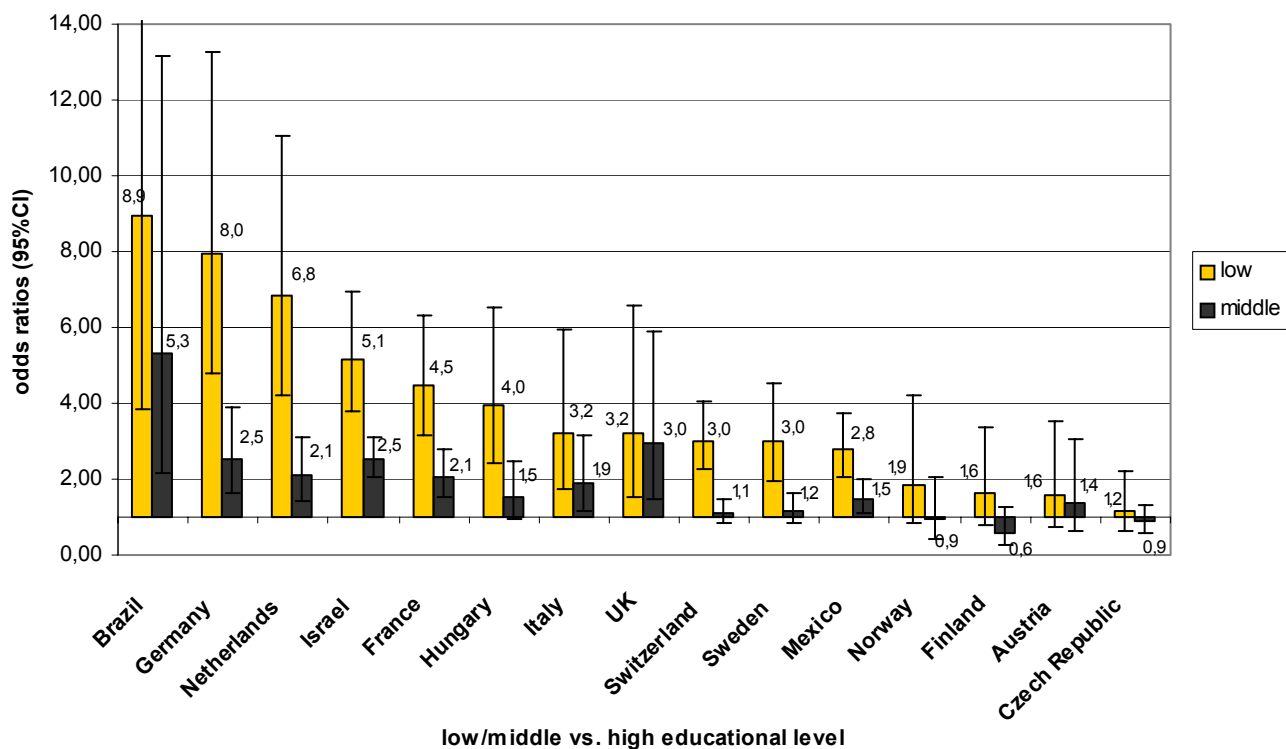
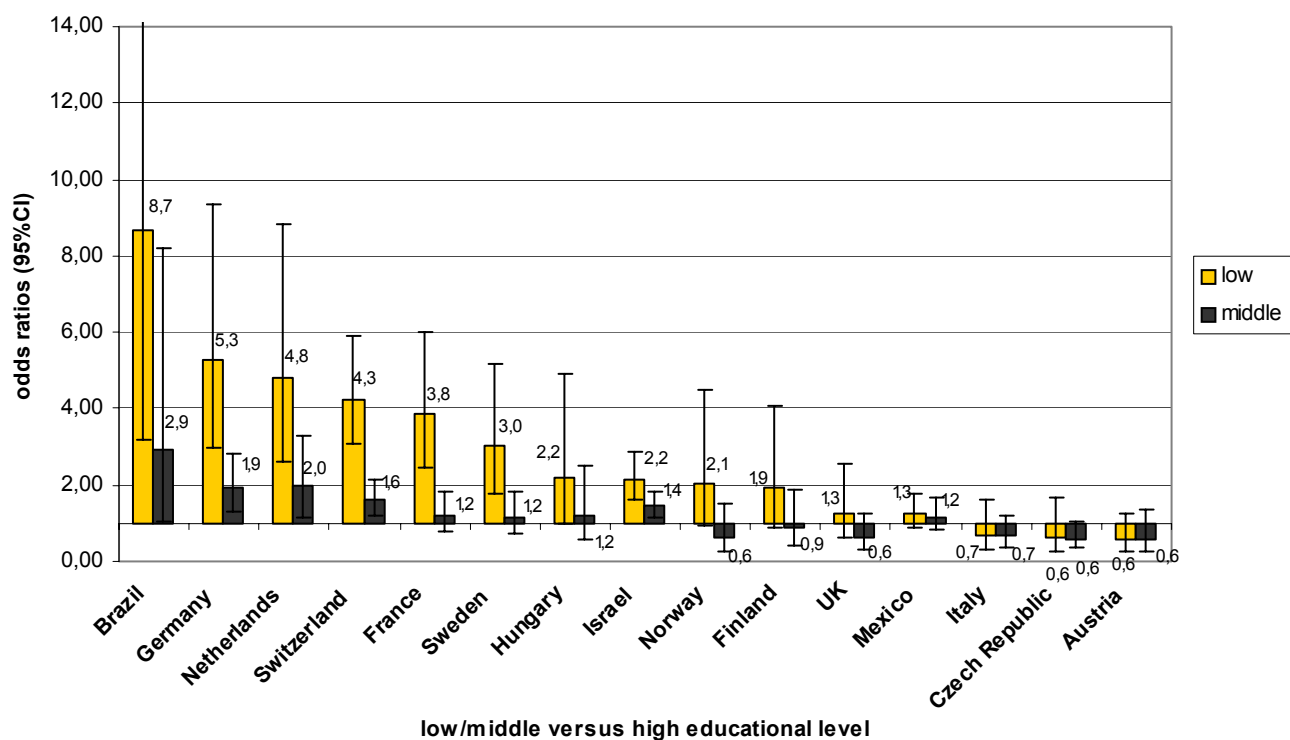


Figure 2. Odds ratios for abstention by educational level, men

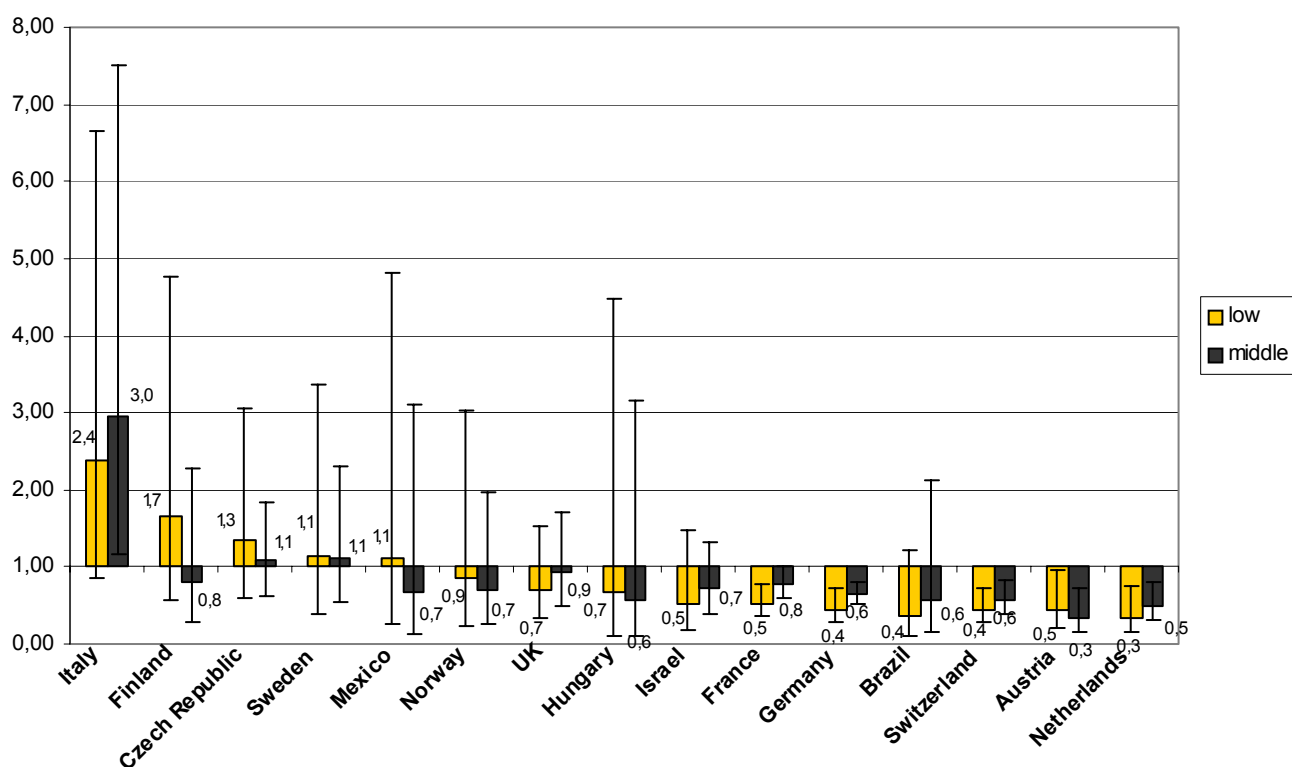


For men, significant inequalities in the likelihood of abstinence were found across all three educational categories in four countries: Brazil, Germany, the Netherlands and Switzerland (Figure 2). In these cases a negative gradient was again evident with the lowest educational group most likely to be abstainers. For France, Sweden, Hungary and Israel there were differences in abstinence only between the lowest and highest educational groups, and for the remaining countries no significant differences were found.

3.2 Heavy Drinking

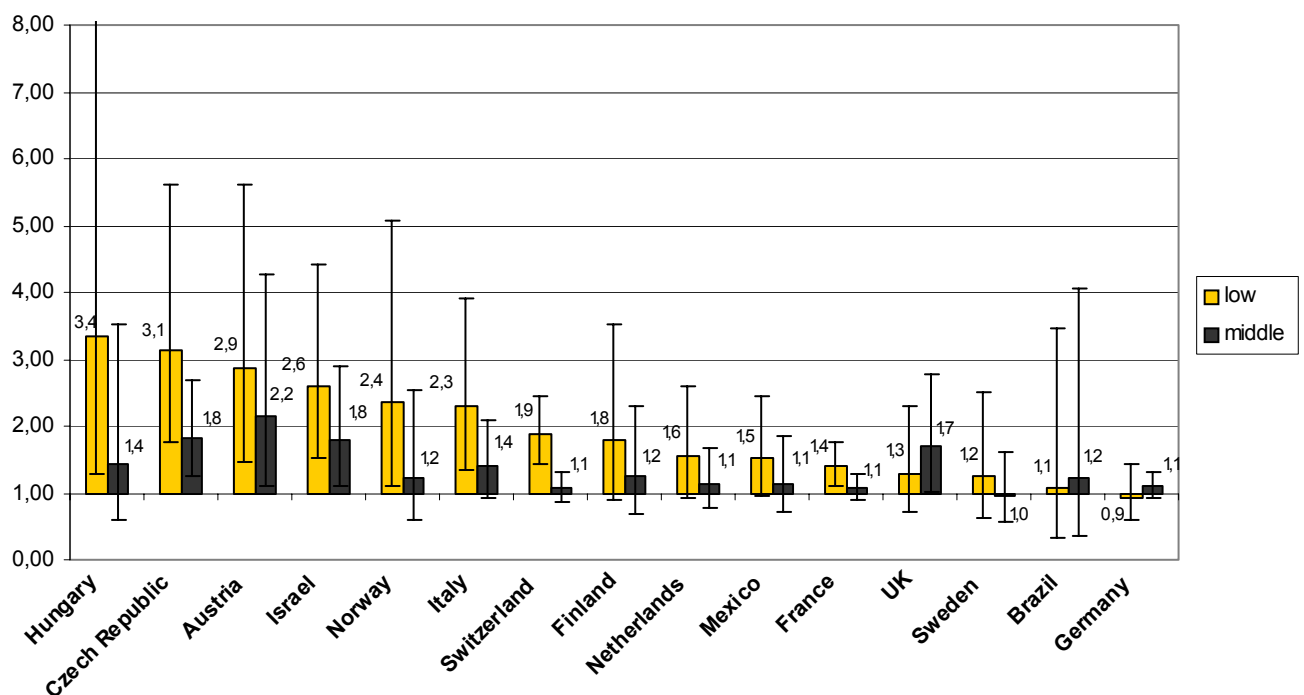
With respect to heavy consumption the drinking gradient reverses itself among women in Austria, the Netherlands, Germany and Switzerland, where women of higher educational status are more likely to consume heavily as compared to women of middle or lower educational attainment respectively (Figure 3). For the remaining countries, the differences are insignificant except for the curious exception among Italian women where those of middle educational attainment are more likely to be heavy drinkers than those of high educational status. The very large confidence bands around the values for many countries reflect the small numbers of heavy drinkers in general among women.

Figure 3. Odds ratios for heavy drinking by educational level, women



The results with regard to heavy drinking among men are quite different. For several countries, the prevailing pattern is that those of lower educational attainment are more likely to be heavy drinkers than those of higher educational attainment (Figure 4). This pattern was significant for Hungary, the Czech Republic, Austria, Norway, Italy and Switzerland. Also in the Czech Republic, Austria, Israel and the UK men of middle educational attainment were more likely to be heavy drinkers than men of higher attainment. For the other study countries educational status had no effect on the likelihood of heavy consumption.

Figure 4. Odds ratios for heavy drinking by educational level, men



3.3 Heavy Episodic Drinking

Except for the case of those of middle educational standing having a greater likelihood of being HED drinkers than those of higher education in the Netherlands, no significant social inequalities in binge drinking were evident for women (Figure 5). For men the results are quite mixed. There is a gradient evident in the Czech Republic, Hungary, and Germany with the lower and middle educational groups respectively being more likely to be heavy episodic drinkers than the higher educated (Figure 6). In Israel, Mexico men of middle educational status have greater odds than men of lower educational status to be HED drinkers compared to men of high educational status. And in Sweden it appears that only men of middle educational status are slightly more likely to be binge drinkers compared to higher educated men.

Figure 5. Odds ratios for heavy episodic drinking (HED) by educational level, women

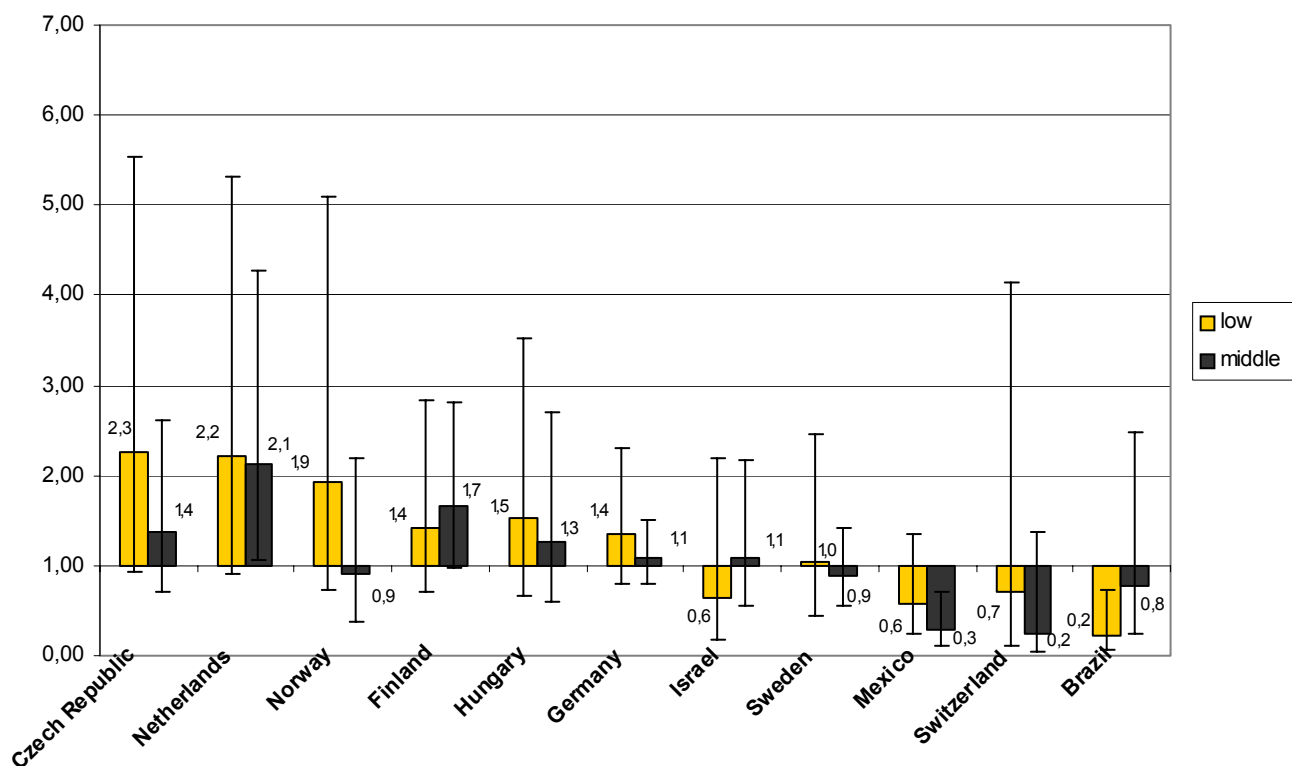
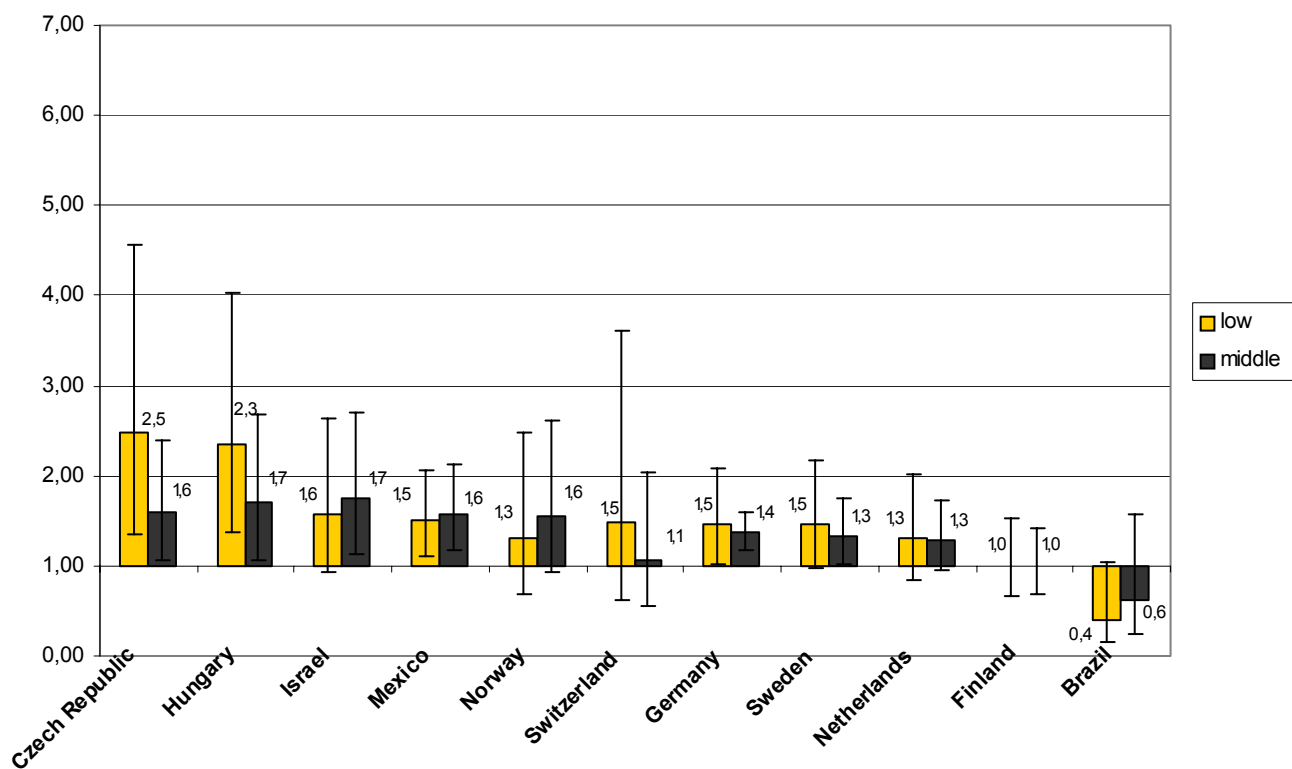


Figure 6. Odds ratios for heavy episodic drinking (HED) by educational level, men



3.4 Alcohol-related problems, AUDIT items

Social inequalities with regard to alcohol-related problems as measured by the AUDIT do not appear to exist in a statistically significant sense among women in the five examined EU project countries (Figure 7). Only among Finnish women of middle educational status was there a significantly increased risk of reporting two or more problems in comparison to women of high education. However, although statistically insignificant there still is an observable trend of women of low SES being more likely to report two or more AUDIT problems than women of high SES. Quite a clear pattern exists for men with lower education having a higher likelihood of reporting problems than men of high education, although this trend is not significant for all countries; i.e., only in Finland, the Czech Republic and Hungary (Figure 8).

Figure 7. Odds ratios for 2+ out of 6 AUDIT problem items by educational level, women (drinkers only)

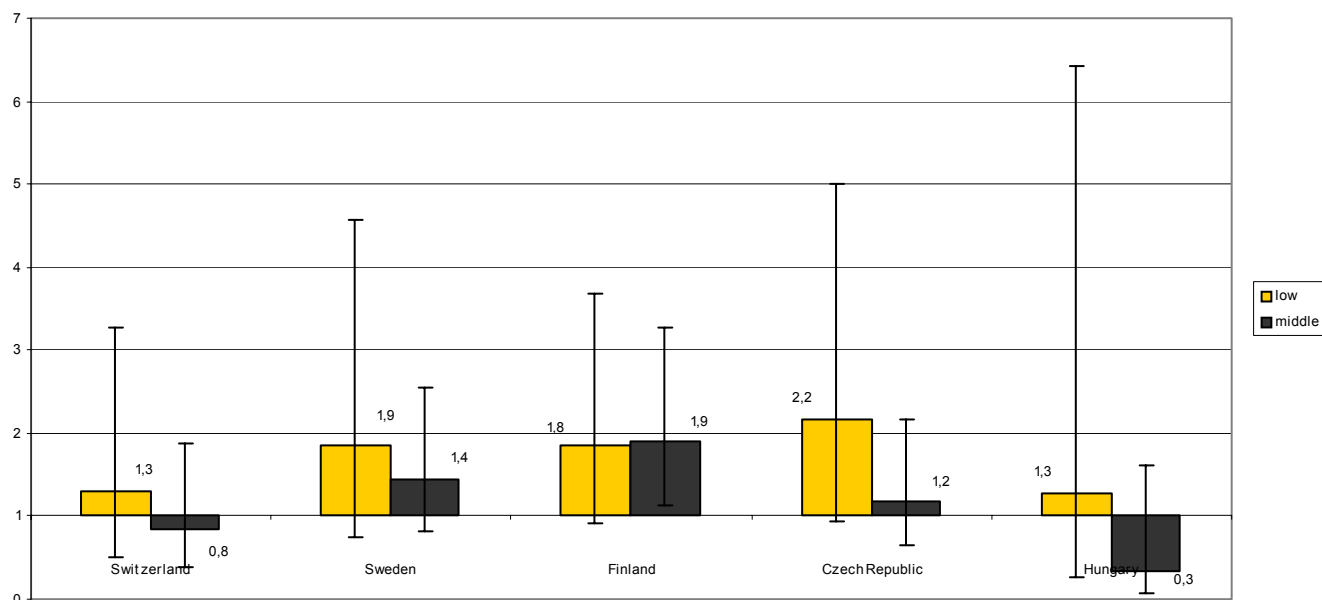
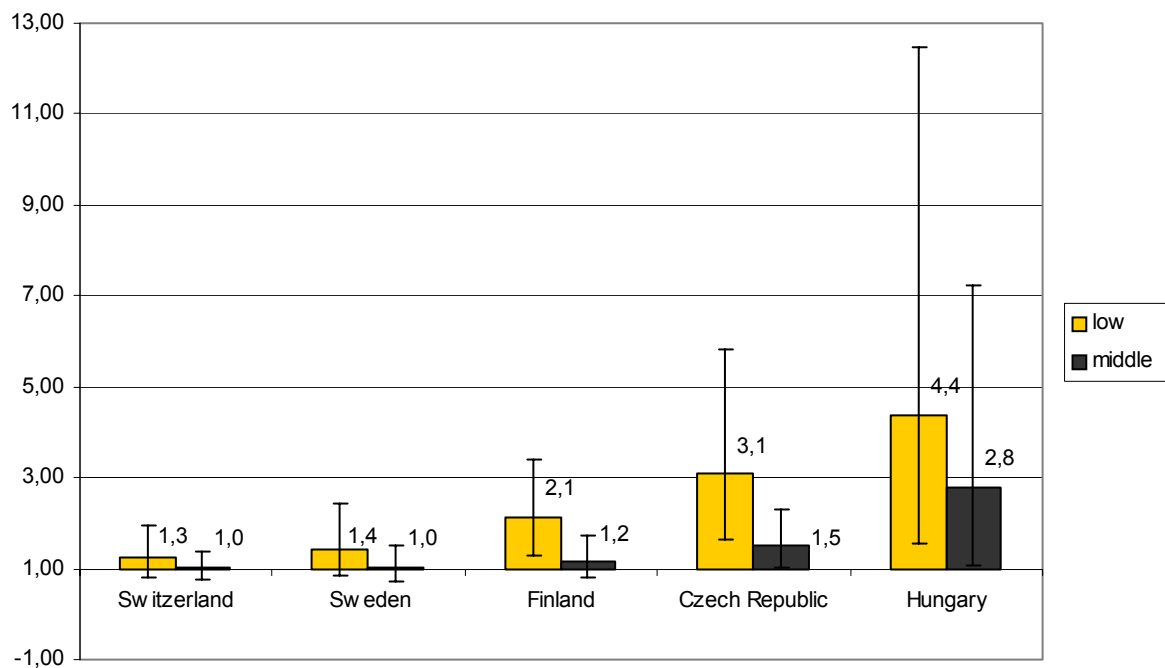


Figure 8. Odds ratios for 2+ out of 6 AUDIT problem items by educational level, men (drinkers only)



4 DISCUSSION

This paper has examined social inequalities in drinking behaviour in the 13 European and two non-European countries of the EU concerted action “Gender, Culture and Alcohol Problems: A Multi-national Study. An extensive exercise was undertaken to categorise the educational standing of respondents in each of these countries, as well as to standardise the drinking measures that were employed.

Abstinence was the drinking measure that showed the most similarity between the genders; that is, the patterning of social inequalities for men in the study countries was similar to the patterning for women. For the countries Brazil, Germany, the Netherlands, France, Israel, Hungary, Sweden and Switzerland, social inequalities in the likelihood of abstinence are basically similar for both men and women, with those of lower education being more likely to abstain. For Austria, the Czech Republic, Norway and Finland no significant inequalities in the likelihood of abstinence for both men and women are evident. Thus, with regard to abstinence, men and women of the countries mentioned tend to behave similarly within a country. The countries that demonstrated “discordant pairs,” as it were, are Italy, Mexico and the UK where there were no significant differences among men, but indeed among women. There are no study countries in which there are inequalities among men but not among women.

With regard to heavy drinking, the genders show little agreement in their behaviours. The only significant findings are among countries in which the inequalities in heavy drinking are such that women of high education are the most likely to drink more heavily. This is true for France, Germany, Switzerland, Austria and the Netherlands. Otherwise there are no inequalities evident except for Italy

where women of middle education are more likely to be heavy drinkers than women of high education. In contrast, the only significant findings with regard to heavy drinking among men are found in those countries where the pattern is the opposite: men with lower education are more likely to be heavy drinkers. This is true for Hungary, Czech Republic, Austria, Israel, Norway; Italy, Switzerland and France. Among some of these countries a gradient exists in which men of middle education also are at more risk than those of high education to be heavy drinkers but at less risk than men of low education. Generally, though not significantly so for all countries, the odds ratios for low and middle SES were all greater than 1, with the exception of Germany.

For heavy episodic drinking there is also little similarity between the genders. There appears a trend (though insignificant) of a negative social gradient among women, except in the one instance in which Dutch women of middle education have a significant tendency to heavy episodic drinking than women of high education. For men, there is more evidence of social differences. In the Czech Republic, Hungary, Israel, Mexico, Germany and Sweden there is significant evidence of a higher likelihood that either men of lower education or men of middle education or both to be binge drinkers than men of higher education. In Norway, Switzerland, the Netherlands, Finland and Brazil no significant social gradient was evident. Moreover, though not significantly so for all countries, odds ratios were equal or above 1 for men of low and middle SES except in Mexico.

Finally, for those five countries with comparable items from the AUDIT test, little in the way of social differences in reporting could be found among women. Only for Finnish women of middle education was the likelihood greater to report alcohol-related problems than higher educated Finnish women. But inequalities were more evident again among men with lower educated men in Finland, the Czech Republic and Hungary reporting more problems than higher educated men. This is also true to a lesser degree for men of middle education in the Czech Republic and Hungary. As a more general tendency, odds increased across countries in about the same way for men and women (Switzerland lowest, CZ highest), with the exception of Hungary, and low SES groups of both sexes had odds ratios greater 1 in all countries, though not significantly so in most countries.

In sum, with regard to the social distribution of current drinking status, men and women tend to be similar. Thus, in general the same social patterning exists for drinking status for both men and women within a given country. For heavy drinking, the genders diverge and in several countries higher educated women are those most likely to drink heavily while among men, there are several countries in which the lower educated are more at risk. And within most of those countries in which the higher educated women were more at risk, lower educated men were more at risk for heavy drinking (although the findings were often not significant). For heavy episodic drinking, no real social differences were evident among women in the study countries, but in several countries a social gradient was observable for lower educated men who were more at risk for heavy episodic drinking than higher educated men. This same patterning was also found for reported alcohol-related problems for five of the study countries.

Thus, drinking per se appears to be a shared endeavour between the sexes and across countries, but the experience of heavy or problematic drinking - as reflected in the drinking measures we examined –

differs. In many countries higher educated women tend to be heavier drinkers, but there appears to be not much difference by education in reporting problems or in binge drinking, while in several countries lower educated men tend to be the heavier drinkers, tend to binge more and report more alcohol-related problems. No clear patterning or groupings of countries emerged from our present analysis. Future, more elaborate or specific analyses should be undertaken (e.g., hierarchical linear modelling, cluster analyses, and further analyses controlling for drinking status) to investigate the possible existence of patterns and trends among the various countries.

4.1 Limitations

The present analysis obviously has several methodological limitations. These are inherent for such a comparative study. As well as coming from various countries in various years, the survey data were collected by varying methods and with varying response rates. Also the original questions for measuring drinking behaviour varied although in most countries the format was often the quantity-frequency measure. However, care was taken to make the drinking summary measures as comparable as possible, and care was taken to also develop a relatively valid yet comparable scheme for comparing educational status. These limitations can introduce a certain amount of imprecision into our analyses. Yet it is hoped that when the data tend to produce similar results across countries, this can serve to help confirm some main results. For example, the very obvious inequality in drinking status across many countries as well as across gender could help bolster the conclusion that those of lower educational status are more likely to be abstainers than the higher educated. With this particular observation, the results of previous studies also lend support that such a result is most likely valid.

4.2 What do social inequalities mean for drinking behaviour?

The question could be raised as to what do social inequalities in drinking behaviour signify. In epidemiological and Public Health research the tradition is to examine inequalities in health or health status. When we look at alcohol consumption we are combining elements of lifestyle along with indicators of health and health risk factors. Thus, social inequalities in abstinence or current drinking status do not necessarily indicate differences in health status, but perhaps lifestyle choices or they could simply be correlates of social status. When we look at heavy drinking or heavy episodic drinking, we are then exploring social inequalities in health risk behaviour. This is more relevant, then, for Public Health research and can give us information as to who is more at risk for certain possible diseases or problems. When we examine inequalities in reporting alcohol-related problems, we are coming the closest to studying inequalities in actual health status, since the problems (if consisting of a full screening schedule) can serve as indicators of alcohol dependence or abuse. However, this is a more problematic area than when studying “clear cut” diseases. Since alcohol and drug abuse can carry stigma (Conrad and Schneider, 1980; Room, 2004), and because the lower classes may be more susceptible to deviant labelling (Conrad and Schneider, 1980), the results we find must be considered within this context, and that a certain amount of underreporting may be taking place with regard to alcohol-related problems. Thus, social status is not only a determinant of health or disease, but it also

affects how we collect and analyse our data in this field. We must always keep such facts in mind when addressing social inequalities and the effect of social status on alcohol use and misuse.

5 REFERENCES

- Babor, T. F., Higgins-Biddle, J.C., Saunders, J.B., Monteiro, M.G. (2001). AUDIT: The Alcohol Use Disorders Identification Test. Geneva, Switzerland. *World Health Organization*.
- Bradley, K. A., Boyd-Wickizer, J., Powell, S.H., Burman, M.L. (1998). Alcohol Screening Questionnaires in Women. *JAMA*, 280 (2), 166-171.
- Berkman, L.F. & Kawachi, I. (2000). A Historical Framework for Social Epidemiology. *Social Epidemiology*. New York: Oxford University Press: 3-12.
- Bloomfield, K. (1998). Das Problem des internationalen Vergleichs von Ausbildungsabschlüssen. In: *Messung soziodemographischer Merkmale in der Epidemiologie*. Ahrens, W., Bellach, B.-M., Jöckel, K.-H. RKI-Schriften 1/98, Munich, 65-68.
- Bloomfield, K., Augustin, R. & Kraus, L. (2000). Social inequalities in alcohol use and misuse in the German general population. *Zeitschrift für Gesundheitswissenschaften*, 8, 230-242.
- Braun, M. & Müller, W. (1997). Measurement of Education in comparative Research. *Comparative Social Research*, 16, 163-201.
- British Medical Association (1995). Alcohol: Guidelines on Sensible Drinking. London: British Medical Association.
- Conigrave, K.M.; Saunders, J.B.; Reznik, R.B. (1995). Predictive capacity of the AUDIT questionnaire for alcohol-related harm. *Addiction*, 90, 1479-1485.
- Conrad, P. & Schneider, J. (1980). *Deviance and Medicalization: From Badness to Sickness*. St. Louis: The C.V. Mosby Company.
- Gmel, G., Heeb, J.-L., & Rehm, J. (2001). Is frequency of drinking an indicator for problem drinking? A psychometric analysis of a version of the Alcohol Use Disorders Identification Test (AUDIT) in Switzerland. *Drug and Alcohol Dependence*, 64, 151-163
- Greenfield, T., Midanik, L., Rogers, J. (2000). A 10-year national trend study of alcohol consumption, 1984-1995: Is the period of declining drinking over? *American Journal of Public Health*, 90, 47-52.
- Harrison, L., Gardiner, E. (1999). Do the Rich Really die Young? Alcohol-related mortality and social class in Great Britain, 1988-94. *Addiction*, 94, 1871-80.
- Hemmingson, T., Lundberg, I, Romelsjö, A., Alfredsson L. (1997). Alcoholism in social classes and occupations in Sweden. *International Journal of Epidemiology*, 26, 584-591.
- Jöckel, K.-H., Babitsch, B., Bellach, B.-M., Hoffmeyer-Zlotnik, J., Winkler, J. Wolf, C. (1998). Messung und Quantifizierung soziodemographischer Merkmale in epidemiologischen Studien. In: *Messung soziodemographischer Merkmale in der Epidemiologie*. Ahrens, W., Bellach, B.-M., Jöckel, K.-H. RKI-Schriften 1/98, Munich, 7-38.
- Kunst, A., Cavelaars, A., Groenhouf, F., Geurts, J., Mackenbach, J. (1996). *Socioeconomic inequalities in morbidity and mortality in Europe: A comparative study; Volume 1: Main report*. Rotterdam: Department of Public Health, Erasmus University.
- Kunst, A., Geurts, J. van den Berg, J. (1995). International variation in socioeconomic inequalities in self-reported health. *Journal of Epidemiology and Community Health*, 49, 117-23.
- Lynch, J. & Kaplan, G. (2000). Socioeconomic Position. *Social Epidemiology*. New York: Oxford University Press, 13-35.
- Mackenbach, J., Kunst, A., Cavelaars, A., Groenhouf, F., Geurts, J. (1997). Socioeconomic inequalities in morbidity and mortality in western Europe. *Lancet*, 349, 1655-59.

- Mäkelä, P. (1999). Alcohol-related Mortality as a function of socio-economic status. *Addiction*, 94, 867-886.
- Marmot, M., Davey Smith, G., Stansfield, S. (1991). Health inequalities among British civil servants: the Whitehall Study. *Lancet*, 337, 1387-1393.
- Marmot, M., Shipley, M., Rose, G. (1984). Inequalities in death-specific explanations of a general pattern. *Lancet* 1, 1003-1006.
- Marmot, M. (1996). The Social pattern of health and disease. In D. Blane, Brunner, E. and Wilkinson, R. eds. *Health and Social Organization: Towards a Health Policy for the Twenty-first Century*. London: Routledge, 42-67.
- Marmot, M. (1997). Inequality, deprivation and alcohol use. *Addiction*, 92 (Supplement), 13-20.
- Midanik, L. & Clark, W. (1994). The demographic distribution of US drinking patterns in 1990: Description and trends from 1984. *American Journal of Public Health*, 84, 1218-22.
- Room, R. (2004). Thinking about how social inequalities relate to alcohol and drug use and problems. Paper presented at the 1st International Summer School on Inequalities and Addictions. Adelaide, Australia.
- Saunders, J., Aasland, O., Amundsen, A., & Grant, M. (1993a). Alcohol consumption and related problems among primary health care patients: WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption-I. *Addiction*, 88, 349-362.
- Saunders, J., Aasland, O., Babor, T., De la Fuente, J., & Grant, M. (1993b). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption-II. *Addiction*, 88, 791-804.
- Van Oers, J.A.M., Bongers, I.M.B., Van de Goor, L.A.M., Garretsen, H.F.L. (1999). Alcohol consumption, alcohol-related problems, problem drinking, and socioeconomic status. *Alcohol & Alcoholism*, 34 (1), 78-88.

Chapter 7: Social roles

How do social roles and social stratification influence women's and men's alcohol consumption? A cross-cultural analysis

Gerhard Gmel, Sandra Kuntsche, Hervé Kuendig, Kim Bloomfield, Stephanie Kramer & Ulrike Grittner

1 INTRODUCTION

Inequality in health and particularly gender inequalities in health has been a subject of growing interest in research. Until the 1980s research focused mostly on inequalities in men's health especially related to socio-economic conditions (Townsend, Davidson & Whitehead, 1982, Townsend, Davidson & Whitehead, 1992). Since then research on inequalities in women's health has been increasing. This research has predominantly focused on role models related to marital and parental roles and the effect of being additionally employed or not (Nathanson, 1980, Verbrugge, 1983, Thoits, 1983, Arber, 1991). More recently, there is a shift in research stressing the importance of including both the structural and material situation of women in societies and their family roles (Bartley, Popay & Plewis, 1992, Macran *et al.*, 1994, Arber & Cooper, 2000). Nevertheless, the literature tends to focus on the attachment of health inequalities to work factors, social stratification and social class for men, whereas women's health inequalities have often been analysed within the framework of household and family roles (Matthews & Power, 2002, Lahelma *et al.*, 2002, Arber & Khlat, 2002). The present paper attempts to analyze potential inequalities in one of the major risk factors for health, namely alcohol consumption (World Health Organization (WHO), 2002), by combining both a social stratification and social role framework. The study extends most work in the field by not focusing on a single gender, but looking instead at both men and women simultaneously in a joint analytical framework.

Research could not show that the same roles or roles combinations have consistent positive or negative effects on health. Mainly two different strands predominate. First, the role attachment or role accumulation theory focuses on the beneficial health effects of holding multiple roles, such the roles of partner, parent and employee (Aneshensel, Frerichs & Clark, 1981, Hong & Seltzer, 1995, Hibbard & Pope, 1991). Second, the role overload or role strain hypothesis states that heavy responsibilities for domestic duties and childrearing in addition to work demands may lead to stress, and positive effects of e.g. employment may be mitigated by role overload (Ross & Mirowsky, 1992, Doyal, 1995, Macran, Clarke & Joshi, 1996). Being a single mother seems to be particularly disadvantageous (Whitehead,

Burstrom & Diderichsen, 2000, Hibbard & Pope, 1987). Single motherhood may result in overload due to the responsibilities of childrearing and the potential need to provide the entire family income. For women with children social welfare systems are particularly important. Services like day care or after school care and the extent of maternity benefits are important. Arber and Khlat (2002) stated that in the United Kingdom single mothers often rely on state benefits and therefore live close to the poverty level, whereas in other countries like Finland with good welfare services for women, highly developed child caring services mean that women are not prevented from working outside the home (Lahelma *et al.*, 2002). Thus, the effect of different role combinations may vary across different societies based on their social welfare systems and levels of gender equity. Both are closely linked, and research has to integrate both macro-level and micro-level aspects simultaneously to study the impact of socio-economic and role variables on inequalities in men's and women's health (Moss, 2002). The present paper attempts to interpret both aspects with regard to abstinence, heavy drinking, and risky single occasion drinking (RSOD) for both genders in 10 European countries.

Numerous studies on the relation between social roles and alcohol consumption have been based on the "tension reduction" hypothesis (Cappell & Greeley, 1987). Being involved in several roles may result in stress and alcohol intake as a depressant may reduce this tension. Drinking to cope is part of the alcohol regulation theory which assumes that individuals drink for psychological relief of negative emotions (e.g. McCreary & Sadava, 1998, Peirce *et al.*, 1994). However drinking for coping purposes is more prevalent among men than women (Timmer, Veroff & Colten, 1985).

There is a long tradition in the alcohol field of studying the influences of socio-economic determinants on alcohol consumption (e.g. Midanik & Clark, 1994, Mäkelä, 1999, van Oers *et al.*, 1999). Comprehensive studies on the relationship of social roles and drinking behaviors were published by Knibbe and colleagues (1987) and Wilsnack and Cheloha (1987). Both studies are based on the "classical role theory" (Gerhardt, 1971). Central to this theory is the assumption that individuals with fewer roles have a higher probability of being heavy drinkers than individuals with more roles. Possessing more roles seems to be associated with a certain amount of structuring in one's life resulting in fewer possibilities to drink heavily. The study by Knibbe *et al.* (1987) indicated that the protective effect of role accumulation for alcohol consumption may hold only for men. Wilsnack and Cheloha (1987) could not find a common pattern for the association between roles and alcohol consumption among women. They identified an age-related role deprivation associated with heavy drinking. Younger women, unmarried and without a stable work situation, had a higher probability of heavy drinking. Also, women aged 35 to 49 were more likely to report heavy drinking, if they had lost roles e.g. by divorce. Women in the age range of 50 to 64 were more likely to drink heavily if they stayed at home, had a drinking partner, or were not working outside their homes. Similarly, Gmel *et al.* (2000) showed for women in four European countries that roles and role combinations influenced heavy drinking differently in each country. Their findings also indicated that differences in social position of women in a country were strongly related to differing associations between specific role combinations and heavy drinking and gender equality across countries. Cross-culturally, no single role hypothesis was valid.

The present study investigates the following research questions in relation to abstinence, heavy drinking, and risky single occasion drinking:

- (a) Is social stratification more important for men's drinking, whereas family roles are more important for women's drinking?

- (b) Does the same multiple role hypotheses apply to men and women?
- (c) Are there country differences with regard to the impact of social stratification and multiple roles on alcohol consumption?
- (d) Can these differences be explained by structural variables at the aggregate level, such as gender equity? In addition, the proposed analysis will test whether gender differences can be explained by differential vulnerability (e.g., an interaction effect between employment status and gender).

2 METHODS

2.1 Samples

Data come from the GENACIS study. Organisationally, each participating country provided datasets that were collected and stored in a common databank in Lausanne. Variables used in the present study, such as drinking measures, were constructed in the same way in all countries to permit a central, joint analysis of different datasets. Currently, 31 datasets are available and 10 European countries had sufficient information on both drinking measures and social roles. The present study analyses survey data from Austria, Czech Republic, France, Finland, Germany, Hungary, Norway, Sweden, Switzerland, and UK (Table 1). All surveys were nationally representative.

The age range was restricted to 25-49 years, mainly for two reasons. First, comparable measures for formal education could only be constructed for the highest level of education attained. However, at younger ages, this rarely represents final educational attainment. Second, the presence of children in the household and the corresponding ages of children may have different impact at older ages. However, there was no comparable information on ages of children. Depending on age, there can be a higher likelihood that having children in the household means a substantial effort of respondents for childrearing responsibilities.

Table 1. Survey characteristics of participating countries, unweighted n, age: 25-49

	sampling frame	survey mode	survey year	n	men	women
Austria	national	face-to-face	1993	3.580	1.783	1.797
Czech Republic	national	face-to-face	2002	1.428	706	722
Finland	national	face-to-face (AUDIT+drugs: self-administration)	2000	927	481	446
France	national	telephone	1999	6.765	3.043	3.722
Germany	national	postal	2000	5.092	2.242	2.850
Hungary	national	face-to-face (alcohol questions: self-administred)	2001	1.216	585	631
Norway	national	face-to-face (with self-administration)	1999	1.102	522	580
Sweden	national	telephone	2002	2.411	1.183	1.228
Switzerland	national	telephone	1997	6.349	2.974	3.375
UK	national	face-to-face and CAPI	2000	976	473	503

2.2 Measures of drinking variables

Drinking Status: with the exception of Austria abstainers were defined as non-consumers of alcoholic beverages during the past 12 months. Austria used a three-month reference period.

Heavy Drinking: Heavy drinking was defined as drinking more than 20 (30) grams a day of pure ethanol on average for women (men). These cutoffs reflect a compromise between commonly used thresholds in the literature (Edwards *et al.*, 1994, Bondy *et al.*, 1999, World Health Organization (WHO), 2000, British Medical Association, 1995) and the need to have a sufficiently large number of individuals across all countries. Ethanol measures were derived from beverage-specific quantity-frequency measures for the past 12 months for most countries. Exceptions were A) France, where usual quantity was derived from “yesterday” and “past Saturday” consumption and the highest beverage-specific drinking frequency in the past 7 days; B) UK and Austria, where overall consumption across beverages in the past 7 days was used; C) Hungary, where beverage-specific quantities on the last drinking occasion were multiplied by overall frequency in the past 12 months.

Risky Single Occasion Drinking (RSOD): A measure of RSOD does not exist for Austria, France, or the UK. For the remaining countries, it was based on questions of drinking a certain amount at least once in the past 12 months. Corresponding measures were 8 or more glasses (8+ glasses, approximately 80 grams pure ethanol) in Switzerland, 6+ glasses in Sweden (Finland) with 72 grams (resp. 60 grams), and 5+ glasses in Germany (about 70 grams), Czech Republic (90 grams). In Hungary the question was asked as 3 or more drinks with an approximate drink size of 20 grams per drink.

2.3 Measures of roles

Family Situation: This variable combined marital status with having children. The questions from marital status differed in the countries, and usually differentiated between married, single, divorced, or widowed. In some countries a difference was made between not being married but living in a common-law partnership or married, but separated individuals. The former was combined with married, the latter with divorced. In 8 countries having children under the age of 18 was used. In Hungary only information on having children in the household could be obtained. In Germany the survey only asked about having children or not. Given the restricted age range used in the present study this should generally mean children under the age of 18 and children living in the household. Both variables were combined in a single variable measuring couples (married and cohabitating) with children, couples without children, lone parents, and singles without children.

Formal education: All questionnaires used in this study asked about level of education attained rather than years of schooling completed. The ISCED-97 (International Standard Classification of Education) was used to derive comparable educational groups across countries. The ISCED, which was originally developed in 1976, was revised most recently in 1997. The ISCED-97 typology has several advantages. First, it offers a standardized classification for the majority of project countries (with the exception of Brazil and Israel). Second, it combines several dimensions: years of education, credentials, and type of education (general vs. vocational). Categories also take into consideration the *content* of the programs: starting age, entrance qualifications, certificates, and a program’s orientation

to specific occupations. Using the ISCED-97 as a starting point, in cooperation with the study leaders from each country a categorization of formal education for each country was developed that allowed the creation of a variable for education that was comparable across countries. The ISCED-97 manual breaks down education into seven main categories: 0 Pre-primary, 1 Primary, 2 Lower secondary, 3 Upper secondary, 4 Post-secondary, 5 First stage tertiary, 6 Second stage tertiary. For the present analyses these seven categories were collapsed into three main categories (low, middle and high), defining the categories where possible so that the bulk of the respondents (approx. 40-50%) fell into the middle category.

Employment: Questions on employment again varied widely across countries, sometimes including part-time work or self-employment. The only possibility to achieve a similar measure across all countries was to dichotomize the country-specific questions in employment (working for pay) and unemployment (including apprentices or students).

Control variables: As control variables age in years and household income were used. Household income instead of individual income was used primarily because it was the only variable available for all countries. Answer formats varied across countries with either an open question format or with ordered answer categories, varying between 9 and 12 answer categories. Some countries asked for gross income (before subtracting taxes and other deductions), some for net income. To enhance comparability, household incomes for all countries were recoded into 5 categories approximating 20 percentiles of the distribution within each country.

Aggregate level variables: Several variables that may be indicative for countries' social system, welfare orientation and gender equity were used from the World Bank database (<http://devdata.worldbank.org/genderstats/query/default.htm>). The following variables were used:

- (a) expected years of schooling for women, and the difference between men's and women's expected years of schooling as a measure of educational differences;
- (b) the gross national product (GNP) as a measure of prosperity
- (c) 1) female unemployment rate, and its difference to the male rate; 2) women's activity rate, and its difference to the male rate; 3) the percentage of females' participation in total labor force as potential indications for the impact of a country's employment situation, job security and the corresponding gender equity as regards work roles
- (d) birth rate, fertility rate, and the official number of weeks of maternal leave as an aspect of social welfare and as an indication of the potential impact of being mother in a country.

In addition, a scale published by Siaroff (1994) to measure female work desirability was used. It was constructed as a weighted average of gender ratios for unemployment, wages, and proportions in "elite" positions. Siaroff's analysis was based on OECD countries only and thus did not include Hungary and Czech Republic.

2.4 Statistical analyses

Statistical analyses proceeded in two phases. First, logistic regressions were performed separately for each gender and each country. Logistic regressions were calculated hierarchically. The control variables, age and income, were entered first, followed by social stratification variables, education and employment, and the family situation in four groups was entered last.

Explained variance was measured by Nagelkerke's R^2 , which has similar interpretation to that of R^2 in multiple regression models.

The changes in the Nagelkerke's R^2 depend on the order in which the variables are included in the analysis. By entering social stratification first, the R^2 of these variables would obtain a higher Nagelkerke's R^2 . Nevertheless, the R^2 changes will be used for the estimation of gender differences and in this context the order of inclusion of variables is not of relevance.

Because the variables in each block contained more than one degree of freedom, significance was tested as a block by likelihood ratio tests (Hosmer & Lemeshow, 2000). In a few countries cell sizes of certain role combinations were too small, resulting in co-linearity problems in regression models. In these cases a new variable was constructed contrasting singles against couples, thus independent of whether couples or singles had children.

To test differential vulnerability, logistic regression models were run for each country combining both genders. Differential vulnerability is indicated when the interaction of gender and other exposure variables is significant. With men being the reference group, a positive interaction coefficient indicated that women were relatively more vulnerable compared with men. Interactions were separately tested for education, employment and family situation.

Description and discussion of findings was not based on significance only. Significance depends heavily on sample size. Following the suggestions of Rothman (2002), the importance or strength of findings does not depend on significance only, but also on consistency across different studies (here different countries). We used the following heuristics to describe and interpret findings across countries in addition to significances. We looked at regression coefficients with the same sign across surveys. Thus, a finding was of importance, if, for example, employment was positively associated with drinking across (almost) all countries, independent of whether this was significant in all countries. We also used a rule of thumb for the strength of associations. For example, an odds ratio of 2 (e.g. a regression coefficient of 0.7 or -0.7 for odds below 1) has been assumed to be of sufficient strength (Kromhout, 1998). Similarly, we assumed regression coefficients of ± 0.4 to be indicative for potential associations (with 0.4 corresponding to an odds ratio of about 1.5).

In the second analysis phase the regression coefficients of the first set of logistic regressions (separately for men and women) were used to scale countries according to their patterns of impact of control, social stratification and family situation variables. Optimal scaling was used. Optimal scaling is comparable to principal component analysis (PCA), but has fewer restrictions on the scale level of variables. Given that regression coefficients and variations in regression coefficients also depended on sample size or differences in measures used across countries, these coefficients were conservatively assumed to indicate ordinal information than having an interval scale level. The interpretation of optimal scaling is similar to PCA, with component loadings indicating the strength of variables for the scale, and Eigenvalues (explained variance) to determine the number of dimensions needed. Object scores (comparable to factor scores) can be used as the final scale or scales

(depending on the dimensionality that was needed) of countries. Scales were derived separately for men and women, and for chronic heavy drinking and RSOD. It is important to note that the scale is not indicative of which country had the highest rates of heavy drinking or RSOD, but scales countries according to similar patterns of variables that influenced heavy drinking and RSOD relatively in each country. Thus, two countries would have similar scale values if, for example, the odds ratios of RSOD were increased in a similar way with regard to income, age, education, employment, and family situation. The analysis thus did not focus on similar rates of RSOD, but on similar risk factors for RSOD.

Optimal scaling was also used for the World Bank indicators to derive an indicator of countries' work-welfare-equity-index. Finally, the scales for RSOD and heavy drinking, separately for men and women, were correlated with Siaroff's work desirability index and the World Bank's welfare/gender-equity index. High correlations would thus be indicative for an association between country specific risk factors and the macro-level social system/welfare/equity status.

3 RESULTS

Table 2 includes the gender-specific prevalence of the individual data and the variables of the aggregate level of the World Bank database.

The results regarding employment status showed that in all countries the employment rates for men are higher than for women. Among men the prevalence of being a current drinker is in all 10 countries around 90% of the sample in the given age range. The variation of drinking status was a bit greater for women with the lowest female drinker prevalence in Hungary (78.0%) and the highest in Norway (95.7%). Risky single occasion drinking (at least once a year) was more common among Nordic countries for both genders, whereas heavy drinking (regular consumption of at least 20 (men 30) grams) was more common in central (Germany, France; Austria) or eastern European (Czech Republic) countries both among men and women. As regards the family situation in all countries and for both genders around 50% of the respondents live together with their partner and children. The prevalence of this "traditional role model", living in partnership and parenthood, is for both genders the highest in Hungary and lowest in Austria. The largest variations across countries and gender could be found in the group of single parents (living alone with children). There the prevalence was lowest in Switzerland (men: 1.3%, women: 6.2%) and highest in France among men (11.3%) and UK among women (17.7%).

The differences between both genders regarding expected years of schooling showed that in Switzerland and Germany expected years of schooling were lower among women than among men. In all other countries the expected number of school years was higher among women than men. The results regarding differences in unemployment rates between genders were mixed. The UK, Sweden, Norway, and Hungary showed lower unemployment rates for women than for men. In all other countries the unemployment rates of women were higher than those of men. The highest differences could be found in France and the Czech Republic.

Table 2. Prevalence of individual level variables by gender and country, and aggregated level data from the world bank database by country.

		SW	GE	FR	UK	SE	FI	NO	AU	CZ	HU
Men											
age	25-34	40.6	38.5	39.9	40.2	38.8	38.0	45.8	48.2	42.6	40.6
	35-49	59.4	61.5	60.1	59.8	61.2	62.0	54.2	51.8	57.4	59.4
education	middle	56.6	52.8	56.6	45.5	62.2	48.6	44.3	36.5	72.8	70.0
	high	31.6	42.9	31.8	33.4	27.7	34.9	35.1	3.5	20.4	14.6
employment	employed	93.5	83.2	91.6	80.3	87.9	86.5	86.6	93.2	92.1	76.2
family situation ¹	living with partner and children	48.3	53.1	50.1	42.5	49.2	50.5	57.1	41.7	46.2	63.5
	living with partner, without children	25.8	15.7	13.3	23.7	20.6	20.4	13.0	18.0	19.3	10.2
	living alone with children	1.3	4.8	11.3	6.8	4.9	2.1	2.7	6.4	2.9	1.5
drinking status	drinker	91.6	96.1	95.7	90.9	92.7	94.0	95.4	94.8	92.1	91.4
heavy drinking	yes	13.0	17.4	18.5	17.5	5.5	10.8	8.2	26.4	36.0	7.9
RSOD	at least once in the past 12 months	32.2	42.2	-	-	69.9	87.5	73.9	-	71.9	62.5
Women											
age	25-34	41.6	39.1	39.3	35.2	39.2	35.4	44.1	48.1	43.2	38.4
	35-49	58.4	60.9	60.7	64.8	60.8	64.6	55.9	51.9	56.8	61.6
education	high	68.2	61.4	53.6	51.5	54.6	41.3	45.2	40.1	71.2	57.7
	middle	12.7	31.8	32.4	27.8	36.8	44.8	38.2	3.5	21.5	19.1
employment	employed	68.7	55.6	72.8	61.5	77.8	74.7	74.7	63.9	78.8	63.5
family situation ¹	living with partner and children	50.0	62.3	49.6	52.3	52.3	53.8	56.9	44.6	47.6	65.9
	living with partner, without children	26.6	15.0	14.3	15.5	22.1	22.2	14.4	21.9	21.4	9.7
	living alone with children	6.2	8.3	17.6	17.7	10.9	10.1	16.6	12.5	11.6	11.9
drinking status	drinker	78.7	94.9	91.2	88.3	86.0	94.8	95.7	86.8	82.5	78.0
heavy drinking	yes	4.5	10.4	5.8	9.3	2.8	3.4	2.6	6.1	11.8	0.6
RSOD	at least once in the past 12 months	7.8	13.4	-	-	40.4	57.0	45.5	-	38.2	28.8
World bank data											
Number of weeks for maternal leave		8.0	14.0	26.0	18.0	14.0	15.0	18.0	16.0	28.0	24.0
Birth rate		9.7	8.7	12.5	10.8	10.6	10.7	12.2	8.9	9.1	9.5
Fertility rate		1.5	1.4	1.9	1.7	1.6	1.7	1.8	1.3	1.2	1.3
Expected years of schooling, female		14.6	15.1	15.7	16.7	16.8	17.3	17.7	14.8	13.7	13.8
Difference of expected years of schooling between gender (female-male)		-1.0	-0.3	0.5	0.9	1.8	1.1	1.4	0.0	0.2	0.4
Activity rate, female		65.1	62.5	62.3	67.1	81.4	72.1	74.0	56.5	74.8	61.2
Difference of activity rate between gender (female-male)		-25.3	-18.5	-13.2	-16.5	-2.9	-4.0	-7.3	-22.3	-8.0	-17.3
GNP (in US \$)		36790	23540	22880	25230	26750	23940	36960	24230	5260	4820
Labor Force, female (% of total)		40.6	42.4	45.2	44.2	48.0	48.1	46.5	40.4	47.3	44.7
Unemployment rate, female		3.5	7.9	10.7	4.1	4.6	9.7	3.4	3.8	9.9	5.0
Difference of unemployment rate between gender (female-male)		1.8	0.1	3.6	-1.2	-0.7	1.1	-0.1	0.3	3.1	-1.3

Remarks: SW: Switzerland, GE: Germany; FR: France; UK: UK; SE: Sweden; FI: Finland; NO: Norway; AU: Austria; CZ: Czech Republic; HU: Hungary

¹ missing percentages to 100% are individuals, living alone without children

3.1 Drinking status

Table 3 summarizes the findings of multiple logistic regression models on drinking status. With one exception (Austria for women, Norway for men) drinking status was positively associated with income, though not necessarily statistically so in each country: the more money was available in the household, the more likely individuals were to be drinkers. In the age group of 25 to 49 year olds, age seemed not to be consistently related with drinking status. For each gender, five countries had positive associations between age and drinking status and five had negative associations. Within countries the sign of association differed by gender in four countries. Similar to income, education was usually positively associated with drinking status for men. However, for men in Austria and the Czech Republic both middle and high formal education were associated with a lower risk of being a drinker. In addition, for men in many countries the association with formal education was not monotonically increasing or decreasing; for example, high education and low education showed a lower risk of being a drinker compared to middle education. In women, the tendency was more homogeneous. In all countries except Finland and Czech Republic, women with low educational attainment had a lower risk of being drinkers than women with high attainment. Both countries, however, showed fewer drinkers in the low educational attainment group compared to the high educational attainment group in unadjusted bivariate associations (results not shown). Moreover, in seven of the 10 countries the risk of being a drinker increased monotonically with educational attainment. Employment showed the strongest association with drinking status. In all countries employed women were more likely, though not significantly so in all countries, to consume alcohol. For men this was not the case in Austria and Finland, where non-significant negative associations could be found. In unadjusted crude models, however, for both countries the effect was again positive (results not shown). Least influential for being a drinker as regards the variables used here was the family situation. Only for men in France and for women in Sweden did the inclusion of family roles increase the explained variance significantly (= the inclusion of the variable was significant as a block with 3 degrees of freedom). In addition, there was no discernible pattern for the associations with drinking status. For example, in Germany, couples without children were least likely to be drinkers, whereas singles with children were most likely; in Finland couples without children were most likely drinkers, whereas singles without children were least likely. Men were most likely to consume alcohol when living in a partnership and having children in Switzerland, Sweden, Finland, and the Czech Republic, whereas men in this role combination were least likely to be drinkers in Germany and France. With the exception of the interaction of education and gender in the UK, no significant interactions could be found for either education or employment status. As also indicated by the changes in the explained variance (Nagelkerke's R^2) social stratification was more important for drinking status than family roles. This applied for both men and women in approximately the same way.

Table 3. Country and gender specific regression coefficient of logistic regression models on drinking status; Nagelkerke's R² for a) control variables alone (income, age); b) education and employment in addition to a) , and c) family situation in addition to b).

			SW	GE	FR	UK	SE	FI	NO ¹	AU	CZ ¹	HU
Men	Income	Income	0.016	0.070	0.801***	0.475**	0.702***	0.443*	-0.228	0.049	0.063	0.147
	Age	continuous	0.021	-0.006	-0.011	0.000	-0.075**	-0.050	0.023	0.032	0.005	-0.019
	Education	low	0***	0***	0**	0	0	0	0	0	0	0
		middle	0.806***	0.849*	0.703**	0.515	0.586	0.772	0.938	-0.239	-0.779	0.729*
		high	1.230***	1.554***	0.241	-0.288	1.231*	0.273	0.484	-0.418	-1.393	0.392
	Employment status	employed	0.433	0.354	0.531*	0.410	0.620	-0.365	-0.099	0.534	1.053*	0.510
	Family situation	couple with children	0	0	0**	0	0	0	0	0	0	0
		couple without children (1)	-0.067	0.343	0.303	0.068	-0.087	-0.494	0.508	-0.372	-0.232	-0.187
		single with children (2)	-0.595	0.241	0.707*	1.462	-1.227	-0.101	-0.247	0.308	-0.131	-0.657
		single without children (3)	-0.113	0.146	0.863**	-0.289	-0.589	-0.055		0.224		0.823
	Constant		0.445	1.871	0.122	0.646	2.831	3.437	2.519	1.246	2.148	1.674
		R ² a	0.8%**	0.8%**	14.5%***	6.5%***	19.0%***	5.2%**	0.5%	0.4%	0.3%	2.7%*
		R ² b	3.8%***	3.5%***	16.1%**	8.9%	22.3%*	6.8%	2.3%	0.9%	4.1%**	5.7%*
		R ² c	3.9%	3.6%	17.5%**	10.8%	23.7%	7.3%	2.9%	1.5%	4.2%	7.5%
		change R ² ab	77.8%	75.6%	10.2%	26.9%	14.5%	23.4%	76.0%	60.0%	93.2%	53.0%
		change R ² bc	3.1%	4.4%	8.2%	17.9%	6.0%	7.2%	20.8%	40.6%	3.1%	24.5%
Women	Income	Income	0.133**	0.315***	0.160**	0.116	0.183	0.030	0.090	-0.006	0.083	0.032
	Age	continuous	0.020**	-0.007	0.043***	-0.022	0.006	-0.004	0.018	0.027*	-0.020	-0.022
	Education	low	0***	0***	0***	0	0*	0	0	0	0	0*
		middle	0.879***	1.235***	0.730***	-0.037	0.957	0.518	0.519	0.191	-0.098	0.499*
		high	1.097***	1.992***	1.389***	0.925	0.641	-0.162	0.620	0.919	-0.226	0.998**
	Employment status	employed	0.202*	0.382	0.205	0.691*	1.340***	0.730	0.346	0.056	0.678**	0.335
	Family situation	couple with children	0*	0	0	0	0**	0	0	0	0	0
		couple without children (1)	0.218	-0.497	0.160	0.643	0.544	0.398	0.788	-0.051	0.088	-0.108
		single with children (2)	0.042	0.669	0.337	0.072	0.851*	0.190	0.544	0.175	-0.412	0.062
		single without children (3)	0.401**	0.118	0.136	0.259	1.352**	-0.696	-	-0.098	-	0.211
	Constant		-0.806	1.041	-0.692	1.887	-0.783	2.406	1.244	0.812	1.781	1.294
		R ² a	1.4%***	2.3%***	3.1%***	1.8%	3.9%***	0.6%	0.2%	0.6%	1.1%	2.1%*
		R ² b	5.9%***	7.6%***	6.6%***	6.8%**	13.3%***	3.1%	1.3%	1.1%	2.6%	5.7%**
		R ² c	6.4%*	8.4%	6.8%	7.5%	16.7%**	4.6%	2.4%	1.2%	3.4%	5.9%
		change R ² ab	76.8%	69.6%	52.8%	73.2%	70.9%	79.6%	82.3%	46.3%	57.7%	63.9%
		change R ² bc	7.6%	10.3%	3.6%	9.4%	20.3%	32.8%	46.6%	10.1%	25.2%	2.3%
Interaction	Gender (main effect)	female	-1.033***	-0.494	-0.484*	-0.127	-0.283	0.646	0.037	-1.188***	-1.601*	-0.831*
	Interaction education * gender	Low	0	0	0	0*	0	0	0	0	0	0
		Middle	0.322	0.433	-0.358	-0.550	0.018	-0.428	-0.394	0.396	0.679	-0.234
		high	0.116	0.683	0.006	1.017	-0.932	-0.717	0.309	1.213	1.217	0.419
	Gender	female	-0.798**	-0.207	-0.186*	-0.171	-0.689*	-0.368	-0.283	-0.560	-0.617	-0.745*
		employed * gender	-0.020	0.204	-0.632	0.069	0.296	0.755	0.352	-0.498	-0.253	-0.256
	Gender	female	-1.029***	0.061	-0.704***	-0.344	-1.023**	-0.021	-0.162	-0.990***	-0.784**	-0.849***
		fam. sit. * gender	0	0	0	0	0**	0	0	0	0	0
		fam. sit (1) * gender (1)	0.185	-0.809	0.255	0.586	0.314	0.995	0.327	0.312	0.288	0.035
		fam. sit (2) * gender (1)	0.724	0.302	-0.226	-1.085	1.856**	0.981	0.463	-0.055	-0.246	0.904
		fam. sit (3) * gender (1)	0.501**	-0.114	0.048	0.790	1.610*	-0.091	-	-0.222	-	-0.803

Remarks: SW: Switzerland; GE: Germany; FR: France; UK: UK; SE: Sweden; FI: Finland; NO: Norway; AU: Austria; CZ: Czech Republic; HU: Hungary

¹ Couple with children, couple without children vs. single (with or without children); * >5%; ** >1%; *** >0.1%

Changes in R² signify changes from model a) to model b, and model b to model c.

3.2 Heavy drinking

The following analyses were based on drinkers only. In contrast to drinking status, heavy drinking appears not to be consistently influenced by household income (see Table 4). Significant associations could only be found for men in Norway and women in Switzerland and Germany. The direction of association varied within gender across countries and within countries across gender. For most countries heavy drinking increased with age. This could be found for both genders, with the exception of the UK and Sweden, where both sexes have a negative association between heavy drinking and age. Both sexes Norway showed the lowest association between heavy drinking and age.

For men in all countries - with the exception of the UK - heavy drinking rates decreased monotonically with education. Thus, individuals with lower education were most likely to drink heavily, whereas individuals with the highest education had the lowest rates of heavy drinkers. For women there were marked differences across countries. In four countries (Sweden, Finland, Czech Republic, and Hungary) the same tendency was found as for men, namely, higher rates of heavy drinking among individuals with lower education and lower rates for women with higher education. In four countries, Switzerland, Germany, France, and Norway the associations were opposite to those of men. For two countries, UK and Austria, no clear pattern for women could be identified.

Employment status showed no consistent association with heavy drinking across countries. Significant effects could only be found for men in Germany. According to the rule of thumb, coefficients of ± 0.7 could only be found for women in Norway or Hungary. It should be noted that for most countries the direction of effects were the same among men and women, with the exception of Hungary, Germany and Finland. In Germany and Hungary the effect of employment was close to zero. Thus, notable differences emerged for Finland only. Compared to the analyses on drinking status, family situation appeared to have more impact on heavy drinking than on drinking status, as indicated by generally higher R^2 changes when including the family situation. Broadly, two tendencies emerged: First, for men, living in a partnership was associated with lower risks of heavy drinking compared to being single. However, some exceptions could be identified. For example, in Sweden, living with a partner without having children or being single without having children showed the highest risks of heavy drinking, whereas living with a partner or alone and having children appears to be associated with lower risks for heavy drinking. In Czech Republic, Finland, and France, individuals living with a partner without having children had the lowest risks for heavy drinking. Second, for women, living with a partner and having children was commonly the most protective role combination. An exception was Switzerland where single mothers were less likely to be heavy drinkers. In Sweden, women living in a partnership had clearly lower risks of heavy drinking than singles-independently of whether children lived with them or not. In France, female singles had a lower risk of drinking heavily. For those two countries the differences were not significant.

When looking at explained variances and changes in explained variances from the model with social stratification variables only to the model including the family situation two tendencies can be found. It appeared that only in about half of the countries social stratification was more important for men. However, the additional impact of family roles was more often stronger for women than for men.

There were no consistent data for the combinations of employment and family roles for men. In five countries, where employment resulted in higher risks, the role combination of being married and having children was protective (Switzerland, UK, Sweden, Austria, and Hungary). In two countries

exactly the opposite was found (France and Finland), where employment was associated with a lower risk of heavy drinking, but the family situation of living in a partnership with children was associated with the highest risk. Role accumulation was best confirmed in Germany and Norway only, where employment and living with a partner and children were protective for heavy drinking. No clear pattern could be found for the Czech Republic. For women, living with partner and children was in most countries protective. In a few countries (Germany and Norway), being employed has an additional protective influence for women with regard to alcohol use; in these countries the role accumulation hypothesis was supported, as paid employment was associated with even lower risk, on top of the protective effect of parenthood and partnership. This is the case in France, Czech Republic, Norway and Hungary. On the other hand, there is also little indication for role overload because female singles with the fewest roles usually had higher risks for heavy drinking compared to married or cohabiting women with children.

The interaction between education and gender showed for most countries a particular vulnerability for heavy drinking among women with the highest education level. This means that if there were important ($b > 0.7$) or significant associations, these were usually positive. The effect was weak for UK and Hungary. Sweden and Finland are an exception to this, where women with the highest levels of education showed a slightly lower vulnerability compared to men. Thus, with the exception of Sweden and Finland, highly educated women were, relative to men, more likely to become heavy drinkers, with low educated individuals being the reference group.

As indicated, employment usually had the same direction of effects on heavy drinking for men and women within a country. As a consequence, there was little indication for differential vulnerability as indicated by gender interactions. The interaction was significant for Germany and strong for Finland, thus two countries where the sign of effect in stratified analysis differed between men and women.

All significant or important interactions between family situation and gender were positive. With the “traditional role” of living with a partner and children being the reference group in logistic regressions, this means that outside this role women are at higher risk for drinking heavily compared to men. More generally, compared to the “traditional role”, most of the non-significant interaction effects had a positive direction. Notable exceptions ($b < -0.4$ equivalent to an odds ratio of 0.67; 0.4 being an odds ratio of 1.5) were Sweden, where women living in partnership without children had a lower risk, and UK and Switzerland, where single mothers had a relatively lower risk compared to the same role for men. Thus, with few exceptions women were more vulnerable for heavy drinking outside the traditional role of living in a partnership with children. Most consistent was the finding for women living in a partnership without children, who were, relative to men, more vulnerable for heavy drinking compared to couples with children.

Table 4. Country and gender specific regression coefficient of logistic regression models on heavy drinking; Nagelkerke's R² for a) control variables alone (income, age); b) education and employment in addition to a) , and c) family situation in addition to b); only drinker

			SW	GE	FR	UK	SE	FI	NO ¹	AU	CZ	HU ¹
Men	Income	Income	0.006	0.056	-0.058	-0.114	0.251	-0.088	0.376*	-0.030	-0.035	-0.217
	Age	continuous	0.019*	0.037***	0.058***	-0.005	-0.029	0.005	0.001	0.023**	0.012	0.031
	Education	low	0	0	0	0	0	0	0	0	0	0
		middle	-0.725***	0.071	-0.259	0.662	-0.350	-0.509	-0.790	-0.270*	-0.496	-0.494
		high	-0.901***	-0.159	-0.482**	0.135	-1.050	-0.728	-1.015*	-0.944*	-1.112**	-0.605
	Employment status	employed	0.295	-0.405**	-0.081	0.172	0.345	-0.674	-0.493	0.261	-0.100	0.055
	Family situation	couple with children	0	0	0	0	0	0	0	0	0	0
		couple without children (1)	0.034	0.083	-0.070	0.250	0.599	-0.504		-0.021	-0.227	
		single with children (2)	0.206	0.857***	-0.007	0.695	0.190	-0.297	1.924**	0.382	0.094	0.279
		single without children (3)	0.209	0.526***	-0.025	0.988**	0.581	-0.027		0.432**	-0.069	
	Constant		-2.215	-2.890	-3.073	-1.854	-2.792	-0.820	-3.265	-1.969	-0.062	-2.629
		R ² a	0.4%*	0.7%**	4.8%***	1.5%	1.9%	2.2%	0.0%	0.5%	0.9%	2.7%*
		R ² b	2.0%***	1.5%**	5.2%**	3.7%	3.4%	4.3%	3.2%	1.4%**	3.2%**	3.3%
		R ² c	2.2%	2.9%***	5.2%	7.4%*	4.5%	4.9%	15.7%***	2.5%**	3.5%	3.5%
		change R ² ab	351.1%	123.1%	9.0%	148.8%	80.7%	94.0%	83640.6%	187.2%	246.5%	21.1%
		change R ² bc	7.4%	94.6%	0.3%	102.6%	29.6%	14.4%	385.1%	82.9%	7.2%	7.3%
Women	Income	Income	0.178*	0.161**	-0.023	-0.105	0.029	-0.270	-0.038	0.071	0.064	0.765
	Age	continuous	0.009	0.029**	0.067***	-0.024	-0.005	0.059	-0.001	0.008	0.008	0.022
	Education	low	0	0	0	0	0	0	0	0	0	0
		middle	0.003	0.255	0.169	-0.156	-0.243	-0.693	0.054	-0.580**	-0.082	-0.548
		high	0.279	0.391	0.485	-0.013	-1.313	-1.124	0.328	0.406	-0.145	-1.326
	Employment status	employed	0.155	0.069	-0.318	0.641	0.555	0.462	-0.793	0.127	-0.152	-0.881
	Family situation	couple with children	0	0	0	0	0	0	0	0	0	0
		couple without children (1)	0.167	0.403*	0.386	0.817	-0.027	1.643*		0.494	0.864**	
		single with children (2)	-0.242	0.614**	0.019	0.219	1.130	0.807	2.237**	0.971**	0.588	0.673
		single without children (3)	0.237	0.750***	-0.121	1.043*	1.602*	1.041		0.987***	0.984**	
	Constant		-3.979	-4.221	-5.319	-1.690	-3.903	-5.386	-4.314	-3.472	-2.580	-7.397
		R ² a	0.9%*	0.9%**	3.6%***	0.4%	0.0%	5.2%	5.0%	0.1%	0.1%	3.0%
		R ² b	1.2%	1.6%**	4.2%	3.0%	2.7%	8.0%	7.4%	1.8%**	0.2%	5.8%
		R ² c	1.4%	2.8%**	4.5%	6.4%	8.8%*	13.2%	16.0%**	4.4%***	3.9%**	6.5%
		change R ² ab	36.7%	74.8%	15.5%	607.3%	10862.9%	53.8%	47.9%	1983.0%	56.8%	94.7%
		change R ² bc	17.5%	83.5%	9.6%	116.6%	224.8%	64.7%	115.8%	145.2%	1661.0%	13.0%
Interaction	Gender	female	-1.737***	-1.048*	-1.843***	-0.249	-0.350	-0.913	-2.023**	-1.519***	-1.815***	-2.813*
		education * gender	0***	0**	0**	0	0	0	0	0**	0	0
		education (1) by gender (1)	0.817**	0.275	0.375	-0.642	0.081	-0.424	0.786	-0.241	0.400	0.306
	Gender	education (2) by gender (1)	1.315***	0.789	0.886**	0.091	-0.387	-0.577	1.202	1.530**	1.039	0.004
		female	-1.019***	-1.033	-1.271***	-0.957*	-0.267	-2.045**	-0.875	-1.474***	-1.550***	-2.549**
		employed * gender	0.054	0.634**	-0.105	0.515	-0.119	1.027	-0.556	-0.078	0.254	-0.142
	Gender	female	-1.006***	-0.671***	-1.412***	-0.672*	-0.616	-2.350***	-1.818**	-1.867***	-1.887***	-2.673***
		fam. sit. * gender	0***	0	0	0	0	0*	0	0	0	0
		fam. sit (1) * gender (1)	0.198	0.496*	0.401	0.676	-0.728	2.282**		0.394	1.084**	
		fam. sit (2) * gender (1)	-0.595	-0.371	-0.054	-0.459	0.923	1.431	0.818	0.604	0.341	0.117
		fam. sit (3) * gender (1)	-0.041	0.191	-0.099	0.077	0.952	1.207		0.500	1.016**	

Remarks: SW: Switzerland; GE: Germany; FR: France; UK: UK; SE: Sweden; FI: Finland; NO: Norway; AU: Austria; CZ: Czech Republic; HU: Hungary

¹ Couple with children, couple without children vs. single (with our without children); * >5%; ** >1%; *** >0.1%

Changes in R² signify changes from model a) to model b, and model b to model c.

3.3 RSOD

As can be seen in Table 5, household income is positively associated with RSOD for both genders, with the exception of German and Swedish women for which higher incomes were negatively associated with RSOD. However, these coefficients are very small in both countries. A common finding across European samples is that RSOD decreases with age (Gmel, Rehm & Kuntsche, 2003). Across almost all countries and for both genders, those with highest formal education have the lowest risk for RSOD. Exceptions were Finnish men (middle education) and Norwegian women (lowest education).

The influence of employment on RSOD was positive for almost all countries and both genders. Employed individuals had a higher risk for risky single occasion drinking than unemployed individuals. The exceptions were men in Hungary and men and women in the Czech Republic.

The highest risks for male RSOD as regards family situation were found for single men independent of having children. Mostly, lone fathers had the highest risk of RSOD, with the notable exception of Finland where this group had the lowest risks. Looking at the extremes of lowest and highest risk of the four defined family situations, only two countries, Germany and Hungary, showed the same pattern, where couples without children had the lowest risk and single men with children the highest. The heterogeneity of impact of family roles on RSOD across countries for men does not mean that there is no impact. The inclusion of family situation in regression models commonly resulted in an important increase of explained variance which was significant in four countries. However, the situation of families appeared to have a differential impact on RSOD for men.

For women, clearly the most protective role for RSOD is living with partner and children. The only exception is Hungary, where this combination has the second lowest risk for RSOD following the risk of single women without children. The R^2 -change when including the family situation generally confirmed that for RSOD family roles are more important for women than for men. For men, on the other hand, compared to women social stratification had a higher importance. It should be noted that this does not mean that family roles are not important for men compared to women, or that social stratification is not important for women compared to men. In both genders the inclusion of these variables resulted in increases in variance that were important across countries. For example, the inclusion of family roles was significant in four countries for men and in five countries for women. Social stratification was significant for women in two countries, and for men in three countries. However, usually the effects of social stratification were stronger for men compared to women, and the inverse was true as regards family situation.

As regards the role overload or role accumulation hypothesis, there is no clear pattern for men across countries, whereas for women it appeared that employed women living without partner and children had the highest risk for RSOD in almost all countries.

Table 5. Country and gender specific regression coefficient of logistic regression models on RSOD; Nagelkerke's R² for a) control variables alone (income, age); b) education and employment in addition to a) , and c) family situation in addition to b); only drinker

			SW	GE	SE	FI	NO	CZ	HU
Men	Income	Income	0.068	0.010	0.177**	0.159	0.101	0.032	0.067
	Age	continuous	-0.032***	-0.018**	-0.055***	-0.021	-0.068**	-0.007	-0.022
	Education	low	0	0	0	0	0	0	0
		middle	-0.025	-0.249	0.279	-0.470	0.084	-0.512	0.153
		high	-0.336*	-0.567**	-0.176	0.474	-0.122	-1.239*	-0.587
	Employment status	employed	0.261	-0.006	0.525	1.025*	0.267	-0.340	-0.225
	Family situation	couple with children	0	0	0	0	0	0	0
		couple without children (1)	0.331**	-0.151	0.446	0.588	0.478	0.280	-0.732
		single with children (2)	0.808*	0.363	1.793*	-0.925	0.629	0.497	0.380
		single without children (3)	0.602***	0.160	0.370	0.639	1.105***	-0.068	-0.144
	Constant		-0.042	0.742	1.746	1.988	2.954	2.341	1.657
		R ² a	2.5%***	1.0%***	5.2%***	3.5%	6.1%***	0.1%	0.4%
		R ² b	3.1%**	1.8%**	6.7%**	7.4%	6.2%	3.0%**	2.9%*
		R ² c	4.9%***	2.3%*	9.1%**	9.6%	10.2%**	3.4%	4.4%
		change R ² ab	19.94%	44.09%	23.00%	53.46%	1.89%	95.00%	85.26%
		change R ² bc	37.26%	19.03%	25.66%	22.50%	38.98%	14.28%	33.54%
Women	Income	Income	0.066	-0.028	-0.024	0.060	0.073	0.104	0.037
	Age	continuous	-0.024*	-0.019*	-0.081***	-0.065***	-0.049***	-0.013	-0.027
	Education	low	0	0	0	0	0	0	0
		middle	-0.169	-0.346	-0.214	0.014	0.194	-0.095	-0.478
		high	-0.136	-0.527*	-0.506	-0.600	0.058	-0.495	-0.534
	Employment status	employed	0.161	0.227	0.410	0.320	0.302	-0.021	0.295
	Family situation	couple with children	0	0	0	0	0	0	0
		couple without children (1)	0.412*	0.131	0.213	0.996***	1.179***	0.143	0.578
		single with children (2)	0.538	0.379	0.720**	0.810	1.003***	0.447	0.273
		single without children (3)	0.829***	0.515***	0.411	0.542	1.172***	0.609*	-0.223
	Constant		-1.870	-0.918	2.685	2.377	0.657	-0.002	0.508
		R ² a	0.5%*	1.0%**	8.4%***	4.0%**	3.3%**	0.4%	0.7%
		R ² b	1.2%	1.7%*	9.7%	6.9%*	3.9%	1.2%	2.0%
		R ² c	2.8%***	2.4%*	11.4%*	11.5%**	11.7%***	2.8%	3.3%
		change R ² ab	53.44%	42.22%	13.30%	41.43%	16.60%	68.54%	66.02%
		change R ² bc	57.77%	27.63%	15.00%	39.70%	66.45%	57.03%	40.20%
Interaction	Gender	female	-1.53***	-1.57***	-0.83*	-1.91***	-1.45***	-1.98***	-1.05**
		education * gender	0	0	0	0**	0	0	0
		education (1) by gender (1)	-0.150	-0.049	-0.403	0.482	0.016	0.485	-0.506
	Gender	education (2) by gender (1)	0.197	0.111	-0.348	-1.373	0.108	0.866	0.292
		female	-1.555***	-1.758***	-0.793*	-1.193**	-1.380***	-1.792***	-1.679***
		employed * gender	-0.055	0.283	-0.463	-1.164*	-0.025	0.399	0.491
	Gender	female	-1.671***	-1.721***	-1.169***	-2.368***	-1.523***	-1.569***	-1.462***
		fam. sit. * gender	0	0	0	0	0	0	0*
		fam. sit (1) * gender (1)	0.065	0.340	-0.139	0.479	0.708	-0.123	1.408**
		fam. sit (2) * gender (1)	-0.262	0.061	-1.124	1.832*	0.416	-0.124	-0.288
		fam. sit (3) * gender (1)	0.200	0.433*	0.275	0.515	0.077	0.660	-0.013

Remarks: SW: Switzerland, GE: Germany; SE: Sweden; FI: Finland; NO: Norway; CZ: Czech Republic; HU: Hungary

* >5%; ** >1%; *** >0.1%

Changes in R² signify changes from model a) to model b, and model b to model c.

Gender interactions with education were generally of lower magnitude and varied in direction across countries, pointing to no particular vulnerability for women with regard to association between education and RSOD. This was also substantiated by the fact that across all countries and for both men and women, higher education was associated with lower risk of RSOD (see above). The same tendencies for men and women across all countries were also found for employment. The gender interaction with employment, however, showed an interesting pattern with negative coefficients (lower vulnerability for women) in the Nordic countries, significant for Finland, and positive coefficients (higher vulnerability) for the other countries (except Switzerland, where the effect was close to zero). Living with a partner and children was commonly the most protective role for women and this seemed to apply more for women than for men. This is further substantiated by the fact that important or significant interaction effects of family situation were all positive (with the exception of lone parents in Sweden). Compared to the “traditional role”, women had a relatively higher risk for RSOD in other family situations compared to men.

3.4 Aggregated analysis

As a final step countries were scaled by means of optimal scaling separately for RSOD and heavy drinking and both genders. As input for optimal scaling the regression coefficients of the logistic regression models were used. Commonly a two-dimensional solution was obtained (not presented). However, the second dimension was usually related to the control variables age and income. Thus, a one-dimensional solution was forced and explained around 50% of the variance in all models (see table 6). The internal consistency was high, with Cronbach's alpha being around 0.9 in all models.

Table 6. Unidimensional component loadings of optimal scaling of regression coefficient for the models on heavy drinking and RSOD

	Heavy drinking		RSOD	
	men	women	men	women
Income	-0.48	0.78	0.92	0.78
Age	0.81	0.61	-0.73	0.44
middle education	-0.79	0.66	0.30	0.62
high education	-0.59	0.92	0.80	0.78
employed	-0.32	-0.92	0.85	-0.69
couple without children	-0.96	-0.55	0.91	0.81
single with children	-0.70	-0.67	-0.70	0.62
single without children	-0.95	-0.72	0.76	0.78
constant	0.75	-0.20	0.48	-0.44
Cronbach's alpha	0.89	0.87	0.90	0.85
Variance explained (in %)	54.0	49.0	55.2	45.9

The structural data from the World Bank database (Table 7) were similarly scaled. With the exception of the difference in employment rates all variables loaded positively on this scale, indicative of measuring a work-welfare-equity index. Thus, for example, the higher the number of weeks for maternal leave, the higher the fertility rate, the higher labor force participation and years of schooling, the higher was the rank of countries on this scale.

The positive loadings for differences between men's and women's rates (for years of schooling, activity rates, and unemployment) mean the following: years of schooling were generally higher for women compared with men. Thus, countries rank high with a larger difference between men and women. Activity rates were commonly lower for women. Thus, countries rank high if this discrepancy was low. Unemployment was usually higher for women compared to men. Thus the negative loading means that countries rank high on this scale if the discrepancy between men's and women's unemployment rates is low. In general, countries ranked high if there is more gender equity, better education and a better social welfare system in a country, which is also related to better family care including more weeks of maternal leave and higher birth rates. The Cronbach's alpha for this scale was 0.90.

Table 7. Unidimensional component loadings of optimal scaling of data from the world bank

Number of weeks for maternity leave	0.44
Birth rate	0.80
Fertility rate	0.84
Expected years of schooling, female	0.91
Difference of expected years of schooling between gender (female-male)	0.91
Activity rate, female	0.75
Difference of activity rate between gender (female-male)	0.87
GNP	0.25
Labor Force, female (% of total)	0.84
Unemployment rate, female	0.34
Difference of unemployment rate between gender (female-male)	-0.20
Cronbach's alpha	0.90
Variance explained (in %)	49.6

To identify potential associations between predictors (regression coefficients) of drinking measures and structural data (scale of World Bank data and Siaroff's work desirability index) the scale values of countries were correlated. Significant associations were found for both the World Bank scale and Siaroff's work desirability scale for heavy drinking among women ($r = -0.93$, $p < 0.01$ for work desirability; $r = -0.73$, $p < 0.05$ for the world bank scale) and RSOD among men ($r = 0.88$, $p < 0.05$ for work desirability, $r = 0.84$, $p < 0.05$ for the world bank scale). All other correlations were not significant and low ranging between -0.2 and 0.2. The negative association of the World Bank scale and the work desirability index with countries' scaling of female's heavy drinking is related to the inverse loadings for the heavy drinking scale (Table 6). Component loadings show the following:

- (a) Countries rank higher the higher the positive association between age (income) and heavy drinking.
- (b) Countries rank higher the higher the positive association between heavy drinking and formal education
- (c) Countries rank higher the lower the impact of employment on heavy drinking, or the stronger the negative association between heavy drinking and employment.
- (d) Countries rank higher the lower the impact of family situations outside the “traditional” role on heavy drinking, or the stronger the negative association with these roles and heavy drinking.

To conclude, a country scores high on the heavy drinking scale if higher education is positively associated, employment is negatively associated and the traditional role (partner and children) is positively associated with heavy drinking.

Figures 1-4 show these associations. For women there was a strong association between structural variables and heavy drinking (Figures 1 and 2). At one end Finland, Sweden and UK have high values for work desirability and on the World Bank scale measuring social welfare and gender equity. These countries are characterized by heavy drinking being positively related to employment, low formal education and non-traditional roles. On the other end, countries with low work desirability and lower social welfare and gender equity were Germany and Switzerland, where heavy drinking of women was associated with high education, and little impact of traditional roles and employment on heavy drinking.

For men similar associations could be found with RSOD (Figures 3 and 4), with Norway, Sweden and Finland at one end, and Germany and Switzerland on the other. Thus, better social welfare and gender equity was associated with RSOD drinking among men. In lower social welfare countries with lower gender equity, unemployed and lower educated men show more RSOD drinking, whereas in countries with higher social welfare/gender equity employed and high educated showed relatively more RSOD compared to unemployed and low formally educated.

Figure 1. Regression of the heavy drinking scale on the work desirability scale, women

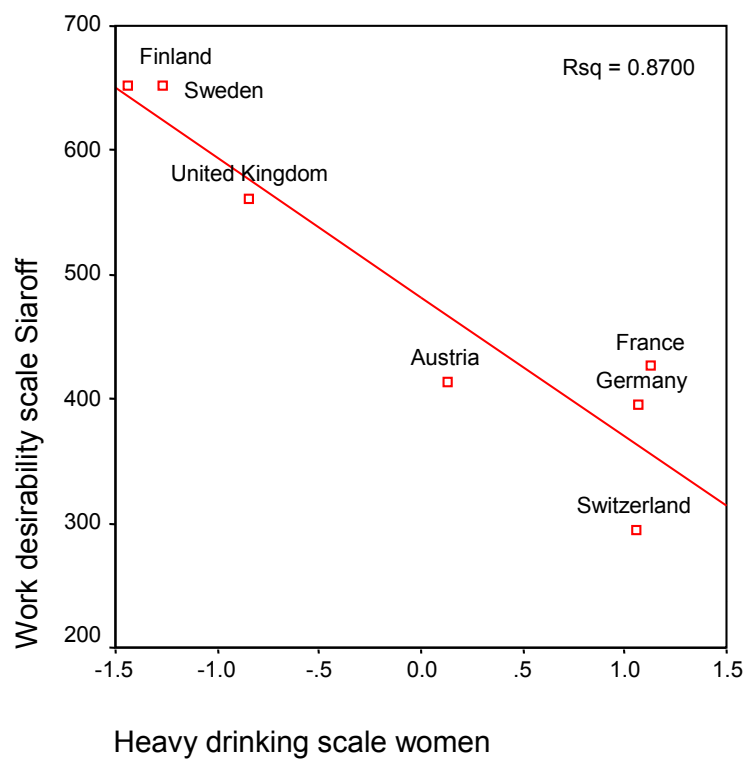


Figure 2. Regression of the heavy drinking scale on the work-welfare-equity scale, women

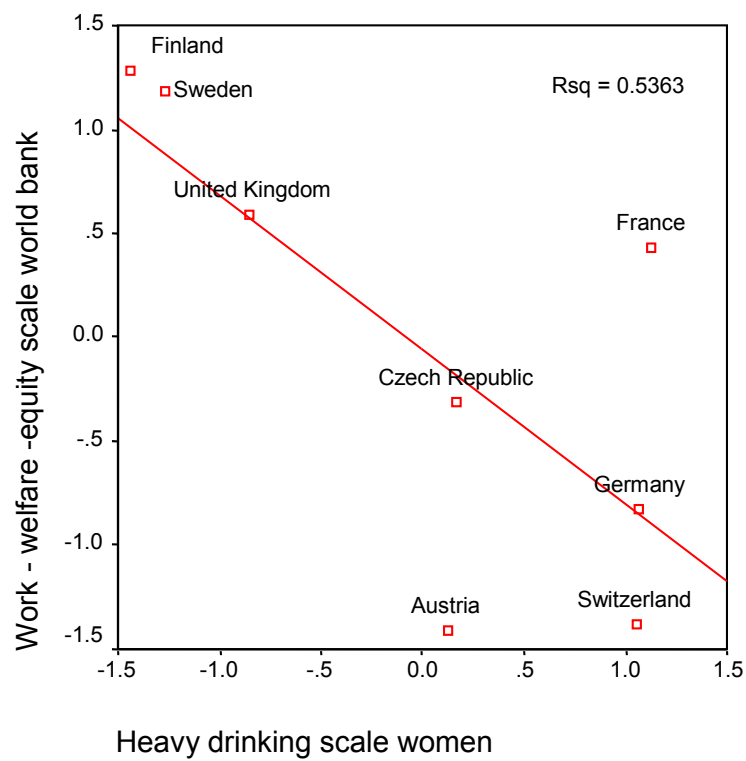


Figure 3. Regression of RSOD on the work desirability scale, men

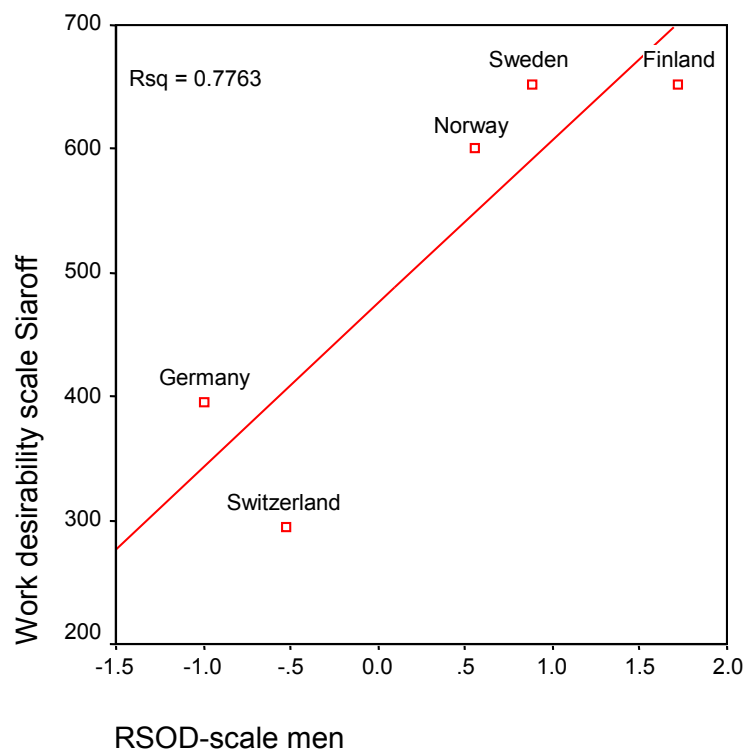
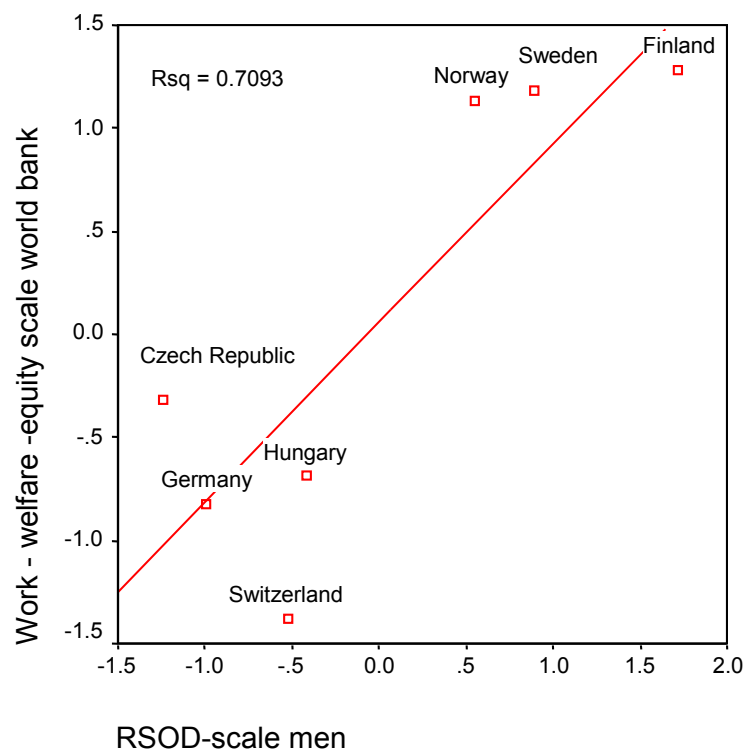


Figure 4. Regression of RSOD on the work-welfare-equity scale, men



4 DISCUSSION

The present paper has presented the impact of social stratification and family roles on drinking status, heavy drinking, and RSOD in 10 countries. The study finds no indication that for men only social stratification (here measured by employment and education) variables should be used to explain differences in men's drinking. Family roles are not only important for women but also for men. No single role theory (role attachment vs. role overload) could consistently be found to apply across all countries or within a country for both genders. Findings on differential gender vulnerability were mixed as regards employment and education, and differed for the alcohol measure used and among countries. As compared to men, women of higher education seem to be more at risk to drink heavily, i.e. in a chronic way, and employed women are more vulnerable for RSOD, i.e., thus drinking heavily on infrequent occasions. Any exceptions to these general tendencies tended to come from the Nordic countries. It appears that in almost all countries women without children were relatively more vulnerable for heavy drinking and RSOD compared with men. There are many differences across countries as regards what predicts men's or women's drinking. These differences partly seemed to be explainable at the macro-level, i.e. how extensive the social welfare system is and how much gender equity is present in a country. Interestingly, those macro-level associations predicted women's chronic (heavy) drinking and men's risky single occasion drinking.

Whether someone drinks or not appears to be related most clearly to social stratification, i.e. income, formal education, and employment. This was particularly true for women. Individuals with higher income, educational status, and employment status are more often drinkers, which is a consistent finding in the literature (McCann *et al.*, 2003, Casswell, Pledger & Hooper, 2003). Family roles had the lowest impact as regards drinking status, which should not come as a surprise. In most cases the decision to drink or not takes place in adolescence or young adulthood, whereas roles such as being married or becoming a parent are of minor relevance, while education and career are often predetermined already at younger ages, e.g. through the family situation in which adolescents are living (e.g. Sieben & de Graaf, 2001, Manor, Matthews & Power, 2003).

Education was usually negatively associated with heavy drinking in men. There are some studies showing that education has another impact on women's chronic alcohol use, i.e. more heavy drinking in the higher educated groups (Ahlström, Bloomfield & Knibbe, 2001). This was not consistently the case in the present study. However, better educated women usually showed a higher vulnerability compared to their male counterparts to drink heavily. It has been argued, for example, that women in higher positions more often behave like men or simply have more occasions to drink, e.g. in business meetings (Haavio-Mannila & *et al.*, 1990, Haavio-Mannila, 1991, Hammer & Vaglum, 1989). Assuming that higher education is also associated with higher occupational position, the findings of the present study therefore tend to show, that higher job positions are even more strongly related to heavy drinking for women than for men. To the contrary, high compared to low former education was predominantly protective for RSOD in both genders.

Findings on employment status as regards heavy drinking were inconsistent across countries but within countries associations tended to go in the same direction for men and women, whereas for RSOD the employed had higher risks than the unemployed. This was consistent across most countries and both genders. The present study shows that employment is not protective, particularly as regards RSOD. At the moment we can only speculate on the explanation for this finding. One

possibility is that RSOD is used as a means of coping or reducing tension on weekends. Further research should include measures of occupational class and work stressors. Several theories (Siegrist, 1996, Karasek, 1979) particularly link the level of demand, control, and occupational hierarchy with work strain, which may in turn be related to problematic alcohol use (Koopman *et al.*, 2003, Delaney *et al.*, 2002). Concerning the relation between alcohol consumption and unemployment, the literature is inconsistent (Mullahy & Sindelar, 1996) and findings depend on the length of unemployment (Gallant, 1993, Liira & Leino-Arjas, 1999, Claussen, 1999), with RSOD being positively associated mainly with long-term unemployment. Generally the literature tends to show that unemployment is more closely related to problem drinking including RSOD than volume of drinking, e.g. chronic consumption. This is confirmed by the present study.

Due to the mixed findings on employment status as regards heavy drinking and RSOD the multiple attachment hypotheses cannot be generally accepted. Focusing on family roles only, the multiple attachment hypotheses appears to hold for women. The present study showed in particular that living in a partnership and raising children was the most protective role combination for women. The family situation is of utmost importance. Singles lack the attachment provided by partner and unemployed lack the attachment to the community provided by a job. Unemployment may have a lower impact if the support is provided by the partner and similarly the social support in the working field may counterbalance the lack of partnership. It has been argued that lone parents form a critical case for both hypotheses of employment and partnership, and that this may be influenced by the social system of a country (Lahelma *et al.*, 2002). Full-time employment can result in role strain if there are few welfare services. Similarly, unemployment or part-time employment can result in financial strains if not buffered by the income of a partner. Across different extensively developed welfare systems, the present study almost consistently showed that among women partnership and raising children is protective against risky alcohol consumption, whereas single parenthood is associated with increased chronic alcohol consumption and RSOD. This indicates that besides the impact of different welfare systems, a traditional female role model still exists and influences women's drinking behavior even in countries with a long history of emancipation such as Finland or Sweden.

As confirmed by many findings in the literature on health inequalities, there is a need to include both social stratification and family situation predictors to model men's and women's drinking (Lahelma *et al.*, 2002). There is a tendency to assume that social stratification is more important for men, whereas family roles seemed to be of higher importance for women. Depending on the country or the drinking measure (RSOD, heavy drinking), education and employment explained even more variance among women or family situation among men. This can also be inferred from the macro-level association with the World Bank's work-welfare-equity index or the work desirability scale. Interestingly, these scales were associated with predictors of female's chronic heavy drinking and men's risky single occasion drinking. It appears that this is related to cross-country variability in the impact of either family roles or social stratification on drinking measures used. Higher education was associated almost consistently across all countries with lower heavy drinking rates for men, whereas there were marked differences for women. On the other hand, family roles were consistently associated with RSOD in women and showed more variation in men. Most pronounced was the aggregate association which separated the high welfare systems in the Nordic countries from other European countries in showing that social environment plays a role in what is predicted for drinking. One could also argue that those differences were due to a country-specific drinking pattern, i.e. notorious RSOD styles in Nordic countries

compared with higher regular chronic drinking in other European countries. It should be noted that we did not model absolute drinking rates but regression coefficients and thus the relative impact of roles within countries. Therefore our findings point to the social-family environment as being predictive for differences in role effects and not only the drinking culture.

In the foreground of the present study stood the comparison of almost all European countries available in the GENACIS data set. This afforded the analyses to be restricted to comparable, but often crude measures. There is enormous literature, for example, on the impact that the age of children in a household may have as regards stresses related to childcare. Another unexamined potential influence is not only whether one is employed or not, but also particular work conditions which have shown differential effects on health outcomes. Future comparative analyses should focus on specific aspects of roles while limiting the number of available countries for such an analysis. The present study, however, clearly demonstrates that the understanding of women's and men's roles on drinking must include both social stratification and family roles, and that these analyses have to consider both micro-level and macro-level influences within a country.

5 REFERENCES

- Ahlström, S., Bloomfield, K. & Knibbe, R. A. (2001) Gender differences in the drinking patterns in nine European countries: descriptive findings. *Substance Abuse*, **22**, 69-85.
- Aneshensel, C. S., Frerichs, R. R. & Clark, V. A. (1981) Family roles and sex differences in depression. *Journal of Health and Social Behavior*, **22**, 379-393.
- Arber, S. (1991) Class, paid employment and family roles: making sense of structural disadvantage, gender and health status. *Social Science and Medicine*, **32**, 425-436.
- Arber, S. & Cooper, H. (2000) Gender and inequalities in health across the life course. In: Annandale, E. & Hunt, K. (Eds.) *Gender Inequalities in Health*, pp. 123-149. Buckingham: Open University Press.
- Arber, S. & Khat, M. (2002) Introduction to 'social and economic patterning of women's health in a changing world.' *Social Science and Medicine*, **54**, 643-647.
- Bartley, M., Popay, J. & Plewis, I. (1992) Domestic condition, paid employment and women's experience of ill-health. *Sociology of Health and Illness*, **14**, 313-343.
- Bondy, S. J., Ashley, M. J., Rehm, J. & Walsh, G. W. (1999) Do Ontarians drink in moderation? a baseline assessment against Canadian low risk drinking guidelines. *Canadian Journal of Public Health*, **90**, 272-276.
- British Medical Association (1995) *Alcohol: Guidelines on Sensible Drinking*. London: British Medical Association.
- Cappell, H. D. & Greeley, J. (1987) Alcohol and tension reduction: an update on research and theory. In: Blance, H. T. & Leonard, K. E. (Eds.) *Psychological Theories of Drinking and Alcoholism*, pp. 15-54. New York, NY: Guilford Press.
- Casswell, S., Pledger, M. & Hooper, R. (2003) Socioeconomic status and drinking patterns in young adults. *Addiction*, **98**, 601-610.
- Claussen, B. (1999) Alcohol disorders and re-employment in a 5-year follow-up of long-term unemployed. *Addiction*, **94**, 133-138.
- Delaney, W. P., Grube, J. W., Greiner, B., Fisher, J. M. & Ragland, D. R. (2002) Job stress, unwinding and drinking in transit operators. *Journal of Studies on Alcohol*, **63**, 420-429.
- Doyal, L. (1995) *What Makes Women Sick, Gender and the Political Economy of Health*. London: Macmillan.
- Edwards, G., Anderson, P., Babor, T. F., Casswell, S., Ferrence, R. G., Giesbrecht, N., Godfrey, C., Holder, H. D., Lemmens, P. H., Mäkelä, K., Midanik, L. T., Norström, T., Österberg, E., Romelsjö, A., Room, R., Simpura, J. & Skog, O.-J. (1994) *Alcohol Policy and the Public Good*. New York, NY: Oxford University Press.

- Gallant, D. M. (1993) Unemployment and alcohol consumption. *Alcoholism, Clinical and Experimental Research*, **17**, 722-723.
- Gerhardt, U. (1971) *Rollenanalyse als Kritische Soziologie*. Berlin: Luchterhand.
- Gmel, G., Bloomfield, K., Ahlström, S., Choquet, M. & Lecomte, T. (2000) Women's roles and women's drinking: a comparative study in four European Countries. *Substance Abuse*, **21**, 249-264.
- Gmel, G., Rehm, J. & Kuntsche, E. N. (2003) Binge drinking in Europe: definitions, epidemiology, trends, and consequences. *Sucht*, **49**, 105-115.
- Haavio-Mannila, E. (1991) Impact of co-workers on female alcohol use. *Contemporary Drug Problems*, **18**, 597-627.
- Haavio-Mannila, E. & et al. (1990) Women's drinking patterns in male- and female-dominated occupations. *International Journal of the Addictions*
- Hammer, T. & Vaglum, P. (1989) The increase in alcohol consumption among women: a phenomenon related to accessibility or stress? A general population study. *British Journal of Addiction*, **84**, 767-775.
- Hibbard, J. H. & Pope, C. R. (1987) Employment characteristics and health status among men and women. *Women and Health*, **12**, 85-102.
- Hibbard, J. H. & Pope, C. R. (1991) Effect of domestic and occupational roles on morbidity and mortality. *Social Science and Medicine*, **32**, 805-811.
- Hong, J. & Seltzer, M. M. (1995) The psychological consequences of multiple roles: the nonnormative case. *Journal of Health and Social Behavior*, **36**, 386-398.
- Hosmer, D. W. & Lemeshow, S. (2000) *Applied Logistic Regression*. New York, NY: John Wiley & Sons, Inc.
- Karasek, R. A. (1979) Job demands, job decision latitude and mental strain: implications for job redesign. *Administration Science Quarterly*, **24**, 285-308.
- Knibbe, R. A., Drop, M. J. & Muijtjens, A. (1987) Correlates of stages in the progression from everyday drinking to problem drinking. *Social Science and Medicine*, **24**, 463-473.
- Koopman, C., Wanat, S. F., Whitsell, S., Westrup, D. & Matano, R. A. (2003) Relationships of alcohol use, stress, avoidance coping, and other factors with mental health in a highly educated workforce. *American Journal of Health Promotion*, **17**, 259-268.
- Kromhout, D. (1998) Problems in detecting small effects in case-control and cohort studies. In: Hoffmeister, H., Szklo, M. & Thamm, M. (Eds.) *Epidemiological Practices in Research on Small Effects*, pp. 17-23. Berlin: Springer Verlag.
- Lahelma, E., Arber, S., Kivela, K. & Roos, E. (2002) Multiple roles and health among British and Finnish women: the influence of socioeconomic circumstances. *Social Science and Medicine*, **54**, 727-740.
- Liira, J. & Leino-Arjas, P. (1999) Predictors and consequences of unemployment in construction and forest work during a 5-year follow-up. *Scandinavian Journal of Work, Environment and Health*, **25**, 42-49.
- Macran, S., Clarke, L. & Joshi, H. (1996) Women's health: dimensions and differentials. *Social Science and Medicine*, **42**, 1203-1216.
- Macran, S., Clarke, L., Slogget, A. & Bethune, A. (1994) Women's socioeconomic status and self-assessed health: identifying some disadvantaged groups. *Sociology of Health and Illness*, **16**, 182-208.
- Mäkelä, P. (1999) Alcohol-related mortality as a function of socio-economic status. *Addiction*, **94**, 867-886.
- Manor, O., Matthews, S. & Power, C. (2003) Health selection: the role of inter- and intra-generational mobility on social inequalities in health. *Social Science and Medicine*, **57**, 2217-2227.
- Matthews, S. & Power, C. (2002) Socio economic gradients in psychological distress: a focus on women, social roles and work - home characteristics. *Social Science and Medicine*, **54**, 799-810.
- McCann, S. E., Sempos, C. T., Freudenheim, J. L., Muti, P., Russell, M., Nochajski, T. H., Ram, M., Hovey, K. & Trevisan, M. (2003) Alcoholic beverage preference and characteristics of drinkers and nondrinkers in western New York (United States). *Nutrition, Metabolism and Cardiovascular Diseases*, **13**, 2-11.
- Mccreary, D. R. & Sadava, S. W. (1998) Stress, drinking, and the adverse consequences of drinking in two samples of young adults. *Psychology of Addictive Behaviors*, **12**, 247-261.

- Midanik, L. T. & Clark, W. B. (1994) The demographic distribution of US drinking patterns in 1990: description and trends from 1984. *American Journal of Public Health*, **84**, 1218-1222.
- Moss, N. E. (2002) Gender equity and socioeconomic inequality: a framework for the patterning of women's health. *Social Science and Medicine*, **54**, 649-661.
- Mullahy, J. & Sindelar, J. L. (1996) Employment, unemployment, and problem drinking. *Journal of Health Economics*, **15**, 409-434.
- Nathanson, C. A. (1980) Social roles and health status among women: the significance of employment. *Social Science and Medicine*, **14A**, 463-471.
- Peirce, R. S., Frone, M. R., Russell, M. & Cooper, M. L. (1994) Relationship of financial strain and psychosocial resources to alcohol use and abuse: the mediating role of negative affect and drinking motives. *Journal of Health and Social Behavior*, **35**, 291-308.
- Ross, C. E. & Mirowsky, J. (1992) Households, employment and the sense of control. *Social Psychology Quarterly*, **55**, 217-235.
- Rothman, K. J. (2002) *Epidemiology - An Introduction*. Oxford: Oxford University Press.
- Siaroff, A. (1994) Work, welfare and gender equality: a new typology. In: Sainsbury, D. (Ed.) *Gendering Welfare States*, pp. 82-100. London: Sage.
- Sieben, I. & de Graaf, P. M. (2001) Testing the modernization hypothesis and the socialist ideology hypothesis: a comparative sibling analysis of educational attainment and occupational status. *British Journal of Sociology*, **52**, 441-467.
- Siegrist, J. (1996) Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, **1**, 27-41.
- Thoits, P. A. (1983) Multiple identities and psychological well-being: a reformulation and test of the social isolation hypothesis. *American Sociological Review*, **48**, 174-187.
- Timmer, S. G., Veroff, J. & Colten, M. E. (1985) Life stress, helplessness, and the use of alcohol and drugs to cope: an analysis of national survey data. In: Shiffman, S. & Wills, T. A. (Eds.) *Coping and Substance Use*. New York, NY: Academic Press.
- Townsend, P., Davidson, N. & Whitehead, M. (1982) *Inequalities in Health: The Black Report*. Harmondsworth: Penguin.
- Townsend, P., Davidson, N. & Whitehead, M. (1992) *Inequalities in Health: The Black Report and the Health Divide*. Harmondsworth: Penguin.
- Van Oers, J. A., Bongers, I. M., Van De Goor, L. A. & Garretsen, H. F. (1999) Alcohol consumption, alcohol-related problems, problem drinking, and socioeconomic status. *Alcohol Alcohol*, **34**, 78-88.
- Verbrugge, L. M. (1983) Multiple roles and physical health of women and men. *Journal of Health and Social Behavior*, **24**, 16-30.
- Whitehead, M., Burstrom, B. & Diderichsen, F. (2000) Social policies and the pathways to inequalities in health: a comparative analysis of lone mothers in Britain and Sweden. *Social Science and Medicine*, **50**, 255-270.
- Wilsnack, R. W. & Cheloha, R. (1987) Women's roles and problem drinking across the lifespan. *Social Problems*, **34**, 231-248.
- World Health Organization (WHO) (2000) *International Guide for Monitoring Alcohol Consumption and Related Harm*. Geneva: WHO, Department of Mental Health and Substance Dependence, Noncommunicable Diseases and Mental Health Cluster.
- World Health Organization (WHO) (2002) *The World Health Report 2002 - Reducing Risks, Promoting Healthy Life*. Geneva: WHO.

Chapter 8: Societal-level factors

The Influence of Societal-level Factors on Men's and Women's Alcohol Consumption and Alcohol Problems

Giora Rahav, Kim Bloomfield, Richard Wilsnack, Gerhard Gmel, Sandra Kuntsche

1 INTRODUCTION

The attempts to describe, analyze, and explain the drinking behavior of individuals and its consequences, should not blind our eyes to the distinctions between societies. These distinctions are based on several scientific traditions. The study of public health, and particularly epidemiology, as disciplines is one of these. The epidemiology of health problems justifies examining societal differences on several grounds. One of these is that there are genuine population-level risk factors. These risk factors are significant and independent both analytically and ontologically. A second reason is that population characteristics often serve as catalysts, or as modifiers of individual-level processes. Thus, for example, living at subsistence level may have very different implications in a poor society than in a rich one (Pearce, 2000)

The other major scientific tradition underlying the study of populations, such as whole societies, or regions, is the tradition of social sciences. Early in the 19-th century Quetelet showed regularities in the differences across populations (and particularly relevant – between men and women) in rates of crime (Quetelet, 1842). Later in that century Durkheim (1897) argued strongly that social facts should be explained by social facts. Based on a series of earlier studies he was able to explain temporal and regional variations in the rates of suicide by social and cultural characteristics. Anthropologists have often adopted a more holistic approach, characterizing whole societies (mostly non-industrialized ones) by themes underlying their cultural traits. Thus, Benedict (1934) characterized some of the tribes that she studied as having an Apollonian or a Dionysian culture.

A third approach to this issue has been methodological. Social scientists have insisted that population characteristics include at least two distinct types of variables. First, there are variables which are defined by the aggregation of individual-level data. We may consider the rate of abstinence or the median quantity of alcohol consumed as examples of this type of variables. But there is also another type of group-level (societal) variable, variables that cannot be measured on the individual level.

These may include characteristics of social structure, organs of society, and so on. For instance, these may include the extent of social inequality, or the presence of legal regulations on alcohol sales (Kendall and Lazarsfeld, 1955).

The study of alcohol use and its consequences at the country level has led to a growing body of knowledge about differential consumption patterns that reflect differences in culture, tradition, religion, social position, income, occupation, gender, region and a host of other factors. They also often change over an individual's lifetime and may also change considerably over time among different social groups (e.g. Pittman and White, 1991; Heath, 1995; Hibell, Andersson, Ahlstrom, Balakireva, Bjarnasson, Kokkevi and Morgan, 2001).

Thus, there is a long tradition of attempts to distinguish among societies by their distinct patterns of alcohol consumption. In the last decade or two some of these attempts are expressed in attempts to distinguish between "wet" and "dry" countries. This distinction (which initially seemed to be based on the average amount of alcohol consumed in a country and its correlates) is based on several former attempts to classify countries (Room 1988; Room and Mäkelä 2000). These attempts tried to characterize "drinking cultures" and to identify some of their social correlates. Thus, there are claims that several southern European countries share some aspects of a drinking culture.

The "wet"—"dry" distinction has often been used to describe a continuum which is closely associated with the amount of alcohol consumed and the prevalence of drinking, but (presumably) has several other characteristics as well. Thus, wet countries are often characterized by a high rate of drinkers (and few abstainers), consumption of low or moderate alcohol quantity at a time, a large number of situations in which drinking is common and perhaps normative, drinking mostly at meals (typically wine), frowning on insobriety, and widespread mechanisms of informal social control of drinking. Generally speaking, these are described as societies in which alcohol consumption is well-integrated into the daily conduct of social life. In dry cultures the opposite conditions prevail: occasions of consumption are relatively rare, consumption is frowned upon, and there is a high proportion of abstainers.

While these descriptions are somewhat stereotypical they seem to convey a distinction that does exist in reality. Thus, wet countries are exemplified by the southern European, Mediterranean countries, and typical dry cultures are exemplified by the Scandinavian countries and the United States. However, some recent studies suggest that even if the two types did exist in the past, the differences have begun to disappear, at least in Europe, and there is a convergence of the modes, quantities and situations of drinking (Leifman, 2001; Allamani et al. 2000). Other studies suggest that while the wet-dry continuum may have been useful for characterizing European cultures, the classification of other countries, mostly from South America, Asia and Africa, may require the addition of other dimensions (Room and Mäkelä, 2000).

1.1 Gender Differences

Recent studies have confirmed what has been known from impressions for a long time: women tend to consume alcohol less than men, and men's drinking typically has led to more (and more serious) social problems. This generalization has been validated in virtually every study on the issue (Wilsnack, Vogeltanz, Wilsnack, Harris et al., 2000). Systematic, quantitative studies of the gender gap in drinking range from the classic, comparative analysis of simple societies done by Child, Barry and Bacon (1965) to the meta-analytic study of Wilsnack, Vogeltanz, Wilsnack, Harris et al. (2000) who compared the findings of 16 studies in 10 countries. The findings were rather consistent in presenting men as drinking more frequently and larger quantities than women.

While there are several approaches to explaining this difference, they tend to rely, one way or another, on the differential social positions of women and men and on the differential cultural demands they have to meet (Blume, 1994). Comparative analyses suggest that the distinction in drinking tends to be larger where social and cultural gender distinctions are larger (Gefou-Madianou, 1992).

The hypothesis that gender differences in drinking are associated with gender differentiation in social roles and statuses has been discussed before, particularly since there have been suggestions that the gender-related drinking patterns tend to converge (cf. Bloomfield, Gmel, Neve and Mustonen, 2001). If the gender gap in drinking is a consequence of gender-based role differentiation, one should expect such convergence to be the result of the growing equality achieved by women.

1.2 Purposes

The present paper reflects the efforts of one of the work packages of the EU Concerted Action "Gender, Culture and Alcohol Problems: A Multi-national Study" to analyze how societal-level factors (e.g., gender equality, drinking culture norms) predict women's and men's alcohol use and alcohol-related problems in various regions of Europe and elsewhere. The EU project is imbedded in a larger study "Gender and Alcohol: An International Study" (GENACIS) which at present comprises general population survey data from 29 countries within as well as outside Europe.

As mentioned, several decades of international alcohol research have indicated that differing drinking cultures exist. Moreover, gender and political science research has attempted to characterize countries by the social position of women to aid in specifying the development of gender-relevant policies. These two societal-level dimensions, drinking culture and the social position of women, have particular relevance in helping to explain, on a "higher" level, the results found in an international study. The diversity of countries in our project allow, among other research goals, certain analyses of societal characteristics as possible predictors of patterns of men's and women's alcohol consumption and related problems across societies. This information will be useful in helping to develop a social and health policy within the European Union which can be more regionally, culturally as well as gender-sensitive.

The present analyses have the following goals:

1. To describe the alcohol consumption of men and women at the societal level of analysis and to identify some of its predictors. That is, to look for societal correlates of rates of alcohol consumption by men and women.
2. To identify some of the predictors of alcohol-related problems of men and women at the societal level of analysis.
3. To examine the association between gender inequalities and male-female differences in alcohol consumption and consequences.

2 METHODS

2.1 Drinking indicators

The data for this paper were obtained from several sources: data on the extent of alcohol consumption were obtained mostly from the GENACIS surveys. The major exceptions were

- (1) In a couple of analyses WHO's Global Alcohol Database (WHO, 2003) were used. These cases were explicitly noted, so that unless it is otherwise stated, the data are from the Genacis surveys.
- (2) For some countries two or more surveys' data were available (mostly the GENACIS data as well as the ECAS data (Leifman, Osterberg and Ramstedt, 2002). In these cases, when data for both men and women were available, the mean of the two sources was used.

The major indicator of the extent of drinking was current drinking – the percentage of the population consuming alcohol once or more during the past year. This variable is rather crude, distinguishing mostly between drinkers and non-drinkers, and it tells us little about the pattern of drinking. A more refined indicator (which may be related to the intensity of drinking as well) is the percentage of drinkers who drank alcohol during the past week ("weekly drinkers"). The major indicator of the intensity of drinking was the percentage of drinkers who consumed more than 8,468 grams pure alcohol during the past year ("heavy drinkers"). This cut-off level indicates an average of one ounce of pure alcohol per day. Both weekly drinking and heavy drinking were assessed only for current drinkers. Therefore, these figures may be more sensitive to differences in the definition of the base population. Both weekly drinking and heavy drinking are based on the highest tail of their respective distributions (of the frequency of drinking and of the typical daily alcohol consumption), and both may be sensitive to age distribution in each country. Therefore, standardization of our data for age seemed desirable. Otherwise, differences in the age structure of the population and age limits on the sample might bias the results. For instance, if the higher age groups tend to drink more, and if some countries have a higher proportion of the higher age groups, these facts alone may render these countries more likely to present higher consumption. In order to avoid that problem, the drinking intensity variables (weekly drinking, heavy drinkers and heavy episodic drinking) were assessed only for the 18-34 age-group.

2.2 Consequences

Alcohol consumption has been associated with a large number of problems. Many of these are subject to differences in cultural assessment, and thus are unsuitable for country-level analyses. Therefore, for the sake of the present analysis, we decided to limit ourselves to the extreme tails of the problems distributions, and that only for those indicators which have the most detailed, "objective" definitions. Thus, we relied on the rate of mortality from alcohol dependency as a global, country-level indicator of the chronic health effects of alcohol consumption.

Thus, two indicators of acute health consequences at the country level were used. One was the standardized death rate from liver cirrhosis, and the other – death rates from motor vehicle crashes (Stockwell, Chikritzhs and Brinkman, 2000). While each of these phenomena is caused by other factors as well, they do reflect (at least -- to some extent) the effects of intoxication too. In fact, the rate of death from liver cirrhosis is often used as a proxy for the rate of alcohol problems. These rates, broken down by gender, were available from the Global Status report on Alcohol (WHO, 1999).

While these indicators were selected with the idea that indicators should be selected while bearing in mind their general availability, and also depending on sources other than the GENACIS surveys, one indicator of acute consequences was available from the GENACIS reports only. This was the rate of alcohol-related physical aggression by a spouse or partner, as was calculated by another work-group in the present study. This indicator was selected due to its significance within the context of alcohol-related gender relationships.

Other data on countries were obtained from a variety of sources, including the United Nations' statistical yearbook, the World Bank (2000), the Human Development project (2002), the World Values Survey 1990-1991 (Inglehart, 2003), the International Social Survey (ISSP, 2003) of 1994, as well as a host of other sources. (Lin Chang, 2000; Stockard and O'Brien, 2002; Blackburn, Jarman and Brooks 2000; Fernquist, 1999; Stier and Lewin-Epstein, 2001).

The countries in this analysis included the EU countries that participate in the GENACIS project, as well as other countries. The decision to include all 29 countries in the project was based mostly on the desire to increase the number of units of analysis, and thereby the validity of the findings. However, the reader should be aware that this decision might have two additional side-effects. Increasing the number of countries, and particularly the inclusion of countries from Asia, Africa, and Latin America, clearly increased the variability of some variables. This could lead (1) to higher correlations where only very low ones might have been observed if only the EU countries were included; and (2) to masking some of the relationships among variables that might be observed if only EU countries were to be included.

Table 1. List of variables

Variable	Meaning	Source
Alcohol Consumption		
Drinkers	Current drinkers =Percent drinking during the past year	Genacis
Weekly Drinkers	% of current drinkers who drink at least once a week, age: 18-34.	Genacis
Heavy Drinkers	% current drinkers who drink at least 8468, age: 18-34.	Genacis
Heavy episodic Drinking (HED)	% drinkers engaged in HED at least once a year, age: 18-34.	Genacis
Alcohol Consequences		
Liver Diseases	Death rates from cirrhosis and liver diseases	Global Status Report on Alcohol
Alcohol dependency	Death rates from alcohol dependency syndrome	Global Status Report on Alcohol
Motor vehicle crashes	Death rates from alcohol-related motor vehicle crashes	Global Status Report on Alcohol
Alcohol-Related mortality	Sum of the death rates from liver diseases, alcohol dependency, and motor vehicle crashes	Calculated
Aggression	Physical aggression	Genacis
Gender and Women's position		
GEM	Gender Empowerment Measure	World Bank, 2000
Egalitarianism	Gender "Egalitarianism"	Fernquist
Hofstede	Cultural masculinity index (MAS)	Hofstede, 2001
Family change	Change in traditional family roles	Stockard & O'brien, 2002
Parental benefits	Substantive benefits for working parents	Lin Chang, 2000
Occupational equality	legally mandated equality of occupational access	Lin Chang, 2000
Women Friendly Institutions	Index value of Women Friendliness	Stockard & O'brien, 2002
Gender Equity	Participation in the economy, politics, and higher education	Verweij & Nieuwbeerta , 2000
Gender Equality	A factor score of questionnaire items in multi-national surveys	Inglehart & Norris, 2003
General Country Characteristics		
GDP	Gross domestic product per capita	Human Development Report, United Nations, 2002
Human Development Index	A composite index of various aspects of material welfare	Human Development Report, United Nations, 2002
Urban	Urban population as percent of total	Human Development Report, United Nations, 2002
Higher Education	Enrollment in Tertiary Education	Human Development Report, United Nations, 2002
Gini	The Gini index of inequality in income	World Bank, 2002
Fertility	Total fertility rate	United Nations, 1999
Church	% going to church at least once a year.	Guiso et al., 2003
No God	Percent of the population who do not believe in god	Guiso et al., 2003
World Values Survey	A special analysis of the 1994 World Values survey	World Values Survey, 1991-1992
ISSP	A special analysis of the ISSP 1994	International Social Survey Program, 1994

One of the major methodological problems was calculating the “gender gap” in drinking for the various drinking indicators. The simplest measure seemed to be the male/female ratio. Thus, one might calculate gender gap in the prevalence of drinking as the rate of male current drinkers divided by the rate of female current drinkers. This option has some advantages, but it suffers from a serious problem: when small numbers are involved, the ratio may become very high. These ratios not only bias distributions, they also lead to spurious correlations which may change considerably (even change sign) by the omission of one or two cases. This emphasized the need to inspect the scattergram associated with each correlation coefficient, but also the need to find an alternative, simple way to measure the gender gap. While there are several potential solutions to this problem (e.g., adding a constant, or using the logged data, or resorting to nonparametric statistics) we selected what seemed to be the most common solution (despite its drawbacks) in studies of gender and alcohol: the gender ratio. That is, the ratio between the proportion of men with a certain trait or characteristic and the proportion of women having it.

3 GENDER AND DRINKING

3.1 Development of a measure of women’s status

As one of the major issues in this project is the status of women in society, several approaches to the measurement of this variable were attempted. The major variables were women's participation in the labor force (as compared to men's), women's proportion in managerial positions, in the parliament and in higher education, and the difference between men's and women's earnings (indices of occupational segregation were attempted but were dropped as they did not yield consistent results). Some other variables, reflecting mostly public opinion were based on the World Values Study (Inglehart, Basanez & Luijkx, 2003); e.g., the percent (in each country) endorsing statements such as:

- “When jobs are scarce, men have more right to a job than women”,
- “A woman has to have children in order to be fulfilled”,
- “A working mother can establish just as warm and secure a relationship with her children as a mother who does not work”
- “A pre-school child is likely to suffer if his or her mother works”.

Data from another survey (the International Social Survey) (ISSP, 2003) yielded information on the domestic division of labor, e.g., the percent answering “mostly the woman” to questions such as:

- “...in your home, who does the laundry?”,
- “...who cares for sick family members?”, or
- “...who makes small repairs around the house?”.

In addition, two more global indicators were taken from available sources. First, the Gender Empowerment Measure from the United Nations' Human Development Project (United Nations, 2002) was used. This is a composite index measuring gender inequality in three basic dimensions of empowerment: economic participation; economic decision-making; and power over economic resources; and as such, it is an index of women's involvement in the economy. Second, Hofstede's

index of cultural masculinity (MAS) was used (Hofstede 1991, 2001). The theory underlying this index is that societies differ along a cultural dimension which may allow one to designate them as more or less oriented to traditional male values (e.g., power and toughness). Those societies which score higher on this orientation are also the ones that make a sharper distinction between male and female social roles

Several approaches were used to construct a new index of Gender Equity. First, factor analysis of the attitude items from the World Values Survey (Inglehart, Basanez and Luijkx, 2003) was used to develop an index of attitudes favorable to women's social participation. This analysis yielded two components (factors) with the first one loading highly on items such as "Men have more right to work when jobs are rare", "Child will suffer if mother works", and "A woman needs a child and home". However, this did not seem to provide an adequate indicator of women's position. First, because it was based only on attitude items, and second, because it yielded scores only for 22 of the countries.

Another approach was based on factor analysis of several variables, reflecting women's participation and women's roles in several spheres of life. Several such analyses were tried for two reasons. First, with such a small number of cases the solutions tend to be unstable. Thus, a small change in the variables list might lead to a rather different ordering of the countries. Second, because data on most variables were available only for a selection of countries, factor scores could be obtained either for more countries, based on fewer variables, or for fewer countries, based on more variables. As an illustration, one of the better solutions was based on an analysis of the Gender Empowerment Measure (GEM; World Bank, 2000), proportion of women in the parliament, women's labor force participation as percent of men's and women's proportion in the professions, and women's life expectancy, compared to men's. Ranking countries by the first component of this analysis put the Nordic countries at the top, followed by Canada, the Netherlands and Germany. However, even this solution allowed us to rank only 22 of the countries.

In order to overcome these problems another approach was taken. Standard scores were calculated for each of the following variables: the GEM, percentage of women in the parliament, women's labor force participation as a percentage of men's, women's earnings as a proportion of men's, women's proportion in higher education, and the country's score on the attitudes factor mentioned above. A country's mean standard score on these variables (or those of them for which information was available) was named its Gender Equity Score (GES).

This approach has several advantages. First, it provides us with scores for all the countries in the sample. Second, it has face validity, as it is based on women's position in a variety of domains. Third, this score seems to have good psychometric properties: It had a Cronbach's alpha of 0.89 (n=19) with all six variables included and alpha=0.84 (n=20) with 5 variables (without the attitudes factor score).

Table 2. Correlations between Gender Equity Scores and other potential indicators

	GEM	Egalitarianism	Hofstede's Cultural Masculinity	Family Change	Parental Benefits	Legal Occupational Equality	Women Friendly institutions
GES.	0.85	0.43	-0.61	0.41	0.44	0.79	0.58
P<	0.01	0.10	0.01	0.21	0.17	0.01	0.06
N	22	16	21	11	11	11	11

Note: Coefficients in bold face are significant at the 0.10 level

Table 2 presents the correlations between the calculated emancipation scores and other potential indicators of women's position in society. The first, Gender Empowerment Measure (GEM), is the indicator provided by the UN. Obviously, it is highly correlated with the calculated scores since it is included in the GES. The second variable, gender egalitarianism, is an index calculated by Fernquist (1999) on the basis of three variables: marital rape's definition as a crime, paid pregnancy leave, and legal abortion. The third variable is Hofstede's MAS index of the "masculinity" of the culture. The fourth is the extent of change in the traditional family (Stockard and O'Brian, 2000). The fifth variable is the availability of substantive benefits for working parents (Lin Chang, 2000), the sixth measures legal equality of occupational access (Lin Chang, 2000), while the last indicates a country's extent of women-friendly institutions (Stockard and O'Brian, 2000). Regardless of the details of these indicators, we would expect them all to be well-correlated with any valid indicator of women's social position. And they are. The absolute values of the correlation coefficients range from 0.39 to 0.85, and they are all in the expected direction. These correlations may therefore be considered indicators of the validity of the emancipation scores.

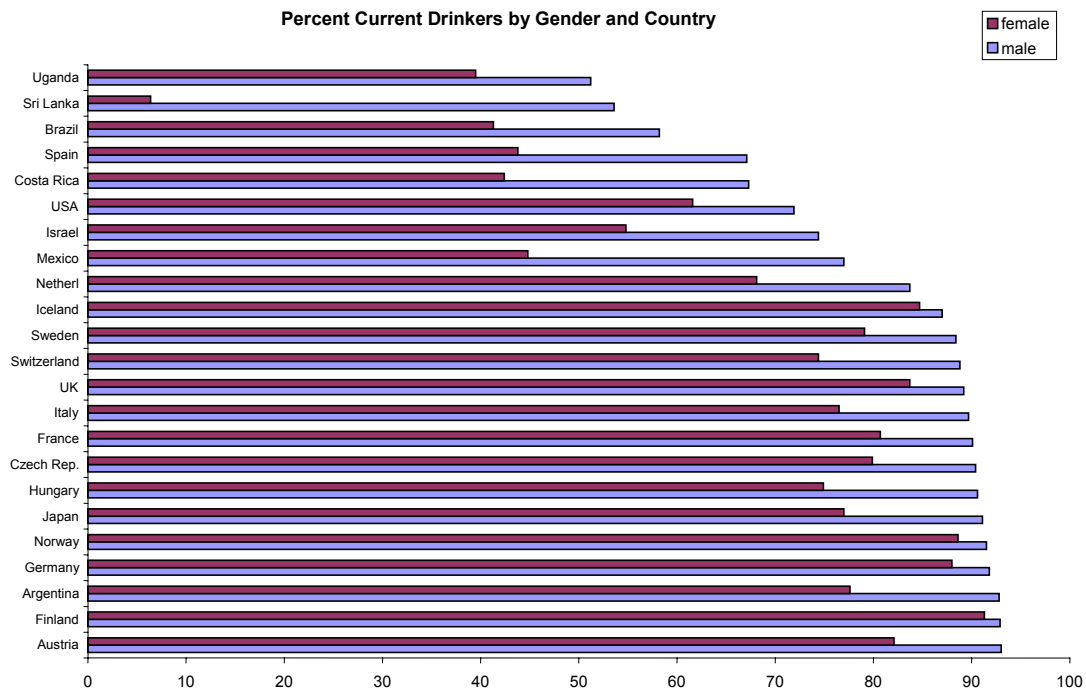
As an additional test of validity of the GES, the countries' scores were correlated with two other, related scores developed by other investigators. Verweij and Nieuwbeerta (2000) developed an index of Gender Equity which was based on women's share in the labor market, higher education and parliament. For the 14 countries for which both indices were available, this index correlated 0.89 with the GES. While their approach was rather similar to the one taken in the present chapter, a very different approach was taken by Inglehart & Norris (2003), whose study was based on a multi-national survey of values and beliefs. The GES correlated 0.79 with their index (n=16).

Ranking the countries by the GES (emancipation) score puts the five Nordic countries at the top, followed by France and Canada, and Sri Lanka, India, Nigeria and Costa Rica at the bottom (the full ranking of the countries is presented on Appendix E). As this list may suggest, the GES is quite strongly associated with economic development. In fact, it is correlated 0.71 ($p < 0.011$) with the income per capita (GDP) across the 29 participating countries (cf. Appendix E). This association should be borne in mind while considering the correlations between the GES and other variables. This correlation may pose some limitations on the analyses of the effects of the GES. We shall try to overcome these limitations using two strategies. First, we shall try to control statistically the effect of economic wellbeing. Second, we shall present the effects of some other background variables, typically associated either with economic prosperity or with women's status, in addition to the effects of the GES.

3.2 Alcohol consumption and its correlates

In order to pursue our first goal (prediction of alcohol consumption) we checked the differences in alcohol consumption, for men and women, across countries. Figure 1 presents the percentage of current drinkers (at least once during the past 12 months) in our sample countries by gender. Countries are ordered by the percentage of male drinkers. A quick glance at the figure reveals several interesting features of the drinking behavior at the 24 countries it presents.

Figure 1. Current drinkers by country and gender



To begin with, the range of the prevalence of current drinkers is rather wide: from 42% to 93% for men and from 6% to 91% for women. This wide range reflects, to some extent, our decision to include several non-western countries in the sample. Thus, inspection of Figure 1 reveals that the 10 countries with the lowest rate of drinkers have a very wide range of male drinkers (from 42% in Nigeria to 84% in the Netherlands, a range of 40%). This part of the graph includes 8 non-European countries. In contrast, the 14 countries with higher rates of drinkers have a narrower range (from Iceland, with 87% to Austria, 93%, a range of 6%). 12 of the 14 countries in this part of the figure are European. Thus, the rates of male drinking suggest that there is some uniformity in the European drinking habits. Thus, the European countries have a higher rate and less variation than the non-European ones.

Another thing that may be observed in Figure 1 is that women's drinking rates are, without exception, lower than men's. Yet, despite the lower drinking rates, the variability of women's rates seems to be far larger than that of men's. Indeed, the standard deviation of the women's rates is 22.9, compared to 15.4 for men (the coefficient of variation is 0.19 for men's rates, 0.35 for women's).

Figure 2. Weekly drinking (% of drinkers) by country and gender

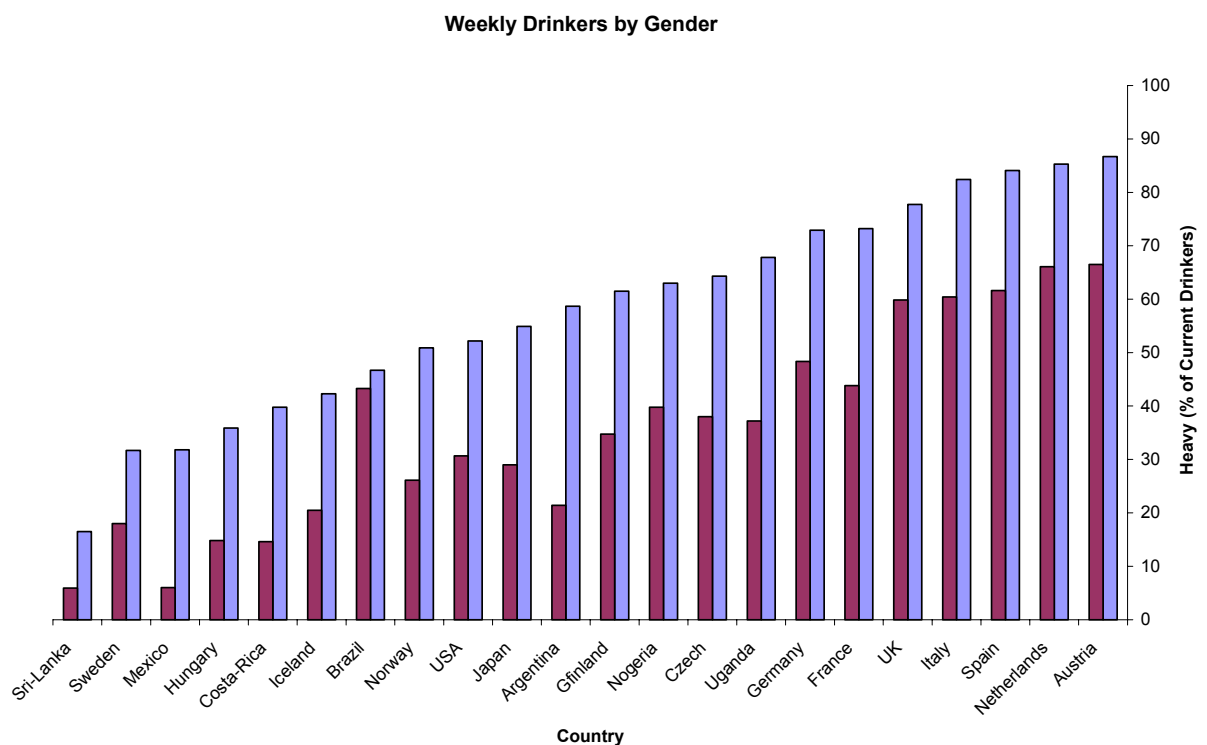


Figure 2 presents weekly drinkers (those drinking at least once a week) as a percentage of all current drinkers. As these figures are computed only for current (past year) drinkers, they are rather independent of the rates of drinking (the correlations are .23 for men, .25 for women). Men's rates of weekly drinking cover the whole range from 16% (Sri Lanka) and 31% (Sweden) to 85% (Netherlands) and 86% (Austria). Women's rates are in all cases lower than men's. The mean of this difference is 22% but there are considerable variations. Thus the difference in weekly drinking is lowest in Brazil (3.4%) and Sri Lanka (10.6%) and it is largest in Uganda and Argentina (30% and 37%, respectively). As Figure 2 shows, the European countries predominate in weekly drinking too (despite its independence from the rate of drinkers). They comprise eight of the highest 10 countries in weekly drinking, and only four of the lowest ten.

Figure 3 presents the rates of heavy drinkers ("heavy" is defined in this context as yearly consumption of more than 8,468 grams of alcohol) as percent of current-year drinkers. The countries are ranked by the percentage among men (note: in Argentina the women's rate is 0). This figure is far less regular than the former two and it presents wide variations in the rates, for men as well as for women. While 13 of the 22 countries present male heavy drinkers rates within the range of 15%-27%, five countries (the Czech Republic, Austria, the UK, Nigeria and Uganda) present considerably higher rates (a more focused analysis suggests that the UK, Nigeria and Uganda are outliers in the males figures, and Nigeria and Uganda among the females).

Figure 3. Heavy drinkers as % of current drinkers (age: 18-34)

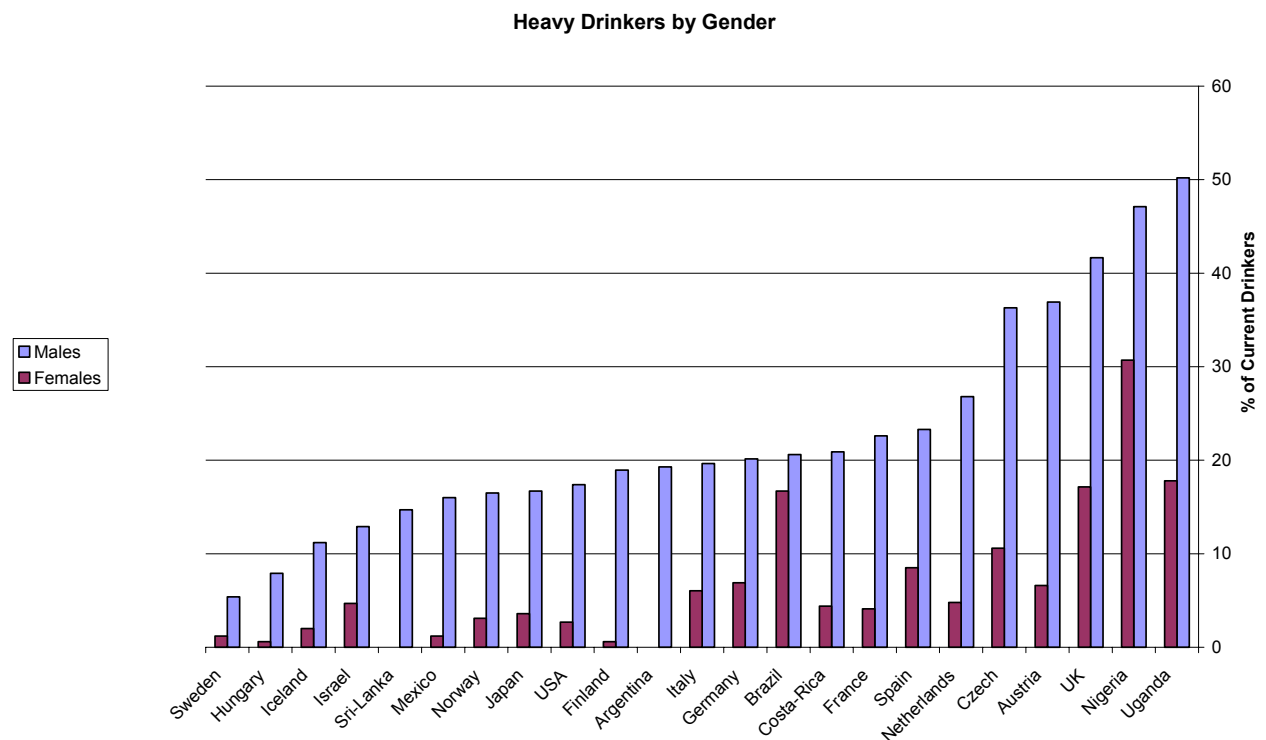


Figure 3 suggests that the difference between men's and women's rates of heavy drinking is positively associated with the rate of men's heavy drinking. That is, the higher the rate of men's heavy drinking, the higher the difference between men's and women's rates. To some extent, this is an artifact of the way the difference is calculated. However, if that was the whole explanation we should expect the men-women difference to be negatively correlated, at a similar magnitude, with the women's rates. This is not the case: the gender gap in heavy drinking correlated 0.81 ($p < 0.011$) with the men's rate and 0.30 ($p < 0.19$) with the women's. We may therefore conclude that men's heavy drinking affects the gender gap more than women's.

3.3 Country characteristics and per capita alcohol consumption

To address research question 1 on identifying societal-level predictors of men's and women's alcohol consumption, Table 3 presents the correlations between some country characteristics and alcohol consumption. This table is limited to alcohol data available from the Global Alcohol Database (WHO, 2003). The country characteristics used in this table are the GDP per capita, as a measure of a country's economic development, the Human Development Index (HDI) as a more encompassing index of the wellbeing of the population, the extent of urbanization (as in index of modernization), and the proportion enrolled in higher education.

The table shows positive, moderate to high correlations between the total alcohol consumption per capita (15+ years old) and the country's GDP per capita, the country's score on Human Development Index, its rate of urbanization, and the extent of higher education.

Table 3. Country characteristics and alcohol consumption (correlation coefficients, significance, and N's)

	GDP/cap.	HDI	Urban	% in HI-Ed
Alcohol pc 15+	0.44	0.49	0.44	0.30
p<	0.02	0.01	0.02	0.15
N	29	29	29	25
Alcohol in Beer	0.53	0.52	0.48	0.26
P<	0.01	0.01	0.01	0.22
N	29	29	29	25
Alcohol in Wine	0.33	0.38	0.25	0.15
p<	0.08	0.04	0.19	0.48
N	29	29	29	25
Alcohol in Spirits	0.08	0.28	0.24	0.24
p<	0.67	0.15	0.20	0.26
N	29	29	29	25

Note: Coefficients in bold face are significant at the 0.10 level; Alcohol consumption rates are from WHO (1999).

Looking at the table from the alcohol perspective, the correlations are higher and more often significant for total alcohol consumption, and alcohol consumed as beer and wine. They tend to be lower for spirits. That is, beer consumption—and to some extent wine consumption—is more closely associated with economic development than spirits consumption. Looking at it from the country characteristics viewpoint, the correlations are higher for GDP and HDI, somewhat lower for urbanization, and relatively low (and non-significant) for the rate of higher education. These correlations may suggest that alcohol consumption (in the present sample) and particularly beer consumption is associated with economic development and the modern, urban life-style.

Table 4. Correlations of country characteristics with male and female drinking
(Correlation coefficients, Significance, and N's)

	Drinkers - Males	Drinkers – Females	Weekly - Males	Weekly - Females	Heavy - Males	Heavy - Females
GDP/cap.	0.72	0.76	0.33	0.33	0.07	-0.18
	0.01	0.01	0.13	0.13	0.78	0.44
	24	24	22	22	21	20
HDI	0.81	0.70	0.14	0.17	0.11	-0.20
	0.01	0.01	0.52	0.45	0.63	0.39
	24	24	22	22	21	20
Gini	-0.69	-0.65	-0.21	-0.11	0.04	0.37
	0.01	0.01	0.37	0.63	0.87	0.14
	22	22	20	20	19	18
Urban	0.61	0.60	0.22	0.23	0.10	0.17
	0.01	0.01	0.33	0.29	0.67	0.48
	24	24	22	22	21	20
Divorce	0.37	0.48	0.01	-0.07	0.17	-0.16
	0.11	0.03	0.99	0.78	0.50	0.52
	20	20	18	18	19	19
Fertility	-0.71	-0.55	-0.03	-0.12	-0.25	-0.14
	0.01	0.01	0.89	0.60	0.27	0.55
	24	24	22	22	21	20
Church	-0.63	-0.76	0.08	0.13	0.15	0.15
	0.01	0.01	0.76	0.62	0.56	0.57
	18	18	18	17	17	17

Note: Boldface indicates significance at the 0.05 level; Weekly drinkers and Heavy drinkers are % of current drinkers. Two outliers were excluded from the heavy drinking correlations

Table 4 presents the correlations between some country characteristics and indicators of male and female drinking (two countries, Uganda and Nigeria, were excluded due to extreme values which distorted the correlation coefficients). The table shows that the prevalence of drinking (current-year drinkers) is quite strongly associated with urbanization, economic development (GDP) and with the Human Development Index (HDI), and moderately correlated with the rate of divorce. It is also associated, although negatively, with religiosity as indicated by the rate of weekly church-going, and with fertility rates. These correlations seem to suggest that the prevalence of drinking is associated with modernization. It is worth noting that the correlation coefficients with the rates of male and female drinking are quite similar.

Two indicators shown in Table 4 which are relevant to the intensity rather than the extent of drinking are the rate of weekly drinkers and the rate of high volume drinking (defined as more than 8,468 grams of pure alcohol per year, which is the equivalent of 1 ounce a day or more). The analysis of weekly drinking and heavy drinking, indicators which are more sensitive to age, the analysis was limited to the 18-34 age group.

Both rates (weekly drinking and high annual volume) are essentially not correlated with the societal indicators: None of the correlations in these columns is significant, and the mean absolute magnitude of the correlations of these variables is 0.16, while the mean correlation in the first two columns of the

table (the rates of current drinkers) is 0.64. Thus, we may conclude that while the rate of current drinking is strongly associated with some key characteristics of the countries, the rates of weekly drinking and heavy drinking among drinkers are not.

Finally, it is interesting to note that the independent variables in Table 4 (the country characteristics) have quite similar correlations with men's and women's drinking variables.

3.4 Country characteristics and alcohol problems

Figure 4 presents the rates of alcohol-related mortality (the sum of the death rates from alcohol dependency, cirrhosis and liver diseases, and alcohol related vehicle crashes) for men and women. Several features of this distribution deserve comment. First, for all the countries in this sample, men's rates exceed those of women, and the differences seem to be relatively large. Second, the differences between men's mortality rates and women's rates vary, and the difference tends to be higher in countries where men's alcohol mortality is higher (in comparison men's rates in other countries). Consequently, the variability in men's rates is considerably higher than that of women's rates. As a result, in some countries (notably Mexico and Hungary) men's rates are several times higher than women's.

Figure 4. Mortality rates of men and women from alcohol-related problems

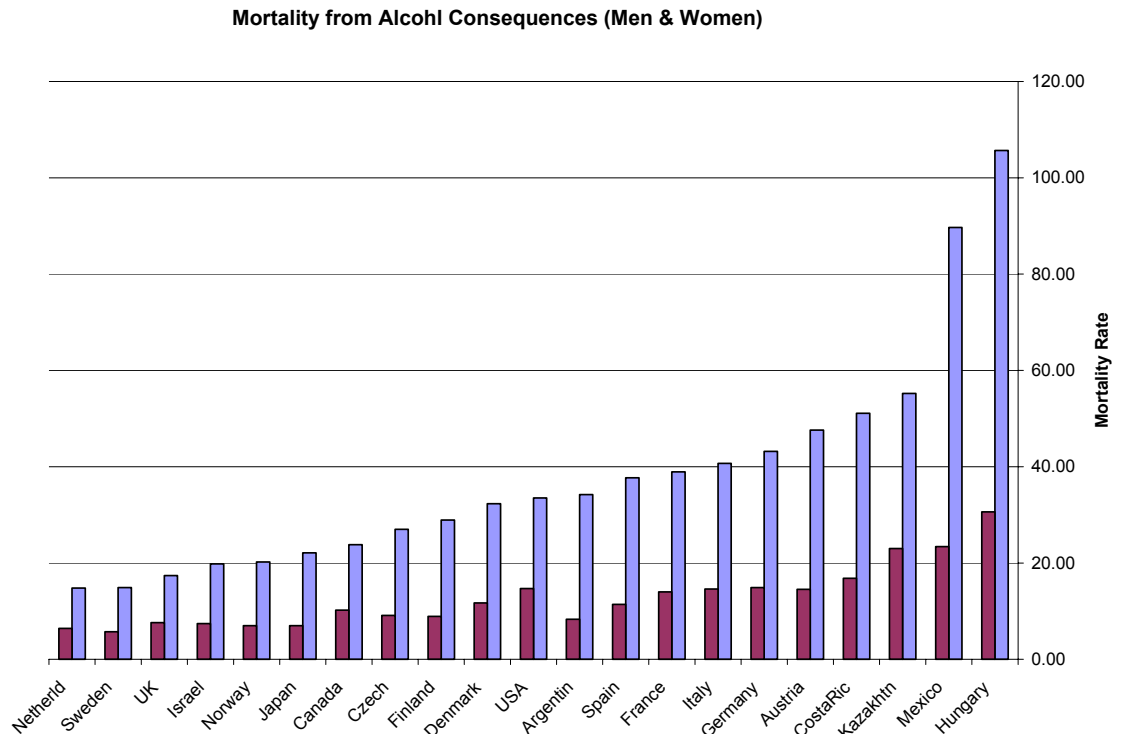


Table 5 presents the correlations between some of the adverse consequences of drinking with selected country characteristics (Gender equity or GES, Gender Empowerment or GEM, GDP per capita, Human Development Index and percent urban). The indicators of consequences are the rates

of death from alcohol dependency, liver diseases and cirrhosis, and motor vehicle crashes, as well as the sum of these death rates. Each of these rates is provided for males and females.

The most visible feature of Table 5 is the predominance of negative correlations: most of the correlation coefficients, and all the significant ones, are negative. This shows that mortality from these alcohol-related factors, in men as well as in women, is negatively associated with the country's standard of living (GDP and HDI), and with rates of urbanization. It is also negatively correlated with the GES (Gender Equity Score) and the GEM. This clear, consistent finding suggests that either the standard of living or modernization, or something associated with these factors, is negatively correlated with alcohol-related mortality. It is interesting to note that mortality from alcohol dependency has only low and mostly non-significant correlations with these factors. This may suggest that diagnosis and coding of death as the result of alcohol dependency may be subject to a large number of factors which may yield considerably biased reports (cf. Dufor & Caces, 1993).

Table 5. Correlations between Health Effects of Drinking and Country Characteristics
(Correlation coefficients, significance and N)

	GES	GEM	GDP/cap.	HDI	Urban
Liver disease & cirrhosis, males	-0.47	-0.61	-0.61	-0.65	-0.47
	0.02	0.01	0.01	0.01	0.02
	23	20	23	23	23
Liver disease & cirrhosis, females	-0.49	-0.63	-0.66	-0.72	-0.56
	0.02	0.01	0.01	0.01	0.02
	23	20	23	23	23
Alcohol dependency - males	0.13	0.03	-0.19	-0.25	-0.21
	0.57	0.91	0.41	0.27	0.36
	21	18	21	21	21
Alcohol dependency - females	0.40	0.30	0.05	-0.05	-0.14
	0.07	0.22	0.84	0.82	0.56
	21	18	21	21	21
MV crashes - males	-0.65	-0.56	-0.57	-0.64	-0.45
	0.01	0.02	0.01	0.01	0.03
	24	21	24	24	24
MV crashes - females	-0.24	-0.26	-0.18	-0.35	-0.23
	0.26	0.26	0.40	0.09	0.29
	24	21	24	24	24
Total Alcohol Deaths- Men	-0.51	-0.55	-0.59	-0.65	-0.50
	0.02	0.02	0.02	0.01	0.02
	21	18	21	21	21
Total Alcohol Deaths- Women	-0.45	-0.51	-0.54	-0.66	-0.58
	0.04	0.03	0.01	0.01	0.02
	21	18	21	21	21
Physical aggression by partner: males	0.23	0.41	0.19	-0.16	0.01
	0.46	0.25	0.54	0.59	1.00
	13	10	13	13	13
Physical aggression by partner: females	-0.10	-0.07	-0.25	-0.57	-0.46
	0.76	0.85	0.41	0.04	0.11
	13	10	13	13	13

Note: Coefficients in bold face are significant at the 0.10 level

The rates of physical aggression are less clearly associated with country characteristics, but their direction is interesting too. Women's complaints about partner violence tend to decrease with increasing wealth, urbanization, and gender equity of a country. On the other hand, men's complaints tend to increase with modernization and gender equity.

All five correlations for men with rates of mortality from vehicle crashes are significant, as compared with only one of the correlations for women. This may serve as an indication that the social factors affecting mortality from vehicle crashes affect men more than women. In contrast, men's correlations with the rates of alcohol dependence and liver cirrhosis are very similar to women's.

The Gender Equity Score is correlated well with the three types of health problems. It is negatively correlated with men's and women's mortality from liver cirrhosis and with men's mortality from vehicle crashes, and it is positively correlated women's rate of alcohol dependency.

3.5 Gender inequalities and differences in drinking and consequences

The final sections of this paper address our last research question, namely, the association between gender inequalities and gender ratios in alcohol consumption and alcohol-related problems.

As stated earlier, our major measures of the gender gap are the gender ratios of men's and women's drinking indicators. Four major indicators (and four ratios) were used: (1) percentage of current drinkers, (2) percentage of drinkers who drink at least weekly, (3) percentage of drinkers who drink heavily (more than 8468 grams annually) and (4) percentage of drinkers who engage in heavy episodic drinking (HED, sometimes called "binge drinking") at least once a month. The last three measures are for the 18-34 years old only, and therefore are not affected by differences in the age distributions across societies.

Table 6 presents the gender ratios of the main drinking indicators. The countries in the table are ordered by their gender ratio of current drinkers (from highest to lowest). A glance at the gender ratio for drinkers reveals that the countries in the sample are rather homogeneous in that respect: almost all have a gender ratio between 1 and 2 (and for most countries it is between 1 and 1.4). The only exception is Sri Lanka with a ratio of 8.38. Thus, the overall mean (1.55) is not representative of the distribution. Therefore, a "trimmed mean", without the highest figure is presented too. This reduced the mean gender ratio from 1.55 to 1.25, and reduced the standard deviation of the distribution from 1.47 to 0.23. It is interesting to note that all 8 countries with the highest ratios are non-European. And indeed, if we limit our analysis only to the European countries, the mean gender ratio drops down to 1.14 with a standard deviation of 0.13. In other words, the European countries in our study are very homogeneous with regard to the gender ratio in drinking.

Table 6. Gender ratios of Drinking Indicators

Country	R-Drinkers	R-Week	R-Heavy	R-HED
Sri Lanka	8.38	2.80	.	3.1
Nigeria	1.89	1.58	1.53	1.96
Mexico	1.72	5.30	13.33	2.56
Costa Rica	1.59	2.73	4.75	3.01
Spain	1.53	1.37	2.74	1.71
Brazil	1.41	1.08	1.23	2.84
Israel	1.36		2.74	4.29
Uganda	1.30	1.82	2.82	2.89
Netherlands	1.23	1.29	5.58	
Hungary	1.21	2.43	13.17	3.94
Argentina	1.20	2.74		1.58
Switzerland	1.19			3.46
Japan	1.18	1.89	4.64	5.31
USA	1.17	1.70	6.44	17.44
Italy	1.17	1.36	3.25	3.92
Czech Rep.	1.13	1.79	3.42	3
Austria	1.13	1.30	5.59	2.64
France	1.12	1.67	5.51	1.96
Sweden	1.12	1.76	4.50	1.14
UK	1.07	1.30	2.43	
Germany	1.04	1.51	3.42	2.68
Iceland	1.03	2.06	5.60	8.27
Norway	1.03	1.95	5.32	1.29
Finland	1.02	1.76	7.58	
Mean	1.55	1.96	5.22	3.76
Mean w/o highest	1.25	1.80	4.60	3.08

Table 7 presents the inter-correlations among these indicators of the gender gap in drinking. In this table two different indicators were used for the percentage of current drinkers: the values derived from the GENACIS surveys, and the values published in the Global Burden of Disease Study (Rehm et al, in press). The table shows high positive correlations between gender ratios in the two indicators of the percentage of current drinkers. There are also high, positive correlations between the three measures of gender differences in drinking frequency and quantity among drinkers. However, the correlations between the gender ratios of the percentage of drinkers and those of the frequency and quantity variables are very low and negative. That is, the gender ratio of the prevalence of drinking is not associated with the gender ratios in its intensity.

Table 7. Intercorrelations among gender ratios in drinking indicators

	R-drinkers (GBD)	R-Drinkers (Genacis)	R-Weekly	R-Heavy	R-HED
R-Drinkers (GBD)	1.00	0.98	0.29	0.01	-0.02
		0.01	0.19	0.96	0.93
		24	22	21	21
R-Drinkers (Genacis)	0.98	1.00	0.27	-0.01	0.02
	0.01		0.23	0.96	0.92
	24		22	21	21
R-Weekly	0.29	0.27	1.00	0.73	0.53
	0.19	0.23		0.01	0.02
	22	22		20	19
R-Heavy	0.01	-0.01	0.73	1.00	0.79
	0.96	0.96	0.01		0.01
	21	21	20		19
R-HED	-0.02	0.02	0.53	0.79	1.00
	0.93	0.92	0.02	0.01	
	21	21	19	19	

Notes: (1) All variables are gender ratios; (2) Significant correlations in bold-face..

Table 8 presents the correlations between country structural characteristics and the gender ratios in alcohol consumption. The gender ratio for the rate of current drinking is negatively correlated with the gross domestic product of a country (GDP), with its Human Development Index (HDI), the extent of urbanization, and the divorce rate. The gender ratio in drinking is positively correlated with the country's inequality of income, the fertility rate, and Hofstede's masculinity index.

In other words, the more a country is urbanized and economically developed, and the less traditional it is, the smaller the difference between men and women in the rate of drinking. This difference, it seems, depends on two factors: modernization and the economic welfare of the population in general, and women's welfare (and their status in society) in particular.

Table 8. Correlations between Gender Differences in Alcohol Consumption and Country Characteristics (Correlation coefficients, Significance, and N's)

	R-Drinkers	R-Drinkers	R-Weekly	R-Heavy	R-HED
GDP/cap.	-0.49	-0.43	-0.36	0.06	-0.12
	0.01	0.03	0.10	0.79	0.61
	29	24	22	21	21
HDI	-0.42	-0.27	-0.14	0.20	0.06
	0.02	0.21	0.54	0.39	0.79
	29	24	22	21	21
Gini	0.13	0.10	0.28	-0.12	0.01
	0.53	0.66	0.23	0.61	0.99
	27	22	20	20	19
Urban	-0.65	-0.55	-0.13	0.01	0.18
	0.01	0.01	0.55	0.95	0.44
	29	24	22	21	21
Divorce	-0.37	-0.57	-0.27	0.06	0.03
	0.08	0.01	0.28	0.80	0.90
	24	20	18	19	18
Hofstede	0.11	0.09	0.16	0.03	0.13
	0.64	0.72	0.57	0.91	0.63
	21	18	16	16	16
No God	-0.31	-0.42	-0.18	0.04	-0.24
	0.17	0.08	0.49	0.90	0.37
	21	18	17	16	16
Church	0.53	0.72	0.31	0.14	0.22
	0.01	0.01	0.23	0.62	0.41
	21	18	17	16	16

Note: Coefficients in bold face are significant at the 0.10 level

Moreover, it seems that the two indicators that reflect beliefs and values (Hofstede's MAS index and the percent who do not believe in God) are far less correlated with the gender difference in current drinking than the structural characteristics of the societies under study.

Table 9 presents the correlations between indicators of the gender gap in drinking and opinions and gender role characteristics in the countries. Results from two multi-national studies were used: The World Values survey, and the International Social Survey Program (ISSP).

While generally these correlations tend to be positive, which might indicate that the gender gap in alcohol tends to be larger in countries characterized by more traditional attitudes and domestic roles, the correlations are mostly low and non-significant.

In other words, the indicators we have concerning public opinion and domestic division of labor in the various countries are not clearly associated with gender ratios in drinking. This reiterates the conclusion from Table 6 that structural societal characteristics may be more important than beliefs and values in their effects upon male-female differences in drinking. However, we must note that many of

the correlations in this table (notably – those dealing with domestic division of labor) are based on a small number of countries.

Table 9. Correlations between Gender Differences in Alcohol Consumption and Public Opinion & Roles (Correlation coefficients, Significance, and N's)

	R-drinkers	R-weekly	R-heavy	R-HED
"A Woman needs a child"	0.35	0.14	0.07	0.04
	0.13	0.58	0.79	0.89
	20	19	18	18
"Child will suffer if mother works"	0.01	0.20	0.10	0.35
	0.95	0.40	0.69	0.17
	19	19	18	17
"Women really want is a home and children"	0.35	0.56	0.49	0.20
	0.24	0.06	0.09	0.55
	13	12	13	11
"Household work is as satisfying as a paid job"	0.06	0.23	0.44	0.49
	0.85	0.47	0.14	0.13
	13	12	13	11
Women always or usually do laundry	0.08	-0.11	-0.05	-0.27
	0.81	0.72	0.86	0.42
	13	12	13	11
Men always or usually do small repairs	-0.21	0.01	0.33	0.16
	0.48	1.00	0.27	0.64
	13	12	13	11
Women always or usually take care of sick	0.14	-0.10	-0.21	-0.03
	0.65	0.75	0.49	0.93
	13	12	13	11
Women always or usually shop for groceries	0.34	-0.05	-0.05	0.17
	0.25	0.89	0.88	0.62
	13	12	13	11

Note: Coefficients in bold face are significant at the 0.10 level

Table 10 presents another approach to the issue. It uses the two summary indices of women's social position. Presumably, these indices, which summarize various indicators, will represent women's social position and its effects on alcohol consumption better than the individual indicators. Table 10 makes use of two indices: the Gender Empowerment Measure (GEM) and the Gender Equity Score (GES). The reader should note that correlations with men's and women's drinking have already been presented above, in Table 4.

Table 10. Correlations between Indices of Women's Social Position and Gender Ratios in Drinking (Correlation coefficients, Significance, and N's)

	R-Drinkers	R-Weekly	R-Heavy	R-HED
GES (Gender Equity)	-0.52	-0.38	0.02	-0.11
	0.01	0.08	0.94	0.65
	24	22	21	21
GEM (Gender Empowerment)	-0.67	-0.46	-0.27	-0.20
	0.01	0.06	0.30	0.47
	19	17	17	16

Table 10 shows that the gender ratio of the annual and weekly prevalence of drinking are strongly associated with women's position in society. That is, the higher the gender equity and gender empowerment, the lower is the gender ratio. The reason is, apparently, the stronger effect that gender equity has on the percentage of female drinkers than on male drinkers: the unstandardized regression coefficients (of the rate of drinkers on gender equity) are 17.5 for men and 24.5 for women. That is, any increase in gender equity is associated with a higher change in women's rate of drinking.

As visual inspection of the pertinent scattergrams suggested that the correlation coefficients of the heavy drinkers' gender ratio were distorted by a couple of extreme cases (Mexico and Hungary), the correlation coefficients for this variable were re-calculated without these countries (a procedure known as trimming). This procedure has actually changed the correlations of the gender ratio of heavy drinkers from low, negative to fairly high, positive and significant correlations (0.56, $p < 0.02$ with the GES, 0.53 $p < 0.05$ with the GEM). That is, with two exceptions, the higher the gender equity, the higher is the gender ratio for heavy drinking (among the drinkers). This might suggest that in higher gender equity countries, the prevalence of women's drinking is becoming higher and more similar to that of men. However, the rise in the rate of women drinkers is only at the lower end of the frequency and quantity distribution.

Yet another test applied to the correlations in Table 10 was controlling for the GDP per capita. This step was necessary because (as we have noticed) the Gender Equity Scale is strongly correlated with economic prosperity. The partial correlations between the GES and the gender ratio of drinkers (controlling for GDP) was -0.34 ($p < 0.12$) and the correlation with the gender ratio of weekly drinking was even lower: -0.19 ($p < 0.42$). The two other correlation coefficients, with the gender ratios for heavy drinking and heavy episodic drinking, were even lower. A somewhat different method of controlling for the GDP is presented in Table 13 in the Appendix E. In that table the correlations are presented separately for the higher and lower GDP countries. Here again the only consistent finding is the negative correlation between gender equity and the gender ratio in the prevalence of drinking. As for the gender ratios of weekly drinking, heavy drinking and HED, the correlations are low and inconsistent.

Table 11 presents the correlations between women's social position and the gender ratios for certain drinking consequences. The last column involves gender ratios in the rates of physical aggression. That is, it was based on the rate of men's aggression (as reported by women in GENACIS surveys). Overall, most of the correlations in this table are negative, indicating that as women's position in society is improved, and as there is a higher gender equity, the smaller are the differences between men's and women's alcohol consequences. This is true regardless of the type of indicator used, whether it is based on national-level of death statistics, or on GENACIS surveys (aggressive behavior toward the partner).

The first two rows are for the two global indices of women's position: the Gender Empowerment Measure and the Gender Equity Score. Both are negatively (and quite strongly) correlated with the gender ratios for mortality from liver diseases and motor vehicle crashes. That is, the higher is women's status, or Gender Equity, the smaller is the difference between men's and women's mortality from these causes.

Are these correlations an artifact, based only on the association between the GES and economic affluence? Apparently not -- Partial correlations between the GES and the differences in consequence rates, controlling for the GDP are still mostly negative, although lower. Thus, the correlation between the GES and the gender ratio for alcohol dependency drops from -0.55 to -0.34 (non-significant).

Table 11. Correlations between women's status and gender ratios in health effects of alcohol

	R-Dependency	R-Cirrhosis	R-MV Crash	R-Aggress
GES (Gender Equity)	-0.55	-0.36	-0.80	-0.64
	0.01	0.09	0.01	0.02
	19	23	24	13
GEM (Gender Empowerment)	-0.43	-0.45	-0.63	-0.86
	0.10	0.05	0.01	0.01
	16	20	21	10
Parliament	-0.03	-0.16	-0.36	-0.52
	0.89	0.45	0.09	0.07
	19	23	24	13
Labor Force Participation	-0.72	-0.37	-0.76	-0.43
	0.01	0.08	0.01	0.14
	19	23	24	13
Divorce	-0.67	-0.09	-0.34	-0.53
	0.01	0.70	0.11	0.12
	18	22	23	10

Note: Coefficients in bold face are significant at the 0.10 level.

Women's political involvement (as indicated by parliamentary representation) and labor force participation are correlated with the gender gap in mortality and violence much like the GES: Both are negatively correlated with the gender-difference in cirrhosis and liver diseases and in vehicle crash mortality; and both are positively correlated with the gender difference in partner violence.

4 SUMMARY

To summarize, the following have been found:

- 1) In all the countries in our sample alcohol consumption indicators are higher for men than for women: current drinker rates, the proportion of drinkers who drink weekly and the proportion drinking heavily are all higher for men than for women in each country.
- 2) The extent or prevalence of drinking is consistently associated with the various indicators of modernization. However, modernization is not clearly associated with the intensity of drinking: its frequency and the quantities consumed. Economic development is quite strongly associated with the prevalence of drinkers as well as with the intensity of drinking and with the volume of alcohol consumed (Tables 3, 4).
- 3) Wine-consuming countries tend to consume more alcohol. Beer consumption is strongly associated with the prevalence of current drinkers, while wine consumption is more strongly correlated with the prevalence of weekly drinking (among current drinkers).
- 4) Modernization and economic development are negatively correlated with two variables that serve as indicators of alcohol's adverse effects, mortality from alcohol-related motor vehicle crashes and from cirrhosis and liver diseases, for both women and men (Table 5).
- 5) The gender ratios between men's and women's drinking vary considerably among countries. The gender differences in the prevalence of drinkers are negatively correlated with modernization (Figures 1-3, Table 6). That is, the more modernized a country is, the narrower will be the difference between men's and women's prevalence of drinkers. However, modernization is not clearly associated with the frequency and quantity of drinking.
- 6) One of the strongest findings is that the gender ratio between men's and women's rates of drinking is negatively correlated with women's position within society: the higher women's position, or the more emancipated women are, the smaller the difference between men and women drinking rates (Table 8-10).
- 7) The gender ratio of adverse consequences (mortality from alcohol-related causes and partner aggression) is negatively associated with women's position (Table 11).
- 8) Most of the findings related to gender equity and women's position in society remain valid (although they may be weaker) when the effects of different economic welfare are controlled for.

Finally some words of caution are due. The findings presented above are based on a rather limited group of countries. Our focus on countries within the European Union rendered this sample rather homogeneous in its cultural background, politics, economic situation, etc. It is quite possible that the inclusion of other countries, from other regions, could lead to some other conclusions.

Some of the methodological decisions too may have biased the findings. For instance, it is conceivable that focusing on older age groups (rather than the 18-34 age group) could change some findings.

3 REFERENCES

- Allamani, A.; Voller, F.; Kubicka, L.; & Bloomfield K. (2000). Drinking cultures and the position of women in nine European countries. *Substance Abuse*, 21(4), 231-247.
- Benedict, R. (1934). *Patterns of Culture*. Boston: Houghton Mifflin.
- Blackburn, R. M., Jarman, J. & Brooks, B. (2000). The puzzle of gender segregation and inequality: a cross-national analysis. *European Sociological Review*, 16 (2), 119-135.
- Bloomfield, K., Stockwell, T., Gmel, G. & Rehn, N. (2003). International Comparisons of Alcohol Consumption. *Alcohol Research and Health*, 27, 95.
- Bloomfield, K., Gmel, G., Neve, R., & Mustonen, H. (2001). Investigating Gender Convergence in Alcohol Consumption in Finland, Germany, The Netherlands, and Switzerland: A Repeated Survey Analysis. *Substance Abuse*, 22(1), 39-53.
- Blume, S.B. (1994) Women and Alcohol, in: Wilsnack, Richard W. & Sharon C. Wilsnack (Eds.) *Gender and Alcohol: Individual and Social Perspectives*. New Brunswick, NJ, Rutgers University Press, 462-489.
- Child, I. L., Barry, H. & Bacon, M. K. (1965). A Cross-cultural Study of Drinking: Sex Differences. *Quarterly Journal of Studies on Alcohol*, suppl. 3, 49-61.
- Dufor, M. C. & Cases, F. (1993). Epidemiology of the Medical Consequences of Alcohol. *Alcohol, Health and Research World*, 17, 265-271.
- Durkheim, E. (1951). *Suicide: A Study in Sociology*. New York, Free Press, 1951 [1897].
- Fernquist, R. M. (1999). Gender equality and sex differential in suicide rates using gender-age standardized data. *Archives of Suicide Research*, 5, 255-260.
- Gefou-Madianou, D. (1992). Introduction: Alcohol Commensality, Identity Transformation and Transcendence, in: Gefou-Madianou, D. (ed.) *Alcohol, Gender and Culture*. New York, Routledge, 1-34.
- Guiso, L., Sapienza, P. & Zingales, L. (2003). People's opium? Religion and economic attitudes. *Journal of Monetary Economics*, 50, 225–282.
- Heath, D., (Ed.) (1995). *International Handbook on Alcohol & Culture*. Westport, Connecticut: Greenwood Press.
- Hibell, B., Andersson, B., Ahlstrom, S., Balakireva, O., Bjarnasson, T., Kokkevi, A. & Morgan, M. (2001). The 1999 ESPAD Report: Alcohol and Other Drug Use Among Students in 30 European Countries. *The Swedish Council on Alcohol and Other Drugs and The Council of Europe, in Co-operation with the Group to Combat Drug Abuse and Illicit Trafficking in Drugs*.
- Hofstede, G. (1991). *Cultures and organizations; software of the mind: intercultural cooperation and its importance for society*. New York, McGraw-Hill.
- Hofstede, G. (2001). *Culture's consequences: comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks, CA, Sage Publications.
- Inglehart, R., Basanez, M. & Luijkx, A. M. (eds.) (2003). *Human Beliefs and values. A cross-cultural sourcebook based on the 1999-2002 values surveys*. Siglo.
- ISSP (International Social Survey Program) (2003). <http://www.issp.org/info.htm>
- Kendall, P. L. & Lazarsfeld, P. F. (1955). The Relation Between Individual and Group Characteristics in 'The American Soldier'. In: Lazarsfeld, P.F. & Rosenberg, M. (eds.), *The Language of Social Research*. New York: The Free Press.

- Leifman, H. (2001). Homogenisation in alcohol consumption in the European Union. *Nordic Studies on Alcohol and Drugs*, 18, Suppl. 1, 15-30.
- Leifman, H. (2002). A comparative analysis of drinking patterns in six EU countries in the year 2000. *Contemporary Drug Problems*, 29 (3), 501-548.
- Lin Chang, M. (2000). The evolution of sex segregation regimes. *American Journal of Sociology*, 105, 1658-1701.
- Pearce, N. (2000). The ecological fallacy strikes back. *Journal of Epidemiology and Community Health*, 54, 326-327
- Pittman, D. J. & White, H. R. (eds.) (1991). Society, Culture and Drinking Patterns Re-Examined, *New Brunswick, NJ, Rutgers Center of Alcohol Studies*.
- Quetelet, L. A. J. (1842). A treatise on man and the development of his faculties. *Edinburgh*, 1842 [1968].
- Rehm, J., Room, R., Monteiro, M., Gmel, G., Graham, K. Rehm, N., Sempo, C. T., Frick, U. & Jernigan, D. (in press). Alcohol, ch.12 in 'The Global Burden of Disease'.
- Rehm, J., Gmel, G., Room R. & Frick, U. (2001). Average Volume of Alcohol Consumption, Drinking Patterns and Related Burden of Mortality in Young People in Established Market Economies of Europe (Appendix 2). *European Addiction research*, 7, 155-157.
- Rummel, R. J. (1970). Applied factor analysis. *Evanston, Northwestern University Press*.
- Stockard, J. & O'Brien, R. M. (2002). Cohort effects on suicide rates: international variations. *American Sociological Review*, 67, 854-872.
- Stockwell, T., Chikritzhs, T. & Brinkman, S. (2000). The role of social and health statistics in Measuring harm from alcohol. *Journal of Substance Abuse*, 12 (1-2), 139-154.
- Stier, H. & Lewin-Epstein, N. (2001). Welfare regimes, family-supportive policies, and women's employment along the life-course. *American Journal of Sociology*, 106, 1731-1760.
- United Nations (2002). Demographic Yearbook. *Department of International Economic and Social Affairs, Statistical Office, United Nations*.
- United Nations (2002). The Human Development Report. *New York, Oxford University Press*.
<http://hdr.undp.org/reports/global>
- United Nations (2001), United Nations Demographic Yearbook, 1999.
- United Nations (2002), United Nations Demographic Yearbook – December 2002.
<http://unstats.un.org/unsd/demographic/social/childbr.htm>.
- Verweij, A. & Nieubeerta, P. (2000), Gender Differences in Violent Victimization in Eighteen Industrialized Countries: The Role of Emancipation. *International Journal of Comparative Criminology*, 2 (1), 103-118(16).
- World Bank (2000). World development Report, www.worldbank.org/wdr/2000.
- World Health Organization (1999). Global Status Report on Alcohol. Geneva: *World Health Organization*.
- World Health Organization (2003), Global Alcohol Data Base,
<http://www3.who.int/whosis/menu.cfm?path=whosis,alcohol&language=english>

Annex

COUNTRY REPORTS

Editor: Irmgard Eisenbach-Stangl

1 INTRODUCTION

The quantitative, analytic comparison followed in this project increasingly generated the need to complement its results by a qualitative, synthetic perspective and to understand the differences of gender-specific drinking and drinking patterns in the historical-cultural frame of local/ national drinking patterns, alcohol-related problems and alcohol-related measures on the one hand and in the broader historical- cultural context of the country and its prevailing gender relationships on the other hand. We therefore developed comprehensive guidelines for country descriptions which – because of the already filled time schedule - in the course of discussions were reduced to few broad and basic questions on the development of the country since WWII, of per capita consumption, beverage preferences and drinking patterns, and of alcohol-related problems and measures.

We received reports from seven countries: Austria, Finland, France, Germany, Italy, Israel and the United Kingdom. They represent great variation and also provide information on some “cases”, for which quantitative data were limited, as for instance in Austria. The country chapters presented below are more or less radically shortened versions (without references) of the reports, with the aim of presenting very basic information related to the analysis of drinking patterns, depicted in chapter 2 of the report.

The reports are a mixture of country profiles, alcohol profiles and gender profiles and they to our understanding represent first lively thoughts on the development of gender-specific drinking patterns, problems and measures in a cultural-historical perspective.

2 AUSTRIA

Authors: Irmgard Eisenbach-Stangl and Isabella Hager

2.1 The country

Austria is a democratic federal republic with nine federal states. Within the present boundaries, defined in 1918, it has a surface area of 84,000 m². Less than 30% of the population lives in cities with more than 100,000 inhabitants. Vienna, the capital has about 1.6 mill. inhabitants – 23% of the population in 1951 and 19% in 2001.

The Austrian population has been growing continuously from about 6.1 mill. in 1951 to about 8 mill. in 2001. Because of the decline in fertility rates and the rise of life expectancy the population has been aging.

About 80% of the population belongs to the Roman Catholic Church. Austria is also in other respects a country of great cultural homogeneity, though, since WWII immigration has increased remarkably: Between 1945 and 1982 between 1 and 2 million refugees came from Eastern European countries, and since the late 1960s so called “Gastarbeiter” were recruited – mostly from former Yugoslavia and from Turkey. At the millennium the proportion of foreigners (= non-Austrian citizens) amounted to 10 % making it higher than in most other EU-countries.

After 1945 Austria developed a dual economy and a dual labour market, with a private sector on the one hand and a large state-owned sector on the other. Since the mid-1980s this system has gradually been dismantled by continuous privatisation efforts. The socio-economic change was accelerated by the fall of the Iron Curtain and by Austria – which in former decades had been a member of EFTA - joining the EEA in 1993 and by becoming a member of the EU in 1995. Today Austria is one of the richest countries in the world and it still has an extensive welfare state.

The economic structure changed remarkably: In 1951 agriculture still employed almost one-third of all Austrians, while fewer than 30% were employed in the service sector. Industrial employment reached its peak in the early 1960s. By the mid-1990s the tertiary sector of the economy employed almost 60% of the entire labour force, while agriculture had declined to 6.6%. The service sector developed early and grew impressively not at least because of the lucrative tourist industry in the Alpine regions.

Since the end of the 1960s the government invested greatly in education trying to improve equal opportunity. Women profited most from this socialization of Austria's education system: In 2002 the percentage of women with a university degree or equivalent was higher than that of men. But gender is still one of the most significant parameters in the labour market and in society as a whole. Though women's educational attainment improved remarkably, the proportion of working women, their position in the labour market and their income remained relatively low.

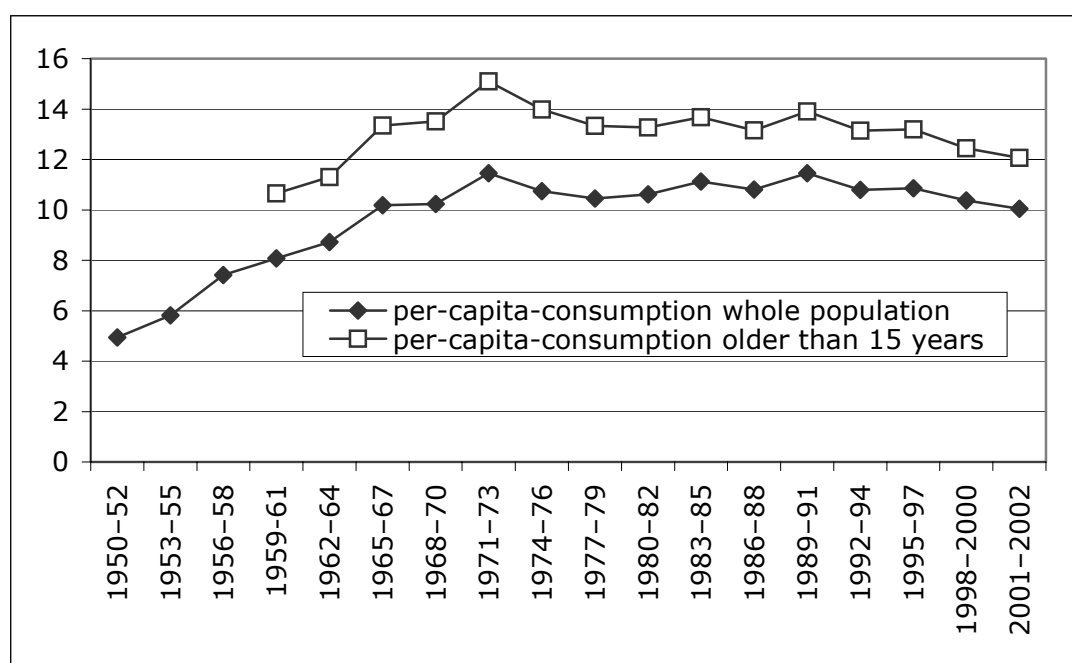
The traditional extended three-generation family was largely replaced during the 1960s by the nuclear family. By now the nuclear family itself is being replaced by other, often smaller household units.

Single households increased the most due to the aging factor, adult students and an increasing divorce rate.³

2.2 The development of per capita consumption and beverage preferences

Per capita consumption of pure alcohol increased remarkably until the beginning of the 1970s and has stagnated since then. Since the beginning of the 1990s even a slight decrease is to be observed, which is more pronounced if only the population older than 15 years is considered (see fig.1).

Figure 1. Per capita consumption of pure alcohol in litres, averages for every three years, for the whole population from 1950 to 2002 and for the population older than 15 years from 1961 to 2002



[Source: Data of the Statistics Austria, of the association of brewers and of the association of spirit producers; own calculations]

Shortly after WWII beer became the most preferred alcoholic beverage in Austria. This was not the case before, when spirits was the leading alcoholic beverage. During the period observed, spirits consumption dropped further. Spirits at first were partly replaced by wine. In the mid 1980s beer increased its share to per capita consumption from less than one half to more than that.

³ Lichtenberger, Elisabeth (2000) Austrian Society and Regions, Austrian Academy of Science Press, Vienna

2.3 Gender-specific drinking patterns: The trend towards the middle

Only two surveys provide some information on drinking habits. Both were carried out during the period of stagnation, the first one in 1977⁴ and the second one in 1993⁵. A cautious comparison of few questions for the GENACIS EU-project had the following results.

In 1977 as in 1993 women were drinking remarkably less often than men. Also, a “trend towards the middle” could be observed, that is, both genders tended to abandon the extremes of alcohol consumption: The percentage of female and male abstainers, but also of men and women drinking daily decreased (tab.1). This result corresponds to another one: The percentage of men and women reporting alcohol consumption the day before the interview was remarkably lower in 1993 than in 1977.

Table 1. The frequency of alcohol consumption of men and women 16 to 69 years old, in 1977 and in 1993 (in percentages of all respondents)

Men	daily	2 to 6 times per week	once per week	several times per year	more seldom	never	no response
1977	37	28	11	9	2	12	1
1993	14	49	8	15	5	7	2

Women	daily	2 to 6 times per week	once per week	several times per year	more seldom	never	no response
1977	12	26	14	21	2	21	4
1993	4	27	12	30	9	17	1

[Source: Mader et al. 1981, Uhl, Springer 1996 ; own calculations]

A further – related result is that women and men approached each other with respect to frequency of alcohol consumption. This is supported by the so-called “Suchtmittelstudien” of the city of Vienna, an evaluation carried out every other year since 1993. Also, the incidence of liver cirrhosis agrees with this trend.

Men and women thus have approached each other with respect to drinking, but no convergence is to be expected: One also could discuss the stability of gender differences. Men seem to contribute to the approaching at least as much as women if not more. And the trend towards the middle is only one side

⁴ Mader, Rudolf et al. (1981) Österreichische Trinksitten. Konsumation – Einstellung – Gefährdung, Schriftenreihe des Ludwig Boltzmann-Institutes für Suchtforschung, Band 4, Wien

⁵ Uhl, A., Springer, A. (1996) Studie über den Konsum von Alkohol und psychoaktiven Stoffen in Österreich unter Berücksichtigung problematischer Gebrauchsmuster, Originalarbeiten – Studien – Forschungsberichte, Bundesministerium für Gesundheit und Konsumentenschutz, Wien

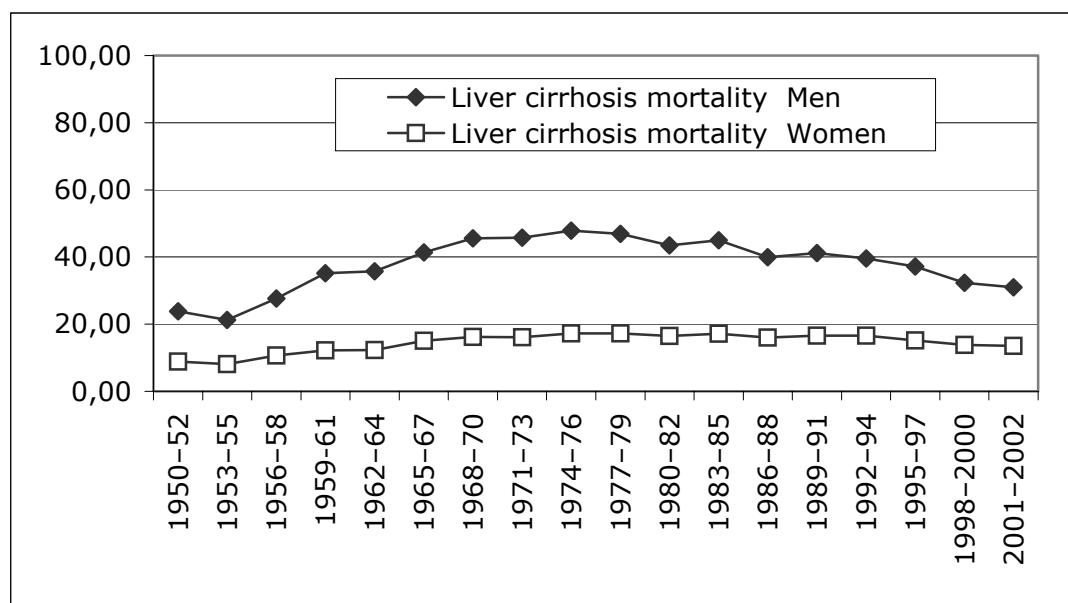
of the coin; polarisation at the edges is the other. The middle becomes larger and more gender-neutral, while the edges become smaller and more gender-specific: Thus the gender relationship of abstainers shifted further in favour of women and the gender relationship of daily/ frequent drinkers further in favour of men. Occasional intoxication became more gender-neutral whereas very frequent intoxication more a male phenomenon. In other words: Abstention was even more “female” in 1993 than 16 years previously, frequent and intensive drinking even more “male”.

2.4 Alcohol-related problems

The available problem indicators correspond to the gender-specific development of drinking. This is true for indicators for problems related to frequent, intensive and long-term drinking – as with mortality of liver cirrhosis – as well as for problems related to short term effects of alcohol consumption – as with involvement in alcohol related accidents.

The development of liver cirrhosis mortality corresponds to that of per capita consumption (fig.2). It dropped more among men: before the turn of the 1980s 2.6 to 2.9 men per woman died because of liver cirrhosis, since the 1990s it was less than 2.5. There might be factors other than changing drinking habits contributing to the approaching rates, especially because only a part of liver cirrhosis mortality is linked to alcohol intake. It also must be kept in mind that treatment offers are gender-specific and that men and women develop different help-seeking behaviours.

Figure 2. Liver cirrhosis mortality of men and women, per 100 000 inhabitants of the same sex, averages for every three years, 1951 – 2001



[Source: Data of the Statistic Austria, own calculations]

Alcohol-related traffic accidents developed in accordance with traffic accidents with injuries in general: they decreased slightly during the 1990s but not continuously. Their percentage of all traffic accidents with injuries oscillated between 5.7 and 6.8 during this period. More than 90 % of the intoxicated persons in alcohol-related accidents were drivers and by far the majority of them were men. But the percentage of female drivers was absolutely and relatively increasing during the last decade: In 1992 there were about 20 intoxicated male drivers per female driver; ten years later it was only 11 men per woman. The increasing number of intoxicated female drivers mostly seems to be due to increased driving and not to increased intoxication. In other words: Long term consequences of alcohol consumption of men and women seem to approach slightly – due to a slight increase in intake of alcohol by women. But short term consequences remain stable, because the extremes of alcohol consumption – as, for instance, frequent and intensive consumption – become even more “male”.

2.5 Alcohol-related measures

Alcohol-related measures taken since WWII have concentrated on three areas⁶. Historically seen, alcoholism was the first one. The first psychiatric clinic for voluntary patients was established in Vienna in 1961 – it was the successor of a department for inebriates at the mental asylum of Vienna founded in 1922 and closed by the German Fascist regime in 1939. The “open clinic” was expanded after 10 years, similar clinics were established in most of the other states and additionally departments of psychiatric hospitals specialised in alcoholism. Simultaneously, the outpatient treatment system was expanded. It was only in the 1990s that the expansion of a special psychiatric treatment system for alcoholics came to a halt.

In 1968 the first female patients were admitted to the Viennese clinic, and a department for female alcoholics with 30 beds was established in 1974. Few other Austrian states followed. In 1993 22% of gender-specific beds (about 15% of all beds for alcoholics) were assigned to women and about one-quarter of all patients were female⁷. At present special treatment programmes for women are being discussed. But women still seem to be somewhat underrepresented in the special treatment system. Because of the heavy stigma they probably prefer to look for support in the general health care system or in other (informal) sources as for instance self- help groups.

Alcohol-related traffic problems are the second area where main measures have been taken. At the core of these measures are regulations concerning BAC level: In 1961 driving a motor vehicle with a BAC level higher than 0.08% was prohibited, in 1998 it was lowered to 0.05%. This is accompanied by an increasing number of regulations (for instance those on obtaining and revoking driving privileges), which are continuously becoming stricter. The measures in the traffic area concern men more than those in the field of addiction. Gender-specific effects are not discussed.

⁶ Eisenbach-Stangl, Irmgard (1990) *Eine Gesellschaftsgeschichte des Alkohols. Produktion, Konsum und soziale Kontrolle alkoholischer Rausch- und Genußmittel in Österreich 1918 – 1984*, Campus, Frankfurt

⁷ Eisenbach-Stangl, Irmgard (1997) *Professional Treatment and Mutual Aid: Different Offers for Female Alcoholics or Offers for Women with Different Alcohol Related Problems?* In: Eisenbach-Stangl, I. eds (1997) *Gender and Addiction, European Addiction Research*, volume 3

The third area with alcohol-related measures is the workplace. Alcohol consumption at the workplace has been increasingly regulated—even prohibited—since the 1950s, though the measures taken are much less severe than those concerning drunk driving. The legal regulations are accompanied by regulations developed by companies, which increasingly reduced the availability of alcoholic beverages in their cafeterias. The measures for the workplace are the most “male“, without being considered and discussed as such, which demonstrates how much informal control of the drinking of women still are in force.

It should also be mentioned that public debates on alcohol-related problems mostly ignore women. Women are neither as offenders nor as victims the focus of public attention when it comes to drinking and intoxication. But neither is the focus on those men who consume the bulk of alcohol: the youth, especially males, are the main concern with respect to alcohol consumption, intoxication and alcohol-related problems.

3 FINLAND¹

Authors: Salme Ahlström, Thomas Karlsson and Esa Österberg

3.1 The country

Finland has a population of 5.2 mill. inhabitants. It covers an area of 338,145 km² and has an average population density of 15 persons per km², which makes Finland one of the most sparsely inhabited countries in Europe. During the decades after WWII economic change has been accompanied by exceptionally rapid internal migration from rural to urban areas. Nowadays nearly 70 % of the population reside in the southern third of the country and some 64 % is urban compared to 32 % in the 1950ies.

Finland is a bilingual country, with more than 93 % of the population speaking Finnish and a minority of 6 % speaking Swedish. A few thousand Saami people live in the far north. The Evangelical Lutheran church of Finland is the national church and almost 90% of Finns belong to it.

Since WWII the industrial sector has expanded rapidly. Today Finland is an industrialised country with a high standard of living and a welfare state system. In 1995 of the total employment 8 % were engaged in primary production, 28 % in industry and construction, and 64 % in services. The wood, pulp and paper industries used to be the leading sector of the Finnish economy. Nowadays the leading part has been taken over by the telecommunication and electronics industries.

Finland has been independent since 1917 and the republican constitution adopted in 1919 remained

¹ Sources:

Karlsson, Th., Österberg, E. (2002) Finland. In: Österberg, E., Karlsson, Th. (eds.) Alcohol Policies in EU Member States and Norway. A Collection of Country Reports, Stakes, Helsinki

Österberg, Esa (2003) Finland. In: Alcohol and Temperance in Modern History: An International Encyclopedia, Vol.1, ABC-CLIO, Oxford

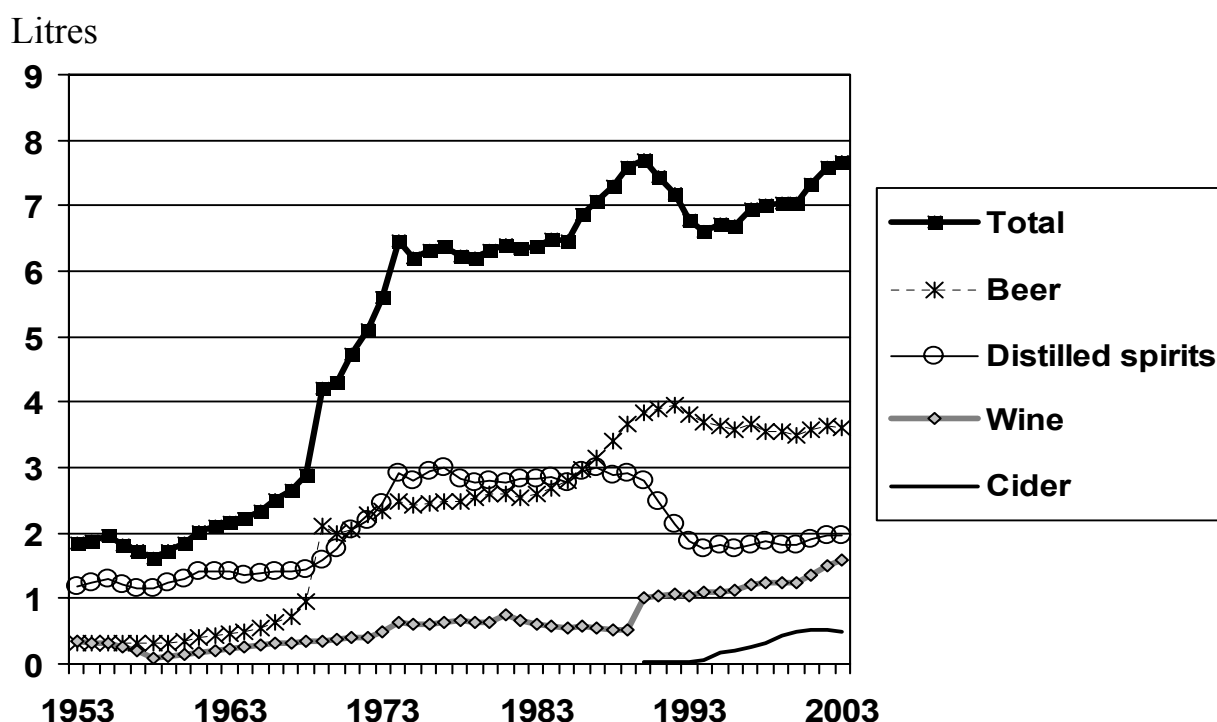
essentially unchanged. Executive power in the six provinces is exercised by a governor, who is appointed by the country's president. There are nearly 450 municipalities and local authorities in Finland. Local government is based on self-government by the residents of a municipality. Local authorities have a degree of financial and administrative independence. The most important services provided by local authorities concern education, social welfare and health care.

3.2 Alcohol consumption and beverage preferences

At the beginning of the 1950s recorded consumption of alcoholic beverages was just below 2 litres of pure alcohol per capita a year. In the late 1950s alcohol consumption began to grow. In 1969, when the 1968 Alcohol Act and the Medium Beer Act came into force, the total alcohol consumption increased almost 50 % in one year and continued to grow very fast in the first half of the 1970s. It then levelled off. The fast economic growth in the second half of the 1980s was accompanied by a strong growth in alcohol consumption. In the same manner, the economic recession in the first half of the 1990s led to a clear decrease. Since the mid-1990s, the total alcohol consumption has been slightly growing.

At the beginning of the 1950s Finland was a spirits country: nearly 70 % of all alcohol was consumed in the form of spirits. It was only in the first half of the 1990s that the consumption of spirits did clearly decrease, and nowadays they account for less than one third of the consumption. Wine consumption has increased quite steadily between 1950 and 2003. Nowadays wine accounts for nearly 20% of the consumption. Beer consumption increased in the 1950-1990 period but decreased somewhat in the 1990s. The increase in beer consumption in the second half of the 1980s, coupled with the decrease in the consumption of spirits in the first half of the 1990s, has changed Finland to a beer country.

Figure 3. Consumption of alcoholic beverages by beverage categories in Finland in litres of pure alcohol per capita, 1953-2003



[Sources: Alcohol Statistical Yearbooks 1953-1994; Intoxicants Statistical Yearbooks 1997-2003]

Because of high alcohol prices and restrictions on availability, unrecorded alcohol consumption has always played a part. However, except for the mid-1990s, unrecorded consumption has not changed the picture of trends in total alcohol consumption given by the recorded figures.

3.3 Drinking habits

After WWII drinking habits were still characterized by very high abstinence rates particularly among women and in the countryside, and by a cultural appreciation for drinking to intoxication. During the last half century abstinence rates among women fell from 40 % to around 10 %. At the same time women's proportion of alcohol consumption has risen from about 10 % to almost 25%. Also drinking by adolescents has become much more common. Traditional qualitative features of drinking patterns, i.e. high prevalence of binge drinking have not, however, shown any clear weakening. On the contrary, binge drinking has become more prevalent among women.

Daily drinking has been quite rare: alcoholic beverages have seldom been consumed with food and do not have any important everyday function. Water and milk are the most important beverages at meals and coffee is the dominant drink in social situations. Also on-the-job drinking and drinking and driving have been very low in Finland. The most common times to consume alcohol are Friday and Saturday

evenings.

Finland has one peculiar feature of drinking patterns that is not met elsewhere in the world. This is the importance of drinking in the context of taking sauna baths. In the 1990s as many as one out of six drinking occasions was related to sauna baths. Typically this kind of drinking consists of one or two beers after the sauna bath.

3.4 The Alcohol control system

In 1932 the Finnish Parliament enacted alcohol legislation that gave the country a new system of alcohol control based on a state alcohol monopoly. This system became the cornerstone of Finnish alcohol control until 1995. The state alcohol monopoly company, Alko, had the monopoly on production, import, export, wholesale and retail sale of alcoholic beverages. Alcoholic beverages were defined as all beverages containing more than 2.8 % alcohol by volume. Alko was also the body to set both off- and on-premise retail prices. According to the 1932 Alcohol Act, Alko was the only body allowed to import or wholesale alcoholic beverages and retail them for off-premise consumption. Alko was, however, empowered to grant licences for manufacturing alcoholic beverages and selling them for on-premise consumption in restaurants. As a consequence, all beer production in Finland and a part of the manufacturing of fruit wines and liqueurs have been granted to private enterprises since 1932. The great majority of restaurants selling alcoholic beverages have also been owned by private persons or companies.

In 1969 a more liberal Alcohol Act and a special Medium Beer Act came into force. The 1968 alcohol legislation, in force until 1995, increased alcohol availability in many ways but kept the basic monopoly construction intact, with one exception. This exception concerned medium beer, as the Medium Beer Act gave Alko the right to grant ordinary grocery stores and cafés licences to sell beer containing less than 4.7 % alcohol by volume. On the other hand, Alko still retained the power to set retail prices also for medium beer as well as the mark-up for medium beer retailers.

The 1968 alcohol legislation repealed the existing so-called rural prohibition, which had meant that under the 1932 Alcohol Act, Alko was not allowed to open liquor stores in rural municipalities, and those few licensed restaurants allowed in rural areas were meant to serve travellers and tourists. The 1968 alcohol law also lowered age limits on buying alcoholic beverages off the premises. Since 1969 the age limit on buying alcoholic beverages of up to 22 % alcohol by volume has been 18 years and on stronger alcoholic beverages 20 years, instead of the earlier age limit of 21 years on all alcoholic beverages.

3.5 Alcohol controls after the EU membership

When Finland became a member of the European Union (EU) in 1995 the 1994 Alcohol Act repealed alcohol monopolies on production, import, export, and wholesale, leaving however the monopoly on off-premise retail sale of alcoholic beverages almost intact.

Before 1977 alcohol advertising was regulated by Alko. Between 1977 and 1994, all alcohol advertising was banned by law except in some business magazines. The 1994 Alcohol Act legalised the advertising of alcoholic beverages with alcohol content from 1.2 up to 22% , it however prohibits it if it is aimed at minors, if it depicts alcohol consumption linked to driving a vehicle, or if heavy alcohol consumption is described in positive terms. Also forbidden are advertisements suggesting that alcohol increases functional capacity, makes one socially or sexually more successful, has medical or therapeutic properties, refreshes, or is a means to settle conflicts.

Alcohol education and information in Finland has traditionally been the responsibility of Alko, whose information and education campaigns have significantly changed during the years. At the beginning they were moralising and largely based on scare tactics stressing the worst consequences of alcoholic beverages, but with time these moralising aspects were toned down. After 1995 Alko's education and information activities were moved to Stakes, which coordinates preventive work at the national level and develops local level drug programs together with the communities. The information and education activities focused on the general public were moved to the Finnish Centre for Health Promotion.

In 1995 a proposition for a national alcohol policy programme has been adopted that to a large extent was based on the European Alcohol Action Plan (EAAP) drafted by WHO-EURO in 1992. A revised national programme as well as a plan to implement it was adopted two years later. The national operative alcohol action plan tried to shift the focus of preventive alcohol policies from national to local level. In 2000, The Finnish Ministry of Social Affairs and Health asked the Permanent Committee on Alcohol, Drugs and Temperance Issues to update the national operative alcohol action plan along the lines of the second EAAP (2000-2005) that had been accepted by WHO-EURO in autumn 1999.

But the national programmes were never properly adopted by the Ministry of Social Affairs and Health or by the government. The Finnish Alcohol programme 2004-2007, could therefore be considered the first more serious attempt since 1995 to back up alcohol matters on a national scale. The programme contains a vision of large-scale cooperation between sectors, administrative levels, industry organisations and NGOs. It makes a serious attempt to commit public, voluntary and market agencies within partnerships crossing horizontal sectors and hierarchical levels.

4 FRANCE

Author: Francois Beck

4.1 The country

From the end of the WWII to the mid-1970's France experienced a period of economic growth ('les 30 glorieuses'). In this period two colonial wars affected France, the second (Algeria 1954-1962) much more than the first one (Indochina 1946-1954). Then came the crisis with more and more unemployment.

Among the main changes, the familial structure has altered: marriage has been decreasing since the 1960's, divorce increasing since the 1970's, both leading to more and more single-parent households since the 1960's. Women's emancipation began at the end of the 1960's, with the sexual liberation (mean age at first intercourse decreasing; liberalisation of the pill use and abortion allowed in 1974 and in 1975), emancipation in the household and at work (40% active among women in working age in 1950; 65% in 2000).

There was also in this period a continuous decline of the religious (mainly Catholic) feelings and facts. This may have had an influence on drinking habits as wine is very often evoked in the Bible. In 1981, the party of the Left (socialist) was elected for the first time since 1950, but afterwards, it changed approximately every five years from left to right and so on.

4.2 Main beverages and drinking patterns

France is a wine-drinking country and has been leading in the world (close to Portugal) on per capita alcohol consumption: In the 1950s more than 20 litres were consumed in the population older than 15 years, in 2000 it was 11 litres. Wine has remained the main beverage, but its proportion has declined from 80% in the 1950s to 62% at the end of the 1990s (18% spirits and 15% beer). Consuming wine with meals remains a common drinking pattern.

During the first half of the 1990s, sales of alcoholic beverages continued the downward trend that had started at the end of the 1950s, but they stabilized during the second half of the 1990s. The reduction in the quantity of pure alcohol consumed can be entirely attributed to the reduction in the consumption of wine. In the adult population, over the past ten years, the alcohol consumption indicators are relatively stable, whether for consumption, intoxication or problematic consumption.

Consumers more and more choose superior quality wines: Their consumption has doubled between 1970 and 1994, while table wine consumption has decreased by more than half. Concerning spirits, rum, cognac, armagnac, and calvados consumption is decreasing while whisky, gin and vodka consumption is largely increasing.

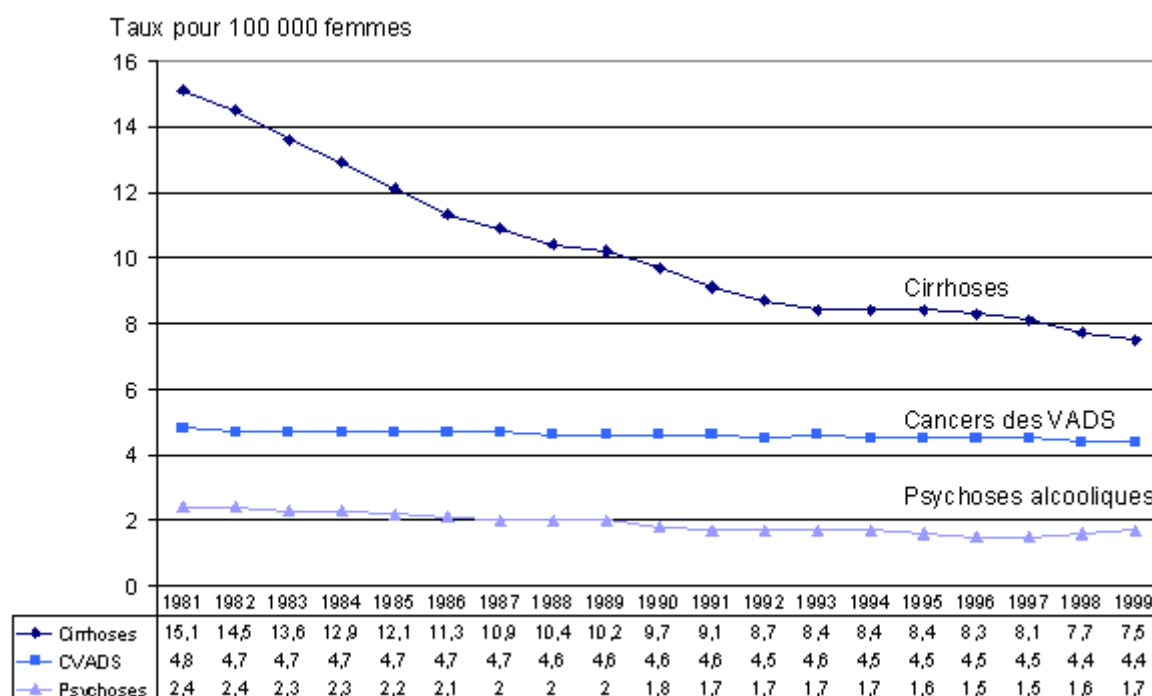
Over the last 20 years, drinking patterns have changed: regular consumption has been replaced by less frequent binge drinking episodes. Daily consumption is predominantly masculine (31.2% of men vs. 12.3% of women) and increases strongly with age so that almost 60% of men older than 55 years consume alcohol daily. Less frequent rates of consumption are less differentiated on a gender basis. The share of non-drinkers has stabilized at 37% of the population older than 14 years.¹

Among men, the proportion of regular drinkers does not vary with income or educational level, unlike among women. For both genders, people living in rural areas and workers are more likely to be regular drinkers. Women of higher income levels are significantly more likely to have consumed on the day before, and especially senior executive women drink a lot.

4.3 Alcohol-related problems

Due to a much greater consumption of alcohol, problematic health consequences related to alcohol are greater for men than for women. In 1998, 80,000 alcohol consumers were taken into care by alcoholism outpatient centres. This number is an increase over preceding years. About 60,000 patients are men.

Figure 4. Mortality rate for alcohol related death among women aged 15 + (rate for 100,000)

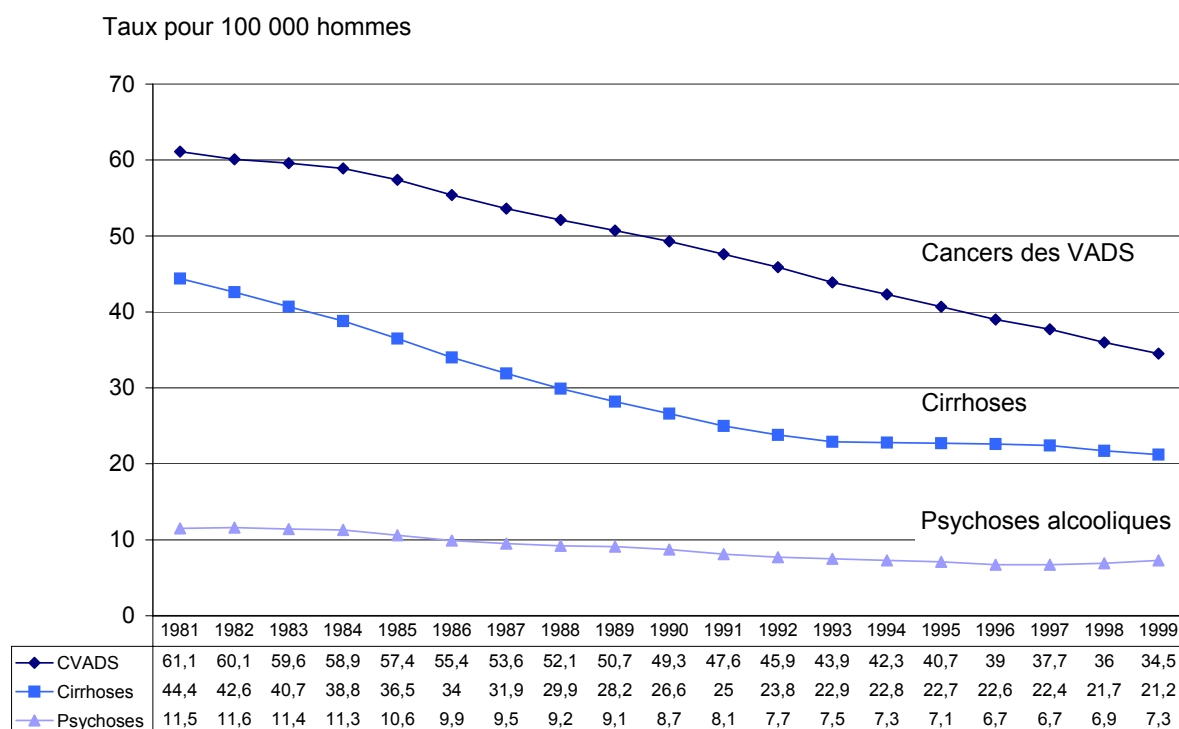


Source CépiDC / InVS / FNORS

¹ Aignan, P. et al. (2000) Survey on the consumption of wine in France in 2000 : initial results in relation to the frequency of consumption. Memorandum presented at the 25th General meeting of the OIV. In: Onivins Infos, no. 74

Legleys S. et al. (2001) Alcohol. In : Health Barometer 2000, DFES, Vanves

Figure 5. Mortality rate for alcohol related death among men ages 15 + (rate for 100,000)



Source CépiDC / InVS / FNORS

The prevalence of CAGE positive findings has remained stable between 1995 and 1999. While less than one adult in ten is positive, men are three times more likely than women to be Cage positive and the difference between the genders increases with age.

A national survey of young people (15-24 years old) injured in car accidents in 1982 showed that 75% were males; of whom 43% had drunk alcohol and 20% had at least 0.5 g/l blood alcohol concentration on arrival at hospital.

However, with regard to harmful consequences of alcohol consumption, some studies show evidence of possible health benefits from alcohol consumption: very moderate consumption of wine, even daily, will reduce global mortality.

In a survey on violence against women carried out in 2000, women with problematic alcohol use showed to be particularly vulnerable and concerned by any kind of violence, but particularly in their household. This link has already been found before.²

² Beck, F., Brossard C. (2004) Des femmes sous influence? Typologie des contextes D'usage d'alcool des femmes en France. In : Dally S. (eds.) Addictions au féminin

Henrion. D. (2001) Les femmes victimes de violences conjugales, le rôle des professionnelles de santé, Rapport au Ministre chargé de la Santé, Collection des rapports officiels

4.4 Laws, regulations and restrictions concerning alcoholic beverages

The sale and distribution of alcoholic drinks have been regulated for a number of centuries in France, but public health concerns are more recent, which sometimes clash with economic and social interests (wine growers, producers and distributors constituting a pressure group). In 1954, the Pierre Mendès-France government decided to create a legal framework to prevent alcoholism. The main public health laws are the 1960 ordinances on the fight against alcoholism and the Evin Law of 1991. Since 1984, the state organises alcoholism prevention and treatment.

The consumption of alcoholic beverages is not restricted with respect to age, but it is prohibited for those under 16 years old to purchase alcohol. This restriction is inefficient in shops but efficient in pubs and bars, because of police controls. Sales and consumption of alcoholic beverages is prohibited at schools, hospitals, working places, stadiums, and sports centres.

Advertising of alcoholic beverages has been regulated since 1941. The advertising, depending on the type of beverage, can be strictly limited. The Barzach Law of 1987 prohibited all advertising on television and at sporting events, and regulated advertising messages, but it was possible to have a very liberal interpretation of it. The Evin Law of 1991 reversed the law so that advertising in favour of alcoholic beverages, with some exceptions, is now prohibited.

The Evin Law has been recently discussed and has been limited by a decision of the parliament during the summer of 2004. Public health officials eagerly tried to keep the Evin Law as it was, but the pressure group constituted by wine growers and producers is very powerful and the Health Minister Philippe was not able to defend the Public health position.

Obvious intoxication in a public place is a second-class offence. The person is brought to the closest station or to a safe room, and kept there until sober. Under the new Penal Code of 1994, the penalties provided may go as far as imprisonment in the case of a further offence. Since 1993, intoxication in a sports arena is an offence that is punishable by imprisonment, especially in the case of violence.

Driving under the influence of alcohol has been prohibited since 1965. The law of 1970 instituted, for the first time in France, a legal alcohol level. Above 0.8 g/l of blood, it is an offence punishable by two years' imprisonment. If an accident involving injury has occurred, the penalties increase and may reach ten years' imprisonment in case of involuntary homicide.

The alcoholism of the perpetrator of an offence can be taken into consideration to impose mandatory treatment, particularly in the case of suspended sentencing, testing or conditional release. Nevertheless, being diagnosed with alcoholism or being intoxicated constitute only in very few cases an offence, or an aggravating circumstance.

5 GERMANY

Authors: Stephanie Kramer, Ludwig Kraus, Kim Bloomfield, Ulrike Grittner

5.1 The country

After WWII, Germany was separated into four administrative districts. The Western Allies, France, the UK and the USA supported a liberal-democratic federal structure leading to the foundation of the Federal Republic of Germany, whereas the USSR introduced a centrally governed people's democracy, which led to the foundation of the German Democratic Republic. The reunion of the two German states under a western democratic structure took place in 1990.

Today Germany is a federal state consisting of 16 states. Five of them cover the territory of the former FRG. The country covers an area of 357,021 km². The populations rose from about 68 mill. in 1950 to about 82 mill. In 2000 the average population density was 230 inhabitants per km². In 1999 87 % of the population lived in urban areas. About one tenth of the population are foreigners, some 38 % are Protestants and 34% Roman Catholics. The most striking trends are the aging population and the decline in total population.

Two distinct economies developed in Germany following the war. The "economic miracle" in West Germany lasted until the early 1970s, when worldwide recession spread to the country. By the late 1980s, the crisis appeared to be over. Nevertheless unemployment was on the rise as was the overall poverty rate; the divide between wealthy and poor continued to grow as did the number of welfare recipients. East Germany long had a reputation for the highest standard of living among Eastern Bloc countries, but by the 1980s it was nearly bankrupt.

The fall of the wall was initially a boon to West German business, and in the early nineties, the economy appeared to benefit. By 1992, however, it was becoming apparent that the West German economy was slowing down; by 1994, economic expansion in the East had reached its highest point yet.⁸ By 1995 a downward trend had set in both regions. The unemployment rate increased accordingly: In 2002, unemployment was at 17.1% in eastern Germany, more than twice as high as in western Germany at 7.6%.⁹ East German women, in particular those over 55, were especially affected.

Despite economic problems unified Germany is a significant trading nation and one of the leading exporters in the world. The country has a highly developed welfare system and a healthcare system which ensures a high level of medical care for all citizens. About 34 % of the population works in the industrial sector, approximately 3 % in agriculture and over 63 % in the service sector.

⁸ Gros, Jürgen. Wirtschaft. In: Weidenfeld, W. & Korte, K.-R., eds. (1999) Handbuch zur Deutschen Einheit: 1949-1989-1999. Bundeszentrale für politische Bildung. Schriftenreihe, Band 363. Bonn: Campus Verlag.

⁹ Statistisches Bundesamt Deutschland [Federal Statistical Office of Germany] (2002)
http://www.destatis.de/themen/d/thm_erwerbs.htm.

The head of the government - the chancellor - is chosen by a majority of the popularly elected lower house of the parliament, the Federal Assembly, usually by a coalition of parties. The federal parliament consists of the Federal Assembly and the Federal Council. The Federal Assembly is popularly elected at intervals of no more than four years. The 68 members of the Federal Council are appointed by the 16 state governments. Representation is determined by the amount of population, with each state having no less than three and no more than six seats.

5.2 Per Capita Consumption, main beverages and drinking patterns

Germany remains a country of high per capita alcohol consumption. The most commonly consumed beverages are beer (consistently around 60%) and wine (about one-fifth of total consumption), followed by spirits (about one-fourth of total consumption) and sparkling wine.

Total alcohol consumption increased in Germany consistently until the first half of the 1970s. In the second half of the 1970s, total alcohol consumption was about 12.5 litres per capita. Since then total alcohol consumption has been slightly decreasing, and in the late 1990s it was about 10.5 litres pure alcohol per capita. The development in terms of consumption of beer, wine and spirits separately has been largely similar. The consumption of beer, wine and distilled spirits increased up to the mid-1970s, after which it decreased.

Germany has a mixed drinking culture. The political, economic and cultural divide between East and West which lasted nearly 50 years allowed a veritable spirit drinking culture to develop. Recent studies indicate that East-West differences, particularly in terms of spirits consumption, have declined substantially, other studies still find evidence of differences. Analyses also have shown a “north-south” difference in drinking style indicating that those in the south experienced more beer and less wine.

Alcohol is consumed regularly by both men and women, though women are more likely to be abstinent than men. According to a 1997 national study of 18-59-year olds, 8.8% of women and 5.5% of men were lifetime abstainers.¹⁰ Low-risk consumption (under 20/30grams) is about equal among men and women, at around 60% according to 2000 data.¹¹ Concerning consumption considered to be hazardous (20/30+ grams): In 2000 23.6% men and 11.7% women were consuming more a level considered to be “hazardous”. Compared to 1995 and 1997, men’s hazardous consumption appears to be constant, while women’s has increased from 9.5%.

Regional differences appear to have decreased between eastern and western Germany, though gender differences in alcohol consumption remain: men are more often current drinkers, drink more frequently and in larger amounts than women. In terms of beverage type, women are more likely to be

¹⁰ Bühringer, G., Augustin, R., Bergmann, E., Bloomfield, K., Funk, W., & Junge, B., Kraus, L., Merfert-Diete, C., Rumpf, H.-J., Simon, R. & Töppich, J. (2000). Alkoholkonsum und alkoholbezogene Störungen in Deutschland. In: *Schriftenreihe des Bundesministeriums für Gesundheit*. Baden-Baden: Nomos Verlagsgesellschaft.

¹¹ *ibid*

wine drinkers, while men are more likely to consume beer. Some narrowing of the gender gap can be seen, however, due to the increasing prevalence of regular alcohol use for females across cohorts.

5.3 Alcohol-related problems

An estimated 42,000 people die every year due to alcohol-related causes. Alcohol is involved in the deaths of around 13% of women and 25% of men between the ages of 35 and 65. Nearly one in four acts of violence involves alcohol.

In 1997 nearly 17% of traffic fatalities involved the use of alcohol. The number of alcohol-related traffic accidents resulting in personal injury was 32,888 or 8.6% of the total number of such accidents.

In 1999 there were 168,623 recorded cases of in-patient treatment for alcohol dependence, 8,416 for alcohol poisoning and 44,260 for alcohol psychosis.¹² In 1995 there were a total of 65,640 cases of treatment for chronic liver disease/cirrhosis.

5.4 Laws and programs concerning alcohol

Prevention programs are organized at the level of each of the 16 *Länder*. In the past 20 years, the state-level ministries concerned with health and social issues have made progress in addressing addiction issues and have worked toward putting structures in place aimed at prevention.

Age limits on the purchase and consumption of alcoholic beverages are regulated by a law for the protection of youth in public. In the current version of the 1985 law children and youth under 18 years of age are not allowed to purchase or consume distilled spirits, beverages containing distilled spirits, or food containing more than a small amount of distilled spirits. Other alcoholic beverages may be purchased or consumed by youth aged 16 years or older.

At special events serving of alcoholic beverages can be forbidden completely or partly if this is necessary to maintain public order. This regulation is applied e.g. at soccer games or concerts. The sale of distilled spirits in vending machines, the selling of alcoholic beverages to visibly intoxicated individuals, as well as the selling of non-alcoholic beverages in public houses are generally forbidden

The endangering of traffic by consumption of alcoholic beverages is regulated in the criminal code. According to the traffic law, driving a car under the influence of alcohol has been prohibited since 1973. In 1998, the federal legislature passed the 0.05 per cent BAC limit. A coordinated strategy of public information, legislative support, an increase in police controls, together with transparent sanctioning, has led to a decreased drinking and driving.

¹² Leune, Jost. (2003) Die Versorgung suchtkranker Menschen. In: Deutsche Hauptstelle gegen die Suchtgefahren, ed. *Jahrbuch Sucht 2004*, 137-150. Geesthacht: Neuland-Verlagsgesellschaft.

Germany has a system of various treatment approaches: out-patient, partially in-patient, in-patient and counselling centres. There are 1050 counselling centres and 6762 beds in detoxification units, 448 out-patient counselling centres and 11,312 beds available for fully in-patient detoxification.¹³

There appears to be little informal or formal social control of drinking. Getting drunk is not sanctioned, except when it is known that the drunk person must later drive. Social control is stronger for women than for men.

6 ISRAEL

Author: Giora Rahav

6.1 The country

Israel, as an independent state was established only in 1948. Since then it has undergone several changes. First, a series of wars and violent conflicts that changed it from a very small country, completely detached from its neighbouring countries to a state that occupies other territories, living at peace only with two of its neighbours. Second, the population has grown tremendously, from 1.2 mill. in 1949 to over 6 mill. This change was largely due to two major waves of immigration, one in 1949-1952, and the other in 1990-1995 (with some minor waves in between). This immigration has transformed the country from one dominated by immigrants from Eastern Europe to a heterogeneous population, with a large population of immigrants from North Africa and the Middle East. The composition of the population is nearly 80% Jewish, about 18% Arab (of which over 80% are Moslem), and about 2% foreign workers. Third, the country has changed from one dominated by new immigrants, to one dominated by native-born individuals. This change was highly correlated with a general gentrification. Finally, the country has changed its economic position, from a third world country to a modern one.

The last 15 years are particularly eventful. They include two periods of violent conflicts between Israel and the population of the occupied territories (the first *intifada*, 1987-1990, and the second one, 2000-present), with a period of high hopes for peace in between. The tensions between Israel and the Palestinians have led to a sharp drop in the number of Palestinians employed in Israel, and they were replaced mostly by foreign workers from all over the world. This was also a period of mass immigration from the former Soviet Union, which increased the country's population by more than 12% within a few years. Finally, this has been a period of one of the worst economic crises in country's history, with high rates of unemployment (sometimes higher than 10%) and declining national income.

¹³ Leune, Jost. (2003) Die Versorgung suchtkranker Menschen. In: Deutsche Hauptstelle gegen die Suchtgefahren, ed. *Jahrbuch Sucht 2004*, 137-150. Geesthacht: Neuland-Verlagsgesellschaft.

6.2 Drinking patterns

The main beverage categories today are beer (usually 4%-5% alcohol), wines (about 14%) and spirits (mostly vodka, arak, brandy and tequila (about 40-45 %). The past 20 years or so were a period of intensive changes in the alcohol consumption habits of the country. This may be indicated by a sharp rise in the number of pubs and bars, and the emergence of a "wine culture". The latter can be seen in the number of dedicated wine stores, wine critiques in some of the newspapers, wine tasting courses, the number of vineyards, etc. Beer drinking too has apparently become more common and is associated mostly with two subcultures: the subculture of youth (including adolescents) and that of foreign workers.

But alcohol drinking in Israel still largely follows the Jewish tradition of control and moderation. Thus, if as a guest you are asked whether you would like to drink something, it most often pertains to coffee or some soft drink. Drinking in general is mostly part of special occasions – celebrations, holidays, etc. Traditionally, wine was used to designate the Jewish Sabbath (Friday and Saturday nights) and holidays, when it was consumed mostly in small amounts. There were two exceptions: four glasses of wine with the Passover meal, and drinking to get drunk in the Purim festival. The latter was an atypical carnival in which exceptions became the rule, and getting drunk was typical, although it is the only one specified in that detail. However, recent trends include a growing tendency of young persons to drink beer as a part of social gatherings and to gather in pubs (where spirits are consumed in considerable amounts), more interest in quality wines, and large amounts of beer consumption by foreign workers, mostly on weekends.

While generally alcohol consumption is positively associated with socio-economic status, there are certain groups with their own patterns of consumption. The orthodox Jews consume mostly according to the aforementioned pattern, except that a large proportion (nearly two thirds) prefer drinking unfermented grape juice to wine. However, the emphasis on drinking to get happy during public celebrations and the multiplicity of such celebrations (partly due to the close-knit communities and large families) make the consumption on such occasions a relatively more significant part of their drinking. More pertinent to the present study is the fact that these are groups in which the difference between men's and women's consumption is relatively large.

Moslems, who constitute most of the Arab minority (and comprise about 16% of the population) are not supposed to drink alcoholic beverages. However, there is a strong undercurrent of defiance, particularly among adolescents and young men. Recent immigrants from the former Soviet Union (about 15% of the population) are apparently a group with drinking habits involving more intensive drinking. Finally, foreign workers, a phenomenon that emerged mostly during the 1990's, tend to drink in large amounts, mostly on the weekends.

While these seem to be the main drinking patterns among adults, one must note the emerging drinking patterns of adolescents and young adults. These groups often meet in pubs, bars and discotheques for social gatherings, which often involve alcohol consumption. Moreover, it seems that recent

immigration has brought with it a pattern of drinking spirits, or mixing beer and spirits in a spree of heavy episodic drinking.

6.3 Alcohol-related problems

Alcohol-related problems are not usually counted as such. Thus, there is only very limited information on the prevalence of alcohol-related symptoms. The general feeling is that alcohol is not a major problem. This attitude is based (among other things) on the unavailability of studies which would indicate otherwise, which in turn leads to further disinterest and to the low priority this topic gets when funding is considered. In fact, the major indications that alcohol problems are not merely a marginal phenomenon are circumstantial: (1) Newspapers report more and more cases of violence in pub areas and involving drunk individuals. They often report the presence of alcohol in road traffic accidents as well. (2) The police started doing random breathalyzer checks on Friday nights and certain holidays (including the night of December 31, although it is not a state holiday).

The general attitude toward drunkenness is highly negative. Accusations of men's violence (mostly toward their female partners) have increased sharply in the past decade or two. While this may be (at least partly) explained by changes in attitudes and procedures concerning violence in the family, the general tendency is to attribute it mostly to foreign workers and new immigrants from the former Soviet Union.

7 ITALY

Authors: Allaman Allamani and Fabio Voller

7.1 The country

Italy covers an area of 301,318 km² with a population of about 57 mill. of which 49% are men and 51% women, with 189.3 density per km². The dominant religion is Roman Catholicism. Italy, having joined the North Atlantic Treaty Organisation in 1949, and the European Coal and Steel Community in 1951, was one of the founders of the European Common Market in 1958, and it is part of the European Union.

The Italian parliament consists of a Senate and a Chamber of Deputies elected by popular election for five-year terms of office. Italy is divided into 20 regions, which are subdivided into 102 provinces and 8.101 municipalities. Each region is governed by a governor responsible to a popularly elected council.

The trend of the population distribution shows a progressive decline of the younger age group. Parallel there was an increase in all the other age classes, particularly among those older than 60 years. Older

women outnumber older men. Women tend to have fewer children, and family units are nowadays 2.6 on average.

Since the 1990s there was a wave of *immigrants*, mostly in the northern and central regions of Italy, mainly from Morocco, Albania, Philippines and Eastern Europe. Some statistics report the amount of about 1,700,000.

Even if the average level of *education* has increased, the population with tertiary level of education and with university degree is still low and the latest data show 1.4% of illiteracy. The male/female ratio gap is remarkably decreasing at the tertiary level, being about 2 in the 1970s and 1.5 in the 1990s.

During the 1950s the country changed from being predominately agricultural to being predominately industrial. While in the 1960s the percentages of employees that had been of 33% in agriculture, 33% in industry and 34% in the tertiary sector, they are in 1999 respectively 6%, 33% and 61%. . *Unemployment* rates have increased during the last 30 years: In the 1960s it was 7.3% of the female labour force, and 4.7% of the male force, in the 1990s the percentages were respectively 16.9 and 9.2.

At the end of the twentieth century Italy ranked among the top industrial countries in the world. Italian industries produce textiles, chemicals, motor vehicles, heavy machinery, electrical goods, and foodstuffs. Some 37% of Italy's land area is still devoted to crops, orchards or vineyards, and Italy is one of the leading nations in the production of grapes, wine, and olive oil. The tourist industry is well developed. Alcohol plays an important role: the global volume of business connected to the production and trade of alcoholic beverages is over 1% of the gross national product.

7.2 Beverage preferences and drinking patterns

Wine, which still equals about 75% of the total alcohol intake, is considered but one ingredient of the diet and is usually drunk everyday. Drinking wine daily during meals with the family was until a recent past a deep-rooted pattern. Beer was traditionally used more frequently during the warm season to quench thirst. Spirits (12% of total alcohol intake) are drunk occasionally at a friend's-home or in bars after a meal among the urban upper classes. Liquors and digestive drinks are often drunk in the lower social class and among women.

Table 2. Consumption of wine, beer, spirits in Italy from 1965 to 2000. Litres of alcohol capita (Osservatorio Giovani e Alcol, 2000)

	1965	1975	1985	1995	2000
Wine	11.31	10.69	8.30	6.41	5.8
Spirits	1.52	2.00	1.26	0.78	0.5
Beer	0.42	0.66	1.00	1.11	1.2
Total Alcohol	13.24	13.34	10.56	8.30	7.5

Wine, though in a decreasing trend, still is mainly drunk at home during everyday meals, and consumption in restaurants is increasing. The reduction has been compensated by an increase of more expensive high-quality wines, and to a minor extent of sparkling wines, often drunk on special occasions. In general, there is a notable decrease in drinking wine at lunchtime. According to tradition it was mandatory to offer wine to any male visitor, while by now hospitality consists of offering also a beer, an aperitif, a non-alcohol drink or a cake. In connection with family and other social rituals, as weddings, birthdays, work celebration, Christmas, wine is still the main beverage drunk.

Males consume on the average about three times more alcohol than females. Also the share of abstainers is higher among females: in 1998 non drinkers (last three months) were 15% among men and 30.2% among women.

Perception of excessive consumption, i.e. “feeling to have drunk a bit too much without getting drunk” is a condition experienced more than twice by 7.2% in 2000. The increase is mainly due to young people.¹

While Italians frequently taste wine in their childhood during some celebration or meal, they are initiated to drinking at a young age (10-14 years), often consuming a small amount of wine during meals at home. Since the 1960's the consumption of beer has steadily increased especially among young people, who drink it in the peer group but also in the family, while eating at a restaurant, and also out of the meals. Young consumers aged 15-24 contribute to the increase in perception of excessive consumption especially during the weekend. Also, 12% of them report one episode of drunkenness in the last three months (4.1% among the general population).

Alcohol intake is higher among residents of rural areas, blue collar workers, craftsmen and low educated people in general. To drink alcohol at the work site was not infrequent in Italy, even if nowadays is less frequent and smaller amounts are consumed. As to regional differences it is more

¹ Osservatorio Permanente sui Giovani e l'Alcool (2000) Gli Italiani e l'Alcool. Consumi, tendenze e atteggiamenti in Italia e nelle Regioni (The Italians and Alcohol. Consumption, Trends and Attitudes in Italy and in its regions) 4th Doxa National Survey – Bookn. 14, Casa Editrice Risa, Roma

common in the northern regions to drink spirits after meals than in the southern regions, where drinking wine at meals is more widespread.

The urban bars and cafés, often opening until late in the night and usually allowed to sell alcohol beverages, have undergone some changes since the 1990s: they now attract a mixed clientele sitting at a table. The types of drinks sold range from mineral water and coffee to spirits, wines and beer, and a cake or other light food can be consumed as well. The number of restaurants, pizzerias, “trattorias” (cheap restaurants), hotels, fast foods, bar and coffee houses allowed to sell alcohol beverages, was 210,000 in 1998.

7.3 Alcohol-related problems

Traditionally there was a wide-spread tolerance towards male alcoholics. Even today, when a drunkard is lying in the street, people tend to call emergency health services rather than the police. On the other hand a woman who abuses alcohol or who is an alcoholic is stigmatised. This difference among genders decreases among younger generations, at least in terms of heavy drinking.

According to one of the few studies, 18% of 2,354 patients admitted to hospital because of a road accident had BAC more than 0.50 g/l; other estimates give lower figures. Such data are lower than any other published international figures.

A study carried out by the Italian Society of Alcoholology estimated for 1994 that deaths attributable to alcohol amounted to about 36,000 persons per year, that is 6.6% of total deaths. Alcohol-related mortality, taking into account causes both directly and indirectly attributable to alcohol, including liver cirrhosis, showed a decrease in the decade 1983-1993 for both genders: age-adjusted male rates were 78.3 per 100.000 inhabitants in 1983, and 61.3 in 1993; age adjusted female rates were respectively 31.3 and 25.7.²

7.4 Laws and programs about alcohol

For many years, no interest in the issue of alcohol came from professionals, policy makers or public opinion. Alcoholism was generally considered a health problem concerning the individual and not the collective. This issue first received attention in 1972 by Alcoholics Anonymous, established in that year

² Cipriani, F., Landucci, S. (1999) Alcohol related Mortalità and Morbidity data Sources and a Tentative Analysis of Alcohol related Mortalità in Europe. In: Alcohol consumption and Alcohol Problems among Women in European Countries, Project Final Report, Institute für Medical Informatics, Biostatistics and Epidemiology, FU Berlin

in Rome. AA spread throughout Italy during the 1980s, together with another self-help group program that came from Croatia, called Clubs for Treated Alcoholics. After more than 10 years of discussion in the parliament, in 2001 a general policy law concerning alcohol-related problems was approved. It focuses on the re-organisation of the community addiction services and hospital centres specialised in treating alcohol problems and on stimulating preventive actions; it established the maximum blood alcohol concentration permitted when driving at 0.5 grams per litre; it regulated the advertising of alcohol beverages and prohibited to drink alcohol beverages in certain risky work settings. It now is forbidden to use and to provide alcohol beverages in those job environments that are risky for the people's health and safety.

At-risk drinking is considered by experts to be drinking an equivalent of more than an average amount of 40 grams of pure alcohol per day for a male, 20 for a female. According to available research, at-risk drinkers are about 10-20% of the general population. To cope with such a problem, since the 1980s, many alcohol educational programs in Italy were implemented especially in high schools. Recently some nation-wide campaigns focussed on the issue of drinking alcohol and driving.

After the European World Health Organisation Action Plan (1992) and the European Charter on Alcohol (1995) a few community action programs were implemented by some public health professionals in alliance with a few municipalities. Among them are a district and a small town southwest of Florence. The aims of both projects mentioned were to promote 'responsible drinking' and to bring about awareness of the risks implied when drinking. Eventually the projects, promoted by an alliance including health and municipal institutions, local police, general practitioners, community shops and associations, and self help groups demonstrated that a preventative community action on the alcohol issue was feasible in Italy.³

Alcohol dependent individuals in Italy are estimated at about 0.5-5% of the general population. Since the beginning of the 1990s several treatment programs have appeared in the country as a side activity of general medicine or gastroenterology units, drug addiction and psychiatric services. The Ministry of Health census identified 344 Alcoholic units with 33,000 clients in 1999. Presently out-patient services are growing to the detriment of in-patient clinics, and this may increase the amount of women in alcohol treatment. While in the 1980s the female/male ratio was 1:4, in 1995 it approached 1:1.9. In 2000 about 40,000 people, at least 0.07% of the population were estimated to be involved in either AA, other 12-step groups, or a Club for treated alcoholics.

³ Allamani, A. et al. (2004) La prevenzione dei problemi alcolcorrelati. In: Allamani, A., Orlandini, D., Bardazzi, G., Quartini, A., Morettini, A. (eds.) Libro Italiano di Alcolologia, volume secondo, SEE Editrice, Firenze

8 THE UNITED KINGDOM

Authors: Moira Plant and Martin Plant

8.1 The country

The United Kingdom (UK) consists of England, Northern Ireland, Scotland and Wales. The UK has a population of approximately 59,000,000. The UK economy has undergone some major upheavals during recent decades, with a substantial decline in 'traditional' manufacturing industry and the rise of service industries. The latter now provide much of the power behind falling unemployment. This stood at only 4.8% in July 2004, the lowest level since the 1970s. There has been a tendency for population to drift towards the more prosperous South East of Britain, while some areas in Northern Ireland, Scotland, Wales and Northern England have been experiencing much higher unemployment and associated chronic deprivation. The latter are also evident elsewhere, such as parts of inner London and Cornwall. Many agricultural areas are deeply depressed, having been hard hit by the low prices for their produce. Agricultural hardships have been compounded by disasters such as massive outbreaks of 'Mad Cow Disease' (bovine spongiform encephalopathy) and foot and mouth disease.

8.2 Beverage preferences and drinking patterns

The social consumption of alcohol is so deeply established in the culture of most parts of the UK that the question "would you like a drink?" is generally taken to refer to beverage alcohol.

Alcohol has been widely consumed throughout the British Isles for centuries. During Roman times wine was produced in a climate that was milder than at many times since. The main drinks consumed by the British during the past century have mainly been beers, ciders and spirits (for men) and wine and spirits for women. Whisky has long been produced in Scotland and in Ireland (where it is spelled 'whiskey'). Throughout the Twentieth Century most of the alcohol consumed was in the form of beer. Since 1970 beer consumption has declined, while wine consumption has risen. The variety of alcoholic beverages on sale has increased to an extent that is unprecedented. New drinks such as 'alcopops' and hitherto non-traditional drinks (in Britain) such as vodka and a rapidly growing range of wines have become commonplace. Traditional dark beers have increasingly been replaced by lighter lager style beers and the total number of alcohol retail outlets has increased substantially. Per capita alcohol consumption almost doubled between the end of WWII and 1979. Since then it has not changed dramatically. Even so, it has been increasing. It rose from 7 litres in 1997 to 7.8 litres in 2000.¹

It is clear that some groups of the population have increased their alcohol consumption. These include teenagers and women.² In particular 'binge' (high periodic) drinking among young women has recently

¹ British Beer & Pub Association (2002) Statistical Handbook: A Compilation of Drinks Industry Statistics, London

² Miller, P., Plant, M. A. (2001) Drinking and smoking among 15 and 16 year olds in the United Kingdom: a re-examination. In: Journal of Substance Use, volume 5

emerged as a cause for concern. In fact, heavy alcohol consumption, especially during weekend evenings, has long been a British tradition. The European School Survey Project on Alcohol & other Drugs (ESPAD) has produced comparative information about the alcohol consumption of 15 and 16 year old school students. Those in the UK, like those in a number of other countries in North West Europe, were most likely to drink in periodic binges, to report having experienced adverse effects due to drinking, but also to report the most positive expectancies concerning drinking.

Sexism is apparent in relation to drinking. Even young children have been shown to disapprove more of adult females drinking than they do of drinking by males.³ There have undeniably been growing opportunities and freedoms for women in Britain, even though major gender inequalities persist. Adult men are still marginally more likely to drink than women. In addition, males have generally higher rates of alcohol-related problems than women. The recent rise in heavy drinking (commonly referred to as binge drinking) by women has provoked a predictable overreaction from the mass media. There is a clear double standard here since it is often implied that drunkenness is acceptable among men, for shameful for women.

8.3 Alcohol-related problems

Information about adults obtained by the UK GENACIS survey indicated that almost all those surveyed reported enjoying their alcohol consumption experiences, even if these had involved adverse consequences. These findings underline the fact that drinking (and its ill effects) is normative and widely enjoyed. The UK GENACIS study indicated further that some adverse effects, such as hangover were reported by large majorities of drinkers, while others such as relationship conflicts and problems, accidents, and illness were only reported by a minority.

More serious alcohol-related problems have been increasing. Such problems include deaths from alcohol-related liver disease and hospital admissions for alcohol dependence.⁴ The numbers of those convicted of drinking and driving has risen massively. Between 1960 and 2000 these numbers rose from 8,297 to 82,508 (England, Scotland and Wales). The numbers of positive breath tests involving drivers who had been in British accidents rose from 1.7% of accidents to 2.2% of accidents over the period 1969 - 2000. It should be noted that this is both a reflection of drinking habits and the proliferation of motor vehicles. In contrast, the numbers of those convicted of public drunkenness offences have been steadily falling (down from 85,808 in 1964) to 45,768 in 2000. Alcohol consumption, particularly heavy drinking, is clearly associated with crime in general and violence in particular. Moreover, heavy drinking is associated with experience of family problems, smoking and illicit drug use and childhood and adult sexual abuse. The latter fact has been underlined by the findings of the UK GENACIS survey.

Plant, M.L., Plant, M.A. (2001) Heavy drinking by young British Women gives cause for concern. In: *British Medical Journal*

³ Jahoda, G., Cramond, J. (1972) *Children and Alcohol : a developmental Study* in Glasgow, HMSO, London
Fossey, E. (1994) *Growing up with Alcohol*, Tavistock/ Routledge, London

⁴ Academy of Medical Sciences (2004) *Calling Time: The Nation's Drinking as a Health Issue*, London

8.4 Laws and Policies

The UK has laws related to problems such as public disorder and alcohol-impaired driving. There is also an extensive network of over 300 'councils on alcohol' (voluntary counselling agencies) as well as National Health Service Alcohol Clinics, and a variety of private treatment agencies, some of which offer residential facilities. In addition, Alcoholics Anonymous is well established and there are also groups of Al-Anon and Al Ateen. Most of these agencies have been set up since the 1960s, though AA probably arrived in the UK during the Second World War. The sale of alcoholic drinks is regulated by licensing laws, and it is generally illegal for those aged under 18 years to buy or consume alcohol in licensed premises. Even so the legal permitted age for alcohol consumption is five years. In fact it appears that the laws to control under aged drinking in bars and the serving of bar patrons who are intoxicated are seldom enforced. Until recently most areas did not even have an overall alcohol policy. England was the last to produce such a policy, though this has been widely criticised. Like its Scottish predecessor, this strategy places great reliance upon generally unproductive alcohol education. It has no specific targets or deadlines and appears unlikely to lead to a tangible decrease in alcohol-related problems.⁵

9 SUMMARY

The country reports differ greatly – in the topics selected, in the material used and in the developments described - representing the diversity of alcohol-related phenomena also within a culturally relatively homogeneous area when a gender perspective is taken. Nevertheless there are a few common results that will be summarized and a lot of open research question arising from the reports.

Similar to the quantitative analysis of drinking patterns across countries (Mäkelä et al. in this report) some of these country reports indicate a **convergence of alcohol consumption of men and women**. The convergence seems to have started few decades ago, presumably in the 1970s, when the post-war increase of alcohol consumption levelled off in most European countries. The process of convergence seems to differ greatly between the countries concerning onset and intensity, and it also seems to differ greatly with respect to the segments of the population carrying it: In Finland – as partly in Austria - it was especially rural women who were no longer abstaining and who were increasing consumption; in France it seems to be women from higher strata at present drinking the most; in Finland it seems to be mostly the women who approached the men, in Austria it seems to have been the other way round. The process of convergence is still very unclear, it deserves more investigation especially when it comes to the segments of the population who changed their drinking habits the most.

⁵ Plant, Martin. A. (2004) The alcohol harm reduction strategy for England: Overdue report omits much that was useful in interim Report, In: British Medical Journal

The convergence does not go too far: **gender-specific differences remain large**, indicating that it is not to be expected that they will disappear. They remain especially big – or even become more pronounced- as for instance with beverage preferences and with more extreme drinking habits, e.g. intensive drinking and intoxication. Women in different European countries nevertheless seem to differ in respect to their adoption of some forms of extreme drinking habits: In Finland, Germany and Great Britain women for instance get more often intoxicated, whereas in other countries this does not seem to be the case. More investigation is needed into the culturally specific most stable parts of the gender differences on the one hand and into their re-confirmation under special socio-economic events and circumstances on the other.

Men suffer from alcohol-related problems more than women, irrespective of the kind of problems, though with some problems convergence is observed. But in detail the cultural - gender specific problem patterns and their development are very unclear and need much more investigation. Special attention should be given to the national reporting systems – upon which our knowledge on problems relies – and to the informal reactions, which also differ greatly between the countries. (The stigma given to heavy drinking women seems to vary considerably between the countries.)

The development of alcohol related measures and policies after WWII differs strongly between European countries: Continental and Southern European countries have tended to remarkably extend and tighten up their measures, in the Nordic countries a certain liberalisation of alcohol policies can be observed. In no country were alcohol-related policy measures formulated in a gender perspective, but in most countries the persons addressed by them seem to have been male. The “norm person” guiding the establishment of alcohol-related measures is one interesting and important research question, the effects of different alcohol-related measures on both sexes is another one.

Appendix A1: Recommendations for the use of drinking indicators.

Drinking status (“beverage specific” means “calculation across beverages but single indicator”)

Country	Code	Var name	Remark
Switzerland	01	Drin1_01	Lifetime abst. (LA), former drinkers (FD), drinkers (D)
Germany	02	Drin5_02	LA, FD, D; uses nodd_02; 12-month
Italy	03	Drin5_03	LA; FD; D; a mixture of beverage specific questions was used; 12 month
France	04	Drin5_04	LA; FD; D; uses beverage specific questions; 12 month
Spain	05	Drin1_05	12-month abstainers ; drinkers
UK	06	Drin5_06	LA; FD; D; uses 2 questions to separate former drinkers; 12 month
Israel	07	Drin5_07	12-month abstainers, drinkers based on beverage-specific questions,
Mexico	08	Drin5_08	LA; FD; D; two questions used to separate former drinkers; 12 month
Sweden	09	Drin1_09	LA; FD; D
Finland	10	Drin1_10	LA; FD; D
Norway	11	Drin5_11	LA; FD; D; based on beverage-specific abstention; 12-month
Netherlands	12	Drin1_12	LA; FD; D
Austria	13	Drin5_13	Lifetime abstainer; drinkers; based on 7-days; missing values imputed from 3 month measure; note “abstainers in the past three month but drinkers in the past” were set to an annual frequency of 2 drinking days, but may contain former drinkers.
Czech Republic	14	Drin5_14	LA, FD, D; Based on beverage specific abstinence and lifetime abstention; 12 month
Hungary	15	Drin5_15	LA;FD;D based on crosschecks of several variables; 12 month
Russia			
Brazil	17	Drin1	LA;FD;D ; uses core questions
Iceland	18	Drin1_18	LA ; FD ; D
Denmark	19	Drin1_19	LA ; FD ; D ; based on generic consumption
Sri Lanka	20	Drin1	LA;FD;D ; uses core questions
Nigeria	21	Drin1	LA;FD;D ; uses core questions
Kazakhstan	22		
Argentina	23	Drin1	LA;FD;D ; uses core questions
Canada	24		
USA 1	25	Drin1	LA;FD;D uses core questions
USA 2	26	Drin1_26	LA;FD;D,
Uganda	27	Drin5_27	LA;FD;D ;uses core questions, but needed modifications due to inconsistent answers on other questions ; 12 month
Japan	28	Drin5_28	LA;FD;D ; uses two question not equal to core ; 12 month
Costa Rica	29	Drin1	LA;FD;D ;uses core questions
India	30		
Australia	31		
ECAS	32-37	Drin1_32 – Drin1_37	12-month abstainers, drinkers based on beverage-specific questions

Annual frequency (“beverage specific” means “calculation across beverages but single indicator”) Attention sometimes to avoid consistency it might be preferable to use NODD instead of GEFR, particularly for volume measures based on beverage-specific questions

Country	Code	Var name	Remark
Switzerland	01	Gefr1_01	Note, Nodd__01 should be used with beverage specific volume (bsvo1_01)
Germany	02	Gefr5_02	Uses mixture questions; note, nodd__02 should be used with beverage specific volume bsvo1_02
Italy	03	-	Not possible from our point of view
France	04	Nodd__04; alternative	Maximum of beverage specific frequencies; 7 days; This measure PROBABLY goes best together with quantity and volume as alternative use maximum of beverage specific befr5_04; wifr5_04; sprfr5_04; oaf5_04; which are mixtures of 12 month and 7 days frequencies
Spain	05	Gefr1_05	
UK	06	Gefr1_06	
Israel	07		Israel asks for beverage specific occasions (e.g. 30+ occasions past month), thus there is no clear way to use frequencies in terms of days; but something was constructed using yearly and monthly beverage specific frequencies bsoc5_07; but this is not recommended!
Mexico	08	Gefr1_08	
Sweden	09	Nodd__09	Mixture of beverage specific frequencies and AUDIT frequencies; note, volume for full sample is based on AUDIT questions, hence gefr6_09 (AUDIT-frequencies) is an alternative
Finland	10	Gefr1_10	There is an alternative based on AUDIT
Norway	11	Nodd__11	Based on maximum of beverage specific frequencies
Netherlands	12	Gefr1_12	Uses a mixture of weekend days and workdays, but could not get the label gefr5 as this is reserved for another mixture variable, note Gefr5_12 would be better because it adjusts for 6+ frequencies if those were higher than usual frequencies. As this was not done for other countries for comparability we recommend gefr1_12
Austria	13	Gefr5_13	Mixture: Frequency in the past 7 days were used and for weekly non-drinkers frequencies in the past 3 month were imputed; (frequencies based on 7 days and 3 month are given in separate variables)
Czech Republic	14	Gefr1_14	Note, for combining frequencies with volume nodd__14 is more appropriate (see below)
Hungary	15	Gefr5_15; Nodd__15	Both variables are identical; frequency past 30 days; if there is none, frequency of past 12 month is imputed
Russia			
Brazil	17	Gefr1	Note, Nodd__17 is an alternative
Iceland	18	Gefr1_18	Note, nodd__18 is an alternative
Denmark	19	Gefr1_18	Note, nodd__19 is an alternative
Sri Lanka	20	Gefr1	Note, nodd__20 is an alternative, but very similar
Nigeria	21	Gefr1	Note, nodd__21 is an alternative for beverage specific volume, But very similar
Kasakhstan			

Argentina	23	Gefr1	Note, nodd__23 is an alternative for beverage specific volume, but very similar
Canada	24		
USA 1	25	Gefr1_25	Note, nodd__25 is an alternative for beverage specific volume,
USA 2	26	Gefr1_26	Note, nodd__25 is an alternative for beverage specific volume but beverage specific volumes are based on Knupfer series
Uganda	27	Gefr1	Note, nodd__27 is an alternative for beverage specific volume
Japan	28	Gefr1_28	Uses imputation from GF like measure for missing values
Costa Rica	29	Gefr1	Note, beverage specific volume is higher than generic, thus nodd__29 is an alternative
India	30		
Australia	31		
ECAS	32 - 37	Nodd_32 – Nodd_37	Maximum of beverage specific frequencies last 12 months (befr1_04, wifr1_04, spfr1_04, and all except for Italy oaf1_04)

Usual quantity (“beverage specific” means “calculation across beverages but single indicator”)

Country	Code	Var name	Remark
Switzerland	01		Can be created by taking volume divided by nodd__01
Germany	02		Can be created by taking volume divided by nodd__02
Italy	03		Not possible
France	04	Bsqu5_04	Mixture of beverage specific quantities “Yesterday” and generic quantity “last Saturday”
Spain	05	Bsqu1_05	Sum of beverage specific quantities on “usual drinking day”
UK	06	Gequ4_06; alternative	Not recommended! Only last drinking occasion; one could use “annual volume” divided by gefr1_06
Israel	07	Gequ4_07	Not recommended! Only last drinking occasion;
Mexico	08	Gequ1_08	
Sweden	09	Gequ6_09	Based on AUDIT-type questions; only this is available for the full sample; for subsamples beverage specific volume divided by Nodd__09 is recommended
Finland	10	Gequ6_10	Based on AUDIT, an alternative can be created by dividing volume by nodd__10
Norway	11	Bsqu4_11	Not recommended!!! Uses last drinking occasion; => construct bsvo5_11 divided by nodd__11
Netherlands	12	Gequ1_12	Based on mixture of weekend and workday quantities; same note as for frequencies applies here (gequ5_12)
Austria	13	gequ3_13	Standard drinks past 7 days (asked with retrospective weekly drinking diary) divided by drinking days past 7 days of this diary
Czech Republic	14		Can be calculated by dividing volume by nodd__14

Hungary	15	Bsqu5_15	Quantity based on last drinking occasion with imputation for missing values according to medians for complete cases, stratified by frequencies of drinking, NOTE BSQU1_15, AND BSQU2_15 ARE BOTH BASED ON LAST DRINKING OCCASION BUT MEDIANS WERE IMPUTED BASED ON 12 MONTH FREQUENCIES RESP. 30DAYS FREQUENCIES
Russia			
Brazil	17	Gequ1	
Iceland	18	Gequ1_18	In addition, a usual quantity can be calculated from sum of beverage specific volumes divided by nodd__18
Denmark	19	Gequ1_19	In addition, a usual quantity can be calculated from sum of beverage specific volumes divided by nodd__19
Sri Lanka	20	Gequ1	Alternative calculated from beverage specific volume divided by nodd__20 is possible, but lower
Nigeria	21	Gequ1	Alternative calculated from beverage specific volume divided by nodd__21 is possible, and results in higher values
Kasakhstan			
Argentina	23	Gequ1	Alternative calculated from beverage specific volume divided by nodd__23 is possible, and results in higher values
Canada	24		
USA 1	25	Gequ1_25	Note, bsvo2_25 divided by nodd_25 is an alternative, but based on past 30 days only; Volume for the beverage specific measure is higher but also its frequency and thus quantity per drinking day is lower
USA 2	26	Gequ1_26	Note, bsqu5_26->beverage specific volume based on Knupfer series divided by nodd__26 is an alternative
Uganda	27	Gequ1	Note, beverage specific volume (bsvo1_27) divided by nodd__27 is an alternative but results in similar values
Japan	28	Gequ1_28	
Costa Rica	29	Gequ1	Note, beverage specific volume (bsvo1) is higher thus bsvo1/nodd__29 is an alternative
India	30		
Australia	31		
ECAS	32-37		Can be created by taking volume divided by nodd__32 to nodd_37; not recommended (no generic frequency available)

Nodd: Variable used to calculate grams per drinking day if no other drinking frequency exists (“beverage specific” means “calculation across beverages but single indicator”)

Country	Code	Var name	Remark
Switzerland	01	Nodd__01	maximum of generic frequency and beverage specific frequencies
Germany	02	Nodd__02	maximum of generic frequency and beverage specific frequencies
Italy	03		Not possible
France	04	Nodd_04; alternative	See annual frequencies above
Spain	05		
UK	06	Nodd_06	= gefr1_06
Israel	07		Not possible, but see annual frequency
Mexico	08	Nodd__08	Uses maximum of gefr_08 and beverage specific frequencies based on GF-type of questions, NOT RECOMMENDED
Sweden	09	Nodd_09	See note for annual frequency
Finland	10	Nodd__10	Maximum of generic and beverage specific frequencies
Norway	11	Nodd__11	See note for annual frequencies
Netherland	12		Nodd__12 exists but should only be used together with gevo5_12; this is not recommended for comparative reasons, because only for the Netherlands volume and frequencies are adjusted for frequencies of drinking 6+ more often than usual frequencies indicate
Austria	13	-	Nothing recommended here, too inconsistent database
Czech Republic	14	Nodd__14	Maximum of generic frequency and beverage specific frequencies
Hungary	15	Nodd_15	Same as gefr5_15 (see above)
Russia			
Brazil	17	Nodd_17	Maximum of generic and beverage specific frequencies; recommendable in Brazil because beverage specific frequencies are partly higher than generic (e.g. for wine)
Iceland	18	Nodd__18	Maximum of generic and beverage specific frequencies; recommended because of higher beverage specific frequencies compared with generic frequencies
Denmark	19	Nodd_19	Maximum of generic and beverage specific frequencies; recommended because of higher beverage specific frequencies compared with generic frequencies
Sri Lanka	20	Nodd__20	Maximum of generic and beverage specific frequencies; to use with volume based on beverage specific measure
Nigeria	21	Nodd__21	Maximum of generic and beverage specific frequencies; to use with volume based on beverage specific measure
Kazakhstan			
Argentina	23	Nodd__23	Maximum of generic and beverage specific frequencies; to use with volume based on beverage specific measure
Canada	24		

USA 1	25	Nodd_25	Maximum of generic (12 month) and beverage specific frequencies (30 months); both projected to annual frequencies
USA 2	26	Nodd__26	Maximum of generic and beverage specific frequencies (based on Knupfer series)
Uganda	27	Nodd__27	Maximum of generic and beverage specific frequencies
Japan	28	-	
Costa Rica	29	Nodd__29	Maximum of generic and beverage specific frequencies
India	30		
Australia	31		
ECAS	32-37	Nodd_32 - Nodd_37	Maximum of beverage specific frequencies

Annual volume (“beverage specific” means “calculation across beverages but single indicator”)

Country	Code	Var name	Remark
Switzerland	01	Bsvo5_01	Sum of beverage specific volumes
Germany	02	Bsvo5_02	Sum of beverage specific volumes
Italy	03	Bsvo5_03	Sum of beverage specific volumes
France	04	Bsvo5_04	Uses usual quantity and nodd_04; alternative could be used (see above)
Spain	05	Bsvo1_05	Multiplication of gefr1 and usual quantity
UK	06	Gevo5_06	Uses volume based on last week and imputes missings from last occasion
Israel	07	Bsvo5_07	Uses generic quantity and beverage specific occasions (see annual frequency and usual quantity)
Mexico	08	Gevo1_08	There is in addition a measure on generic graduated frequency (GF) and a measure on beverage specific type of GF, we do not recommend both GF-type of questions
Sweden	09	Gevo6_09	Note, this is the only volume for complete dataset; for subsample beverage-specific measure is recommended (bsvo1_09); for a subsample also volume based on GF is available
Finland	10	Bsvo1_10	Sum of beverage –specific volumes,
Norway	11	Bsvo5_11	Sum of beverage specific volumes; 5 stands for use of frequencies with response options for either week or month or year= mixture)
Netherlands	12	Gevo1_12	Based on weighted quantities workdays and weekend days
Austria	13	gevo3_13	Volume based on past 7 days measure
Czech Republic	14	Bsvo1_14	Sum of beverage specific volumes
Hungary	15	Bsvo5_15	Usual quantity multiplied by Nodd_15
Russia			
Brazil	17	Gevo1	Note, sum of beverage specific volumes is available only for a subset
Iceland	18	Bsvo1_18	Note, generic volume also exists (gevo1_18); beverage specific volume should be used with nodd_18
Denmark	19	Bsvo1_19	Note, generic volume also exists (gevo1_19); beverage specific volume should be used with nodd_19

Sri Lanka	20	Gevo1	Alternative based on beverage specific measures is possible but results in lower volume
Nigeria	21	Bsvo1_21	Alternative based on generic measure is available but results in lower volume, FOR USUAL QUANTITIES IT SHOULD BE USED WITH NODD__21
Kazakhstan			
Argentina	23	Bsvo1	Alternative based on generic measure is available but results in lower volume, FOR USUAL QUANTITIES IT SHOULD BE USED WITH NODD__23
Canada	24		
USA 1	25	Gevo1_25	Note, beverage specific volume is higher (bsvo2_25); We would recommend this, but it is based on 30 days only and it needs nodd_25 (see above) to calculate quantity per drinking day.
USA 2	26	Gevo1_26	Note, beverage specific volume (and quantity per drinking day) is higher, but based on Knupfer series.
Uganda	27	Bsvo1_27	Note, generic measure gevo1 is an alternative with slightly lower volume; beverage specific volume (bsvo1_27) needs Nodd__27 for usual quantities
Japan	28	Gevo1_28	
Costa Rica	29	Bsvo1	Note, gevo1 is an alternative but results in lower volumes, Bsvo1 needs nodd__29 for quantities per drinking day
India	30		
Australia	31		
ECAS	32 - 37	Bsvol1_32 - Bsvol1_37	Sum of beverage specific volumes

GF

Country	Code	Var name	Remark
Switzerland	01	-	-
Germany	02	-	-
Italy	03	-	-
France	04	-	-
Spain	05	-	-
UK	06	-	-
Israel	07	-	-
Mexico	08	Gffr1_08; Gfvo1_08;	Additionally; GF exists beverage specific; for all there are frequencies, usual quantities and volumes based on GF are available or can be constructed by dividing volume by frequencies; all measures were capped for drinkers with frequencies exceeding 365 drinking days
Sweden	09	Gffr1_09; gfvo1_09	Available only for a subsample
Finland	10	Gffr1_10; gfvo1_10	Usual quantities can be constructed by dividing volume by frequency; all measures are capped
Norway	11	-	
Netherlands	12	-	
Austria	13	-	

Czech Republic	14	-	
Hungary	15	-	
Russia			
Brazil	17	Gffr1;gfvo1	Note, huge discrepancies in performance across subsamples, valid probably only for subsample B
Iceland	18		Exists for a subsample of 135 cases with mail questionnaire: thus, we did not include GF
Denmark	19	-	-
Sri Lanka	20	Gffr1; gfvo1	Probably poor
Nigeria	21	Gffr1; gfvo1	
Kazakhstan			
Argentina	23	Gffr1;gfvo1	
Canada	24	-	
USA 1	25	-	
USA 2	26	Gffr1; gfvo1	
Uganda	27	Gffr1; gfvo1	Not recommended, clearly inferior than other measures, probably only frequencies for highest quantities are reported
Japan	28	-	
Costa Rica	29	Gffr1; gfvo1	Not recommended, clearly underestimates volume and frequencies
India	30		
Australia	31		
ECAS	32 - 37	-	-

Grams per day

Use annual volume divided by 365

Grams per drinking day

Country	Code	Remark
Switzerland	01	Can be created by dividing volume by Nodd__01
Germany	02	Can be created by dividing volume by Nodd__02
Italy	03	Not possible
France	04	Use "usual quantity" above
Spain	05	Use usual quantity above
UK	06	Use annual volume divided by nodd__06, see usual quantity
Israel	07	Not possible
Mexico	08	use gequ1_08, others can be constructed based on GF by dividing volume by corresponding frequencies
Sweden	09	For full sample use gequ6_09, for subsample either use bsvo1_09 divided by nodd__09; or gfvo1_09 divided by gffr1_09
Finland	10	Use bsvo1_10 divided by nodd_10; additionally AUDIT measures can be used
Norway	11	See note on usual quantity, construct by dividing bsvo5_11 by nodd__11
Netherlands	12	Use usual quantity
Austria	13	Use usual quantity
Czech Republic	14	Use usual quantity (bsvo1__14/nodd__14)
Hungary	15	Same as usual quantity
Russia		
Brazil	17	Use volume divided by generic frequency; for volume as sum of beverage specific volumes use nodd__17 (only subsample)

Iceland	18	Either use usual generic quantity, or beverage specific volume with Nodd__18
Denmark	19	Same as usual quantity, but beverage specific volume divided by nodd__19 is a good alternative
Sri Lanka	20	Same as usual quantity
Nigeria	21	Same as usual quantity, but beverage specific volume divided by nodd__21 is a good alternative
Kazakhstan		
Argentina	23	Same as usual quantity, but beverage specific volume divided by nodd__23 is a good alternative
Canada	24	
USA 1	25	Either use usual quantity (gequ1__25) or beverage specific volume (bsvo2__25) divided by nodd__25
USA 2	26	See usual quantity;
Uganda	27	See usual quantity;
Japan	28	See usual quantity
Costa Rica	29	See usual quantity
India	30	
Australia	31	
ECAS	32 -37	Can be created by dividing volume by Nodd__32 to Nodd__37; not recommended (because generic frequency is missing)

Annual frequencies of Heavy episodic drinking (binge; RSOD)

Country	Code	Var name	Remark
Switzerland	01	Bing1__01	8+ (about 80 grams) for men and women
Germany	02	Bing5__02	5+ (about 70 grams) for men and women
Italy	03	-	-
France	04	-	-
Spain	05		Something can be constructed by using the maximum quantity (bsqux__05) and the frequency of maximum quantity (gefrx__05), but it is not a 5+ measure but frequency of maximum number of drinks, but is not recommended
UK	06	-	-
Israel	07	Bing2__07	5+ (about 60 grams)
Mexico	08	Bigf1__08	5+ (about 65 grams)
Sweden	09	Bing6__09	6+ (about 72 grams) for total sample; for subsample 5+ based on GF exists (about 60 grams) for men and women
Finland	10	Bing6__10	6+ (about 60 grams); Additionally, 5+ measure from GF can be used
Norway	11	Bing5__11	Uses maximum of beverage-specific frequencies of drinking 2 l beer, or ¾ l wine or 1/3 l of spirits, thus there is no measure for combinations of beverages (e.g. 1 l of beer and ½ l of wine)
Netherlands	12	Bing1__12	6+glasses (about 60 grams)
Austria	13	-	
Czech Republic	14	Bing1__14	5+glasses, Attention questions asks for 5 Glasses of pints or 5 2dl of wine or 5 shots of spirits (cutoff is about 90 grams); there is no measure for combination of beverages (e.g. 3 beers and 2 shots of spirits), thus there is no 5+ measure for beverages combined

Hungary	15	Bing1_15	Capped (max=365 days) sum of frequencies drinking 3-5 and 6+ drinks; a drink is about 20 grams, thus, cutoff is about 60 grams
Russia			
Brazil	17	Bigf1	5+ (60 grams)
Iceland	18	Bing1_18	5+ (65 grams)
Denmark	19	Bing1_19	6+ (about 75 grams - one bottle of wine or more (71g), 24cl of spirits (72g), or 6 bottles of beer (78g))
Sri Lanka	20	Bigf1	5+ (60 grams); probably poor
Nigeria	21	Bigf1	5+ (60 grams)
Kazakhstan			
Argentina	23	Bigf1	5+ (60 grams)
Canada	24		
USA 1	25	-	
USA 2	26	Bigf1	5+(60 grams); bing5_26 is an alternative outside the GF measure, but results in lower frequencies
Uganda	27	Bigf1	5+(60 grams), see comments for GF measures in general, might be poor and underestimate frequency
Japan	28	Bing5_28	6+(72 grams); uses sum of frequencies for 6-9 units and 10+ units, capped
Costa Rica	29	Bigf1	5+ (60 grams), see note for GF measure in general
India	30		
Australia	31		
ECAS	32 - 37	Bing1_32 – Bing_37	about 75 grams: One bottle of wine or more (60 grams); equals 25 cl of spirits (75 grams) or 4 pints of beer (90 grams)

Beverage specific measures (beverage specific means available for each beverage separately)

Country	Code	Remarks
Switzerland	01	Beverage specific frequencies; quantities; and volumes
Germany	02	Beverage specific frequencies; quantities; and volumes
Italy	03	Beverage specific volumes
France	04	Beverage specific frequencies with different reference periods; quantities "yesterday"; volumes based on yesterday and frequency last 7 days
Spain	05	Not included in workdeck; some measures exist but are usually not comparable; e.g. beverage specific quantities on Saturdays and Workdays
UK	06	-
Israel	07	Beverage specific annual drinking OCCASIONS (not days)
Mexico	08	Beverage specific quantities, frequencies, and volumes based on GF
Sweden	09	For subsample only: frequencies, quantities and volumes
Finland	10	Quantities, volumes, frequencies
Norway	11	Last drinking occasions, and volumes, frequencies and quantities
Netherlands	12	No beverage specific measures
Austria	13	Quantities yesterday
Czech Republic	14	Beverage specific frequencies, quantities and volumes
Hungary	15	Beverage specific quantities last drinking occasions
Russia		

Brazil	17	Frequencies, volumes available only for subsample; quantities for both subsamples
Iceland	18	Beverage specific frequencies, quantities and volumes
Denmark	19	Beverage specific frequencies, quantities and volumes
Sri Lanka	20	Beverage specific frequencies, quantities, and volumes
Nigeria	21	Beverage specific frequencies, quantities, and volumes
Kazakhstan		
Argentina	23	Beverage specific frequencies, quantities, and volumes
Canada	24	
USA 1	25	Beverage specific frequencies, quantities, and volumes based on past 30 days
USA 2	26	Beverage specific frequencies (12 month measure), quantities, and volumes based on Knupfer series
Uganda	27	Beverage specific frequencies, quantities, volumes
Japan	28	-
Costa Rica	29	Beverage specific frequencies, quantities, volumes
India	30	
Australia	31	
ECAS	32 - 37	Beverage specific frequencies, quantities, volumes

Appendix A2: How to read the codebook?

Cookbook GENACIS Version 1.0

Sandra Kuntsche & Gerhard Gmel

Here you will find some general rules which may help to read and to create a GENACIS codebook and the corresponding appendix. The codebook is organized according to the core questionnaire. For each question of the core the corresponding questions of each country are listed. The appendix contains a) country-specific variables used to construct a comparable core question, and b) other variables that are related to alcohol consumption or are of general interest for the study, but have no corresponding question in the core. Examples will be given below.

In principle, we deal with four different major types of variables.

Only three of them can be found in the codebook, the fourth type describes variables that are not related to the core questionnaire, but have some relevance as regards alcohol consumption. These variables can be found in the appendix and are called “additional variables”. Their variable names begin all with “add” for “additional”. The additional variables will be described at the end of this Cookbook.

The remaining three major types have a common structure. No panic, for all types we will give examples. Types are called “good”, “bad”, and “worse”. Note that the fourth type is “additional” variables.

First, however, we explain the general structure of the variable labels. This structure consists of:

- a) **Mandatory:** the “root” of each variable label = 4 characters (position 1-4 of variable label)
[EXAMPLE: SEDU]
- b) **Optional:** some variables consist of subquestions or multiple response questions (sub/mult). For each subquestion or multiple answer category 1 additional character (a to z) is reserved for the variable label (position 5 of variable label) [EXAMPLE: SPLWA, SPLWB, SPLWC]
- c) **Optional:** some variables differ from the core and therefore get a country-specific code (position 6 and 7 of the variable label) [EXAMPLE: SEDU_10]
- d) **Optional:** there is no single corresponding variable (or sub/mult) in the country-specific questionnaire, but a corresponding variable can be constructed by means of more than one country-specific variables. This final constructed variable will appear in the codebook (with 7 characters = root + sub/mult + country code). The variables used to construct this final variable will have an additional version number (a,b,c...) and therefore consist of 8 characters. These variables will be stored in the Appendix. [EXAMPLE: SEDU_10A]

The root

The root consisting of four letters was given to each question in the expanded questionnaire. It includes two different parts:

- a) The first character signifies the variable group (for example: S for sociodemographic variables). You can use the following list to get an overview about the different characters and their corresponding variable groups:

S Sociodemographic
W Work experiences
N Social networks
D Drinking variables
F Familial and other drinking contexts
C Drinking consequences
I Intimate relations
V Violence
H Health and lifestyle

- b) The other three characters signify the unique part of the label of each variable in the corresponding group (for example: edu for education)

Each question in the expanded core questionnaire is labeled accordingly. You will find the label of each variable in the right upper corner of the question boxes.

For example:

Question 3 of the expanded core questionnaire is part of the variable group: (Socio) Demographics – first letter of the variable code: S.

Question 3 surveys school education – variable specific code (three letters) EDU

root for variable name: SEDU

3.	What is the highest grade or year of school you have completed?	SEDU
	No formal schooling	1
	8th grade or less	2
	Some high school	3
	High school diploma or G.E.D	4
	Some college or 2 year degree	5
	Bachelor's degree	6
	Graduate or professional school	7

Sub questions or multiple response questions

SUBQUESTIONS

Some variables comprehend sub question, for example question 28 of the expanded core questionnaire:

28. How many times during the last 30 days have you had informal and supportive contacts with the following persons, including letters, phone calls, or e-mails?					NLMC
	Daily or almost every day	Several times a week	Once or twice a week	One to three times in the last 30 days	Not at all during the last 30 days
a. Your spouse/ partner/romantic (non-cohabiting) partner	5	4	3	2	1
b. Your child/children	5	4	3	2	1
c. Other female members of the family	5	4	3	2	1
d. Other male members of the family	5	4	3	2	1
e. Someone at work	5	4	3	2	1
f. Female friend(s) or acquaintance(s)	5	4	3	2	1
g. Male friend(s) or acquaintance(s)	5	4	3	2	1
h. A doctor or a health worker	5	4	3	2	1
i. Others	5	4	3	2	1

There are 9 different sub question (a to i) which have all the same character to signify the variable group (N = Social Networks) and the same three characters to specify the variable in question 28 (LMC). To enable the reader to discriminate the 9 different sub questions a 5th letter has to be used. This letter is numbered accordingly to the sub questions a to i. The variable name for sub question a (Your spouse/ partner/ romantic (non-cohabiting) partner) is then NLMCA, sub question b is named NLMCB and so on.

MULTIPLE RESPONSES

Some variables contain multiple responses, for example question 13 of the expanded core questionnaire:

13. Who do you live with? CIRCLE ALL THAT APPLY	SPLW
Spouse/partner/common-law spouse	1
Your or your spouse's/partner's underage children	2
Your or your spouse's/partner's adult children	3
Your or your spouse's/partner's parents	4
Other relatives	5
Others	6

The handling of these variables is comparable to the handling of sub questions. So there are 5 characters to signify the different responses. In the case of q13 there are 6 possible responses and, hence, 6 variable labels SPLWA to SPLWF.

Country code

Each country has a unique country code (2 surveys within one country will get two different “country” codes). These codes can be found in the Codebook and are as follows:

PARTICIPATING COUNTRIES:	COUNTRY CODE
Switzerland	01
Germany	02
Italy	03
France	04
Spain	05
UK	06
Israel	07
Mexico	08
Sweden	09
Finland	10
Norway	11
The Netherlands	12
Austria	13
Czech Republic	14
Hungary	15
Russia	16
Brazil	17
Iceland	18
Denmark	19
Sri Lanka	20
Nigeria	21
Kazakhstan	22
Argentina	23
Canada	24
USA (I)	25
USA (II)	26
Uganda	27
Japan	28
Costa Rica	29
India	30
Australia	31

The use of country codes will be demonstrated later we turn now to the first two variable types (good and bad). None of them needs country codes as the variable matches perfectly the core.

1. Type “Good”

A) Country uses a variable perfectly matching the GENACIS core questionnaire- type “good”

If a question - in a specific country - is perfectly matching a question of the (expanded) core questionnaire then the variable name in the codebook and data set consists in the following:

- 1) one letter to signify the variable group, [EXAMPLE: S for “Socioeconomic”]
- 2) three letters to signify the specific variable [EXAMPLE: EDU for “Education”]

But attention: Perfectly matching means both wording of the question and the categories (discrepancies of no relevance can be ignored!)

For example:

The marital status in Finland is comparable to question 6a in the core questionnaire:

6.A. What is your marital status? (Are you married, living with a partner in a marriage-like relationship, widowed, divorced, separated, or have you never been married?)		SMST
Married	1	
Living with a partner/common-law marriage	2	
Widowed	3	
Divorced	4	
Married but separated	5	
Never married	6	

Finland:

- smst = siv: What is your marital status?

married	1
living with a partner	2
widowed	3
divorced	4
married but separated	5
never married	6
no response	99

Decision for the codebook:

There are no differences in categories between the Finish question and the core. The lead question (What is your marital status?) is asked in the same way. Differences exist for the probing (Are you married, living with a partner in a marriage-like relationship, widowed, divorced, separated, or have you never been married?). Finland does not ask this separately but lists all the options under “What is

your marital status?”. Interviewers read all the response options. This is assumed to be perfectly matching, differences are of no relevance.

The original Finnish variable label “siv” becomes “smst” in the joint codebook. No country code will be used, no sub/mult character is needed. This Finnish variable will be stored together with other countries using the same core question under “smst”. Countries can be later distinguished by a variable containing the country codes.

B) Country uses a sub/mult question of a variable block perfectly matching the GENACIS core questionnaire- type “good”

Each variable has the same root but additionally gets a fifth character for a subquestion or a multiple response question. Again wording of the question and wording of a special subquestion or multiple response question must be the same. This does not mean that all alternatives of this variable block must be included. Each subquestion or each multiple response is treated as 1 variable, though the root is the same for the block of variables. Some of the alternatives may not have been included, but remaining alternatives perfectly match the core questionnaire.

Note, however, that alternatives not included in the core will be labeled as “additional” variables.

For example:

41. Drinking affects people in many different ways. We would like to learn what effects drinking may have for you. When you drink, how true would you say each of these statements is for you--usually true, sometimes true, or never true? How true is it that when you drink...	FSEF		
	Usually true	Sometimes true	Never true
a. you find it easier to be open with other people?	3	2	1
b. you find it easier to talk to your present partner about your feelings or problems?	3	2	1
c. you feel less inhibited about sex?	3	2	1
d. sexual activity is more pleasurable for you?	3	2	1
e. you feel more sexually attractive	3	2	1
f. you become more aggressive toward other people?	3	2	1

Hungary:

- fsefa = B20a: Drinking affects people in many different ways. We would like to learn what effects drinking may have for you. How true is it when you drink. . .
 - A) you find it easier to be open with other people?

usually true	1
sometimes true	2
never true	3
no response	99

- fsefb = B20b: Drinking affects people in many different ways. We would like to learn what effects drinking may have for you. How true is it when you drink. . .
 B) you find it easier to talk to your present partner about your feelings or problems?
 usually true 1
 sometimes true 2
 never true 3
 no response 99
- fsefc = B20c: Drinking affects people in many different ways. We would like to learn what effects drinking may have for you. How true is it when you drink. . .
 C) you feel less inhibited about sex?
 usually true 1
 sometimes true 2
 never true 3
 no response 99
- fsefd = B20d: Drinking affects people in many different ways. We would like to learn what effects drinking may have for you. How true is it when you drink. . .
 D) sexual activity is more pleasurable for you?
 usually true 1
 sometimes true 2
 never true 3
 no response 99
- fsefe not surveyed
- fseff = B20e: Drinking affects people in many different ways. We would like to learn what effects drinking may have for you. How true is it when you drink. . .
 F) you become more aggressive toward other people?
 usually true 1
 sometimes true 2
 never true 3
 no response 99

Decision for the codebook:

Hungary asks the block in the same way (perfectly matching) as in the core questionnaire. Subquestion e, however, is not included. No country code is needed. The Hungarian variable labels "B20a,b,c,d,e" become "fsefa,b,c,d,f". Note that "B20e" becomes "fseff" as it corresponds to subquestion f in the core questionnaire.

2. Type “Bad”

- A) *Country uses comparable but not perfectly the GENACIS core questionnaire matching questions - type “bad”*

A typical example is education. Almost no country collects data on education in the same way. Most countries, however, have a comparable question.

For Example:

3.	What is the highest grade or year of school you have completed?	SEDU
	No formal schooling	1
	8th grade or less	2
	Some high school	3
	High school diploma or G.E.D	4
	Some college or 2 year degree	5
	Bachelor's degree	6
	Graduate or professional school	7

Hungary:

- sedu_15 = A3: What is the highest grade of school you have completed?

less than 8 th grade	1
8 th grade	2
worker training school	3
secondary school final examination	4
bachelor's degree	5
master's degree	6
no response	99

Decision for the codebook:

In Hungary the question is almost the same, though answer categories are different, but in general the question is comparable.

The Hungarian question A3 gets the same root of the core (i.e. sedu). The underline () is the wild card for sub/mult questions, which is not needed here. The variable label gets a country code (here 15 for Hungary), because the variable does not perfectly match the core questionnaire.

- B) *Country uses comparable--but not perfectly matching the GENACIS core questionnaire—questions for variable blocks with subquestions or multiple responses - type “bad”*

These questions differ compared to (1.B) and (2.A) in two ways. First, lead question or categories are not asked the same way. Consequently, a country code is needed. Second, subquestions means that no underliner () as a wild card for position 5 of the variable can occur. The Finnish example below additionally shows that questions might get the same root for the variable labels of a variable block in

the core, even if they are surveyed country-specifically with different questions at different places in the country-specific questionnaire.

For Example:

42. During the last 12 months, has YOUR drinking had a harmful effect		CHEF
a. on your work, studies or employment opportunities?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
b. on your housework or chores around the house?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
c. on your marriage/intimate relationships?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
d. on your relationships with other family members, including your children?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
e. on your friendships or social life?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
f. on your physical health?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
g. on your finances?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3

Finland:

- chefa -chefe not surveyed
- cheff10 = tervong: Have you, during the last 12 months, had health troubles which you believe to have been caused by your use of alcohol?

Remark: does not mean hangovers; Abstainers: 2=no

yes	1
no	2
current abstainer	98
no response	99

- chefg10 = s12raha: How often during the last 12 months has it occurred that due to your drinking

Remark: Abstainers: 1=never

A) you have had trouble with your finances?	
never	1
1-2 times	2
3 times or more	3
current abstainer	98
no response	99

Decision for the codebook:

The Finish questions “tervong” and “s12raha” collect data on aspects of the core block 42 (cheffa-g). Questions do not have the same wording and have different categories, but are intended to measure the same thing. Therefore, a country code is needed (here 10 for Finland), and the characters for the subquestions are assigned (position 5 of variable label) according to the order in the core: Cheff10; Chefg10

3. Type “Worse”

- A) *Country does not use a single question for a GENACIS core question, but constructs a comparable indicator from other questions - type “worse”*

This type of question usually occurs in countries that did not use the core questionnaire but country specific questionnaires (e.g., general health surveys), and squeeze these through the GENACIS framework. Constitutive for the “worse” type is the use of several country specific questions to construct a GENACIS comparable variable.

The codebook only includes the constructed indicator. Additional information on the variables used to construct this indicator can be found in the Appendix for the specific country. Note that the original country labels of variables are presented in the Appendix.

3.	What is the highest grade or year of school you have completed?	SEDU
	No formal schooling	1
	8th grade or less	2
	Some high school	3
	High school diploma or G.E.D	4
	Some college or 2 year degree	5
	Bachelor's degree	6
	Graduate or professional school	7

Switzerland:

- sedu_01 = using the variables sedu_01a, sedu_01b, sedu_01c, sedu_01d, sedu_01e, sedu_01f, sedu_01g, and sedu_01h

Remark: an indicator created by the Swiss Federal Statistic Office using the variables named in the appendix

no formal schooling or unknown	0
compulsory school	1
secondary school diploma (high school)	2
apprenticeship or full-time trade school	3
University	4
Higher professional education	5
no response	99

Decision for the codebook:

In Switzerland 8 variables were used to assess the highest grade of school completion. A variable can be constructed which is similar to the Core questionnaire. The label of this variable gets the root (here sedu), has no sub/mult question (thus the wild card is used for the 5th position), but must be always a country-specific variable (here 01 for Switzerland), even if categories can be constructed to exactly match those of the core: Sedu_01

The **Appendix for Switzerland** as regards this constructed indicator looks as follows:

version variables used to construct sedu_01:

- sedu_01a = tsode27: Did you finish a school or an apprenticeship after the compulsory school?

still in compulsory school	1
yes: finished after compulsory school	2
no: not finished after compulsory school	3
not completed compulsory school	4
no response	99
- sedu_01b = tsode28: What kind of school did you finish first after the compulsory school?

training on the job	1
apprenticeship, full-time trade school	2
professional diploma	3
junior high school diploma	4
secondary school diploma (high school)	5
primary school teacher certificate	6
commercial college	7
home economics school	8
no response	99

- sedu_01c = tsode29: How many years did your apprenticeship last?

less than 1 year	1
1 year	2
2 years	3
3 years	4
4 years	5
5 years	6
no response	99
- sedu_01d = tsode30: Did you subsequently finish another education?

yes	1
no	2
no response	99
- sedu_01e = tsode31a: What kind of apprenticeship or school did you finish? (multiple response: max. 3 answer in dataset)

training on the job	1
apprenticeship, full-time trade school	2
professional diploma	3
junior high school diploma	4
secondary school diploma (high school)	5
primary school teacher certificate	6
commercial college (1 or 2 years)	7
home economics school	8
foreman, federal professional exam	9
higher professional training (technical college)	10
higher professional school (e.g. commercial college)	11
university (diploma, licentiate)	12
no response	99
- sedu_01f = tsode31b: see sedu_01e
- sedu_01g = tsode31c: see sedu_01e

- | | |
|-------------|----|
| yes | 1 |
| no | 2 |
| no response | 99 |

B) Country does not use a single subquestion or multiple response question for a GENACIS core question, but constructs a comparable indicator from other questions - type "worse"

These questions differ compared to (3.A) and (2.B) in two ways. First, subquestions mean that no underliner () as a wild card for position 5 of the variable should occur, but characters a, b, c ... instead. Second, a country code is obligatory as not a single subquestion is used, but several original country variables were used to construct an indicator.

For Example:

FOR EXAMPLE:		
13.	Who do you live with? CIRCLE ALL THAT APPLY	SPLW
	Spouse/partner/common-law spouse	1
	Your or your spouse's/partner's underage children	2
	Your or your spouse's/partner's adult children	3
	Your or your spouse's/partner's parents	4
	Other relatives	5
	Others	6

Germany

- splwa02 to splwf02 = using splw_02a, splw_02b, splw_02c, splw_02d, splw_02e, splw_02f, splw_02g, splw_02h, splw_02i,

Spouse/partner	1
Your or your spouse's/partner's children	2
Your or your spouse's/partner's parents	4
Other relatives	5
others	6
no response	9

 (note: no variables to adult or underage children (2;3))

Decision for the codebook:

Multiple variables were used to construct response categories of the core. They are located in the German appendix. Here the centralized databank officers took the decision to code children as 2 (underage children), because there is no differentiation in the German questionnaire. Note also that several categories in the German questionnaire (siblings, other relatives = relatives; room mate, institution, others = others) were combined into one category in the codebook.

The original variables of the German questionnaire can be found in the **German Appendix** as follows:

- splw_02a = smst_02b: living with spouse/partner and with children

not true	0	
true		1
refused		7
don't know		8
no response		9
- splw_02b = smst_02c: living with spouse/partner and without children

not true	0	
true		1

7, 8, 9 (see splw_02a)
- splw_02c = F8_04: with children/ without spouse/partner

not true	0	
true		1

7, 8, 9 (see splw_02a)
- splw_02d = F8_05: with in-laws/ father-in-law/ mother-in-law, with parents, mother, father

not true	0	
true		1

7, 8, 9 (see splw_02a)
- splw_02e = F8_06: with siblings

not true	0	
true		1

7, 8, 9 (see splw_02a)
- splw_02f = F8_07: with other relatives

not true	0	
true		1

7, 8, 9 (see splw_02a)
- splw_02g = F8_08: room-mate

not true	0	
true		1

7, 8, 9 (see splw_02a)
- splw_02h = F8_09: institution

not true	0	
true		1

7, 8, 9 (see splw_02a)
- splw_02i = F8_10: other

not true	0	
true		1

7, 8, 9 (see splw_02a)

4. Additional questions, only in the appendix

Additional questions are questions which may be relevant but have no corresponding question in the core questionnaire. These questions can be found in the country specific appendices and start with the root label “add”. Additional variable labels have the following format: 1) the root is “add” (first three characters), 2) the numbering of additional variables (each multiple response option or subquestion in a block are treated as 1 variable = 2 characters, position 4 and 5), 3) an underliner (mandatory 1 character, position 6), 4) country code. Note the underliner here is used only to separate the country code from the numbering of additional variables.

Examples of additional questions are as follows:

Switzerland:

additional variables to hscd_01:

- add08_01 = ttako02a: What do you smoke? (cigarettes)

yes	1 (ask hscd_01b)
no	2
no response	99
- add09_01 = ttako02b: What do you smoke? (cigars)

yes	1 (ask add01_12)
no	2
no response	99
- add10_01 = ttako02c: What do you smoke? (cigarillos)

yes	1 (ask add01_13)
no	2
no response	99
- add11_01 = ttako02d: What do you smoke? (pipe)

yes	1 (ask add01_14)
no	2
no response	99
- add12_01 = ttako04: On the average, how many cigars do you smoke per day?

number of cigarettes	
less than one per day	00
no response	99
- add13_01 = ttako05: On the average, how many cigarillos do you smoke per day?

number of cigarettes	
less than one per day	00
no response	99
- add14_01 = ttako06: On the average, how many pipes do you smoke per day?

number of cigarettes	
less than one per day	00
no response	99

Germany:*additional variables to fsefa02:*

- add25_02 = F74_07: my self-confidence increases when I drink.

Not true at all	1
somewhat true	2
quite true	3
completely true	4
refused	7
don't know	8
no response	9
- add26_02 = F74_04: the higher a person's tolerance, the more he/she is respected
1; 2; 3; 4; 7; 8; 9 (see add02_26)
- add27_02 = F74_05: I would feel inferior if I were abstinent.
1; 2; 3; 4; 7; 8; 9 (see add02_26)
- add28_02 = F74_08: alcohol increases my productivity and stamina.
1; 2; 3; 4; 7; 8; 9 (see add02_26)
- add29_02 = F74_09: drinking livens me up.
1; 2; 3; 4; 7; 8; 9 (see add02_26)
- add30_02 = F74_10: alcohol helps my nerves.
1; 2; 3; 4; 7; 8; 9 (see add02_26)
- add31_02 = F74_11: alcohol is a means of reducing anxiety and tension.
1; 2; 3; 4; 7; 8; 9 (see add02_26)
- add32_02 = F74_12: alcohol helps get rid of a bad atmosphere.
1; 2; 3; 4; 7; 8; 9 (see add02_26)

France:*additional variables to vstf (not surveyed):*

- add37_04 = q276: Did you ever suffer from being raped?

Yes	1
No	2
Don't know	3

UK:

- add03_06 = q43: Would you rate your drinking in the past 12 months as:

very enjoyable	1
enjoyable	2
neither	3
not enjoyable	4
it has been unpleasant	5
it has caused me problems	6
refused	9999
no response	99

Appendix A3: Codebook (questions only)



*Schweizerische Fachstelle für Alkohol- und
andere Drogenprobleme*

*Institut suisse de prévention de l'alcoolisme
et autres toxicomanies*

*Istituto svizzero di prevenzione
dell'alcolismo e altre tossicomanie*

*Swiss Institute for the Prevention of Alcohol
and Drug Problems*

Lausanne
July 2004

GENDER, ALCOHOL, AND CULTURE: AN INTERNATIONAL STUDY (GENACIS)

Gerhard Gmel
Jürgen Eckloff
Sandra Kuntsche
Hervé Kündig
Elisabeth Grisel
Ulrike Grittner

Participating countries:	COUNTRY CODE	
Switzerland	01	
Germany	02	
Italy	03	
France	04	
Spain	05	
UK	06	
Israel	07	
Mexico	08	
Sweden	09	
Finland	10	
Norway	11	
The Netherlands	12	
Austria	13	
Czech Republic	14	
Hungary	15	
Russia	16	not yet here
Brazil	17	
Iceland	18	
Denmark	19	
Sri Lanka	20	
Nigeria	21	
Kazakhstan	22	not yet here
Argentina	23	
Canada	24	not yet here
USA (I)	25	
USA (II)	26	
Uganda	27	
Japan	28	
Costa Rica	29	
India	30	
Australia	31	
ECAS: Germany	32	
ECAS: Italy	33	
ECAS: France	34	
ECAS: UK	35	
ECAS Sweden	36	
ECAS: Finland	37	
Ireland	38	
Uruguay	39	not yet here

DEMOGRAPHICS:

1.	What is your gender?	GENDER
	Male	1
	Female	2

Note: The same variable for all participating countries

2.	What is your date of birth?						
	<input type="text"/>	<input type="text"/>	<input type="text"/>	OR	<input type="text"/>	<input type="text"/>	<input type="text"/>
	MONTH	DAY	YEAR		DAY	MONTH	YEAR

Additional variables:		
<input type="text"/>	<input type="text"/>	<input type="text"/>
AGE	COHORT	SURVEY YEAR

Remark: Age: age of respondents at time of the survey, cohort: year of birth, survey year: year of interview

3.	What is the highest grade or year of school you have completed?	SEDU
	No formal schooling	1
	8th grade or less	2
	Some high school	3
	High school diploma or G.E.D	4
	Some college or 2 year degree	5
	Bachelor's degree	6
	Graduate or professional school	7

4.	What best describes your ethnic group?	SETH
<hr/>		

5.A.	In what region/province do you live?	SREG
<hr/>		

5.B. Which of these categories comes closest to the type of place where you presently live?

STYP

- | | |
|--|---|
| In open country but not on a farm | 1 |
| On a farm | 2 |
| In a small city or town (under 50,000) | 3 |
| In a medium-size city (50,000-250,000) | 4 |
| In a suburb near a large city | 5 |
| In a large city | 6 |

6.A. What is your marital status? (Are you married, living with a partner in a marriage-like relationship, widowed, divorced, separated, or have you never been married?)

SMST

- | | |
|---|---------------------------|
| Married | 1 |
| Living with a partner/common-law marriage | 2 |
| Widowed | 3 |
| Divorced | 4 |
| Married but separated | 5 |
| Never married | 6 (<i>SKIP to Q. 7</i>) |

6.B. And in what year did (you get married/that happen)?

SYMA

YEAR |__|__|__|__| (*SKIP TO Q. 8*)

IF PERSON HAS NEVER BEEN MARRIED *SKIP TO Q. 7*

7. Have you ever lived with a partner in a marriage-like relationship?

SMLR

- | | |
|-----|---------------------------|
| Yes | 1 |
| No | 2 (<i>SKIP TO Q. 9</i>) |

8. How many times have you been married or lived with a partner in a marriage-like relationship?

SFSR

|__|__| time(s)

ATTENTION:

IF YOU ARE WIDOWED, DIVORCED, SEPARATED, OR NEVER MARRIED (Q. 5A = 3, 4, 5, OR 6), GO TO *sccr_17*.

IF YOU WERE MARRIED (Q. 5A = 1), GO TO *snph_17*.

IF YOU LIVED WITH A PARTNER (Q. 5A = 2), GO TO *spge_17*.

IF PERSON IS WIDOWED, DIVORCED, SEPARATED, OR HAS NEVER MARRIED (Q. 6A = 3, 4, 5, OR 6), *SKIP TO Q. 9*.

IF PERSON IS MARRIED (Q. 6A = 1), *SKIP TO Q. 12.*

IF PERSON IS LIVING WITH A PARTNER (Q. 6A = 2), *SKIP TO Q. 11.*

- | | | |
|-----------|--|----------------------------|
| 9. | Among the people who you now know, is there someone with whom you have a very close romantic relationship? | SCRR |
| Yes | | 1 (<i>SKIP TO Q. 10</i>) |
| No | | 2 (<i>SKIP TO Q. 12</i>) |

- | | | |
|------------|--|-------------|
| 10. | How long have you been close to this person? | SDCR |
| | Years <input type="text"/> <input type="text"/> Months <input type="text"/> <input type="text"/> | |

- | | | |
|------------|---|-------------|
| 11. | Is (this person/your partner) male or female? | SPGE |
| Male | | 1 |
| Female | | 2 |

- | | | |
|------------|---|-------------|
| 12. | How many people are living in your household, including yourself, your spouse or partner, and any other family members living with you? | SNPH |
| | <input type="text"/> <input type="text"/> people (<i>IF LIVING ALONE, SKIP TO Q. 14</i>) | |

- | | | |
|---|--|-------------|
| 13. | Who do you live with? CIRCLE ALL THAT APPLY | SPLW |
| Spouse/partner/common-law spouse | | 1 |
| Your or your spouse's/partner's underage children | | 2 |
| Your or your spouse's/partner's adult children | | 3 |
| Your or your spouse's/partner's parents | | 4 |
| Other relatives | | 5 |
| Others | | 6 |

- | | | |
|------------|--|-------------|
| 14. | Have you ever had any children, including adopted or stepchildren? | SKID |
| Yes | | 1 |
| No | | 2 |

IF Q. 12 > 1 AND Q. 14 = 2, *SKIP TO Q. 16A*

IF Q. 12 = 1 AND Q. 14 = 2, *SKIP TO Q. 17*

15. How many of your children are still living? **SNKA**

|_|_| child/children

16.A How many children live with you, including adopted, stepchildren, your partner's children, or grandchildren? **SNKH**

|_|_| child/children (*IF NONE SKIP TO Q17*)

16.B How many are under the age of 18? **SSKH**

|_|_| child/children

WORK EXPERIENCES

17. What is your present occupation or occupations? **WPOC**

18. Do you have a management position? **WMAP**

Yes, at the top level	4
Yes, at the medium level	3
Yes, at the low level	2
No	1

19.A. What is your present daily occupation/employment status? **WPOS**

Working for pay	8 (<i>SKIP TO Q. 20</i>)
Involuntarily unemployed	7 (<i>SKIP TO Q.</i>
<i>19B</i>)	
Student	6 (<i>SKIP TO Q. 26</i>)
Retired	5 (<i>SKIP TO Q. 26</i>)
Not working due to illness	4 (<i>SKIP TO Q.</i>
<i>19C</i>)	
Parental or pregnancy leave	3 (<i>SKIP TO Q. 26</i>)
Homemaker	2 (<i>SKIP TO Q. 26</i>)
Voluntarily unemployed for other reasons	1 (<i>SKIP TO Q. 26</i>)

19.B. How long have you been involuntarily unemployed? **WDUE**

|_|_| MONTHS (*SKIP TO Q. 26*)

19.C. How long have you been not working due to illness?

WDIL

MONTHS (*SKIP TO Q. 26*)

20. What is your present employment situation?

WPES

Employed until I quit or retire	4
Employed until I am laid off or fired	3
Employed until the (project/ task/job) I was hired for is finished	2
Employed only temporarily or (off-and-on/intermittently)	1

21. Are you self-employed or are you employed by others?

WEST

Self-employed	1
Employed by others	2

22.A. What are your present working hours in your current job(s)?

WPWH

61 hours or more a week	6
41 - 60 hours/week	5
31 - 40 hours/week	4
21 - 30 hours/week	3
11 - 20 hours/week	2
1 - 10 hours/week	1

22.B. Are you working one job or more than one job?

WJOB

More than one job	2
One job	1

23. Do you usually work:

(*MULTIPLE RESPONSES POSSIBLE*)

WUWT

Day time	4
Evenings	3
Night time	2
Shift work	1

24.	Which of the following best describes the people you work with or who work alongside you?	WPWW
	All or nearly all are men	6
	A majority are men	5
	Half are women, half are men	4
	A majority are women	3
	All or nearly all are women	2
	I work alone or by myself	1

25.	How stressful is your work situation?	WSWS
	Very stressful	4
	Somewhat stressful	3
	A little stressful	2
	Not at all stressful	1

26.	What is your total household income, before taxes and from all sources ? By household income we mean income earned by you (IF APPLICABLE: and by your spouse/cohabiting partner, and by other family members living with you) and any income from other sources, such as child support or pensions.	WHHI

27.	How much of the total household income, from all sources, do you yourself provide?	WROI
	All of it	5
	More than half	4
	About half	3
	Less than half	2
	None	1
	Refused	0

SOCIAL NETWORKS

28. How many times during the last 30 days have you had informal and supportive contacts with the following persons, including letters, phone calls, or e-mails?	NLMC				
	Daily or almost every day	Several times a week	Once or twice a week	One to three times in the last 30 days	Not at all during the last 30 days
a. Your spouse/ partner/romantic (non-cohabiting) partner	5	4	3	2	1
b. Your child/children	5	4	3	2	1
c. Other female members of the family	5	4	3	2	1
d. Other male members of the family	5	4	3	2	1
e. Someone at work	5	4	3	2	1
f. Female friend(s) or acquaintance(s)	5	4	3	2	1
g. Male friend(s) or acquaintance(s)	5	4	3	2	1
h. A doctor or a health worker	5	4	3	2	1
i. Others	5	4	3	2	1

29. How often during the last 12 months have you felt lonely?	NLYL
Very often	6
Often	5
From time to time	4
Seldom	3
Very seldom	2
Never	1

30. Apart from your spouse/partner/romantic (non-cohabiting) partner, how many persons do you feel confident that you can talk to about an important personal problem?	NNPI
6 or more	5
4-5	4
2-3	3
One	2
None	1

31.	How far away do your most important relatives/friends live?	NDIP
	Near me, in my own neighborhood	5
	In the same city where I live	4
	In the same region/state/province where I live	3
	In the same country where I live	2
	In another country	1

32.A.	Are you an active member of any society or church?	NAMS
	Yes	1
	No	2

32.B.	What is your religious preference?	NRPR

DRINKING VARIABLES

33.A.	During the last 12 months, how often did you usually have any kind of beverage containing alcohol – whether it was wine, beer, liquor (OR OTHER CULTURALLY UNIQUE DRINKS THAT MIGHT NOT BE RECOGNIZABLE TO THE RESPONDENT WITHOUT SPECIFYING THE COLLOQUIAL NAME), or any other drink?	DFUO
	Every day or nearly every day,	9
	Three or four times a week,	8
	Once or twice a week,	7
	One to three times a month,	6
	Seven to eleven times in the last 12 months,	5
	Three to six times in the last 12 months,	4
	Twice in the last 12 months,	3
	Once in the last 12 months, or	2
	Never in the last 12 months?	1 (<i>SKIP TO Q. 48A</i>)

33.B. How often do you usually drink wine?

DFUW

Every day or nearly every day,	9
Three or four times a week,	8
Once or twice a week,	7
One to three times a month,	6
Seven to eleven times in the last 12 months,	5
Three to six times in the last 12 months,	4
Twice in the last 12 months,	3
Once in the last 12 months, or	2
Never in the last 12 months?	1 (<i>SKIP TO Q. 33D</i>)

33.C. How many drinks would you have on a typical day when you drank wine?

DNDW

|_|_| DRINKS

33.D. How often do you usually drink beer?

DFUB

Every day or nearly every day,	9
Three or four times a week,	8
Once or twice a week,	7
One to three times a month,	6
Seven to eleven times in the last 12 months,	5
Three to six times in the last 12 months,	4
Twice in the last 12 months,	3
Once in the last 12 months, or	2
Never in the last 12 months?	1 (<i>SKIP TO Q. 33F</i>)

33.E. How many drinks would you have on a typical day when you drank beer?

DNDB

|_|_| DRINKS

33.F. How often do you usually have drinks containing whiskey or any other liquor?

DFUL

Every day or nearly every day,	9
Three or four times a week,	8
Once or twice a week,	7
One to three times a month,	6
Seven to eleven times in the last 12 months,	5
Three to six times in the last 12 months,	4
Twice in the last 12 months,	3
Once in the last 12 months, or	2
Never in the last 12 months?	1 (<i>SKIP TO Q. 33H</i>)

33.G. How many drinks would you have on a typical day when you drank liquor?

DNDL

DRINKS

33.H. & 33.I. ADD SEPARATE FREQUENCY AND QUANTITY QUESTIONS HERE FOR ANY OTHER LOCAL BEVERAGE TYPES THAT HAVE SIGNIFICANT USAGE.

frequency

DFUS

number of drinks

DNDS

34. MEASUREMENT OF GENERIC CONSUMPTION

DLND

Think of all kinds of alcoholic beverages combined, that is, any combination of cans, bottles or glasses of beer; glasses of wine; or drinks containing liquor of any kind (OR THE CULTURAL EQUIVALENT TO THIS STATEMENT). During the last 12 months, what is the largest number of drinks you had on any single day? Was it:

- | | |
|--|----------------------------|
| 240 grams or more of ethanol in a single day (20 or more drinks in a single day) | 1 (<i>SKIP TO A2</i>) |
| at least 144, but less than 240 g (at least 12, but less than 20 drinks) | 2 (<i>SKIP TO A2</i>) |
| at least 96, but less than 144 g (at least 8, but less than 12 drinks) | 3 (<i>SKIP TO A3</i>) |
| at least 60, but less than 96 g (at least 5, but less than 8 drinks) | 4 (<i>SKIP TO A4</i>) |
| at least 36, but less than 60 g (at least 3, but less than 5 drinks) | 5 (<i>SKIP TO A5</i>) |
| at least 12, but less than 36 g (at least 1, but less than 3 drinks) | 6 (<i>SKIP TO A6</i>) |
| at least 1, but less than 12 g (at least a sip, but less than one full drink) | 7 (<i>SKIP TO A7</i>) |
| DID NOT DRINK AT ALL IN THE LAST 12 MONTHS | 8 (<i>SKIP TO Q 48A</i>) |
| DON'T KNOW | 98 (<i>ASK A2</i>) |
| REFUSED | 97 (<i>ASK A2</i>) |

(DO NOT READ. FOR REFERENCE ONLY.)

QUANTITY OF DRINK EQUIVALENCES (IN U.S. STANDARDS)

RESEARCHERS SHOULD FILL IN APPROPRIATE TERMS/SIZES FOR THEIR CULTURE

12 drinks	12 cans of beer 4-1/4 quarts of beer 2 regular-size bottle of wine 1/2 gallon of wine 1/2 fifth of liquor 3/4 pint of liquor	5 drinks =	5 cans of beer 1-3/4 quarts of beer 3/4 bottle of wine 1/5a fifth of liquor 1/3 pint of liquor
8 drinks =	8 cans of beer 3 quarts of beer 1-1/4 bottles of wine 1/2 pint of liquor 1/3 fifth of liquor	3 drinks =	3 can of beer 1 quart of beer 1/2 bottle of wine 1/3 of a 1/2 pint of liquor
		1 drink:	1 – 12 oz. can or bottle of beer 1 – 4 oz. glass of wine 1 mixed drink with 1 shot liquor
One 12 oz. bottle of wine cooler equals one drink			

- A2. **During the last 12 months, how often did you have at least 144, but less than 240 grams ethanol (at least 12, but less than 20 drinks) of any kind of alcoholic beverage in a single day, that is, any combination of cans, bottles or glasses of beer, glasses of wine, or drinks containing liquor of any kind (or cultural equivalent to these terms/containers)? Was it:**
- A3. **During the last 12 months, how often did you have at least 96, but less than 144 grams ethanol (at least 8, but less than 12 drinks) of any kind of alcoholic beverage in a single day, that is, any combination of cans, bottles or glasses of beer, glasses of wine, or drinks containing liquor of any kind (or cultural equivalent to these terms/containers)? Was it:**
- A4. **During the last 12 months, how often did you have at least 60, but less than 96 grams ethanol (at least 5, but less than 8 drinks) of any kind of alcoholic beverage in a single day, that is, any combination of cans, bottles or glasses of beer, glasses of wine, or drinks containing liquor of any kind (or cultural equivalent to these terms/containers)? Was it:**
- A5. **During the last 12 months, how often did you have at least 36, but less than 60 grams ethanol (at least 3, but less than 5 drinks) of any kind of alcoholic beverage in a single day, that is, any combination of cans, bottles or glasses of beer, glasses of wine, or drinks containing liquor of any kind (or cultural equivalent to these terms/containers)? Was it:**
- A6. **During the last 12 months, how often did you have at least 12, but less than 36 grams ethanol (at least 1, but less than 3 drinks) of any kind of alcoholic beverage in a single day, that is, any combination of cans, bottles or glasses of beer, glasses of wine, or drinks containing liquor of any kind (or cultural equivalent to these terms/containers)? Was it:**
- A7. **During the last 12 months, how often did you have at least a sip, but less than 12 grams ethanol (at least a sip, but less than one full drink) of any kind of alcoholic beverage in a single day, that is, any combination of cans, bottles or glasses of beer, glasses of wine, or drinks containing liquor of any kind (or cultural equivalent to these terms/containers)? Was it:**

	A2	A3	A4	A5	A6	A7
	GRAMS					
	144-239	96-143	60-95	36-59	12-35	1-11
Every day or nearly every day,	9	9	9	9	9	9
Three or four times a week,	8	8	8	8	8	8
Once or twice a week,	7	7	7	7	7	7
One to three times a month,	6	6	6	6	6	6
Seven to eleven times in the last 12 months,	5	5	5	5	5	5
Three to six times in the last 12 months,	4	4	4	4	4	4
Twice in the last 12 months,	3	3	3	3	3	3
Once in the last 12 months, or	2	2	2	2	2	2
Never in the last 12 months	1	1	1	1	1	1

35.A. On those days when you had any kind of beverage containing alcohol,
how many drinks did you usually have per day?

DNDO

|_|_|_| drinks

(OR ANSWERED IN THE RESPONDENT'S TERMS AND POSTCODED TO THE
GRAM RANGES IN Q. 34A2-A7)

35.B. On a typical day when you drank, about how much time would you
spend drinking?

DSPT

|_|_|_| minutes OR |_|_|_| hours

36. How old were you when you first began drinking, more than just a sip or a taste? **DAFD**

|_|_|_| years old

FAMILIAL AND OTHER DRINKING CONTEXTS

37. Thinking back over the **last 12 months**, about how often did you drink in the
following circumstances? **Think of all the times that apply in each situation.**
For example, having a drink with a meal in your own home should be included
under both "(a) at a meal", and "(c) in your own home."

FCIR

	Every day or nearly every day	Three or four times a week	Once or twice a week	One to three times a month	Seven to eleven times in the last 12 months	Three to six times in the last 12 months	Once or twice in the last 12 months	Never in the last 12 months
a. at a meal	8	7	6	5	4	3	2	1
b. at a party or celebration	8	7	6	5	4	3	2	1
c. in your own home	8	7	6	5	4	3	2	1
d. at a friend's home	8	7	6	5	4	3	2	1
e. at your workplace	8	7	6	5	4	3	2	1
f. in a bar/pub/disco	8	7	6	5	4	3	2	1
g. in a restaurant	8	7	6	5	4	3	2	1

38. How often in the last 12 months have you had a drink when you were with the following persons? Think of all the times that apply for each person. For example, having a drink with your spouse or partner and friends should be included under both “(a) with your spouse or partner,” and “(d) with friends? FWOT								
	Every day or nearly every day	Three or four times a week	Once or twice a week	One to three times a month	Seven to eleven times in the last 12 months	Three to six times in the last 12 months	Once or twice in the last 12 months	Never in the last 12 months
a. with your spouse/ partner/ romantic (non-cohabiting) partner whether or not other people were present?	8	7	6	5	4	3	2	1
b. with a family member other than your spouse/ partner/romantic (non-cohabiting) partner?	8	7	6	5	4	3	2	1
c. with people you work with or go to school with?	8	7	6	5	4	3	2	1
d. with friends other than your spouse or partner?	8	7	6	5	4	3	2	1
e. when no one happened to be with you?	8	7	6	5	4	3	2	1

39. And about how often did you drink during the following time periods? FFTP								
	Every day or nearly every day	Three or four times a week	Once or twice a week	One to three times a month	Seven to eleven times in the last 12 months	Three to six times in the last 12 months	Once or twice in the last 12 months	Never in the last 12 months
a. during the day on a weekday (before 5 p.m.)	8	7	6	5	4	3	2	1
b. during the evening on a weekday (after 5 p.m.)	8	7	6	5	4	3	2	1

c. during the day on a weekend (before 5 p.m.)	8	7	6	5	4	3	2	1
d. during the evening on a weekend (after 5 p.m.)	8	7	6	5	4	3	2	1
e. in the hour before you drive a car	8	7	6	5	4	3	2	1

40.	During the last 12 months , how much of your drinking has been with your spouse/partner/ romantic (non-cohabiting) partner?	FRDP
	All or almost all occasions	5
	Most occasions	4
	Some occasions	3
	A few occasions	2
	Never	1
	I do not have a spouse/partner/romantic (non-cohabiting) partner	0

41.	Drinking affects people in many different ways. We would like to learn what effects drinking may have for you. When you drink, how true would you say each of these statements is for you--usually true, sometimes true, or never true? How true is it that when you drink...	FSEF		
		Usually true	Sometimes true	Never true
a.	you find it easier to be open with other people?	3	2	1
b.	you find it easier to talk to your present partner about your feelings or problems?	3	2	1
c.	you feel less inhibited about sex?	3	2	1
d.	sexual activity is more pleasurable for you?	3	2	1
e.	you feel more sexually attractive	3	2	1
f.	you become more aggressive toward other people?	3	2	1

DRINKING CONSEQUENCES

42. During the last 12 months, has YOUR drinking had a harmful effect		CHEF
a. on your work, studies or employment opportunities?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
b. on your housework or chores around the house?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
c. on your marriage/intimate relationships?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
d. on your relationships with other family members, including your children?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
e. on your friendships or social life?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
f. on your physical health?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
g. on your finances?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3

43. In the last 12 months, have you had any of the following experiences?		CEXP
a. Have you had trouble with the law about your drinking and driving?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
b. Have you had an illness connected with your drinking that kept you from working on your regular activities for a week or more?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
c. Have you lost a job, or nearly lost one, because of your drinking?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3

d. Have people annoyed you by criticizing your drinking?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
e. Has your spouse or someone you lived with threatened to leave or actually left because of your drinking?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
f. Have you lost a friendship because of your drinking?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
g. Have you gotten in a fight while drinking?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3

44. How often during the last 12 months have you	CBEH				
	Daily or almost daily	Weekly	Monthly	Less than monthly	Never
a. drunk enough to feel the effects of the alcohol—for example, your speech was slurred and/or you had trouble walking steadily?	4	3	2	1	0
b. had a headache and/or felt nauseated as a result of your drinking?	4	3	2	1	0
c. taken a drink to get over any of the bad after-effects of drinking?	4	3	2	1	0
d. felt sick or found yourself shaking when you cut down or stopped drinking?	4	3	2	1	0
e. found that you were not able to stop drinking once you had started?	4	3	2	1	0
f. failed to do what was normally expected from you because of drinking?	4	3	2	1	0
g. needed a first drink in the morning to get yourself going after a heavy drinking session?	4	3	2	1	0
h. had a feeling of guilt or remorse after drinking?	4	3	2	1	0
i. been unable to remember what happened the night before because you had been drinking?	4	3	2	1	0

45.	Have you or someone else been injured as a result of your drinking?	CINJ
	Yes, during the last year	4
	Yes, but not in the last year	2
	Never	0

46.	Has a relative or friend or a doctor or other health worker, been concerned about your drinking or suggested you cut down?	CRED
	Yes, during the last year	4
	Yes, but not in the last year	2
	Never	0

47.	During the last 12 months , have any of the following persons attempted to influence your drinking so that you would drink less or cut down on your drinking?	CYRE
a.	Your spouse/partner/romantic (non-cohabiting) partner?	NO 1 YES; ONCE OR TWICE 2 YES, THREE OR MORE TIMES 3
b.	Your child or children?	NO 1 YES; ONCE OR TWICE 2 YES, THREE OR MORE TIMES 3
c.	Some other female member of your family?	NO 1 YES; ONCE OR TWICE 2 YES, THREE OR MORE TIMES 3
d.	Some other male member of your family?	NO 1 YES; ONCE OR TWICE 2 YES, THREE OR MORE TIMES 3
e.	Someone at your work or at school?	NO 1 YES; ONCE OR TWICE 2 YES, THREE OR MORE TIMES 3
f.	A female friend or acquaintance?	NO 1 YES; ONCE OR TWICE 2 YES, THREE OR MORE TIMES 3
g.	A male friend or acquaintance?	NO 1 YES; ONCE OR TWICE 2 YES, THREE OR MORE TIMES 3
h.	A doctor or health worker?	NO 1 (<i>SKIP TO Q. 49</i>) YES; ONCE OR TWICE 2 (<i>SKIP TO Q. 49</i>) YES, THREE OR MORE TIMES 3 (<i>SKIP TO Q. 49</i>)

ASK 48A–C ONLY OF CURRENT ABSTAINERS (NEVER DRANK IN THE LAST 12 MONTHS).

48.A. Did you ever have a drink of any beverage containing alcohol?	CAVE
Yes	1 (<i>ASK Q. 48B</i>)
No	2 (<i>SKIP TO Q. 49</i>)

48.B. How old were you when you began drinking, more than just a sip or a taste?	CAAG
_ _ years old	

48.C. Was there ever a time when your drinking caused any problems in your life (for example, problems with family, health, or work, or with the law or the police)?	CAPR
Yes	1
No	2

49. During the last 12 months , have you felt influenced to drink or drink more by someone who drinks more than you do?	CIBO						
a. Your spouse/partner/romantic (non-cohabiting) partner?	<table border="1"> <tr><td>NO</td><td>1</td></tr> <tr><td>YES; ONCE OR TWICE</td><td>2</td></tr> <tr><td>YES, THREE OR MORE TIMES</td><td>3</td></tr> </table>	NO	1	YES; ONCE OR TWICE	2	YES, THREE OR MORE TIMES	3
NO	1						
YES; ONCE OR TWICE	2						
YES, THREE OR MORE TIMES	3						
b. Your child or children?	<table border="1"> <tr><td>NO</td><td>1</td></tr> <tr><td>YES; ONCE OR TWICE</td><td>2</td></tr> <tr><td>YES, THREE OR MORE TIMES</td><td>3</td></tr> </table>	NO	1	YES; ONCE OR TWICE	2	YES, THREE OR MORE TIMES	3
NO	1						
YES; ONCE OR TWICE	2						
YES, THREE OR MORE TIMES	3						
c. Some other female member of your family?	<table border="1"> <tr><td>NO</td><td>1</td></tr> <tr><td>YES; ONCE OR TWICE</td><td>2</td></tr> <tr><td>YES, THREE OR MORE TIMES</td><td>3</td></tr> </table>	NO	1	YES; ONCE OR TWICE	2	YES, THREE OR MORE TIMES	3
NO	1						
YES; ONCE OR TWICE	2						
YES, THREE OR MORE TIMES	3						
d. Some other male member of your family?	<table border="1"> <tr><td>NO</td><td>1</td></tr> <tr><td>YES; ONCE OR TWICE</td><td>2</td></tr> <tr><td>YES, THREE OR MORE TIMES</td><td>3</td></tr> </table>	NO	1	YES; ONCE OR TWICE	2	YES, THREE OR MORE TIMES	3
NO	1						
YES; ONCE OR TWICE	2						
YES, THREE OR MORE TIMES	3						
e. Someone at your work or at school?	<table border="1"> <tr><td>NO</td><td>1</td></tr> <tr><td>YES; ONCE OR TWICE</td><td>2</td></tr> <tr><td>YES, THREE OR MORE TIMES</td><td>3</td></tr> </table>	NO	1	YES; ONCE OR TWICE	2	YES, THREE OR MORE TIMES	3
NO	1						
YES; ONCE OR TWICE	2						
YES, THREE OR MORE TIMES	3						
f. A female friend or acquaintance?	<table border="1"> <tr><td>NO</td><td>1</td></tr> <tr><td>YES; ONCE OR TWICE</td><td>2</td></tr> <tr><td>YES, THREE OR MORE TIMES</td><td>3</td></tr> </table>	NO	1	YES; ONCE OR TWICE	2	YES, THREE OR MORE TIMES	3
NO	1						
YES; ONCE OR TWICE	2						
YES, THREE OR MORE TIMES	3						

g. A male friend or acquaintance?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3

50. Have you felt that any of the people on the following list ever had problems due to their own use of alcohol? For instance, these could be problems with family, health, work, or the law or the police	CPOP		
	NO	YES	If YES, was it in the last 12 months
a. Mother	1	2	3
b. Father	1	2	3
c. Spouse/partner/romantic (non-cohabiting) partner	1	2	3
d. Children	1	2	3
e. Other family members	1	2	3
f. Friends	1	2	3
g. Workfriends/colleagues/fellow students	1	2	3

IF RESPONDENT HAS N'T A SPOUSE, PARTNER, OR A ROMANTIC (NON-COHABITING) PARTNER, SKIP TO Q. 52.

51.A. Thinking back over the last 12 months, about how often did your spouse/partner/romantic (non-cohabiting) partner drink alcoholic beverages? Remember to include all kinds of alcoholic beverages... spirits, wine, beer.	CPAR
Every day or nearly every day	8
Three or four times a week	7
Once or twice a week	6
One to three times a month	5
Seven to eleven times in the last 12 months	4
Three to six times in the last 12 months	3
Once or twice in the last 12 months	2
Never in the last 12 months	1

51.B. Again, thinking back over the last 12 months, about how many drinks would your spouse/partner/romantic (non-cohabiting) partner have on a typical day when he/she drank? Please think of all kinds of alcoholic beverages combined	CNPD
_ _ _ _ drinks	

52. During the last 12 months, have you attempted to influence the drinking of any of the following persons so that he or she would drink less or less often?		CIOD
a. Your spouse/partner/romantic (non-cohabiting) partner?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
b. Your child or children?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
c. Some other female member of your family?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
d. Some other male member of your family?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
e. Someone at your work or at school?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
f. A female friend or acquaintance?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3
g. A male friend or acquaintance?	NO	1
	YES; ONCE OR TWICE	2
	YES, THREE OR MORE TIMES	3

53.	Now I'll describe situations that people sometimes find themselves in. For each one, please tell me how much a person in that situation should feel free to drink. How much drinking is all right? Would you say no drinking, 1 or 2 drinks, enough to feel effects, but not drunk, or getting drunk is sometimes all right?	CQSI			
		No drinking	1 or 2 drinks	Feel effects, but not drunk	Getting drunk is sometimes allright
a.	At a party, at someone else's home	1	2	3	4
b.	As a parent, spending time with small children	1	2	3	4
c.	For a husband having dinner out with his wife	1	2	3	4
d.	For a wife having dinner out with her husband	1	2	3	4
e.	For a man out at a bar with friends	1	2	3	4
f.	For a woman out at a bar with friends	1	2	3	4
g.	For a couple of co-workers out for lunch	1	2	3	4
h.	When with friends at home	1	2	3	4
i.	When getting together with friends after work before going home	1	2	3	4
j.	When going to drive a car	1	2	3	4

INTIMATE RELATIONS AND SEXUALITY

IF NO SPOUSE/PARTNER/ROMANTIC (NON-COHABITING) PARTNER, *SKIP TO Q. 61.*

54.	Please circle the number which best describes how happy you are with your relationship with your current spouse/partner/romantic (non-cohabiting) partner.	IHAP			
		1	2	3	4
		5			
	Extremely unhappy				Extremely happy

55.	Please circle the number which describes how easy it generally is for you to talk about your feelings or problems with your spouse/partner/romantic (non-cohabiting) partner?	IEAT			
		1	2	3	4
		5			
	Very difficult				Very easy

56.	How do you and your present spouse/partner/romantic (non-cohabiting) partner solve disagreements between you?	ISDA
	We almost always solve disagreements without quarreling	4
	Sometimes we have short-lived quarrels or disagreements	3
	We often have long-lasting quarrels for different reasons	2
	We don't only quarrel, we also have physical fights	1
	Don't know, no answer.	0

57.	How often do you and your spouse/partner/romantic (non-cohabiting) partner quarrel?	IQUA
	At least once a day	5
	Several times a week	4
	Several times a month	3
	Once a month or less	2
	Never	1 (<i>SKIP TO Q. 60</i>)

58.	When you and your spouse/partner/romantic (non-cohabiting) partner quarrel, about how often has your spouse/partner been drinking?	IQPD
	All the time	6
	Most of the time	5
	More often than not	4
	Occasionally	3
	Rarely	2
	Never	1

59.	When you and your spouse/partner/romantic (non-cohabiting) partner quarrel, about how often have you been drinking?	IQSD
	All the time	6
	Most of the time	5
	More often than not	4
	Occasionally	3
	Rarely	2
	Never	1

60.	How often have there been occasions when you were afraid of your spouse/partner/romantic (non-cohabiting) partner?		IAFP
	All the time	6	
	Most of the time	5	
	More often than not	4	
	Occasionally	3	
	Rarely	2	
	Never	1	

61.	During your lifetime, has sex been....		ISEX
	Very important to you	5	
	Quite important to you	4	
	Somewhat important to you	3	
	Not too important to you	2	
	Or could you have gotten along just as well without it?	1	

62.	What was your age when you first had consensual sexual intercourse?		IAFI
	ENTER AGE FOR FIRST TIME:	<input type="text"/> <input type="text"/> years	
	NEVER HAD CONSENSUAL SEXUAL INTERCOURSE:	<input type="text"/> (SKIP TO Q. 64)	

63.A.	During the last 12 months , how many partners have you had sexual activity with?		INPY
		<input type="text"/> <input type="text"/> <input type="text"/> partners	

OPTIONAL:

63.B.	During the last 12 months , has your partner in your sexual relationship(s) been....		IGEP
	Only men	6	
	Mostly men	5	
	About the same number of men and women	4	
	Mostly women	3	
	Only women	2	
	I have not been sexually active in the last 12 months	1	

VIOLENCE/VICTIMIZATION

IF THE RESPONDENT HAS A SPOUSE, PARTNER, OR A ROMANTIC (NON-COHABITING) PARTNER, ASK Q. 64.

IF NOT, SKIP TO Q. 65.

64. During the last 12 months , how often has your spouse/partner/romantic (non-cohabiting) partner ...	VADP		
	Never	1 - 2 times	3 times or more
a. Insulted or sworn at you?	1	2	3
b. Sulked or refused to talk about a problem?	1	2	3
c. Stomped out of the house, room or yard?	1	2	3
d. Done or said something to spite you?	1	2	3

ASK EVERYONE:

<p>65. People can be physically aggressive in many ways, for example, pushing, punching, or slapping, or physically aggressive in some other way. What is the most physically aggressive thing done to you during the last 2 years by someone who was or had been in a close romantic relationship with you (such as a wife, husband, boyfriend, girlfriend)? [checklist: push, shove, grab, slap, punch, kick, beat up, throw something at you, hit you with an object, threaten you, threaten you with a weapon, use a weapon, other] DO NOT INCLUDE SEXUAL ASSAULT OR RAPE WHICH IS ASKED IN Q. 84A.</p> <p>(WRITE RESPONSE HERE) _____</p>	<p>VMPPA</p>
--	---------------------

RESPONDENT SAYS NOTHING LIKE THIS HAS HAPPENED: SKIP TO Q. 74.

66. On a scale of 1 to 10, where 1 is minor aggression and 10 is life-threatening aggression, how would you rate the level of this aggressive act?	VLAA									
	1	2	3	4	5	6	7	8	9	10
Minor aggression									Life-threatening aggression	

67. On a scale from 1 to 10, where 1 is not at all upset and 10 is very upset, how upset were you just after the incident happened?	VFEU									
	1	2	3	4	5	6	7	8	9	10
Not at all upset									Very upset	

68.	On a scale from 1 to 10, where 1 is not at all angry and 10 is very angry, how angry were you just after the incident happened?									VFEA
	1	2	3	4	5	6	7	8	9	10
	Not at all angry									Very angry

69.	On a scale from 1 to 10, where 1 is not at all scared and 10 is very scared, how scared were you just after the incident happened?									VFES
	1	2	3	4	5	6	7	8	9	10
	Not at all scared									Very scared

70.	Did you seek medical attention from a doctor, nurse, paramedic or other health professional either at the time that the person did this to you or in the next day or so?									VMED
Yes										1
No										2

71.	Had you or the other person been drinking before this incident?									VDBI
Both										4
Respondent only										3
Other person only										2
Neither										1

72.	Was the other person in this incident your current spouse/partner/romantic (non-cohabiting) partner?									VICP
Yes										1
No										2

73.	Thinking back over the last 2 years , about how often were any of these aggressive things (such as being pushed or shoved, getting beat up, or being threatened with a weapon) done to you by your current spouse, partner, or someone with whom you have a close romantic relationship?									VFPA
Four or more times										5
Two or three times										4
Once										3
Not at all										2
I DO NOT HAVE A CURRENT ROMANTIC RELATIONSHIP										1 (IF
VOLUNTEERED)										

73.A. Were any of these aggressive things done to you in the **past 12 months** by **anyone in a romantic relationship with you** (your spouse, partner, or someone with whom you had a close romantic relationship)?
INTERVIEWER: DO NOT LIMIT TO CURRENT SPOUSE, PARTNER, OR CLOSE ROMANTIC RELATIONSHIP.

VPAL

Yes	1
No	2

74. What is the most physically aggressive thing you have done during the last 2 years to someone who was or had been in a close romantic relationship with you? [checklist: push, shove, grab, slap, punch, kick, beat up, throw something at partner, hit partner with an object, threaten partner, threaten with a weapon, use a weapon, threaten partner with a weapon, other]

VSMP

(WRITE RESPONSE HERE) _____

IF RESPONDENT SAYS THAT NOTHING LIKE THIS HAS HAPPENED, SKIP TO Q. 82

75. On a scale of 1 to 10, where 1 is very minor aggression and 10 is life-threatening aggression, how would you rate the level of this aggressive act?

VSLA

1	2	3	4	5	6	7	8	9	10
Minor aggression								Life-threatening aggression	

76. On a scale from 1 to 10, where 1 is not at all upset and 10 is very upset, how upset were you just after the incident happened?

VSFU

1	2	3	4	5	6	7	8	9	10
Not at all upset								Very upset	

77. On a scale from 1 to 10, where 1 is not at all angry and 10 is very angry, how angry were you just after the incident happened?

VSFA

1	2	3	4	5	6	7	8	9	10
Not at all angry								Very angry	

78.	On a scale from 1 to 10, where 1 is not at all scared and 10 is very scared, how scared were you just after the incident happened?										VSFS
	1	2	3	4	5	6	7	8	9	10	
	Not at all scared										Very scared

79.	Had you or the other person been drinking before this incident?				VSDB
	Both				4
	Respondent only				3
	Other person only				2
	Neither				1

80.	Was the other person in this incident your current spouse/partner/romantic (non-cohabiting) partner?		VSIP
	Yes		1
	No		2

81.	Thinking back over the last 2 years , about how often did you do any of these aggressive things (such as pushing or shoving, beating up, or threatening with a weapon) to your current spouse, partner, or someone with whom you have a close romantic relationship?		VSFP
	Four or more times		5
	Two or three times		4
	Once		3
	Not at all		2
	I DO NOT HAVE A CURRENT ROMANTIC RELATIONSHIP		1 (<i>IF VOLUNTEERED</i>)

81.A.	Did you do any of these aggressive things to anyone in a romantic relationship with you (your spouse, partner, or someone with whom you had a close romantic relationship) in the past 12 months ? INTERVIEWER: DO NOT LIMIT TO CURRENT SPOUSE, PARTNER, OR CLOSE ROMANTIC RELATIONSHIP		VSPA
	Yes		1
	No		2

82. Before you were 16 years old (age 15 or younger), did someone **in your family** try to make you do sexual things or watch sexual things? **VSTF**

Very often	5
Often	4
Sometimes	3
Rarely	2
Never	1

83. Before you were 16 years old (age 15 or younger), did someone **other than a family member** try to make you do sexual things or watch sexual things? **VSTO**

Very often	5
Often	4
Sometimes	3
Rarely	2
Never	1

84.A. Since the age of 16 (16 or older), was there a time when someone forced you to have sexual activity that you **really did not want**? This might have been intercourse or other forms of sexual activity, and might have happened with spouses, lovers, or friends, as well as with more distant persons and strangers **VAST**

Yes	1 (<i>SKIP TO Q. 84B</i>)
No	2 (<i>SKIP TO Q. 85</i>)

84.B. Was this with a spouse, partner, or someone you had a close romantic relationship with? **VASP**

Yes	1
No	2

HEALTH AND LIFESTYLE

85. How tall are you?

HHEI

 |_|_|_| cm OR |_| feet |_|_| inches

Remark: In database always in cm

86. How much do you weigh?

HWEI

 |_|_|_| kg OR |_|_|_| pounds

MALES SKIP TO Q. 89

87. What is your menopausal status?

HMES

Still menstruating	1
Had partial hysterectomy before menopause	2
Had total hysterectomy before menopause	3
Post-menopausal	4
Had hysterectomy after menopause	5

88. Are you receiving estrogen replacement therapy?

HERT

Yes	1
No	2

89. In general, how has your physical health been in the **last 12 months**?

HPHH

Excellent	5
Very good	4
Good	3
Fair	2
Poor	1

90. In general, how has your emotional/mental health been in the **last 12 months**?

HMEH

Excellent	5
Very good	4
Good	3
Fair	2
Poor	1

91.	In the last 12 months , have you sought medical or other professional help related to your physical health?	HMHP
YES	1	
NO	2	

92.	In the last 12 months , have you sought medical or other professional help related to your emotional/mental health?	HMHM
YES	1	
NO	2	

93.	In the last 12 months , have you tried to cut down or quit drinking but were unable to do so?	HTQD
YES	1	
NO	2	

94.A.	Did you ever consider seeking help for your own drinking or alcohol-related problems?	HSHE
YES	1 (<i>SKIP TO Q.</i>	
94B)		
NO	2 (<i>SKIP TO Q. 95)</i>	

94.B.	If yes, did you ever receive help?	HRHE
YES	1 (<i>SKIP TO Q.</i>	
94C)		
NO	2 (<i>SKIP TO Q. 95)</i>	

94.C.	If yes, did you receive help in the last 12 months ?	HRHY
YES	1	
NO	2	

95.	In the last 12 months , have you smoked one or more cigarettes a day?	HSCD
YES	1	
NO	2	

96.A. In the **last 12 months**, have you used any prescription drugs or medicines in a way other than the one prescribed?

HPME

YES

1 (*SKIP TO Q.*

96B)

NO

2 (*SKIP TO Q. 97)*

OPTIONAL:

96.B. What was/were this/these?

HMED

97. In the **last 12 months**, have you used marijuana (pot or hashish)?

HPOT

YES

1

NO

2

98.A. In the **last 12 months**, have you used any other drugs, such as cocaine or crack, heroin, stimulants (such as methamphetamines or "ice"), hallucinogens (such as LSD), or party drugs (such as ecstasy)?

HOTD

YES

1 (*SKIP TO Q.*

98B)

NO

2 (*SKIP TO Q. 99)*

98.B. In the **last 12 months**, have you injected any drugs, such as heroin or cocaine?

HIJD

YES

1

NO

2

99. About how often during the **last 30 days** have you spent time on some leisure time activity or interest?

HFLT

Daily or almost every day

5

Several times a week

4

Once or twice a week

3

One to three times in the last 30 days

2

Not at all during the last 30 days

1

100. During the last 12 months , have you done any of the following activities so much that it has interfered with your everyday life? HRIB, HRBC, HRBO									
	Part I HRIB			Part II HRBC Did you have some sense of loss of control over this behavior at any time?			Part III HRBO Has this behavior concerned you or someone close to you?		
a. Gambling	YES	1	IF YES, GO TO Part II.	YES	1	GO TO Part III.	YES	1	
	NO	2	GO TO b.	NO	2	GO TO Part III.	NO	2	
b. Shopping	YES	1	IF YES, GO TO Part II.	YES	1	GO TO Part III.	YES	1	
	NO	2	GO TO c.	NO	2	GO TO Part III.	NO	2	
c. Exercising	YES	1	IF YES, GO TO Part II.	YES	1	GO TO Part III.	YES	1	
	NO	2	GO TO d.	NO	2	GO TO Part III.	NO	2	
d. Eating too much	YES	1	IF YES, GO TO Part II.	YES	1	GO TO Part III.	YES	1	
	NO	2	GO TO e.	NO	2	GO TO Part III.	NO	2	
e. Intense dieting	YES	1	IF YES, GO TO Part II.	YES	1	GO TO Part III.	YES	1	
	NO	2	GO TO f.	NO	2	GO TO Part III.	NO	2	
f. Sexual activity	YES	1	IF YES, GO TO Part II.	YES	1	GO TO Part III.	YES	1	
	NO	2	GO TO g.	NO	2	GO TO Part III.	NO	2	
g. Using the internet	YES	1	IF YES, GO TO Part II.	YES	1	GO TO Part III.	YES	1	
	NO	2	GO TO h.	NO	2	GO TO Part III.	NO	2	
h. Working	YES	1	IF YES, GO TO Part II.	YES	1	GO TO Part III.	YES	1	
	NO	2		NO	2	GO TO Part III.	NO	2	

Appendix A4: Description of drinking indicators

1 Switzerland - drinking indicators

Drinking status

drin1_01: drinking status, based on **talko01** (overall frequency), **talko04** (ever consumed alcohol)

- if person reports a frequency (see talko01) => drin1_01 = 2 (current drinker)
- if person reports no frequency (see talko01) is no lifetime abstainer (talko04=2) => drin1_01=1 (current abstainer)
- if person reports no frequency (see talko01) is lifetime abstainer (talko04=1) => drin1_01=0 (lifetime abstainer)
- 14 missings

Frequencies

gefr1_01: overall frequency, based on **talko01** (overall frequency)

recoding frequencies into number of drinking days per year:

3 or more times per day	=> 365
2 times per day	=> 365
once a day	=> 365
a few times per week	=> 234
1-2 times per week	=> 78
more seldom	=> 18,5
never, abstinent	=> 0

- 7 missings

wifr5_01: wine frequency, based on **talko03b** (frequency wine last 7 days), **talko03e** (frequency wine last 12 months)

- people are asked about the wine drinking frequency of the last 7 days,
- if they report no 7 days frequency they are asked about the last 12 months,

recoding frequencies (last 7 days) into number of wine drinking days per year

3 or more times per day	=> 1 * 365	=> 365
2 times per day	=> 1 * 365	=> 365
once a day	=> 1 * 365	=> 365
almost daily	=> 5,5 * 52	=> 286
3-4 times this week	=> 3,5 * 52	=> 182
1 or 2 times this week	=> 1,5 * 52	=> 78

recoding frequencies (last 12 months) into number of wine drinking days per year

weekly	=> 1 * 52	=> 52
2-3 times a month	=> 2,5 * 12	=> 30
approx. once a month	=> 1 * 12	=> 12
less than once a month	=> 0,5 * 12	=> 6

- 0 missings

befr5_01: beer frequency, based on **talko02b** (frequency beer last 7 days), **talko02e** (frequency beer last 12 months)

- people are asked about the beer drinking frequency of the last 7 days,
- if they report no 7 days frequency they are asked about the last 12 months,
- recoding frequencies see wifr5_01,
- 0 missings.

spfr5_01: spirits frequency, based on **talko05b** (frequency spirits last 7 days), **talko05e** (frequency spirits last 12 months)

- people are asked about the spirits drinking frequency of the last 7 days,

- if they report no 7 days frequency they are asked about the last 12 months,
- recoding frequencies see wifr5_01,
- 0 missings.

oaf5_01: cider frequency, based on **talko04b** (frequency cider last 7 days), **talko04e** (frequency cider last 12 months)

- people are asked about the cider drinking frequency of the last 7 days,
- if they report no 7 days frequency they are asked about the last 12 months,
- recoding frequencies see wifr5_01,
- 0 missings.

nodd_01: annual number of drinking days

Compute the maxima of gefr1_01, wifr5_01, befr5_01, spfr5_01 and oaf5_01.

- 0 missings

Quantities

wiqu5_01: usual quantity of wine per drinking day in grams of pure alcohol, based on **wifr5_01** (frequency of wine per year), **talko03b** (frequency wine last 7 days), **talko03e** (frequency wine last 12 months), **talko03c** (quantity wine per occasion last 7 days), **talko03f** (quantity wine per occasion, last 12 months) (alcohol contents: 11%)

recoding quantities per occasion (of last 7 days / last 12 months) into litres of wine per occasion (talko03c, talko03f)

0,5 litres or more (5 glasses a 1 dl or more)	=> 0,625
3-4 dl (3-4 glasses)	=> 0,3
2 dl (2 glasses)	=> 0,15

recoding frequencies into wine drinking occasions per year (talko03b, talko03e)

less than once a month	=> 12 * 0,5	=> 6
once a month	=> 12	
2-3 times a month	=> 12 * 2,5	=> 30
once a week	=> 52	
1 to 2 times a week	=> 78	
3 to 4 times a week	=> 182	
almost daily	=> 286	
once a day	=> 365	
2 times a day	=> 365 * 2	=> 730
3 times a day or more	=> 365 * 3,5	=> 1277,5

- if person is no wine drinker (wifr5_01=0) => wiqu5_01=0
- calculate wine quantity per wine drinking day in litres of wine:
if person is wine drinker (wifr5_01>0) winequa (wine quantity per day) = (wine drinking occasions per year / wine drinking days per year (wifr5_01)) * litres of wine per occasion
- recalculate wine quantity per drinking day (winequa) into grams of pure alcohol:
wiqu5_01 = wine quantity per wine drinking day (winequa) * 10 * 11 (alcohol contents) * 0,793.
- 0 missings

bequ5_01: usual quantity of beer per drinking day in grams of pure alcohol, based on **befr5_01** (frequency of beer per year), **talko02b** (frequency beer last 7 days), **talko02e** (frequency beer last 12 months), **talko02c** (quantity beer per occasion last 7 days), **talko02f** (quantity beer per occasion, last 12 months) (alcohol contents: 4,8%)

recoding quantities per occasion (of last 7 days / last 12 months) into litres of wine per occasion (talko02c, talko02f)

5 glasses/little bottles a 3dl or 3 bottles a 6dl or more	=> 2,25
3-4 glasses/little bottles a 3dl or 2 bottles a 6dl	=> 1,2
2 glasses/little bottles a 3dl or 1 bottle a 6dl	=> 0.45

recoding frequencies into beer drinking occasions per year (talko02b, talko02e)

- | | | |
|------------------------|--------------|-----------|
| less than once a month | => 12 * 0,5 | => 6 |
| once a month | => 12 | |
| 2-3 times a month | => 12 * 2,5 | => 30 |
| once a week | => 52 | |
| 1 to 2 times a week | => 52 * 1,5 | => 78 |
| 3 to 4 times a week | => 52 * 3,5 | => 182 |
| almost daily | => 52 * 5,5 | => 286 |
| once a day | => 365 | |
| 2 times a day | => 365 * 2 | => 730 |
| 3 times a day or more | => 365 * 3,5 | => 1277,5 |
- if person is no beer drinker (befr5_01=0) => bequ5_01=0
 - calculate beer quantity per beer drinking day in litres of beer:
if person is beer drinker (befr5_01>0) beerqua (beer quantity per day) = (beer drinking occasions per year / beer drinking days per year (befr5_01)) * litres of beer per occasion
 - recalculate beer quantity per drinking day (beerqua) into grams of pure alcohol:
bequ5_01 = beer quantity per beer drinking day (beerqua) * 10 * 4,8 (alcohol contents) * 0,793.
 - 0 missings

spqu5_01: usual quantity of spirits per drinking day in grams of pure alcohol, based on **spfr5_01** (frequency of spirits per year), **talko05b** (frequency spirits last 7 days), **talko05e** (frequency spirits last 12 months), **talko05c** (quantity spirits per occasion last 7 days), **talko05f** (quantity spirits per occasion, last 12 months) (alcohol contents: 40%)

recoding quantities per occasion (of last 7 days / last 12 months) into litres of spirits per occasion (talko05c, talko05f)

5 -6 small glasses or more	=> 0.20625
3-4 small glasses	=> 0.105
2 small glasses	=> 0.045

recoding frequencies into spirits drinking occasions per year (talko05b, talko05e)

- | | | |
|------------------------|--------------|-----------|
| less than once a month | => 12 * 0,5 | => 6 |
| once a month | => 12 | |
| 2-3 times a month | => 12 * 2,5 | => 30 |
| once a week | => 52 | |
| 1 to 2 times a week | => 52 * 1,5 | => 78 |
| 3 to 4 times a week | => 52 * 3,5 | => 182 |
| almost daily | => 52 * 5,5 | => 286 |
| once a day | => 365 | |
| 2 times a day | => 365 * 2 | => 730 |
| 3 times a day or more | => 365 * 3,5 | => 1277,5 |
- if person is no spirits drinker (spfr5_01=0) => spqu5_01=0
 - calculate spirits quantity per spirits drinking day in litres of spirits:
if person is spirits drinker (spfr5_01>0) spirqua (spirits quantity per day) = (spirits drinking occasions per year / spirits drinking days per year (spfr5_01)) * litres of beer per occasion
 - recalculate spirits quantity per drinking day (spirqua) into grams of pure alcohol:
spqu5_01 = spirits quantity per beer drinking day (spirqua) * 10 * 40 (alcohol contents) * 0,793.
 - 0 missings

oaqu5_01: usual quantity of cider per drinking day in grams of pure alcohol, based on **oaf5_01** (frequency of cider per year), **talko04b** (frequency cider last 7 days), **talko04e** (frequency cider last 12 months), **talko04c** (quantity cider per occasion last 7 days), **talko04f** (quantity cider per occasion, last 12 months) (alcohol contents: 4,5%)

recoding quantities per occasion (of last 7 days / last 12 months) into litres of cider per occasion (talko04c, talko04f)

1 litre or more	=> 1,25
ca. ½ litre	=> 0,5
ca. 3-4 dl	=> 0,3

recoding frequencies into cider drinking occasions per year (talko04b, talko04e)

- | | | |
|------------------------|--------------|-----------|
| less than once a month | => 12 * 0,5 | => 6 |
| once a month | => 12 | |
| 2-3 times a month | => 12 * 2,5 | => 30 |
| once a week | => 52 | |
| 1 to 2 times a week | => 52 * 1,5 | => 78 |
| 3 to 4 times a week | => 52 * 3,5 | => 182 |
| almost daily | => 52 * 5,5 | => 286 |
| once a day | => 365 | |
| 2 times a day | => 365 * 2 | => 730 |
| 3 times a day or more | => 365 * 3,5 | => 1277,5 |
- if person is no cider drinker (oaf5_01=0) => oaqu5_01=0
 - calculate cider quantity per cider drinking day in litres of cider:
if person is cider drinker (oaf5_01>0) ciderqua (cider quantity per day) = (cider drinking occasions per year / cider drinking days per year (oaf5_01)) * litres of cider per occasion
 - recalculate cider quantity per drinking day (ciderqua) into grams of pure alcohol:
oaqu5_01 = cider quantity per cider drinking day (ciderqua) * 10 * 4,5 (alcohol contents) * 0,793.
 - 0 missings

Binge

bing1_01: based on **talko08** (how often 8+ glasses of any kind of alcoholic beverage, last 12 months)

recoding into number of days with 8+ glasses

- | | |
|---------------------------|--------|
| never | => 0 |
| less than once a month | => 6 |
| every month | => 12 |
| every week | => 52 |
| every or nearly every day | => 312 |

If overall frequency (oafreq) = 0 binge=0.

- 174 missings

Volumes

wivo5_01: annual volume of wine drinking

Compute the product of wifr5_01 and wiqu5_01.

- 0 missings

bevo5_01: annual volume of beer drinking

Compute the product of befr5_01 and bequ5_01.

- 0 missings

spvo5_01: annual volume of spirits drinking

Compute the product of spfr5_01 and spqu5_01.

- 0 missings

oavo5_01: annual volume of cider drinking

Compute the product of oaf5_01 and oaqu5_01.

- 0 missings

bsvo5_01: annual volume based on beverage specific information

Compute the sum of wivo5_01, bevo5_01, spvo5_01 and oavo5_01.

- 0 missings

2 Germany - drinking indicators

(one standard drink contains 14 grams alcohol, information from Ludwig Kraus)

In the German questionnaire (alcohol consumption) questions about the last 30 days and then about the last 12 months are being asked. I.e.: Persons giving answers about the last 30 days are not being asked about the last 12 months. We have considered the complete questionnaire as one instrument and have created only one variable each (answers of 30-days-drinkers were extrapolated to 12 months).

Drinking status

drin5_02: (drinking status using a mixture of time frames) values: 0 (lifetime abstainer); 1 (12 months abstainer); 2 (current drinker)

If nodd__02 > 0 (total drinking frequency in days last 12 months) => 2 (current drinker)

If nodd__02 = 0 and if dfuo_02c (F61_6) (never drank alcohol) is not answered => 1 (12 months abstainer)

If dfuo_02c (F61_6) (never drank alcohol) is positively answered => 0 (lifetime abstainer)

There are 8 inconsistencies. Correction: If drinker=0 and bsvo5_02>0 drinker=2. (bsvo5_02: annual volume based on beverage specific measures).

Overall frequencies

nodd_02: (annual number of drinking days) maximum of overall frequency and beverage specific frequencies: nodd__02=max(gefr5_02, befr5_02, wifr5_02, spfr5_02).

gefr5_02: (overall frequency last 12 months)

1. if person drank in the last 30 days take dfuo_02a*12 (**F65**): drinking frequency in the last 30 days (number of days),
2. if the person drank not during the last 30 days take dfuo_02b (**F69_2**): total drinking frequency in days (last 12 months) (number of days) (not asked to people who drank during the last 30 days),
3. if person never drank alcohol (dfuo_02c (**F61_6**)) dfuo_02=0

Beverage specific frequencies

befr5_02: (frequency of drinking beer; reference period: mixture) (31 missings)

1. take dfub_02b (**F68_1B**) (frequency of drinking beer last 12 months) (skipped if person drank alcohol in the last 30 days or if person answered to dfub_02a)
2. if missing take dfub_02a*12 (**F68_1A**) (frequency of drinking beer last 12 months, times per month) (not asked, if person drank during the last 30 days)
3. if missing take dfub_02d*12 (**F64_1**) (frequency of beer during last 30 days)
4. if still missing take dfub_02c (**F59_6**) (frequency of beer):
(daily => 365 days per year,
several times per week => 208 days per year = average of 365 and 52,
once a week => 52 days per year,
several times a month => 32 days per year, it is 2,5 times per month
once a month => 12 days per year
less than once a month => 6 days per year)
5. if beer quantity is 0 set beer frequency to 0: if bequ5_02=0 befr5_02=0.

wifr5_02: (frequency of drinking wine; reference period: mixture) (28 missings)

1. take dfuw_02b (**F68_2B**) (frequency of drinking wine last 12 months) (skipped if person drank alcohol in the last 30 days or if person answered to dfuw_02a)
2. if missing take dfuw_02a*12 (**F68_2A**) (frequency of drinking wine last 12 months, times per month) (not asked, if person drank during the last 30 days)
3. if missing take dfuw_02d*12 (**F64_2**) (frequency of wine during last 30 days)

4. if still missing take dfuw_02c (**F59_7**) (frequency of wine):
(daily => 365 days per year,
several times per week => 208 days per year = average of 365 and 52,
once a week => 52 days per year,
several times a month => 32 days per year, it is 2,5 times per month
once a month => 12 days per year
less than once a month => 6 days per year)
5. if wine quantity is 0 set wine frequency to 0: if wiqu5_02=0 wifr5_02=0.

spfr5_02: (frequency of drinking spirits; reference period: mixture) (36 missings)

1. take dful_02b (**F68_3B**) (frequency of drinking spirits last 12 months) (skipped if person drank alcohol in the last 30 days or if person answered to dful_02a)
2. if missing take dful_02a*12 (**F68_3A**) (frequency of drinking spirits last 12 months, times per month) (not asked, if person drank during the last 30 days)
3. if missing take dful_02d*12 (**F64_3**) (frequency of spirits during last 30 days)
4. if still missing take dful_02c (**F59_8**) (frequency of spirits):
(daily => 365 days per year,
several times per week => 208 days per year = average of 365 and 52,
once a week => 52 days per year,
several times a month => 32 days per year, it is 2,5 times per month
once a month => 12 days per year
less than once a month => 6 days per year)
5. if spirits quantity is 0 set spirits frequency to 0: if spqu5_02=0 spfr5_02=0.

Quantities per drinking occasion

bequ5_02: (usual quantity of beer) bequ5_02=gdndb_02*0.265*0.048*0.794*1000.

(0.265 litres has a small standard beer glass, 4,8%vol. ethanol)

gdndb_02 (small drinks 0,2 - 0,33 liter) (quantity beer last 12 months on a drinking day)

- number of drinks (beer, small glasses) plus 0,45/0,265* number of drinks (beer, large glasses) on a drinking day in the last 12 months => dndb_02=dndb_02a+0,45/0,265*dndb_02b.
- if missing: (person drank in the last 30 days) number of drinks (beer, small glasses) plus 0,5/0,3* number of drinks (beer, large glasses) on a drinking day in the last 30 days => dndb_02=dndb_02c+0,45/0,265*dndb_02d.
- if missing: abstainers (dndb_02e=996 never drank alcohol, dndb_02f= 0 no alc during last 30 days) => dndb_02=0.
- **Problem:** many respondents indicated very big quantities (Infas assumed: the question was misunderstood – possibly the quantities refer to the last 30 days/12 months in total, and not to a typical drinking day) **Correction** (according to Ludwig): if indicated more than 20 small glasses of beer on a single drinking day this quantity will be divided by frequency (dfub_02).
- **Correction:** if frequency is 0, quantity will also be put to 0 (10 persons)

Correction replacement of missing values (more than 800 persons reported 0 with quantity although frequency was reported): replacement of quantity by mean between 0 and smallest category (0,5).

wiqu5_02: (usual quantity of wine) wiqu5_02=gdndw_02*0.225*0.11*0.794*1000. (0.225 litres has a standard wine glass, 11% vol. ethanol)

gdndw_02 (quantity wine last 12 months on a drinking day)

- number of drinks (wine) on a drinking day in the last 12 months => dndw_02=dndw_02b
- if missing (person drank during last 30 days) take number of drinks (wine) on a drinking day in the last 30 days => dndw_02=dndw_02a.
- if missing: abstainers (dndw_02c=996) 0 days => dndw_02=0.
- **Problem:** many respondents indicated very high quantities (Infas assumed: the question was misunderstood – possibly the quantities refer to the last 30 days/12 months in total, and not to a typical drinking day) **Correction** (according to Ludwig): if indicated more than 10 glasses of wine on a single drinking day this quantity will be divided by frequency (dfuw_02).
- **Correction:** if frequency is 0, quantity will also be put to 0 (10 persons)
- **Correction:** missing value if frequency is not 0 and quantity =sysmis (2 persons)(replacement by median of the frequency group)

- Correction of replacement of missing values (more than 1100 persons report 0 with quantity although they report frequencies): replacement of quantity by mean between 0 and smallest category (0,5).

spqu5_02: (usual quantity of spirits) $spqu5_02 = gdndl_02 * 0.02 * 0.33 * 0.794 * 1000$.
(0.02 has a small spirits glass, 33% vol ethanol)

dndl_02 (number of drinks spirit, small glasses, 0,02 liter on a drinking day)

- number of drinks (spirits, small glasses) plus 2* number of drinks (spirits, large glasses) on a drinking day in the last 12 months => $dndl_02 = dndl_02a + 2 * dndl_02b$.
- if missing: (person drank in the last 30 days) number of drinks (spirits, small glasses) plus 2* number of drinks (spirits, large glasses) on a drinking day in the last 30 days => $dndl_02 = dndl_02c + 2 * dndl_02d$.
- if missing: abstainers ($dndl_02e = 996$ never drank alcohol, $dndl_02f = 0$ no alc during last 30 days) => $dndl_02 = 0$.
- Problem: many respondents indicated very big quantities (Infas assumed: the question was misunderstood – possibly the quantities refer to the last 30 days/12 months in total, and not to a typical drinking day) Correction (according to Ludwig): if indicated more than 20 small glasses of spirits on a single drinking day this quantity will be divided by frequency ($dful_02$). Correction: if frequency is 0, quantity will also be put to 0 (about 150 persons)
- Correction replacement of missing values (more than 200 persons reported 0 with quantity although they reported frequencies): replacement of quantity by mean between 0 and smallest category (0,5).

Volume

bevo5_02: (annual volume of beer) derived by multiplying $befr5_02$ (annual frequency of beer) by $bequ5_02$ (usual quantity of beer)

wivo5_02: (annual volume of wine) derived by multiplying $wifr5_02$ (annual frequency of beer) by $wiqu5_02$ (usual quantity of beer)

spvo5_02: (annual volume of spirits) derived by multiplying $spfr5_02$ (annual frequency of beer) by $spqu5_02$ (usual quantity of beer)

bsvo5_02: (annual volume based on beverage specific measures) Sum of $bevo5_02$, $wivo5_02$ and $spvo5_02$.

Note: a quantity per drinking day can be obtained by dividing $bsvo5_02$ by $nodd_02$.

Binge drinking

bing5_02: (annual frequency of bingeing, 5+, this is approximately 70 grams of ethanol or more) $bing5_02 = dlnda02$. (no response values reduced to 0)

Problem: 2 cases with 0 quantity and frequency but binge > 0. Correction: set binge = 0.

dlnda02

- take number of days with at least 5 glasses of any alc. beverage (in the last 12 months) (not asked if person drank during the last 30 days) => $dlnda02 = dlnda02b$ (**F71**).
- if missing: take number of days with at least 5 glasses of any alc. bev. (in the last 30 days) *12 => $dlnda02 = dlnda02a$ (**F67**)*12.
- if missing: abstainer ($dlnda02c$ (**F61_6**)=996 never drank alc. or $dlnda02d$ (**F69_2**)=0 no alc. during the last 12 months) =0 => $dlnda02 = 0$.
- Problem: some persons drink more than 60 grams/day but they never report 5+ glasses! Do they drink directly from the bottle?

3 Italy - drinking indicators

Drinking status

Drin5_03: (drinking status based on beverage-specific information; **d4_vino1** (wine drinking status last 12 months), **d9_birra** (beer drinking status last 12 months), **v13_liqu** (spirit drinking status last 12 months); values: 0 (lifetime abstainer); 1 (12 months abstainer); 2 (current drinker)

If person drinks wine, beer or spirits -> drin5_03 = 2 (current drinker)

If person does not drink during the last 12 months, but before -> drin5_03 = 1 (12 months abstainer)

If person had never drunk wine, beer and spirits -> drin5_03 = 0 (lifetime abstainer)

0 missings

Volume

Wivo5_03 (annual volume of wine in grams of pure alcohol, based on **d5_vino2**: frequency and quantity of wine) (alcohol content wine: 13,5% drink size wine: 0,12 l)

Recoding into number of drinks per year

6 or more/day	-> 2184
4-5 / day	-> 1638
2-3 / day	-> 910
1 or less / day	-> 364
5-6 / week	-> 286
3-4 / week	-> 182
1-2 / week	-> 78
less than 1 / week	-> 26

If person drinks no wine (d4_vino1 = 2 or 1) -> wivo5_03 = 0.

Recalculate into grams of pure alcohol -> wivo5_03 = number of drinks per year * 0,12 (drink size) * 0,793 * 1000

Missings: 13

Bevo5_03 (annual volume of beer in grams of pure alcohol, based on **d10_birr**: frequency and quantity of beer) (alcohol content beer: 4,0 % drink size: 0,33 l)

Recoding into number of drinks per year

3 or more / day	-> 1277,5
2 / day	-> 730
1 / day	-> 365
less than 1 / day	-> 338
3 – 6 / week	-> 234
1 -2 / week	-> 78
less than 1 / week	-> 26
occasionally	-> 13

If person drinks no beer (d9_birra = 2 or 1) -> bevo5_03 = 0.

Recalculate into grams of pure alcohol -> bevo5_03 = number of drinks per year * 0,33 (drink size) * 0,793 * 1000

Missings: 10

Spvo5_03 (annual volume of spirits in grams of pure alcohol, based on **d14_liqu**: frequency and quantity of spirits) (alcohol content spirits: 40 % drink size: 0,035 l)

Recoding into number of drinks per year

3 or more / day	-> 1277,5
2 / day	-> 730
1 / day	-> 365
less than 1 / day	-> 338
4 – 6 / week	-> 260
2 -3 / week	-> 130
less than 1 / week	-> 26
occasionally	-> 13

If person drinks no spirits (v13_liqu = 2 or 1) -> spvo5_03 = 0.

Recalculate into grams of pure alcohol -> spvo5_03 = number of drinks per year * 0,035 (drink size) * 0,793 * 1000

Missings: 29

Bsvo5_03 (annual volume based on beverage specific measures, based on d14_liqu, d10_birr, d5_vino2)

Calculate sum of beverage specific volumes -> bsvo5_03 = spvo5_03 + bevo5_03 + wivo5_03

Missings: 50

4 France - Drinking indicators

Drinking status

drin5_04: (drinking status) values: 0 (lifetime abstainer); 1 (12 months abstainer); 2 (current drinker) using:

dfuo_04e: (**q244:** did you drink alcohol?) if yes => 12 months abstainer (drin5_04=1)

dfuo_04f: (**q245:** did you ever drink a slightly alcoholic drink?) if no => lifetime abstainer (drin5_04=0.) if yes => 12 months abstainer (drin5_04=1)

wifr1_04: (based on **q248s1** (=dfuo_04a): frequency of drinking wine, last 12 months) if frequency > 0 => current drinker (drin5_04=2.)

befr1_04: (based on **q248s2** (=dfuo_04b): frequency of drinking beer, last 12 months) if frequency > 0 => current drinker (drin5_04=2.)

spfr1_04: (based on **q248s3** (=dfuo_04c): frequency of drinking strong alcohol, last 12 months) if frequency > 0 => current drinker (drin5_04=2.)

oaf1_04: (based on **q248s4** (=dfuo_04d): frequency of drinking other alcohol, last 12 months) if frequency > 0 => current drinker (drin5_04=2.)

Overall frequencies

nodd_04: maximum frequency of the 4 specific beverage frequencies (last 7 days).
compute nodd_04=max(wifr3_04,befr3_04,spfr3_04,oaf3_04).

Beverage specific frequencies

annual beverage specific frequencies based on question about last 12 months:

wifr1_04: (based on **q248s1** (=dfuo_04a): frequency of drinking wine, last 12 months)

befr1_04: (based on **q248s2** (=dfuo_04b): frequency of drinking beer, last 12 months)

spfr1_04: (based on **q248s3** (=dfuo_04c): frequency of drinking strong alcohol, last 12 months)

oaf1_04: (based on **q248s4** (=dfuo_04d): frequency of drinking other alcohol: cider, champagne, porto..., last 12 months)

recoding:

daily	=> 365 days per year
several times a week	=> 208.5
once a week	=> 52
once a month	=> 12
less frequently	=> 6
never	=> 0
don't know	=> missing

annual beverage specific frequencies, based on questions about last 7 days:

wifr3_04: (based on **q249s1** (=dndw_04b): frequency of drinking wine, last 7 days)

befr3_04: (based on **q249s2** (=dndb_04b): frequency of drinking beer, last 7 days)

spfr3_04: (based on **q249s3** (=dndl_04b): frequency of drinking strong alcohol, last 7 days)

oaf3_04: (based on **q249s4** (=dnds_04b): frequency of drinking other alcohol, last 7 days)

recoding:

every day	=> 364 days per year
3 to 6 days	=> 234
1 to 2 days	=> 78
no	=> 0
don't know	=> missing

mixed annual frequencies for specific beverages based on the last 7 days and last 12 months when there were no consumption in the last 7 days

- wifr5_04:** (based on wifr3_04 and wifr1_04, annual frequency wine) take 12-months-frequency (wifr3_04), if missing or 0 take 12-months-frequency which is based on 7-days-frequency (wifr1_04)
- befr5_04:** (based on befr3_04 and befr1_04, annual frequency beer) take 12-months-frequency (befr3_04), if missing or 0 take 12-months-frequency which is based on 7-days-frequency (befr1_04)
- spfr5_04:** (based on spfr3_04 and spfr1_04, annual frequency spirits) take 12-months-frequency (spfr3_04), if missing or 0 take 12-months-frequency which is based on 7-days-frequency (spfr1_04)
- oافر5_04:** (based on oافر3_04 and oافر1_04, annual frequency other alcohol) take 12-months-frequency (oافر3_04), if missing or 0 take 12-months-frequency which is based on 7-days-frequency (oافر1_04)

Quantities

usual quantities for specific beverages based on “yesterday consumption” (missing value imputation in accordance with 7 days frequency)

- wiqu4_04:** (based on **q251s1** (=dndw_04a) yesterday consumption, wine)
- take yesterday consumption,
 - if frequency of last 7 days is missing => set wiqu4_04 to missing,
if frequency of last 7 days is 0 => set wiqu4_04=0
 - people with 7-days-frequency>0 (wine consumers) but missing values on quantity => missing value imputation (9 cases) by the median quantity value of the frequency group.
 - half of the minimum quantity (0.5) for people with 0 on the quantity but who have a 7-days-freq>0 (how many cases?).
 - recalculate the quantity from glasses into pure ethanol:
compute $wiqu4_04 = wiqu4_04 * 0.15 * 0.12 * 0.794 * 1000$. (1 glass: 0,15 litres, 12% vol. ethanol)
- bequ4_04:** (based on **q251s2** (=dndb_04a) yesterday consumption, beer)
- take yesterday consumption,
 - if frequency of last 7 days is missing => set bequ4_04 to missing,
if frequency of last 7 days is 0 => set bequ4_04=0
 - people with 7-days-frequency>0 (beer consumers) but missing values on quantity => missing value imputation (8 cases) by the median quantity value of the frequency group.
 - half of the minimum quantity (0.5) for people with 0 on the quantity but who have a 7-days-freq>0 (how many cases?).
 - recalculate the quantity from glasses into pure ethanol:
compute $bequ4_04 = bequ4_04 * 0.25 * 0.05 * 0.794 * 1000$. (1 glass: 0,25 litres, 5% vol. ethanol)
- spqu4_04:** (based on **q251s3** (=dndl_04a) yesterday consumption, strong alcohol)
- take yesterday consumption,
 - if frequency of last 7 days is missing => set spqu4_04 to missing,
if frequency of last 7 days is 0 => set spqu4_04=0
 - people with 7-days-frequency>0 (spirits consumers) but missing values on quantity => missing value imputation (3 cases) by the median quantity value of the frequency group.
 - half of the minimum quantity (0.5) for people with 0 on the quantity but who have a 7-days-freq>0 (how many cases?).
 - recalculate the quantity from glasses into pure ethanol:
compute $spqu4_04 = spqu4_04 * 0.04 * 0.425 * 0.794 * 1000$. (1 glass: 0,04 litres, 42,5% vol. ethanol)
- oaqu4_04:** (based on **q251s4** (=dnds_04a) yesterday consumption other alcohol)
- take yesterday consumption,
 - if frequency of last 7 days is missing => set oaqu4_04 to missing,
if frequency of last 7 days is 0 => set oaqu4_04=0
 - 0 people with 7-days-frequency>0 (other alc. consumers) but missing values on quantity

- half of the minimum quantity (0.5) for people with 0 on the quantity but who have a 7-days-freq>0 (how many cases?).
- recalculate the quantity from glasses into pure ethanol:
compute $oaqu4_04 = oaqu4_04 * 10.851$.

bsqu4_04: Total quantity on yesterday consumption (beverage specific quantities sum (wiqu4_04, bequ4_04, spqu4_04, oaqu4_04)).

gequ7_04: Quantity last Saturday in grams. (based on **q252** (=dndo_04))

- take number of glasses last Saturday
- recalculate quantity from number of glasses into grams ethanol:
compute $gequ7_04 = gequ7_04 * 10.851$.

bsqu5_04: Quantity combination: combination of the yesterday quantity and the last Saturday quantity (if people have drunk last Saturday).

- take the weighted mean of bsqu4_04 (sum of beverage specific yesterday quantity) and gequ7_04 (last Saturday quantity): compute $bsqu5_04 = (5 * bsqu4_04 / 7) + (2 * gequ7_04 / 7)$.
(if $gequ7_04 = 0$ or $sysmis(gequ7_04)$ $bsqu5_04 = bsqu4_04$.)

Volume measures

mixed annual volumes for specific beverages based on the last 7 days frequencies and the quantities ("yesterday consumption") for the specific beverages

wivo4_04: (annual volume wine, based on yesterday cons.)

bevo4_04: (annual volume beer, based on yesterday cons.)

spvo4_04: (annual volume spirits, based on yesterday cons.)

oavo4_04: (annual volume other alc., based on yesterday cons.)

take the product of the yesterday consumption and the 7-days frequency

bsvo4_04: annual "beverage specific" volume using the sum of beverage specific volumes.
(wivo4_04, bevo4_04, spvo4_04, oavo4_04)

bsvo5_04: Annual volume calculated by mean of the quantity combination and NODD.
compute $bsvo5_04 = nodd_04 * bsqu5_04$.

5 UK - drinking indicators

Drinking status

drin5_06: (drinking status based on **q31** (During the last 12 months, how often did you have any kind of alcoholic beverage in a single day) and **q27** (Do you ever drink alcohol?))

- If person never drinks alcohol (q31=9 & q27=2) -> drin5_06 = 0 (lifetime abstainer)
- If person didn't drink alcohol in last 12 months (q31=9 & q27=1) -> drin5_06 = 1 (12-month abstainer)
- If person did drink alcohol during the last 12 months -> drin5_06 = 2 (current drinker)

No missings

Frequencies

gefr1_06: (overall frequency based on **q31** (During the last 12 months, how often did you have any kind of alcoholic beverage in a single day))

Recoding into number of drinking days per year

Daily or nearly daily	-> 312
3 – 4 times / week	-> 182
1 – 2 times / week	-> 78
1 – 3 times / month	-> 24
7 – 11 times / 12 months	-> 9
3 – 6 times / 12 months	-> 4,5
twice / 12 months	-> 2
once / 12 months	-> 1
never / 12 months	-> 0

no missings

Quantities

gequ4_06: (usual quantity of alcohol per drinking occasion, based on **q29** (Think about the last time you did drink alcohol. What did you have?)). One unit of alcohol contains 8 grams of alcohol.

- If person didn't drink alcohol during the last 12 months (abstainer, based on gefr1_06) -> gequ4_06 = 0. (296 people with quantities get the 0).
- gequ4_06 = usual number of drinks * 8 grams of pure alcohol.

No missings

gequ3_06 (not in the workdeck): (usual quantity of alcohol per week, based on **q30** (What have you had to drink in the past week?)). One unit of alcohol contains 8 grams of alcohol.

- If person didn't drink alcohol during the last 12 months (abstainer, based on gefr1_06) -> gequ3_06 = 0.
- gequ3_06 = usual number of drinks per week * 8 grams of pure alcohol.

No missings

Volumes

gevo5_06: (annual volume of alcohol, based on

- (if gequ3_06 (quantity last week) = 0) or (if gequ3_06 (quantity last week) > 0 and person is no weekly drinker (gefr1_06 < 52))
→ gevo5_06 = gequ4_06 (quantity of last drinking occasion) * gefr1_06 (overall frequency).
- if gequ3_06 (quantity last week) > 0 and person is weekly drinker (gefr1_06 > 52)
→ gevo5_06 = gequ3_06 (quantity last week) * 52

no missings

gevo3_06: annual volume of alcohol (based on 7 days question **q30**)

- compute $\text{gevo3_06} = \text{gequ3_06} * 52$

no missings

gevo4_06: annual volume of alcohol (based on last drinking occasion **q29** and overall frequency **q31**)

- $\text{gevo4_06} = \text{gequ4_06} * \text{gefr1_06}$

no missings

nodd__06: annual number of drinking days (based on **q31**)

- $\text{nodd_06} = \text{gefr1_06}$

no missings

6 Israel - drinking indicators

Drinking status

drin1_07: drinking status (0 "12 months abstainer" 1 "12 months drinker") using the variables concerning 12 months consumption of wine (yrwine), beer (yrbeer), and spirits (yrliqr). 12 months drinkers (1) were defined as drinker of at least one of these beverages in the last 12 months.

Frequencies of drinking

Frequencies were asked in a matrix with response alternatives: Never, 1-2 times, 3-5 times 6-9 times; 10-19 times, 20-29 times and 30+

For consumption in the past month and the past 12 month (in addition the same question was asked for 7 days but was not in the dataset furnished by Giora Rahav). Because there can't be 30+ drinking days in the past month (or in the past 7 days), we assumed this to be occasions instead of drinking days.

For consumption in the past 12 months for beer wine liquor, the following frequencies 0, 1.5, 4, 7.5, 14.5, 24.5, and 32.25

(NOTE according to new rules this should be 32.75 but has not yet been changes in the workdecks) were stored into the variables BEOC1_07; WIOC1_07, SPOC1_07.

The same was done for monthly occasions, resp. BEOC2_07; WIOC2_07, SPOC2_07

*The following algorithm was used to convert occasions into drinking days. We estimated the mean of maximum beverage specific frequencies and the sum of beverage specific frequencies, assuming that there are occasions with single beverages and occasions with multiple beverages. Both separately for monthly and yearly frequencies.

Attention: rule is different e.g. in France where only the maximum of beverage specific frequencies was taken (difference here: not drinking days but occasions). To be adopted.

```
COMPUTE YEARLY1=max(BEOC1_07; WIOC1_07, SPOC1_07).
compute YEARLY2=sum(BEOC1_07; WIOC1_07, SPOC1_07).
compute YYRFREQ=(yearly1 + yearly2)/2.
```

```
COMPUTE MONTHLY1=max(BEOC2_07; WIOC2_07, SPOC2_07)*12.
compute MONTHLY2=sum(BEOC2_07; WIOC2_07, SPOC2_07)*12.
compute MTFREQ=(monthly1 + monthly2)/2.
```

A final variable was constructed to estimate an overall frequency, taking monthly frequencies and imputing yearly frequencies for drinkers without monthly but annual frequencies (if monthly take monthly else yearly). This variable was labeled BSOC5_07. **ONLY FOR THIS VARIABLE MONTHLY OCCASIONS WERE MULTIPLIED BY 12 TO PROJECT TO ANNUAL OCCASIONS.**

Quantity of drinking per occasion.

gequ4_07: generic quantity based on the last drinking occasion number of drinks (drinks3). Quantities were multiplied with 12 (grams) the assumed standard drink size.

recode Drinks (0 drinks=0)(1 drink=1)(2-3 drinks=2.5)(4-5 drinks=4.5)(6 drinks or more=6.75) into drinks3.

*homogenization 2 cases with drinks but being non-drinker.

if drin1_07=0 drinks3=0.

* minimum drink size for drinkers with 0 quantities.

if drin1_07=1 and drinks3=0 drinks3=0.5.

Drinks were multiplied by 12 grams (according to information from Giora). The variable labeled GEQU4_07.
compute **gequ4_07**=drinks3*12.

Volume

Volume was computed by multiplying quantity on the last occasion with the overall frequency of occasions based on beverage specific measures and a mixture of reference periods. The variable was labeled BSVO5_07.
compute **bsvo5_07**=gequ4_07*bsoc5_07.

Binge

Binge drinking was constructed using a question on 5+ drinking during the past 30 days, and was directly converted to annual frequencies. Variable was labeled BING2_07.

recode binge (none=0)(once=12)(2-3 times=30)(4-5 times=54)(6+ times=81) into **bing2_07**.

7 Sweden - drinking indicators

Drinking Status

drin1_09: drinking status (based on **audit1 (q34)** (overall frequency), **kons12m (q31)** (drinking status last 12 months) **konsliv (q32)** (ever consumed alcohol))

- If person reports frequency (gefr6_09 > 0) => drin1_09 = 2 (current drinker).
- If person reports no frequency (gefr6_09 = 0) and person is not a lifetime abstainer (konsliv=1) => drin1_09 = 1 (current abstainer)
- If person reports no frequency and is a lifetime abstainer (konsliv=2) => drin1_09 = 0 (lifetime abstainer).

No missings

Frequencies

gefr6_09: overall frequency based on **audit1 (q34)** (overall frequency) and **kons12m (q31)** (drinking status last 12 months)

Recoding into number of drinking days per year

Never	-> 0
Once a month or more seldom	-> 6,5
2 – 4 times a month	-> 36
2 – 3 times a week	-> 130
4 times a week or more	-> 286

If person drinks no alcohol (disregarding light beer, kons12m=2) -> gefr6_09 = 0.

4 missings (0,1%)

wifr1_09: frequency of wine drinking (based on **oftavin (q45)** (How often drunk wine during last 12 months?))

recoding into number of wine drinking days

almost every day	-> 338
4 – 5 times a week	-> 234
2 – 3 times a week	-> 130
approx once a week	-> 52
2 – 3 times a month	-> 30
approx once a month	-> 12
a few times only	-> 6,5
once	-> 1
never	-> 0

4 missings

Not asked in sub sample c

befr1_09: frequency of beer drinking (based on **oftasol (q43)** frequency of medium and strong beer)

recoding into number of beer drinking days

almost every day	-> 338
4 – 5 times a week	-> 234
2 – 3 times a week	-> 130
approx once a week	-> 52
2 – 3 times a month	-> 30
approx once a month	-> 12
a few times only	-> 6,5
once	-> 1
never	-> 0

5 missings

Not asked in sub sample c

spfr1_09: frequency of spirits drinking (based on **oftasp (q47)**)

recoding into number of beer drinking days

almost every day	-> 338
4 – 5 times a week	-> 234
2 – 3 times a week	-> 130
approx once a week	-> 52
2 – 3 times a month	-> 30
approx once a month	-> 12
a few times only	-> 6,5
once	-> 1
never	-> 0

5 missings

Not asked in sub sample c

oaf1_09: frequency of folk beer drinking (based on **oftafol (q41)**)

recoding into number of beer drinking days

almost every day	-> 338
4 – 5 times a week	-> 234
2 – 3 times a week	-> 130
approx once a week	-> 52
2 – 3 times a month	-> 30
approx once a month	-> 12
a few times only	-> 6,5
once	-> 1
never	-> 0

6 missings

Not asked in sub sample c

obfr1_09: frequency of cider drinking (based on **oftacid (q48a)**)

recoding into number of beer drinking days

almost every day	-> 338
4 – 5 times a week	-> 234
2 – 3 times a week	-> 130
approx once a week	-> 52
2 – 3 times a month	-> 30
approx once a month	-> 12
a few times only	-> 6,5
once	-> 1
never	-> 0

10 missings

Not asked in sub sample c

nodd__09: number of drinking days

nodd__09 = maximum of gefr1_09, befr1_09, wifr1_09, spfr1_09, oaf1_09 and obfr1_09

2 missings

gffr1_09: annual frequency in days, based on the graduated frequency

gffr1_09= sum of the (capped) frequencies gfa2, gfa3, gfa4, gfa5, gfa6, gfa7. (see below: gfvo6_09).

Only asked to sub-sample C

No missings

Quantities

wiqu1_09: usual quantity of wine drinking (based on **vin75 (q46b)**, **vin37 (q46a)** and **vingl15 (q46c)**)
= wine quantity in cl), alcohol content 12,43%

- recalculated into amount of pure alcohol -> winequantity (0,15/0,37/0,75) * 0,1243 (alcohol content) * 0,793 * 1000
- If person has missing frequency -> wiqu1_09 = missing (4 cases)
- 8 people report frequency but quantity = 0 -> wiqu1_09 = 0.74 (half of the smallest quantity)

Not asked in sub sample c

No missings (except sub sample c)

bequ1_09: usual quantity of beer drinking (based on **sol33 (q44a)**, **sol50 (q44b)**, **solgl20 (q44c)** and **solgl40 (q44d)** = beer quantity in cl), alcohol content 5,589%

- recalculated into amount of pure alcohol -> beerquantity $(0,33/0,50/0,20/0,40) * 0,05589$ (alcohol content) * 0,793 * 1000
- If person has missing frequency -> bequ1_09 = missing (5 cases)
- 9 people report frequency but quantity = 0 -> bequ1_09 = 4,43 (half of the smallest quantity)

Not asked in sub sample c

1 missing (except sub sample c)

spqu1_09: usual quantity of spirits drinking (based on **sp35 (q48a)**, **sp70 (q48b)**, **spgl4 (q48c)**, **spgl6 (q48d)** and **spcl (q48e)** = spirits quantity in cl), alcohol content 38,15%

- recalculated into amount of pure alcohol -> spiritsquantity $(0,35/0,70/0,04/0,06/0,01) * 0,3815$ (alcohol content) * 0,793 * 1000
- If person has missing frequency -> spqu1_09 = missing (5 cases)
- 16 people report frequency but quantity = 0 -> spqu1_09 = 1,51 (half of the smallest quantity)

1 missing (except sub sample c)

oaqu1_09: usual quantity of folk beer drinking (based on **fol33 (q42a)**, **fol50 (q42b)**, **folgl20 (q42c)** and **folgl40 (q42d)** = folk beer quantity in cl), alcohol content 3,2%.

- recalculated into amount of pure alcohol -> folk beerquantity $(0,33/0,50/0,20/0,40) * 0,032$ (alcohol content) * 0,793 * 1000
- If person has missing frequency -> oaqu1_09 = missing (6 cases)
- 10 people report frequency but quantity = 0 -> oaqu1_09 = 2,53 (half of the smallest quantity)

2 missings (except sub sample c)

obqu1_09: usual quantity of cider drinking (based on **cid33 (q48ca)**, **cid50 (q48cb)**, **cidgl20 (q48cc)** and **cidgl40 (q48cd)** = cider quantity in cl), alcohol content 4,91%

- recalculated into amount of pure alcohol -> ciderquantity $(0,33/0,50/0,20/0,40) * 0,0491$ (alcohol content) * 0,793 * 1000
- If person has missing frequency -> obqu1_09 = missing (10 cases)
- 10 people report frequency but quantity = 0 -> obqu1_09 = 3,89 (half of the smallest quantity)

6 missing (except sub sample c)

gequ6_09: usual overall quantity (based on **audit2 (q35)**), alcohol content of a standard drink: 15 ml
recoding into number of drinks

1 – 2	-> 1,5
3 – 4	-> 3,5
5 – 6	-> 5,5
7 – 9	-> 8
10 or more	-> 11,25

recalculate into amount of pure alcohol -> number of drinks * 0,015 (alcohol content) * 0,793 * 1000

4 missings (0,1%)

Volumes

bevo1_09: annual volume of beer drinking

- compute the product of bequ1_09 and befr1_09

5 missings (except sub-sample C)

wivo1_09: annual volume of wine drinking

- compute the product of wiqu1_09 and wifr1_09

4 missings (except sub-sample C)

spvo1_09: annual volume of spirits drinking

- compute the product of spqu1_09 and spfr1_09

5 missings (except sub-sample C)

oavo1_09: annual volume of folk beer drinking

- compute the product of oaqu1_09 and oaf1_09
6 missings (except sub-sample C)

obvo1_09: annual volume of cider drinking

- compute the product of obqu1_09 and obf1_09
10 missings (except sub-sample C)

bsvo1_09: annual volume based on beverage specific information

- computing the sum of bevo1_09, wivo1_09, spvo1_09, oavo1_09 and obvo1_09
4 missings (except sub-sample C)

gevo6_09: annual volume of alcohol drinking

- compute the product of gequ1_09 and gefr1_09
4 missings (0,1%)

gfvo6_09: annual volume, based on graduated frequency **gf20plus (q39a)**, **gf1220 (q39b)**, **gf0811 (q39c)**, **gf567 (q39d)**, **gf34 (q39e)**, **gf12 (q39f)**, frequency 20+/12-20/8-11/5-7/3-4/1-2 drinks per occasion; **maxdrink (q38)** largest number of drinks on one occasion; alcohol content 15 ml (one drink)
recoding all frequency variables into number of drinking days (into gfa2-gfa7)

basically every day	-> 338
4 – 5 a week	-> 234
2 – 3 a week	-> 130
approx 1 a week	-> 52
2 – 3 times a month	-> 30
approx once a month	-> 12
only a few times	-> 6,5
once in the past 12 months	-> 1
never	-> 0

Some people report summary frequency of more than 365 days. Correction for those cases: each frequency (gfa1-gfa7) is multiplied with 365/(sum of frequencies(gfa1-gfa7))

calculate the volumes

gfhelp2 = gfa2 * 22.25 (20+ drinks) * 0.015 * 0.793 * 1000
gfhelp3 = gfa3 * 15.5 (12-19 drinks) * 0.015 * 0.793 * 1000
gfhelp4 = gfa4 * 9.5 (8-11 drinks) * 0.015 * 0.793 * 1000
gfhelp5 = gfa5 * 6 (5-7 drinks) * 0.015 * 0.793 * 1000
gfhelp6 = gfa6 * 3.5 (3-4 drinks) * 0.015 * 0.793 * 1000
gfhelp7 = gfa7 * 1.5 (1-2 drinks) * 0.015 * 0.793 * 1000

computing gevo6_09 by building the sum of gfhelp2+gfhelp3+ gfhelp4+ gfhelp5+ gfhelp6+ gfhelp7

No missings

Only asked for sub-sample C

Binge

bing6_09: binge drinking (based on **audit 3 (q37)** (frequency of drinking 6 or more drinks at one occasion))

recoding into number of binge drinking (6+ glasses) days

never	-> 0
once a month or less often	-> 6,5
2 – 4 times a month	-> 36
2 – 3 times a week	-> 130
4 times a week or more	-> 286

9 missings

bigf1_09: frequency of binge drinking based on graduated frequencies

- building the sum of gfa2, gfa 3, gfa4 and gfa5 (frequency of drinking 20plus, 12-19, 8-11 and 5-7 drinks per occasion (see above))

No missings

Only asked for sub-sample C

8 Finland - drinking indicators

(cursive: names of variables which only appear in the syntax)

note: there are 38 persons with missing values on nearly all relevant variables. These persons have values on the AUDIT-questions and weren't excluded.

Drinking status

drin1_10: (=drinkex) (drinking status, based on **kayrait** (alcohol user or abstainer) and **raikay** (ever consumed alcohol))

- If person is abstainer (kayrait=2) and has never used alcohol (raikay=2) => drin1_10 = 0 (lifetime abstainer).
- If person is abstainer (kayrait=2) and has used alcohol before (raikay=1) => drin1_10 = 1 (current abstainer).
- If person is current drinker (kayrait=1) => drin1_10 = 2 (current drinker)
- 39 missings (2%)

drin6_10: (=drinkaud, based on oqfaudit, oafre) (drinking status, based on **tihalk** (overall frequency))

- If person never drinks alcohol (tihalk=1) => drin6_10 = 0 (abstainer)
- If person drinks alcohol (tihalk>1) => drin6_10 = 1 (drinker)
- 157 missings (8%)

Frequencies

befr1_10: (=beerfre) (annual frequency of beer drinking, based on **kuolutt** (freq. beer))

- recoding frequencies into days per year:

daily	=> 365
4-5 times weekly	=> 234
2-3 times weekly	=> 130
once a week	=> 52
2-3 times monthly	=> 30
approximately once a month	=> 12
approximately once during a couple of months	=> 8
3-4 times a year	=> 3.5
once or twice a year	=> 1.5
less than once a year	=> 0.5
never or only tasted	=> 0
- if person is abstainer (**kayrait** = 2) => befr1_10 = 0
- 38 missings (1,9%)

wifr1_10: (=winefre) (annual frequency of wine drinking, based on **kuviini** (freq. wine))

- recoding frequencies into days per year: see befr1_10
- if person is abstainer (**kayrait** = 2) => wifr1_10 = 0
- 39 missings (2,0%)

spfr1_10: (=spirfre) (annual frequency of spirits drinking, based on **kuvakev** (freq. spirits))

- recoding frequencies into days per year: see befr1_10
- if person is abstainer (**kayrait** = 2) => spfr1_10 = 0
- 39 missings (2,0%)

oaf1_10: (=ciderfre) (annual frequency of cider drinking, based on **kusiid** (freq. cider))

- recoding frequencies into days per year: see befr1_10
- if person is abstainer (**kayrait** = 2) => oaf1_10 = 0
- 38 missings (1,9%)

gefr1_10: (=oafreq) (overall frequency, based on **kukayt** (overall frequency))

- recoding frequencies into days per year:

daily	=> 365
4-5 times weekly	=> 234

- | | |
|--|--------|
| 2-3 times weekly | => 130 |
| once a week | => 52 |
| 2-3 times monthly | => 30 |
| approximately once a month | => 12 |
| approximately once during a couple of months | => 8 |
| 3-4 times a year | => 3.5 |
| once or twice a year | => 1.5 |
| less than once a year | => 0.5 |
- if person is abstainer (**kayrait** = 2) => gefr1_10 = 0
 - 40 missings (2,0%)

gefr6_10: (=oafre) (overall frequency, based on **tihalk** (overall freq.))

- recoding frequencies into days per year:

never	=> 0
monthly or less	=> 6.5
2-4 times a month	=> 36
2-3 times a week	=> 130
4 times a week or more	=> 312
- 157 missings (8,0%)

gffr1_10: (=sum2, based on **gfa2, gfa3, gfa4, gfa5, gfa6, gfa7**) (overall frequency based on graduated frequency questions **tih18** (how often 18+ drinks during last 12 months), **tih13_17** (how often 13-17 drinks), **tih8_12** (how often 8-12 drinks), **tih5_7** (how often 5-7 drinks), **tih3_4** (how often 3-4 drinks), **tih1_2** (how often 1-2 drinks), **maxann** (number of drinks on the day with highest consumption during the last 12 months))

- recoding frequencies into days per year for all 6 GF variables:

daily	=> 365
4-5 times weekly	=> 234
2-3 times weekly	=> 130
once a week	=> 52
2-3 times monthly	=> 30
appr. once a month	=> 12
appr. once during a couple of months	=> 8
3-4 times a year	=> 3.5
1-2 times a year	=> 1.5
less than once a year	=> 0.5
never	=> 0
- 55 people have missings on all 6 GF variables
- persons who report a drink number on **maxann** but have a missing or 0 frequency on the relevant GF variable get the smallest frequency (0.5 days per year): these is 1 person on **tih18**, 2 people on **tih13_17**, 6 people on **tih8_12**, 7 people on **tih5_7**, 2 people on **tih3_4**, 5 people on **tih1_2**
- gffr1_10 = sum of frequencies from the GF (6 GF variables see above)
- for 56 people this sum is higher than 365 days => gffr1_10 = 365.
- if person is abstainer (**kayrait** = 2) => gffr1_10 = 0.
- 39 missings (2%)

nodd_10: (annual number of drinking days, based on beverage-specific frequencies for beer, wine, spirits and cider and overall frequency (**kuolutt, kuviini, kuvakev, kusiid, kukayt**))

- **nodd_10** = Maximum of beverage-specific and overall frequencies (**befr1_10, wifr1_10, spfr1_10, oaf1_10, gefr1_10**)
- 38 missings (1,9%)

Quantities

bequ1_10: (=beerq, based on **beerqua**) (usual quantity of beer on a drinking day in grams of pure alcohol, based on **kpolut** (usual quantity of beer on a drinking occasion)) (ethanol contents: 4,62%)

- recoding quantities in number of bottles (one bottle:0.33l):

less than a bottle (0,33l)	=> 0.5
----------------------------	--------

- | | |
|--------------------|----------|
| 1 bottle | => 1 |
| 1-2 bottles | => 1.5 |
| 2 bottles | => 2 |
| 3 bottles | => 3 |
| 4-5 bottles | => 4.5 |
| 6-9 bottles | => 7.5 |
| 10 or more bottles | => 11.25 |
- if person is abstainer (**kayrait** = 2) => bequ1_10 = 0
 - 4 people report a frequency (befr1_10) but no quantity: imputation of beer quantity (in number of bottles) by the half of the smallest category => 0.25.
 - recalculate quantities into grams of pure alcohol:

$$\text{bequ1_10} = (\text{number of bottles on one occasion}) * 0.33(\text{bottle size}) * 0.462(\text{ethanol contents}) * 0.793 * 1000$$
 - 38 missings (1,9%)

wiqu1_10: (=wineq, based on winequa) (usual quantity of wine on a drinking day in grams of pure alcohol, based on **kpviini** (usual quantity of wine on a drinking occasion)) (ethanol contents: 12,29%)

- recoding quantities in number of glasses (one glass: 0.1l):

half a glass (<0.1l)	=> 0.5
1 glass (0.1-0.15l)	=> 1.25
a couple of glasses (0.2-0.25l)	=> 2.25
slightly less than a half bottle (0.3l)	=> 3
half a bottle (0.375l)	=> 3.75
slightly less than a bottle (0.5-0.6l)	=> 5.5
1 bottle (0.75l)	=> 7.5
more than a bottle (more than 0.8l)	=> 8.25
- if person is abstainer (**kayrait** = 2) => wiqu1_10 = 0
- 4 people report a frequency (wifr1_10) but no quantity: imputation of wine quantity (in number of glasses) by half of the smallest category => 0.25.
- recalculate quantities into grams of pure alcohol:

$$\text{wiqu1_10} = (\text{number of glasses on one occasion}) * 0.1(\text{glass size}) * 0.1229(\text{ethanol contents}) * 0.793 * 1000$$
- 3 missing values: imputation by the median of the corresponding frequency-group (wifr1_10),
- 39 missings (2,0%)

spqu1_10: (=spirq, based on spirqua) (usual quantity of spirits on a drinking day in grams of pure alcohol, based on **kpvakev** (usual quantity of spirits on a drinking occasion)) (ethanol contents: 36,44%)

- recoding quantities in number of glasses (one glass: 0.04l):

one shot (0.04l)	=> 1
a couple of shots (0.07-0.08l)	=> 2
about three shots (0.1l)	=> 3
about four shots (0.15l)	=> 4
5-6 shots or half a bottle (0.2-0.25l)	=> 5.5
7-8 shots or a little more than half a bottle (0.3l)	=> 7.5
9-10 shots or a little less than a bottle (0.4l)	=> 9.5
one half-liter bottle or more	=> 14
- if person is abstainer (**kayrait** = 2) => spqu1_10 = 0
- 1 person reports no frequency but a quantity => the quantity is put to 0 spqu1_10 = 0
- 8 people report a frequency (spfr1_10) but no quantity: imputation of spirits quantity (in number of glasses) by half of the smallest category => 0.25. (**müsste eigentlich 0.5 sein, aber was solls**)
- recalculate quantities into grams of pure alcohol:

$$\text{spqu1_10} = (\text{number of glasses on one occasion}) * 0.04(\text{glass size}) * 0.3644(\text{ethanol contents}) * 0.793 * 1000$$
- 1 missing value: imputation by the median of the corresponding frequency-group (spfr1_10),
- 39 missings (2,0%)

oaqu1_10: (=ciderq, based on ciderqua) (usual quantity of cider on a drinking day in grams of pure alcohol, based on **kpsiid** (usual quantity of cider on a drinking occasion)) (ethanol contents: 4,73%)

- recoding quantities in number of bottles (one bottle: 0.33l): see bequ1_10
- if person is abstainer (**kayrait** = 2) => oaqu1_10 = 0
- 4 people report no frequency but a quantity => the quantity is put to 0 oaqu1_10 = 0
- 6 people report a frequency (oaf1_10) but no quantity: imputation of cider quantity (in number of bottles) by the half of the smallest category => 0.25.
- recalculate quantities into grams of pure alcohol:

$$\text{oaqu1_10} = (\text{number of bottles on one occasion}) * 0.33(\text{bottle size}) * 0.0473(\text{ethanol contents}) * 0.793 * 1000$$
- 1 missing value: imputation by the median of the corresponding frequency-group (osfr1_10),
- 38 missings (1,9%)

gequ6_10: (=oaquan) (overall quantity on a drinking day, based on **annosalk** (overall quantity on a drinking day))

- recoding quantities in number drinks:

1-2	=> 1.5
3-4	=> 3.5
5-6	=> 5.5
7-9	=> 8.5
10 or more	=> 11.25
I don't use alcohol	=> 0
- recalculate quantities into grams of pure alcohol (assuming that in a standard drink are 10 grams of pure alcohol):

$$\text{gequ6_10} = (\text{number of drinks on a drinking day}) * 10$$
- 6 people report no frequency (gefr6_10) but a quantity => the quantity is put to 0 gequ6_10 = 0
- 10 people report a frequency (gefr6_10) but no quantity => imputation of the quantity by half of the smallest category => 0.75
- 4 people have missings on quantity, but report frequencies (gefr6_10) => imputation of the quantities by the median of the corresponding frequency-group (gefr6_10),
- 157 missings (8%)

Volume

bevo1_10: (annual volume of beer in grams of pure alcohol, based on **kuolutt** (freq. beer) and **kpolut** (usual quantity of beer on a drinking occasion))

- $$\text{bevo1_10} = \text{befr1_10}(\text{number of beer-drinking days per year}) * \text{bequ1_10}(\text{grams pure alcohol from drinking beer per drinking occasion})$$
- 38 missings (1,9%)

wivo1_10: (annual volume of wine in grams of pure alcohol, based on **kuviini** (freq. wine) and **kpviini** (usual quantity of wine on a drinking occasion))

- $$\text{wivo1_10} = \text{wifr1_10}(\text{number of wine-drinking days per year}) * \text{wiqu1_10}(\text{grams pure alcohol from drinking wine per drinking occasion})$$
- 39 missings (2,0%)

spvo1_10: (annual volume of spirits in grams of pure alcohol, based on **kuvakev** (freq. spirits) and **kpvakev** (usual quantity of spirits on a drinking occasion))

- $$\text{spvo1_10} = \text{spfr1_10}(\text{number of spirits-drinking days per year}) * \text{spqu1_10}(\text{grams pure alcohol from drinking spirits per drinking occasion})$$
- 39 missings (2,0%)

oavo1_10: (annual volume of cider in grams of pure alcohol, based on **kusiid** (freq. cider) and **kpsiid** (usual quantity of cider on a drinking occasion))

- $$\text{oavo1_10} = \text{oaf1_10}(\text{number of cider-drinking days per year}) * \text{oaqu1_10}(\text{grams pure alcohol from drinking cider per drinking occasion})$$
- 38 missings (1,9%)

bsvo1_10: (annual overall volume in grams of pure alcohol, based on beverage-specific volumes for beer, wine spirits and cider (**kuolutt**, **kpolut**, **kuviini**, **kpviini**, **kuvakev**, **kpvakev**, **kusiid**, **kpsiid**))

- bsvo1_10 = sum of annual volume of beer, wine, spirits and cider (bevo1_10, wivo1_10, spvo1_10, oavo1_10)
- 40 missings (2,0%)

gfvo1_10: (=sum3, based on *gfhelp2* to *gfhelp7*) (annual volume in grams of pure alcohol, based on the GF **tih18** (how often 18+ drinks during last 12 months), **tih13_17** (how often 13-17 drinks), **tih8_12** (how often 8-12 drinks), **tih5_7** (how often 5-7 drinks), **tih3_4** (how often 3-4 drinks), **tih1_2** (how often 1-2 drinks) **maxann** (number of drinks on the day with highest consumption during the last 12 months))

- recoding the 6 frequency-variables and correcting them according to maxann: see *gfr1_10*
- 56 people report frequencies of more than 365 days in summary => correction of single frequencies by multiplying these by 365/(sum of frequencies)
- recalculate the frequencies into 6 quantity-variables (grams of pure alcohol) by using the following drink numbers (one standard drink contains 10 grams):

18+ drinks	=> 19 drinks
13-17 drinks	=> 15 drinks
8-12 drinks	=> 10 drinks
5-7 drinks	=> 6 drinks
3-4 drinks	=> 3.5 drinks
1-2 drinks	=> 1.5 drinks
- gfvo1_10 = sum of the 6 quantity-measures which are based on the graduated-frequency-variables
- 39 missings (2%)

gevo6_10: (annual overall volume in grams of pure alcohol, based on **tihalk** (overall freq.) and **annosalk** (overall quantity on a drinking day))

- gevo6_10 = (overall frequency in days per year) *gefr6_10* * (overall quantity per drinking day in grams of pure alcohol) *gequ6_10*.
- 157 missings (8%)

Binge drinking

bing6_10: (=bingeaud) (frequency of drinking 6+ drinks on one occasion in days per year, based on **tih6ann** (frequency of drinking 6 or more drinks))

- recoding frequencies into days per year:

never	=> 0
less than monthly	=> 6
once a month	=> 12
once a week	=> 52
daily or almost daily	=> 312
- if person is abstainer (**tihalk**=1) => **bing6_10** = 0
- 158 missings (8%)

bigf_10: (=bingegf) (frequency of drinking 5+drinks on one occasion in days per year, based on the GF questions **tih5_7** (how often 5-7 drinks), **tih3_4** (how often 3-4 drinks), **tih1_2** (how often 1-2 drinks) **maxann** (number of drinks on the day with highest consumption during the last 12 months))

- recoding the 6 frequency-variables and correcting them according to maxann: see *gfr1_10*
- 56 persons report frequencies of more than 365 days in summary => correction of single frequencies by multiplying these by 365/(sum of freq.s)
- bigf1_10 = sum of frequency drinking 5-7 drinks, 8-12 drinks, 1-17 drinks and 18 or more drinks on one occasion
- 39 missings (2%)

9 Norway – drinking indicators

Drinking status

used variables: a_1: ever tasted beer
a_2: tasted beer during the last 12 months
a_7: ever tasted wine
a_8: tasted wine during the last 12 months
a_15: ever tasted spirits
a_16: tasted spirits during the last 12 months
a_24: tasted alcopops during the last 12 months

- if a_2 & a_8 & a_16 & a_24 are answered with no, the respondent is a 12 months abstainer
- if a_1 & a_7 & a_15 are answered with no, the respondent is a lifetime-abstainer
- if a_2 or a_8 or a_16 or a_24 is answered with yes, the respondent is a current drinker

The corresponding variable is labelled DRIN5_11 (0=lifetime abstainer, 1=former drinker; 2=current drinker). The 5 in the variable name is due to the use of a mixture of variables and the country code is used because construction is not based on core questions.

Beverage specific frequencies

In fact respondents had the possibility to give their consumption either for the past 30 days or the past 12 months, thus we call this a mixed measure (coded 5 at the fifth position). All frequencies were converted in annual frequencies.

used variables: a_3: beer, usual frequency/year: open-ended question labelled BEFR5_11
a_9: wine, usual frequency/year open-ended question labelled WIFR5_11
a_17: spirits, usual frequency/year: open-ended question labelled SPFR5_11
a_22: home-distilled spirits, usual frequency/year: open-ended question labelled OAFR5_11
a_25: alcopops, usual frequency/year: open-ended question labelled OBFR5_11

- get overall frequency NODD__11 by taking the maximum of BEFR5_11, WIFR5_11, SPFR5_11, OAFR5_11, OBFR5_11

Note there is no frequency question for all beverages combined

Quantities per drinking occasion

Beverage specific quantities were calculated:

used variables: a_4: beer, usual quantity, country recommended container sizes were used in litres of beer (0.2, 0.35, 0.5, 0.7, 1.05, 1.55, 2.6, 4)
a_10: wine, usual quantity; country recommended container sizes were used in litres of wine (0.08, 0.15, 0.25, 0.37, 0.5, 0.75, 1.06)
a_18: spirits, usual quantity; country recommended container sizes were used in litres of spirits (0.03, 0.05, 0.1, 0.15, 0.2, 0.25, 0.37, 0.5, 0.81)

- 3 men (beer)/ 5 (wine)/1 (spirits) people have a frequency but no quantity. Quantities were imputed for those by corresponding median quantities for corresponding frequency groups with complete data on frequency and quantity.
- Quantities were transformed into grams of pure ethanol assuming volume percentages of 4.4% for beer; 13% for wine, and 43% for spirits. Variables are labelled BEQU5_11 (Beer), WQU5_11 (Wine) and SPQU5_11 (Spirits)

In addition, a quantity for the last drinking day was constructed:

The following drink sizes were used: small bottle(half a bottle /glass of beer =0.35l; half a litre bottle of beer = 0.5l; a glass of wine=0.15l; shot glasses/drinks of spirits = 0.05l. Using the same conversion factors for volume % the following variables for the last drinking occasion was created: BEQU4_11; WIQU4_11, SPQU4_11.

The 4 in the variable name stands for "last drinking occasion".

Summing all three quantities, the overall quantity on the last occasion was derived, and labelled BSQU4_11.

BS in variable name stands for "beverage specific".

Lifetime abstainers were set to 0 on the last drinking occasion.

Volume

Derived by multiplying BEFR5_11 with BEQU5_11, WIFR5_11 with WIQU5_11, and SPFR5_11 with SPQU5_11, and summing all three products. Resulting variables were BEVO5_11, WIVO5_11, SPVO5_11 for beverage specific volumes and BSVO5_11 for the overall volume.

A quantity per drinking day can be obtained by dividing BSVO5_11 with NODD__11.

Binge drinking

used variables: a_5: beer, max. quantity (Filter for 6 half bottles or more)
a_6: beer, frequency 6 half bottles or more; open ended frequency
a_11: wine, max. quantity (Filter for ¾ litres or more)
a_12: wine, frequency of ¾ bottles open ended question
a_19: spirits, max. quantity (Filter for ½ a bottle (1/3 Litre) or more)
a_20: spirits, frequency of half bottle or more; open-ended question

- binge-variables for each beverage (binge_be, binge_wi, binge_sp) were constructed
- 10 missings in binge_be, 4 of them are usually binge drinkers (beer), also some missings for other beverages
- correction for drinkers usually consuming such an amount:
if (sysmis(binge_be) & be_l>=2.6) binge_be=be_fre.
if (sysmis(binge_wi) & wi_l>=0.75) binge_wi=wi_fre.
if (sysmis(binge_sp) & sp_l>=0.33) binge_sp=sp_fre.
- We created a conservative binge variable by computing the maximum of binge_be, binge_wi & binge_sp
- This variable is called BING5_11

10 The Netherlands - drinking indicators

One standard drink is 10 gram of pure alcohol. (according to Ronald D. Knibbe)

Note: There are no beverage specific frequencies or quantity questions.

Frequency and quantity is asked for weekdays, weekend and for the last 7 days.

Drinking status

drin1_12: (drinking status, based on **alc7**, **gehont**) values: 0 (lifetime abstainer); 1 (12 months abstainer); 2 (current drinker)

- use alc7 (never consumed alcohol) and gehont (abstainer or drinker in the past 12 months)

Frequencies

gefr1_12: (overall frequency, based on dfuo_12a (**qfv1**: frequency weekdays), dfuo_12b (**qfv3**: frequency weekend days))

recoding weekdays (Monday to Thursday):

4 days	=> 4
3 days	=> 3
2 days	=> 2
1 day	=> 1
less than one day	=> 0.5
I never drink on weekdays	=> 0

recoding weekend days (Friday to Sunday):

3 days	=> 3
2 days	=> 2
1 day	=> 1
less than one day	=> 0.5
I never drink on weekend days	=> 0

- take the sum of frequency weekdays and frequency weekend multiplying by 52:
 $\text{gefr1_12} = (\text{freq weekdays} + \text{freq weekend days}) * 52$
- if freq weekdays is missing => $\text{gefr1_12} = \text{freq weekend days} * 52$.
- if freq weekend days is missing => $\text{gefr1_12} = \text{freq weekdays} * 52$.
- Missings in both frequencies are missings in gefr1_12,
- Lifetime/12 months abstainer are being put to 0.
- Note: Compared with binge: 45 persons drink 6+ more often, although they report less at the general frequencies when considering the ranges of categories!!!

gefr3_12: (overall frequency, based on information about the last 7 days, dndo_12a to dndo12_g (**wr1 to wr7**))

- Take the number of drinking days of the last week multiplying by 52
- Abstainer are set to 0

gefr5_12: (overall frequency, based on gefr1_12, bing5_12)

- 47 cases with higher values in gefr5_12 than in gefr1_12:
- take the maximum of the overall frequency (based on information about weekday frequency and weekend frequency) and the frequency of binge drinking: $\text{gefr5_12} = \text{maximum}(\text{gefr1_12}, \text{bing5_12})$

nodd5_12: (annual number of drinking days, based on gefr5_12)

- $\text{nodd5_12} = \text{gefr5_12}$

Quantities

gequ1_12: (usually quantity on a drinking day, based on information about weekdays and weekend days, dndo_12h (**qfv2**: usually quantity on a weekday), dndo_12i (**qfv4**: usually quantity on a weekend day), dfuo_12a (**qfv1**: frequency weekdays), dfuo_12b (**qfv3**: frequency weekend days)):

- gequ1_12 is the weighted mean of the usually quantities of the weekdays and the weekend days, the weighting is according to the frequencies for weekdays and for weekend days:
- $$\text{gequ1_12} = (\text{quan weekday} * \text{freq weekdays} + \text{quan weekend day} * \text{freq weekend}) * 10 \text{grams} / (\text{freq weekday} + \text{freq weekend day})$$
 (take 10grams pure ethanol for one standard drink)

gequ3_12: (usually quantity on a drinking day, based on information about the last seven days, dndo_12a to dndo_12g (**wr1** to **wr7**: individual quantities for the last seven days))

- gequ3_12 is the mean of the quantities for the last seven days
- $$\text{gequ3_12} = \text{sum of the quantities for the last seven days} * 10 \text{ grams} / \text{number of drinking days for the last seven days}$$

gequ5_12: (usually quantity on a drinking day, based on information about weekdays, weekend days and the last seven days, gequ1_12, gequ3_12)

- take gequ1_12 (usually quantity based on information about weekdays and weekend days)
- if missing or 0 take gequ3_12 (usually quantity based on information about the last 7 days)

Volume

gevo1_12: (annual volume, based on information about weekdays and weekend days, dfuo_12a (**qfv1**: frequency weekdays), dfuo_12b (**qfv3**: frequency weekend days), dndo_12h (**qfv2**: usually quantity on a weekday), dndo_12i (**qfv4**: usually quantity on a weekend day))

- $$\text{gevo1_12} = (\text{the usually quantity for a weekday} * \text{the frequency for the weekdays}) + (\text{the usually quantity for a weekend day} * \text{the frequency for a weekend})$$
, this sum (the volume for a week) is multiplied by 52,

gevo3_12: (annual volume, based on information about the last seven days, dndo_12a to dndo_12g (**wr1** to **wr7**: individual quantities for the last seven days))

- $$\text{gevo3_12} = \text{sum of the quantities for the last seven days (volume for the last week)}$$
 multiplied by 52,
-

gevo5_12: (annual volume, based on different instruments, information about weekdays and weekend days and last 7 days, gevo1_12, gevo3_12, bing5_12)

- take gevo1_12 (annual volume based on information about weekdays and weekend days)
- if missing or 0 take gevo3_12 (annual volume based on information about the last 7 days)
- correction if bing5_12 > gevr1_12 (47 cases): take the higher frequency to calculate volume:
$$\text{gevr5_12} = \text{bing5_12 (annual frequency of 6 +)} * \text{gequ5_12 (usually quantity on a drinking day)}$$

Binge drinking

bing1_12: (annual frequency of drinking 6+ glasses, (60 grams ethanol) based on dlna12 (**qfv5:** frequency of drinking 6+ on one day in the last 6 months))

recoding:

every day	=> 365 times per year
5-6 times a week	=> 286
3-4 times a week	=> 182
1-2 times a week	=> 78
1-3 times a month	=> 24
3-5 times per half a year	=> 8
1-2 times per half a year	=> 3
never	=> 0

- abstainer are set to 0.
- 35 missings

bing3_12: (annual frequency of 6+ based on information about last 7 days, dndo_12a to dndo_12g (**wr1** to **wr7:** individual quantities for the last seven days))

- count days with 6+ glasses for the last week and multiply this by 52, (0 missings)

bing5_12: (annual frequency of 6+ based on bing1_12, bing5_12)

- $\text{bing5_12} = \text{bing1_12}$
- if missing take information from weekdays and weekend days: if the usually quantity on a weekday is higher or equal 60 grams => $\text{bin5_12} = \text{frequency weekdays} * 52$, if the usually quantity on a weekend day is higher or equal 60 grams => $\text{bin5_12} = \text{frequency weekend days} * 52$, if both: $\text{bin5_12} = (\text{frequency weekdays} + \text{frequency weekend days}) * 52$

11 Austria drinking indicators

Drinking status

drin3_13: drinking status based on **a2** (number of drinking days in the last 7 days)

- if person drank in the last 7 days => drin3_13 = 1 (current drinker)
- if person did not drink in the last 7 days => drin3_13 = 0 (7 days abstainer)

94 missings (1,3%)

drin5_13: drinking status, based on **a2** (number of drinking days in the last week) and **a4** (frequency of drinking in the last 3 months)

- if person drank in the last 7 days (according to a2)
⇒ drin5_13 = 1 (current drinker)
- if frequency last 7 days is 0 or missing and person report a 3 months frequency (according to gefr8_13)
⇒ drin5_13=1 (current drinker)
- if frequency last 7 days is 0 or missing and person report no 3 months frequency (according to gefr8_13)
⇒ drin5_13=0 (current abstainer)

8 missings (0,1%)

Frequencies

gefr8_13: overall frequency, based on **a4** (frequency of alcohol consumption in the last 3 months)

recoding frequencies into number of drinking days in the last 12 months

7 days per week	=> 365
6 days per week	=> 312
5 days per week	=> 260
4 days per week	=> 208
3 days per week	=> 156
2 days per week	=> 104
1 day per week	=> 52
about once in 14 days	=> 26
about once per month	=> 12
about once during the last three months	=> 4
not during the last 3 months but earlier	=> 2
never in my life have drunken alcohol	=> 0

106 missings (1,4%)

gefr3_13: overall frequency, based on **a2** (frequency in the last week)

- gefr3_13 = number of drinking days of the last week * 52

94 missings (1,3%)

gefr5_13: overall frequency, based on **a2** (frequency in the last week) and **a4** (frequency of alcohol consumption in the last 3 months)

- take frequency of the last 7 days (a2) *52
- if frequency of the last 7 days is 0 or missing and person reports a 3-month frequency (a4) =>
gefr5_13 = gefr8_13.

8 missings (0,1%)

Quantities

gequ3_13: overall usually quantity, based on last 7 days consumption **a3sum** and **a2** last 7 days frequency

- if person reports a frequency of the last 7 days => $\text{gequ3_13} = \text{quantity of last 7 days} / \text{frequency of last 7 days}$.
- If person reports no frequency for the last 7 days ($\text{gefr3_13}=0$) => $\text{gequ3_13}=0$.
- Missing value imputation by the median of the frequency-group

94 missings (1,3%)

wiqu4_13: usual wine quantity, based on **a1b** (number of wine glasses yesterday) (one standard drink = 20 grams of pure alcohol)

- $\text{wiqu4_13} = \text{number of wine glasses yesterday} * 20$ (grams of pure alcohol)
- if missings (**a1b**) => $\text{wiqu4_13} = 0$

no missings

bequ4_13: usual beer quantity, based on **a1a** (number of beer glasses yesterday) (one standard drink = 20 grams of pure alcohol)

- $\text{bequ4_13} = \text{number of beer glasses yesterday} * 20$ (grams of pure alcohol)
- if missings (**a1a**) => $\text{bequ4_13} = 0$

no missings

spqu4_13: usual spirits quantity, based on **a1c** (number of spirits glasses yesterday) (one standard drink = 20 grams of pure alcohol)

- $\text{spqu4_13} = \text{number of spirits glasses yesterday} * 20$ (grams of pure alcohol)
- if missings (**a1c**) => $\text{spqu4_13} = 0$

no missings

oaqu4_13: usual aperitif quantity, based on **a1d** (number of aperitif glasses yesterday) (one standard drink = 20 grams of pure alcohol)

- $\text{oaqu4_13} = \text{number of aperitif glasses yesterday} * 20$ (grams of pure alcohol)
- if missings (**a1d**) => $\text{oaqu4_13} = 0$

no missings

obqu4_13: usual cider quantity, based on **a1e** (number of cider glasses yesterday) (one standard drink = 20 grams of pure alcohol)

- $\text{obqu4_13} = \text{number of cider glasses yesterday} * 20$ (grams of pure alcohol)
- if missings (**a1e**) => $\text{obqu4_13} = 0$

no missings

bsqu4_13: usually overall quantity, based on beverage specific quantities yesterday (**a1a-a1e**)

- $\text{bsqu4_13} = \text{sum of beverage specific quantities from yesterday} (\text{wiqu4_13} + \text{bequ4_13} + \text{spqu4_13} + \text{oaqu4_13} + \text{obqu4_13} + \text{bsqu4_13})$

no missings

Volume measures

gevo3_13: annual volume, based on last week information, **a3sum** (quantity last week), **a2** (frequency last week)

- $\text{gevo3_13} = \text{gequ3_13} (\text{overall quantity per day}) * \text{gefr3_13} (\text{overall frequency})$.

94 missings (1,3%)

12 Drinking indicators Czech Republic:

Drinking status

drin5_14: (drinking status using a mixture of time frames, based on **q41**, **q42_1**, **q42_2**, **q42_3**, **q56**) values: 0 (lifetime abstainer); 1 (12 months abstainer); 2 (current drinker)

- if maximum of overall and beverage specific frequencies for the last 12 months greater than 0 (gefr5_14) => current drinker (drin5_14=2)
- if q56 (have you ever had a drink...?) is "yes" and gefr5_14=0 => 12 months abstainer (drin5_14=1)
- if q56 (have you ever had a drink...?) is "no" and gefr5_14=0 => lifetime abstainer (drin5_14=0)
- if q56 is missing and gefr5_14=0 => lifetime abstainer (drin5_14=0)

Frequencies

gefr1_14: (overall frequency, based on **q41**, last 12 months):

recoding:

daily or almost daily	=> 312
3-4 times per week	=> 182
1 or 2 times per week	=> 78
1 or 2 times per month	=> 18
1 or 2 times per three months	=> 6
1 or 2 times per six months	=> 3
1 or 2 times per year	=> 1.5
not at all during the last year	=> 0

gefr5_14: (overall frequency, based on **q41**, **q42_1**, **q42_2**, **q42_3**, last 12 months): maximum of overall and beverage specific frequencies $\text{gefr5_14} = \max(\text{gefr1_14}, \text{befr1_14}, \text{wifr1_14}, \text{spfr1_14})$.

nodd__14: (annual number of drinking days, based on **gefr5_14**): $\text{nodd_14} = \text{gefr5_14}$

befr1_14: (annual frequency of drinking beer, based on **q42_1**) recoding (see **gefr1_14**)

wifr1_14: (annual frequency of drinking wine, based on **q42_2**) recoding (see **gefr1_14**)

spfr1_14: (annual frequency of drinking spirits, based on **q42_3**) recoding (see **gefr1_14**)

Quantities

bequ1_14: (usual quantity of drinking beer, based on **q43_a**) $\text{bequ1_14} = \text{q43_a} * 0.5 * 0.05 * 0.793 * 1000$ (1 glass: 0.5 litres, 5%vol. alcohol contents)

wiqu1_14: (usual quantity of drinking wine, based on **q43_b**) $\text{wiqu1_14} = \text{q43_a} * 0.2 * 0.12 * 0.793 * 1000$ (1 glass: 0.2 litres, 12%vol. alcohol contents)

spqu1_14: (usual quantity of drinking spirits, based on **q43_c**)

$\text{bequ1_14} = \text{q43_a} * 0.05 * 0.40 * 0.793 * 1000$ (1 glass: 0.05 litres, 40%vol. alc. cont.)

Data cleaning:

We have done some data cleaning:

If frequency was 0, quantity was set to 0 (for each beverage separately, spirits: 381 cases, beer: 295 cases, wine: 194 cases)

If frequency is missing and quantity too, both are set to 0 (no consumption) (approximately 15 cases)

If frequency is greater 0 and quantity is 0, quantity is set to the half of the lowest quantity (1/2 glass)

If there is a frequency but no quantity: the missing quantities were imputed by the median quantity of all people with the same frequency. Frequencies were not imputed. (beer: 3 cases, wine: 18 cases, spirits: 47 cases)

Volume

bevo1_14: (annual volume beer, based on **befr1_14**, **bequ1_14**): annual frequency beer * usual quantity beer $bevo1_14 = befr1_14 * bequ1_14$

wivo1_14: (annual volume wine, based on **wifr1_14**, **wiqu1_14**): annual frequency wine * usual quantity wine $wivo1_14 = wifr1_14 * wiqu1_14$

spvo1_14: (annual volume spirits, based on **spfr1_14**, **spqu1_14**): annual frequency spirits * usual quantity spirits $spvo1_14 = spfr1_14 * spqu1_14$

bsvo1_14: (annual overall volume based on beverage specific measures, **bevo1_14**, **wivo1_14**, **spvo1_14**) sum of beverage specific annual volumes: $bsvo1_14 = bevo1_14 + wivo1_14 + spvo1_14$

Binge drinking

bing1_14: (based on **q44**: frequency of drinking 5+ beer **or** wine **or** spirits): recoding (see **gefr1_14**) minimum alcohol contents:

5 glasses of beer: 100 gr. ethanol

5 glasses of wine: 96 gr. ethanol

5 glasses of spirits: 80 gr. ethanol

13 Hungary - drinking indicators

(cursive: names of variables which only appear in the syntax)

note:

- 60 cases had missing values for almost every variable and were excluded from further analyses.

Drinking status

drin1_15: (=drink12) (drinking status, based on **b8** (last drinking occasion) and **b9** (overall frequency))

- if $b9 > 0$ (at least a frequency of drinking of 1 or 2 in the last 12 months) and $b8 > 0$ and $b8 < 9$ (last drinking occasion was in the last 12 months) \Rightarrow drink12=2. (current drinker)
- If $b9 = 0$ (never drinking alcohol) and $b8 = 9$ (last drinking occasion: more than a year ago) \Rightarrow drink12=1. (current abstainer)
- If $b9 = 0$ (never drinking alcohol) and $b8 = 0$ (last drinking occasion: never drank alcohol) \Rightarrow drink12=0. (lifetime abstainer)
- 120 missings (5.2%)
- If missing $b8$ and $b9 = 0$ (never drank alcohol in the last 12 months) and sum of (wiqu4-15, bequ4_15, spqu4_15)=0 \Rightarrow drink12=0 (lifetime abstainer).
- If missing $b8$ and $b9 = 0$ (never drank alcohol in the last 12 months) and sum of (wiqu4-15, bequ4_15, spqu4_15)>0 \Rightarrow drink12=1 (current abstainer).
- If missing $b8$ and $b9 > 1$ and $b9 < 9$ (that means no missing) \Rightarrow drink12=2 (current drinker).
- If missing $b9$ and $b8 = 0$ (never drunk alcohol) \Rightarrow drink12=0 (lifetime abstainer).
- If missing $b9$ and $b8 = 9$ (last occasion more than a year ago) \Rightarrow drink12=1 (current abstainer).
- Still 111 missings (4.8%)

drin2_15: (=drink30) (drinking status, based on **b1** (frequency last 30 days))

- If person consumed alcohol in the last 30 days \Rightarrow drin2_15 = 1 (30 days current drinker)
- If person consumed no alcohol in the last 30 days \Rightarrow drin2_15 = 0 (30 days abstainer)
- 7 missings (0.3%)

drin5_15: (=ovdrink) (drinking status, based on **b8** (last drinking occasion), **b9** (overall frequency) and **b3** (quantity beer last occasion), **b4** (quantity wine last occasion), **b5** (quantity spirits last occasion))

- If $bsvo5_15 = 0$ (no annual volume) \Rightarrow drin5_15=drink1_15.
- If $bsvo5_15$ (annual volume) > 0 \Rightarrow drin5_15=2 (current drinker).
- 49 missings (2.1%)

Frequencies

gefr1_15: (=oafreq) (overall frequency, based on **b9** (overall frequency last 12 months))

- recoding frequencies in days per year:

never	\Rightarrow 0
every day or nearly every day	\Rightarrow 312
3 or 4 times a week	\Rightarrow 182
1 or 2 times a week	\Rightarrow 78
1-3 times a month	\Rightarrow 24
7-11 times in the last 12 months	\Rightarrow 9
3-6 times in the last 12 months	\Rightarrow 4.5
1-2 times in the last 12 months	\Rightarrow 1.5
- 64 missings (2.8%)

gefr5_15: (=ovfreq) (overall frequency, based on **b1** (overall frequency last 30 days) and **b9** (overall frequency last 12 months))

- recoding frequencies of b1 (30 days freq.) in days per year:

every day or nearly every day	=> 312
3-4 times a week	=> 182
1-2 times a week	=> 78
1-3 times altogether	=> 24
never	=> 0
- if person consumed alcohol in last 30 days (b1≠5 (no alcohol in last 30 days) and sum of (bequ4_15, wiqu4_15 and sp4_15) > 0) => gefr5_15 is based on 30 days information (b1).
- If person consumed no alcohol in the last 30 days (b1=5 or b1=missing or sum of (bequ4_15, wiqu4_15 and sp4_15) = 0) => gefr5_15 is based on 12 months information (b9, recoding frequencies: see gefr1_15).
- 33 missings (1,4%)

nodd_15: (annual number of drinking days, based on **b1** (overall frequency last 30 days) and **b9** (overall frequency last 12 months))

- nodd_15=gefr5_15.

Quantities

bequ4_15: (=beerqua) (quantity on the last drinking occasion in grams of pure alcohol, **beer**; based on **b3**) (ethanol contents for beer: 5%)

- recoding quantities in number of drinks (one drink is 0.5 litres):

Never drink beer	=> 0
Did not drink beer on last occasion	=> 0
Less than a bottle or a mug	=> 0.5
1-2 bottles	=> 1.5
3-4 bottles	=> 3.5
5 or more bottles	=> 5.75
- bequ4_15 = number of drinks last occasion * 0.5(litres) * 0.05(pure alcohol) * 1000 * 0.793
- 70 missings
- if missing and (b9=0 (no alcohol in the last 12 months) or b2a=1 (no beer last 30 days) or b1=5 (no alcohol in the last 30 days) => bequ4_15=0.
- still 14 missings

wiqu4_15: (=winequa) (quantity on the last drinking occasion in grams of pure alcohol, **wine**; based on **b4**) (ethanol contents for wine: 11.5%)

- recoding quantities in number of drinks (one drink is 0.1 litres):

never drink wine	=> 0
did not drink wine on last occasion	=> 0
less than a glass	=> 0.5
1-2 glasses	=> 1.5
half a bottle (3.5 dl)	=> 3.5
one or more bottles	=> 8.75
- wiqu4_15 = number of drinks last occasion * 0.1(litres) * 0.115(pure alcohol) * 1000 * 0.793
- 87 missings
- if missing and (b9=0 (no alcohol in the last 12 months) or b2b=1 (no wine last 30 days) or b1=5 (no alcohol in the last 30 days) => wiqu4_15=0.
- still 29 missings

spqu4_15: (=spiqua) (quantity at the last drinking occasion in grams of pure alcohol, **spirits**; based on **b5**) (ethanol contents for spirit: 40%)

- recoding quantities in number of drinks (one drink is 0.05 litres):

never drink liquor	=> 0
did not drink liquor at last occasion	=> 0
less than a drink	=> 0.5
1-2 drinks	=> 1.5
3-5 drinks	=> 4
6 or more drinks	=> 7
- $\text{spqu4_15} = \text{number of drinks last occasion} * 0.05(\text{litres}) * 0.40(\text{pure alcohol}) * 1000 * 0.793$
- 85 missings
- if missing and (b9=0 (no alcohol in the last 12 months) or b2c=1 (no spirits last 30 days) or b1=5 (no alcohol in the last 30 days) => spqu4_15=0.
- still 29 missings

bsqu1_15: (=oabqua) (usual quantity on a drinking day, based on beverage-specific measures on the last drinking occasion **b3** (quantity last occasion beer), **b4** (quantity last occasion wine), **b5** (quantity last occasion spirits), **b9** (overall frequency last 12 months))

- $\text{bsqu1_15} = \text{sum of beverage-specific quantities on the last drinking occasion}$ (bequ4_15, wiqu4_15, spqu4_15)
- 38 persons who are not current drinkers report quantities and are put to 0.
- 146 persons report frequencies (b9) but no quantities: imputation of quantities by the median of the frequency-group.
- 0 missings

bsqu2_15: (=oaqu30d) (usually quantity on a drinking day, based on beverage-specific measures on the last drinking occasion **b3** (quantity last occasion beer), **b4** (quantity last occasion wine), **b5** (quantity last occasion spirits), **b1** (overall frequency last 30 days))

- $\text{bsqu1_15} = \text{sum of beverage-specific quantities on the last drinking occasion}$ (bequ4_15, wiqu4_15, spqu4_15)
- 25 persons report frequencies (b1) but no quantities: imputation of quantities by the median of the frequency-group
- 0 missings

bsqu5_15: (=ovquan, quanlo1, quanlo2) (usually quantity on a drinking day, based on beverage-specific measures on the last drinking occasion **b3** (quantity last occasion beer), **b4** (quantity last occasion wine), **b5** (quantity last occasion spirits), **b1** (overall frequency last 30 days), **b9** (overall frequency last 12 months))

- $\text{bsqu5_15} = \text{sum of beverage-specific quantities on the last drinking occasion}$ (bequ4_15, wiqu4_15, spqu4_15).
- 25 persons report frequencies (b1) but no quantities: imputation of quantities by the median of the frequency-group.
- 146 persons report frequencies (b9) but no quantities: imputation of quantities by the median of the frequency-group.
- 0 missings

Volume

bsvo1_15: (based on ovbqf12m) (annual volume, based on beverage-specific measures **b3** (quantity last occasion beer), **b4** (quantity last occasion wine), **b5** (quantity last occasion spirits), **b9** (overall frequency last 12 months))

- $\text{bsvo1_15} = \text{gefr1_15 (frequency last 12 months)} * \text{sum of beverage-specific quantities on the last drinking occasion}$ (bequ4_15, wiqu4_15, spqu4_15)
- 38 persons who are not current drinkers report quantities and are put to 0.
- 146 persons report frequencies (b9) but no quantities: imputation of quantities by the median of the frequency-group.
- 28 missings (1.2%)

bsvo2_15: (based on *ovbqf30d*) (annual volume, based on beverage-specific measures **b3** (quantity last occasion beer), **b4** (quantity last occasion wine), **b5** (quantity last occasion spirits), **b1** (overall frequency last 30 days))

- take recoded frequencies of b1 (see *gefr5_15*)
- $bsvo2_15 = \text{freq. last 12 month (based on inform. of b1)} * \text{sum of bev. spec. quant. at the last drinking occasion (bequ4_15, wiqu4_15, spqu4_15)}$
- 25 persons report frequencies (b1) but no quantities: imputation of quantities by the median of the frequency-group
- 6 missings (0,3%)

bsvo5_15: (based on *ovbqf*) (annual volume, based on beverage-specific measures **b3** (quantity last occasion beer), **b4** (quantity last occasion wine), **b5** (quantity last occasion spirits), **b1** (overall frequency last 30 days), **b9** (overall frequency last 12 months))

- $bsvo5_15 = bsqu5_15 (\text{quantity on the last drinking occasion}) * \text{gefr5_15 (overall frequency last 12 months)}$
- 0 missings

Binge drinking

bing1_15: (based on *binge1*, *binge2*) (annual frequency of 3 or more glasses per occasion, this is 60 or more grams of pure alcohol)

- using **b10a** (frequency of 3-5 glasses at one occasion, last 12 months) and **b10b** (frequency of 6 or more glasses at one occasion, last 12 months)
- first recoding of frequency-codes into days per year for b10a and b10b:

nearly every day	=> 312
3-4 times a week	=> 182
1-2 times a week	=> 78
1-3 times a month	=> 24
7-11 times in the last 12 months	=> 9
3-6 times in the last 12 months	=> 4.5
1-2 times in the last 12 months	=> 1.5
never	=> 0
- take the sum of both frequencies
- abstainers are being put to 0.
- 18 cases report binge frequencies of more than 365 days. To correct this, these cases are put to 365.
- remain 114 missing cases (5.0%)

14 Brazil - drinking indicators

Generic in our terminology always means “based on questions combining all beverages directly”, e.g. “How often do you drink any alcoholic beverage?”

Drinking status

Drinkers versus non-drinkers were defined based on the core question on generic frequency of drinking in the past 12 months (dfuo). The distinction of former drinkers versus lifetime abstainers was based on the core question “Did you ever have a drink of any beverage containing alcohol?” (cave), and applied to non-drinkers of the 12 month-frequency question.

The corresponding variable was labelled **DRIN1** (0=lifetime abstainers, 1=former drinker; 2=drinker in past 12 month)

Frequency of drinking

Frequencies of drinking were converted into annual frequencies.

- a) the generic frequency of drinking based on the core question (dfuo) was based on 12 month assessment and resulted in the following frequencies of drinking days: 0, 1, 2, 4.5, 9, 24, 78, 182, 312 drinking days per year. The variable is labelled GEFR1.
- b) Beverage specific frequencies were based on core questions using the same categories of drinking days in the past year. Non-drinkers (former drinkers and lifetime drinkers) were set to 0 frequencies to avoid few inconsistencies and to assign values to logically missing data for non drinkers to facilitate further computations.
The following beverages were measured:
Beer labelled BEFR1;
wine labelled WIFR1,
and spirits labelled SPFR1.
- c) Because of inconsistencies between frequencies for single beverages and the overall frequencies (sometimes beverage-specific frequencies were higher than the overall frequency) a new variable was created defined as the maximum of the overall frequency and the 3 beverage-specific frequencies, This variable is labelled NODD__17 (number of drinking days, 17 because it is country specific)

Beverages specific frequencies do only exist for 1 of the two Brasilien subsamples, namely sample A.

Quantities per drinking occasion

Quantities are converted into gram of pure ethanol.

- a) The **generic** quantity per drinking day was based on the core question (dndo), with an open-ended number of drinks. Non-drinkers were assigned 0 quantities. Drinkers, i.e. respondents with existing frequency, who gave 0 drinks as response on the quantity were assigned half a drink (=0.5 drinks). Drinkers with existing frequencies but missing values on quantities received the median of drinks for the corresponding frequency group with complete data on frequency and quantity. Quantities were multiplied with 12 (grams) the assumed standard drink size. This variable is labelled GEQU1
- b) Beverage specific quantities were based on core questions and thus used open ended questions for number of drinks. Non-drinkers were assigned 0 quantities for all beverages. Again, for 0 quantities but existing frequencies 0.5 drinks were assigned, and for missing quantities but existing frequencies the median of the respective frequency group was assigned. For all beverage specific quantities a standard drink size of 12 grams was assumed. These are labelled BEQU1, WIQU1, SPQU1 (beer, wine, spirits).

An average quantity per drinking occasion for beverage-specific measure can be obtained by dividing the volume (see below) by NODD.

Beverage specific quantities were asked for both samples A and B.

Volume

Volumes always are measured in annual volumes mean consumption per day can be derived by dividing with 365 (days).

- a) for the generic volume the generic annual frequencies were multiplied by the generic quantity. The resulting variable was labelled GEVO1.
- b) For beverage specific volumes beverage specific quantities were multiplied with beverage specific frequencies, resulting for beer, wine and spirits in variables labelled BEVO1, WIVO1, SPVO1.
- c) Beverage specific volumes were added and the resulting variable was labelled BSVO1 (**B**everage **S**pecific **V**olume)

Beverage specific volumes only exist for sample A

Graduated Frequencies

Non-drinkers were set to 0 consumers in GF, irrespective of reports in GF (some rare cases)

In Brazil the GF resulted in inconsistent responses in so far as the maximum number of drink (dInda) did not correspond with the response pattern on the following graduated frequencies. This means that either no frequencies were found for the maximum quantity, or maximum quantities for the level-specific questions were even higher. To give an example The highest quantity given in the first question was (at least 5 but less than 8 drinks) pointing to A4 (in the core). However, first frequencies could be found for higher quantities (e.g. 12+ drinks) or even lower quantities (e.g. first mentioning of frequencies for 1-2 drinks). Sometimes the lean-in question (dInda= What was the largest number of drinks you had in the past 12 months) was missing: Therefore the following algorithm was applied.

- a) If maximum number of drinks was given but no frequency for this quantity then the smallest possible frequency (= once a year) was attributed only if no higher quantities were reported.
To give two examples:
 - 1) a respondent admitted the highest quantity (lean in) of being more than 8 glasses and had a missing value for the frequency of 8-11 drinks, and no frequency for 12 or more drinks, he/she was assigned a value of once per year for 8-11 drinks
 - 2) a respondent admitted the highest quantity (lean in) of being more than 8 glasses and had a missing value for the frequency of 8-11 drinks, but a frequency for 12+ glasses, no value was assigned for 8-11 drinks.
- b) The annual frequencies were assigned to the core questions used in Brazil: : 0, 1, 2, 4.5, 9, 24, 78, 182, 312
- c) The following numbers of drinks were assigned to the core questions used in Brazil, reflecting category midpoints and 13.25 for the highest category of 12 or more drinks: 0.5, 1.5, 3.5, 6, 9.5, 13.25.
- d) A standard drink again was assumed to be 12 grams and number of drinks were multiplied accordingly.
- e) Frequency of drinking was determined by summing all level-specific frequencies. In case were this exceeded 365 days per year, all frequencies were individually downweighted by a factor representing $365/(365+\text{extra days})$. This variable is labelled GFFR1.
- f) Level--specific quantities were multiplied by corresponding level-specific frequencies to get annual volume. This variable is labelled GFVO1
- g) An average quantity per drinking day can be obtained by dividing GFVO1 with GFFR1, and a mean consumption per day by dividing GFVO1 with 365.

Binge based on GF

- h) Number of heavy drinking days (5+) was estimated by summing the frequencies for 5-7 glasses, 8-11 glasses and 12+ glasses. This variable is labelled BIGF1 (binge based on GF).

Appendix A5: Documentation for variable names of drinking indicators (8 characters)

Position 1-4: describes the variable (see below)

Position 5: gives the reference period on which calculations were based

- 1: 12 or 6 months
- 2: 30 days or 1 month
- 3: 7 days
- 4: last drinking occasion/yesterday
- 5: uses a mixture (e.g. if existent->30 days; else->12 month, or maximum of generic and beverage specific frequencies)
- 6: based on Audit
- 7: last Saturday
- 8: last 3 months
- 9: based on GF measurements
- x: based on highest consumption (only Spain)

NOTE: Variables always contain annual measures (e.g. annual volume, annual frequencies) or usual quantities etc. Numbers for position 5 only describe the reference period of the question. And Frequencies were then projected to annual Frequencies (e.g. once per week = 52 days per year)

Position 6: is left blank for potential other use; currently it is always an underliner (_)

Position 7-8: describes country code; without country code the original GENACIS core was used

Description of the first two letters :

GE=generic (measure is based on overall not beverage specific questions)

GF=based on GF

BS=beverage specific measure (based on summary measure of different beverages)

BE=beer

WI=wine

Sp=spirits

OA,OB ; OC= other beverages a,b,c

Description of 3rd and 4th letters:

FR=annual frequency in days

QU=usual quantity

VO=annual volume

OC=annual occasions (only used when indicator could not be converted to drinking days, e.g. ISRAEL with 30+ frequency in past 30 days)

Additional drinking indicators 1st-4th letter:

DRIN=drinker/abstainer (1/0) or drinker/former drinker/abstainer(2/1/0)

BING=annual frequency of bingeing (a variable based on some kind of 5+/6+/etc.-measure)

BIGF=annual frequency of bingeing 5+ from graduated frequency

(BIAU=annual frequency of bingeing from AUDIT=> now=BING6)

NODD=Annual Number of drinking days, usually equals generic frequency, but often also a mixture to get better estimates (e.g. maximum frequency of generic and beverage specific frequencies). This is our best estimate of overall number of drinking days

Additional variables

IDENT = identification code-> composite variable of country code and country specific identification code (construction: ((country code * 100'000) + country specific ident. Code; later it became clear that some countries have codes bigger than 999999, therefore 2 decimals were used for those countries, e.g. Brazil)

COUNTRY = country code from codebook (e.g. HU = 15)

WEIGHT = weighting variable in each country; set to 1 for all cases if no weighting is needed.

Examples:

GEFR1_15 = annual generic frequency of drinking based on 12 month reference period for Hungary

BEQU2_15 = Usual Quantity of beer drinking based on past 30 days for Hungary

BSVO5_15 = mixed variable for beverage specific volume: annual volume of drinking was based first on 30 days drinker; if no drinking occurred in past 30 days consumption in past 12 month was used; Hungary

Appendix A6: Overview Workdecks

Overview workdeck 3: alcohol-related problems

a = all respondents / b = only drinker / c = not lifetime abstainer

	CZ	FI	FR	GE	HU	IS	IT	MX	SE	SW	NE	UK	NO	BR	AU
	b	b 2	c	b	c		a	a	b 4	b	c	b		b	
Work-related problems															
chefa harmful effects on work, studies, employment	x	-	-	●	-	-	-	●	●	-	-	x	●	x	-
chefb harmful effects on housework, chores around the house	●	-	-	-	-	-	-	-	-	-	-	x	-	x	-
cexpc lost a job	-	-	-	●	-	-	-	●	-	-	●	x	-	x/-	-
Relations															
chefc harmful effects on marriage/ intimate relations	x	-	-	●	-	-	-	-	●	-	-	x	-	x	-
chefd harmful effects on relation with other family members, incl. Children	x	-	-	-	-	-	-	●	●	-	-	x	-	x	-
chefe harmful effects on friendships, social life	x	-	-	●	-	-	-	-	●	-	-	x	-	x	-
cexpe loss of partner	-	●	-	●	-	-	-	●	-	-	-	x	-	x/-	-
cexpf lost a friendship	-	-	-	●	-	-	-	-	-	-	-	x	-	x/-	-
Health-related consequences															
cheff harmful effects on physical health	-	●	-	-	-	-	-	-	●	-	-	x	-	x	-
cexpb illness connected to your drinking	-	-	-	-	-	-	-	●	-	-	●	x	-	x/-	-
cyreh doctor or health worker advised you to cut down on your drinking	●	-	-	-	●	-	● ³	-	●*	-	●	x	-	x/-	-
Acute consequences of drinking															
cbeha drank enough to feel the effects: slurred speech, trouble walking	x	●	-	-	●	-	-	●	●	-	-	●	●	x/●	-
cbehb headache, nausea as a result of drinking	●	●	-	-	●	-	-	●	●	-	-	●	●	x/●	-
cbehc taken a drink to get over bad after effects	x	-	-	●	-	-	-	-	-	-	●	-	-	x/●	-
cbehd felt sick or shaking when you cut down or stopped drinking	x	-	-	●	-	-	-	-	●	-	-	-	-	x/●	-
cbehe found you were not able to stop drinking once you started	x	x	-	●	●	-	-	●	●	x	●	●	-	x/●	-
cbehf failed to do what was normally expected	●	x	-	-	●	-	-	●	●	x	-	●	-	x/●	-
cbehg need a first drink in the morning to get yourself going after a heavy drinking session	x	x	-	-	●	-	-	●	●	x	-	●	-	x/●	-
cbehh guilt or remorse after drinking	x	x	-	-	●	-	-	-	●	x	●	●	-	x/●	-
cbehi been unable to remember what happened the night before	●	x	-	-	●	-	-	●	●	x	●	●	-	x/●	-
Informal pressure to cut down drinking															
cyrea spouse/partner	●	●	-	●	●	-	● ³	-	●*	-	-	x	●	x	-
cyreb child(ren)	●	●	-	●	●	-	● ³	-	-	-	-	●	●	x	-
cyrec other female members of the family	●	●	-	❖	●	-	● ³	-	-	-	-	x	❖	x	-
cyred other male members of the family	●	●	-	-	●	-	● ³	-	-	-	-	x	-	x	-
cyree someone at work/school	●	●	-	●	●	-	-	-	●*	-	-	x	●	x	-
cyref female friend/acquaintance	●	●	-	●	●	-	● ³	-	-	-	-	x	●	x	-
cyreg male friend/acquaintance	●	●	-	❖	●	-	● ³	-	-	-	-	x	●	x	-
cexpd have people annoyed you by criticizing your drinking	-	●	● ⁵	-	-	-	-	-	-	-	●	-	-	x/-	-
cred concern relative, friend or doctor	-	x	● ⁵	●	-	-	-	●	x	x	●	-	-	x	-
Miscellaneous															
cexpg have you gotten into a fight	●	●	-	●	-	-	-	●	●*	-	-	x	●	x/-	-
chefg harmful effects on finances	x	●	-	-	-	-	-	-	●	-	-	x	-	x	-
cexpa trouble with the law	-	-	-	●	-	-	-	-	●*	-	-	x	-	x/-	-
cinj have you or someone else been injured because of drinking	x	x	-	●	●	-	-	●	x	x	●	-	●	x	-
capr ever any problem	● ¹	-	-	-	-	-	-	●	●	-	-	-	-	x/-	-

x	equal to core	country list:		CZ	Czech Republic	IS	Israel	NE	Netherlands
●	comparable to core but not equal (country-specific)			FI	Finland	IT	Italy	UK	UK
¹	all respondents			FR	France	MX	Mexico	NO	Norway
²	audit questions surveyed among all respondents			GE	Germany	SE	Sweden	BR	Brazil
³	only one question to all categories (cyre_03)			HU	Hungary	SW	Switzerland	AU	Austria

⁴ attention different subsamples

⁵ variable is identical!

⁶ codes for lifetime abstainers and former drinkers

⁷ in addition to drinkers, some former drinkers or lifetime abstainers hav responses (mixed mode survey)

* attention different skip orders used (all persons who drink very seldom or never more than 2 drinks per occasion are not surveyed on these questions)

** only former drinkers were asked

❖ variable available, but both sexes combined!

❖ cyreb25: child(ren)/female/male members of the family combined; cyree25: co-worker/female/male friend combined

Overview workdeck 4: violence

		CZ	FI	FR	GE	HU	IS	IT	MX	SE	SW	NE	UK	NO	BR	AU
cpar	frequency partner drinks alcoholic beverages	●	●	-	-	-	-	-	-	●	-	-	●	-	X	-
cnpd	quantity partner drinks alcoholic beverages	●	●	-	-	-	-	-	-	-	-	-	X	-	X	-
vadpa	partner: insulted or swore	-	X	-	-	-	-	-	-	-	-	-	X	-	●/-	-
vadpb	partner: sulked or refused	-	X	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vadpc	partner: stomped out of house	-	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vadpd	partner did, said something to spite respondent	-	X	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vmppa	most physically aggressive thing done by someone	●	-	-	-	●	-	-	-	●	-	-	●	-	X	-
vlaa	level of aggression	●	-	-	-	X	-	-	-	-	-	-	X	-	X	-
vfeu	scale upset	-	-	-	-	-	-	-	-	-	-	-	-	-	X/-	-
vfea	scale angry	-	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vfes	scale scared	-	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vmmed	respondent seek medical health	●	-	-	-	X	-	-	-	-	-	-	X	-	X	-
vdbi	drinking before incident	X	-	-	-	X	-	-	-	-	-	-	X	-	X	-
vicp	other person was current partner	●	-	-	-	X	-	-	-	-	-	-	X	-	X	-
vfpa	frequency aggressive things done by partner	●	-	-	-	X	-	-	-	-	-	-	●	-	X	-
vpal	past 12 months aggressive things done by partner	●	-	-	-	-	-	-	-	-	-	-	-	-	X/-	-
vsmp	most physically aggressive thing done by respondent (RA)	-	-	-	-	-	-	-	-	-	-	-	●	-	X/-	-
vsla	level of aggression (RA)	-	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vsfu	scale upset (RA)	-	-	-	-	-	-	-	-	-	-	-	-	-	X/-	-
vsfa	scale angry (RA)	-	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vsfs	scale scared (RA)	-	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vsdb	drinking before incident (RA)	-	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vspip	other person was current partner (RA)	-	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vsfp	frequency aggressive things (RA)	-	-	-	-	-	-	-	-	-	-	-	●	-	X/-	-
vspa	past 12 months aggressive things (RA)	-	-	-	-	-	-	-	-	-	-	-	-	-	●/-	-
vsf	before 16: frequency sexual abuse; family	●	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vsfo	before 16: frequency sexual abuse; not family	●	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vast	since 16: sexual assault	●	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-
vasp	actor was partner	●	-	-	-	-	-	-	-	-	-	-	X	-	X/-	-

X equal to core
● comparable to core but not equal (country-specific)

country list:

CZ	Czech Republic	IS	Israel	NE	Netherlands
FI	Finland	IT	Italy	UK	UK
FR	France	MX	Mexico	NO	Norway
GE	Germany	SE	Sweden	BR	Brazil
HU	Hungary	SW	Switzerland	AU	Austria

Overview workdeck 5: drinking contexts

		CZ	FI	FR	GE	HU	IS	IT	MX	SE	SW	NE	UK	NO	BR	AU
drinking circumstances																
fcira	at a meal	●	●	-	●	●	-	●	-	●	-	-	X	-	X	-
fcirb	at a party or celebration	●	-	-	●	-	-	-	-	●	-	-	X	-	X/-	-
fcirc	in your own home	●	●	-	●	●	-	●	-	●	-	-	X	-	X	-
fcird	at a friend's home	●	●	-	-	●	-	-	-	●	-	-	X	-	X/-	-
fcire	at your workplace	●	●	-	-	●	-	-	-	●	-	-	X	-	X/-	-
fcirf	in a bar/pub/disco	-	●	-	-	●	-	-	-	●	-	-	X	-	X/●	-
fcirg	in a restaurant	-	●	-	-	●	-	-	-	●	-	-	X	●	X/-	-
drinking with following persons																
fwota	with spouse/partner whether or not other persons were present	●	●	-	-	●	-	-	-	●	-	-	X	●	X	-
fwotb	with a family member other than your partner	●	●	-	-	●	-	-	-	●	-	-	X	●	X	-
fwotc	with people you work with or go to school with	●	●	-	-	●	-	-	-	●	-	-	X	●	X	-
fwotd	with friends other than your partner	●	●	-	-	●	-	-	-	●	-	-	X	●	X	-
fwote	when no one happened to be with you	●	●	-	●	●	-	-	-	●	-	-	X	●	X	-
time periods of drinking																
fftpa	during the day on a weekday (before 5 p.m.)	-	●	-	-	●	-	-	-	-	-	◇*	X	-	X/-	-
fftpb	during the evening on a weekday (after 5 p.m.)	-	●	-	-	●	-	-	-	-	-	-	X	-	X/-	-
fftpc	during the day on a weekend (before 5 p.m.)	-	●	-	-	●	-	-	-	-	-	◇*	X	-	X/-	-
fftpd	during the evening on a weekend (after 5 p.m.)	-	●	-	-	●	-	-	-	-	-	-	X	-	X/-	-
fftpf	in the hour before respondent drives a car	-	-	-	-	●	-	-	-	-	-	-	X	-	X/-	-
frdp	amount of drinking with partner	●	●	-	-	-	-	-	-	●	-	-	●	-	X	-
drinking effects																
fsefa	easier to be open with others	X	-	-	●	X	-	-	-	X	-	-	●	●	X	-
fsefb	easier to talk to partner about feelings or problems	X	●	-	-	X	-	-	-	X	-	-	●	-	X	-
fsefc	less inhibited about sex	X	-	-	-	X	-	-	-	X	-	-	●	-	X	-
fsefd	sexual activity is more pleasurable	X	-	-	-	X	-	-	-	●	-	-	●	-	X	-
fsefe	feels more sexually attractive	X	-	-	-	-	-	-	-	X	-	-	●	-	X	-
fseff	becomes more aggressive towards others	X	●	-	-	X	-	-	-	●	-	-	●	-	X	-

X equal to core
 ● comparable to core but not equal (country-specific)
 ◇* Only one question for fftpa and fftpb and one question for fftpc and fftpd

country list:
 CZ Czech Republic IS Israel NE Netherlands
 FI Finland IT Italy UK UK
 FR France MX Mexico NO Norway
 GE Germany SE Sweden BR Brazil
 HU Hungary SW Switzerland AU Austria

Overview workdeck 6: Intimate relations and sexuality

			CZ	FI	FR	GE	HU	IS	IT	MX	SE	SW	NE	UK	NO	BR	AU
ihap	54	Happy with your relationship with...	X	-	-	-	-	●	-	-	●	-	-	X	-	X	-
ieat	55	Easy to talk...	X	-	-	-	-	-	-	-	●	-	-	X	-	X	-
isda	56	How do you solve disagreements...	-	-	-	-	-	-	-	-	-	-	-	●	-	X	-
iqua	57	How often do you quarrel?	X	-	-	-	-	-	-	-	●	-	-	●	-	X	-
iqpd	58	How often has your spouse/partner been drinking?	-	-	-	-	-	-	-	-	-	-	-	●	-	X	-
iqsd	59	How often have you been drinking?	-	-	-	-	-	-	-	-	●	-	-	●	-	X	-
iafp	60	How often afraid...	-	-	-	-	-	-	-	-	-	-	-	X	-	X	-
isex	61	During your lifetime, has sex been....	-	-	-	-	-	-	-	-	-	-	-	-	-	●	-
iafi	62	Age at first consensual sexual intercourse?	●	-	●	-	-	-	-	-	-	-	-	X	-	X	-
inpy	63.A.	How many sexual partners during the last 12 months?	●	-	-	-	-	-	-	-	-	-	-	X	-	X	-
igep	63.B.	Has your partner in your sexual relationship(s) been....	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-
scrr	9	Close romantic relationship?	●		●			-			●			X	-	●	

x equal to core

● comparable to core but not equal (country-specific)

country list:

CZ Czech Republic

FI Finland

FR France

GE Germany

HU Hungary

IS Israel

IT Italy

MX Mexico

SE Sweden

SW Switzerland

NE Netherlands

UK UK

NO Norway

BR Brazil

AU Austria

Overview workdeck 7: Health and Lifestyle

			CZ	FI	FR	GE	HU	IS	IT	MX	SE	SW	NE	UK	NO	BR	AU
hhei	85	How tall are you?	X	X	X	X	-	-	X	X	X	X	-	X	-	X	-
hwei	86	How much do you weigh?	X	X	X	X	-	-	X	X	X	X	-	X	-	X	-
hmes	87	What is your menopausal status?	-	-	-	-	-	-	-	-	-	●	-	X	-	X	-
hert	88	Are you receiving estrogen replacement therapy?	-	-	-	-	-	-	-	-	-	●	-	X	-	X	-
hphh	89	How has your physical health been in the last 12 months?	●	●	●	●	-	●	●	-	X	●	●	●	●	X	-
hmeh	90	How has your emotional/mental health been in the last 12 months?	-	-	-	-	-	-	●	-	X	-	●	●	-	X	-
hmhp	91	Medical or other professional help related to your physical health?	●	-	●	-	-	-	-	-	-	●	-	X	-	X	-
hmhm	92	Medical or other professional help related to your emotional/mental health?	●	-	●	-	-	-	●	-	-	●	-	X	-	X	-
htqd	93	Tried to cut down or quit drinking but were unable to do so?	-	-	-	●	-	-	-	-	-	-	●	-	-	●	-
hshe	94.A.	Seeking help for your own drinking or alcohol-related problems?	●	-	-	-	-	-	-	-	-	-	-	X	-	X	-
hrhe	94.B.	If yes, did you ever receive help?	-	-	-	●	-	-	-	-	-	-	-	-	-	X	-
hrhy	94.C.	If yes, did you receive help in the last 12 months?	●	-	-	●	-	-	-	-	●	-	●	●	-	X	-
hscd	95	Have you smoked one or more cigarettes a day?	●	●	●	✧	●	●	●	✧	●	●	●	●	●	X	-
hpme	96.A.	Prescription drugs or medicines in a way other than the one prescribed?	-	●	-	●	●	-	-	✧	-	-	-	X	-	X	-
hmed	96.B.	What was/were this/these?	-	-	-	●	-	-	-	✧	-	-	-	-	-	-	-
hpot	97	In the last 12 months, have you used marijuana (pot or hashish)?	●	●	●	●	●	✧	-	●	X	●	●	●	●	X	-
hotd	98.A.	Any other drugs?	●	●	●	✧	●	✧	-	✧	X	●	●	●	●	X	-
hijd	98.B.	Injected any drugs?	-	-	●	✧	-	-	-	✧	-	●	-	-	●	X	-
hfit	99	How often have you spent time on some leisure ...?	-	-	-	-	-	-	-	-	-	-	-	X	-	X	-
hriba-h	100.I	Have activities interfered with your everyday life...? Part I	-	-	-	¹	-	-	-	-	-	-	¹	X	-	X	-
hrbca-h	100.II	Part II	-	-	-	-	-	-	-	-	-	-	-	X	-	X	-
hrboa-h	100.III	Part III	-	-	-	-	-	-	-	-	-	-	-	X	-	X	-

¹ = only hriba02

¹ = only hriba

- X equal to core
- comparable to core but not equal (country-specific)
- ✧/x not yet created due to methodological problems

country list:

CZ Czech Republic
FI Finland
FR France
GE Germany
HU Hungary

IS Israel
IT Italy
MX Mexico
SE Sweden
SW Switzerland

NE Netherlands
UK UK
NO Norway
BR Brazil
AU Austria

Appendix A7: Sampling design questionnaire

Survey administration

Q 1: What was the survey mode?

- a) postal (mailed) survey
- b) telephone survey
- c) face to face
- d) mixed mode

Note: if d): What is the mode of the core questions?

Q 2: Was «computer assisted» interviewing used (CAPI; CATI, etc.)?

- a) Yes
- b) No

Note: «Yes» should be used only if e.g. skip instructions or consistency checks were part of the computer program.

Q 3: Only for telephone, face to face, and mixed mode surveys: Were self-administered modes used for sensitive questions?

- a) Yes
- b) No

→ please provide questions for which self-administered questionnaires were used

Note: In face to face surveys these can be self-administered answer sheets or parts of the interview for which the respondent uses the computer to directly answer questions without the help of an interviewer. In telephone interviews new technologies exist, where parts of the interview were conducted by an artificial interviewer (e.g. the interviewer stops the interview and the rest of the interview is automatically conducted by the computer).

Sampling

Q 4: What is the population for which sample should be representative: age; sex; region; etc.

Example: Non-institutionalized, German-, French- Italian-speaking residents of Switzerland aged 15 and older.

Q 5: Does a sampling frame exist?

- a) Yes
- b) No

→ please provide description of sampling frame

Definition of sampling frame: list or register of the population elements from which a sample is drawn:

Note: this can be individuals (rare), households (rare); telephone registers; areas (area sampling), municipalities, etc.

!Probability samples usually need such a list!

Q 6: What is the sampling frame's undercoverage?

These are, for example, homeless people, poor people (no telephone), etc.

Q 7: Was the sample stratified according to one or more criteria?

- a) Yes
- b) No

→ Provide variable with stratum identifier

Definition: In a stratified sample separate samples are drawn in each of the exhaustive, non-overlapping subpopulations.

!Stratified sampling covers all sub-populations of the target population (exhaustiveness)!

Example: 2 strata: municipalities over 100'000 inhabitants; municipalities below 100'000 inhabitants.

Q 8: Does sampling uses clusters?

a) Yes

b) No

→ provide variable with cluster identifier

Definition: Clusters are elements of the subpopulation (or subpopulations) consisting of more than one sampling unit (in alcohol surveys almost always individuals). There is no need to know the sampling frame, but frame can be reconstructed for each cluster, if needed.

Example 1: schools: a list of schools and classes is available, but a list of students per class is not, but can be reconstructed when researchers are in the class

Example 2: households . Addresses of households are known, but not the people living in a household:

Example 3: area sampling; list of areas is used (e.g. in US) but then sampling takes place only in randomly selected areas.

Note: Cluster versus strata: a) cluster sampling is only important if more than 1 person is sampled within a cluster (e.g. more than one person per household; more than one person per area or school or class. b) stratified sampling uses all strata, cluster sampling only a subset of the subpopulation (e.g. only 10 out of 87 areas; only 2'200 schools out of 30'000 schools)

Q 9: What is the primary sampling unit (PSU)?

→ provide description of PSU

Definition: largest unity of sampling excluding strata, e.g. areas, households, individuals.

Q 10: How many sampling stages?

→ provide description of sampling stages

Example: sampling of areas(1st stage),sampling of households(2nd stage); sampling of an individual in the household (3rd stage);

Note: when all eligible (see target population; sampling frame) people in a household (e.g. all adults aged 18 or more) were interviewed or approached for interview then this is not a stage, but the household is a cluster.

Nonresponse

Q 11: How many

- a) completed interviews
- b) partial interviews (interview breakoff, but respondent has answered the interview party)
- c) noncontacts of individuals (but it is known that an eligible individual exists)

Note: These may consist of 1) inability to contact person (e.g. target person is in holidays), 2) inability to provide responses (e.g. deaf, mentally ill, does not speak English), 3) refusals

Note: for these cases it is important to know that the unit belongs to the sampling frame; e.g. individual identified by the household roster is eligible for the sample (but in holidays, hospital, etc.)

- d) noncontact of household (but valid sampling frame, e.g. valid address, valid telephone number): nobody could be reached
- e) non-eligible units: vacant dwellings; vacant units (also seasonally), business units
- f) noncontact, no single attempt

Note: This can happen, for example, with commercial pollsters, when a large gross sample was used, but sufficient number of interviews have been already completed (e.g. the client pays for 1'600 Interviews; the gross sample comprises 4'000 addresses, but 1'600 interviews could already be completed by contacting 3'000 households).

- g) other

Q 12: What was the maximum number of repeated calls (how often has address, telephone number, etc. been contacted)?

→ If possible, please provide indicator variable of number of contacts per respondent.

Note: This question asked for the number of calls after which an address becomes "a noncontact" (Was this after e.g. 3 or 99 attempts?)

Weights

Q 13: are pi-weights available?

- a) Yes
- b) No
 - provide variable with weights

Note: pi-weights are also called design-based weights or probability inclusion weights. These weights are totally independent of non-response. The weights inform about the a priori probability of a person to be included in the sample. The inverse of this weight stands for the number of people of the target population represented by the corresponding respondent. **An example:** In a simple random sample with a 100% response the pi-weight is n/N for all respondents. In a three stage area sampling (area, households, individuals) the pi-weight must reflect the probability of sampling the area, the probability of sampling the household, and the probability of sampling a person in a household (excluding the non-eligible household members such as minors).

Pi-weights are usually not available if:

- there is no list or register from which the sample is drawn at any of the sampling stages (this is also true if that person in a household is chosen as respondent who first answers the phone call: Note, a complete household roster is needed and a person must be elected randomly from this roster to provide pi-weights).
- randomly selected but refusing households could be replaced by «near by» households (e.g. neighbors)
- ad hoc samples, quota samples

Q 14: Was refusal conversion used?

- a) Yes
- b) No

→ Provide % of and indicator variable for converted refusals!

Note: this is important as commercial pollsters in some countries (e.g. The Netherlands) see refusal conversion as unethical. Thus, response rates will be lower in these countries. Refusal conversion means that people initially not willing to be interviewed were «convinced (converted)» by the interviewer to participate.

Q 15: Were initial screening questions used to exclude individuals from the sample?

Example: only people drinking at least once per year were included in the sample. Pi-weights should then still apply to population before screening.

Q16: Who conducted the interviews?

- a) commercial pollster
- b) federal office
- c) students
- d) other

Q 17: Was non-response weighting or weighting for sampling frame undercoverage used?

- a) non-response weighting
- b) weighting for sampling frame undercoverage
- c) both
- d) none

→ Please provide weighting variables, and descriptions of variables and description of cells used for weighting (e.g. sex*age with 5 age groups = weighting cells)

Definitions: non-response weighting uses information from the sampling frame only (e.g. 4 of 5 women responded, but only 3 of 5 men, corresponding weights would be 5/4 and 5/3; note that this needs sampling frame, pi-weights, etc.). Weighting cells can consist of multi-way tables e.g. by sex*age groups.

Weighting for frame undercoverage (usually automatically includes some kind of non-response weighting) uses external information for weighting, e.g. known census data or data from larger scale surveys. Weighting for frame undercoverage is often called poststratification. Cells of the sample (weighted for pi-weights) are compared with known census figures of the same cells (control counts).

Q 18: Description of sampling for non-probability samples:

Definition: Non-probability samples are samples for which pi-weights can not be calculated or non-response can not be determined. **Examples are:** Quota-samples (reviewers receive lists with e.g. sex-age-etc characteristics, for which they have to find respondents, but potential respondents are not selected randomly; clever interviewers find married women with young children near playgrounds or kindergartens); convenience samples (e.g. everybody who responded to the questionnaire Saturday afternoon in the main shopping street); samples for which nonrespondents can be replaced by near-by neighbors, etc.

→ Please provide information about oversampling (note in probability samples this information is reflected in pi-weights), quota used, or any information that can be used to evaluate “representativity” or randomness (note that from my understanding of sampling these are synonyms;GG)

Oversampling means that by design more people were sampled for a subgroup than one would expect from simple probability of that subgroup. **Example:** In Switzerland, some cantons are so small that for a representative Swiss sample only 20-30 individuals would enter the sample by chance. However, cantonal offices may finance a sample of 500 individuals in this canton to get more reliable statistics for their canton.

Miscellaneous

Q 19: What is the survey year?

Q 20: Drink size information:

What is the average volume of alcohol for an average standard drink in grams (for generic consumption calculation)?

Corresponding measurements (vol-% of beverage, drink size in ml, or directly in grams of pure ethanol) for the various beverage specific drinks (beer, wine, spirits, and others cultural consumed alcohol if they are surveyed)?

Appendix B: Drinking Contexts

Spain and the United Kingdom

category	answer	value in days
1	never in the last 12 months	0
2	once or twice in the last 12 months	1.5
3	three to six times in the last 12 months	4.5
4	seven to eleven times in the last 12 months	9
5	one to three times a month	24
6	once or twice a week	78
7	three or four times a week	182
8	day or nearly every day	312

Germany

In Germany only the first question items a) and c) were included and coded according to:

category	answer	value in days
1	never	0
2	seldom	1.5
3	sometimes	9
4	often	78
5	(almost) always	312

Other items were not surveyed at all.

Italy

In Italy only the first question items a) and c) were surveyed. And these were coded according to:

category	answer	value in days
1	Every day or nearly every day	312
2	one to three times a week	104
3	one to three times a month	24
4	a few times in the last 12 months	6
5	never in the last 12 months	0

Sweden

In Sweden answers to all items on both questions were available but alternatives were different to the core questionnaire. Answers were coded according to:

category	answer	value in days
1	daily or almost daily	312
2	once or several times a week	130
3	once or several times a month	24
4	more seldom than once month	6
5	never	0

Finland

In Finland, items a), d), e) and g) of the first question are used as continuous scale answers and are not transformed as they are a result of standardisation of different responses (for example, per month or per week responses). Context variables were based on drinking occasions. The number of days within the survey period on which each type of drinking occasion had occurred was calculated and was converted into an annual estimate using coefficients corresponding to the length of the individual respondent's survey period. The length of the period covered varied from one week to 12 months depending on the average drinking frequency of the respondent. In the first question item c) was surveyed as in core questionnaire but item b) was not surveyed at all. In the second question, all items were surveyed as in the core questionnaire and coded accordingly.

Norway

Only item g) in the first question was surveyed but was not included in the analysis. In the second question all items were available. Answers were coded according to:

category	answer	value in days
8	Daily/almost daily	312
7	several times per week	182
6	1-2 times per week	78
5	1-3 times per month	24
4	more seldom/not at all	6

The Czech Republic

In the first question, items f) and g) were not surveyed. All other items were surveyed and coded according to:

category	answer	value in days
8	every day or nearly every day	312
7	three or four times per week	182
6	once or twice per week	78
5	once or twice per month	24
4	once or twice per three months	6
3	once or twice per six months	3
2	once or twice during the last year	1.5
1	not at all during the last 12 years	0

Hungary

In Hungary, the first question items a) and f) were formed as a sum of two frequencies, the result of this being a non-categorical response. In the first question, item b) was not surveyed. All other items were surveyed and coded according to:

category	answer	value in days
1	nearly every day	312
2	3 or 4 times a week	182
3	once or twice a week	78
4	once to 3 times a month	24
5	7-11 times in the last 12 months	9
6	3-6 times in the last 12 months	4.5
7	once or twice in the last 12 months	1.5
8	never	0

Appendix C: Alcohol-related violence

Table 1: Countries and questions included in respective survey.										
<i>(For more specific information about the questions, see core questionnaire)</i>										
	Country									
Question	02 Germany	06 United kingdom	08 Mexico	09 Sweden	10 Finland	11 Norway	12 The Netherlands	14 Czech Republic	15 Hungary	17 Brazil
Violence indicators										
VADP: During the last 12 months, how often has your spouse/partner/romantic (non-cohabiting) partner...	<i>No v-ind</i>		<i>No v-ind.</i>			<i>No v-ind</i>	<i>No v-ind</i>			
a: Insulted or sworn at you?		X		<i>no</i>	X			<i>no</i>	<i>no</i>	..."Chided, threatened or cursed you?"
b: Sulked or refused to talk about a problem?		X		<i>no</i>	X			<i>no</i>	<i>no</i>	X
c: Stomped out of the house, room or yard?		X		<i>no</i>				<i>no</i>	<i>no</i>	X
d: Done or said anything to spite you?		X		<i>no</i>	X			<i>no</i>	<i>no</i>	X
VMPA: ...What is the most physically aggressive thing done to you during the last 2 years by someone who was or had been in a close romantic relationship with you?		X		.."have been subject to any aggressive act..." 12 months.	<i>no</i>			"Has it happened?" Yes / No	"Has it happened?" Regularly / Occasionary / No	X
VLAA: On a scale of 1 to 10, where 1 is minor aggression and 10 is life-threatening aggression, how would you rate the level of this aggressive act?		X		<i>no</i>	<i>no</i>			X	X	X
VFEA: On a scale from 1 to 10, where 1 is not at all angry and 10 is very angry, how angry were you just after the incident happened?		X		<i>no</i>	<i>no</i>			<i>no</i>	<i>no</i>	X

cont. Table 1: Countries and questions included in respective survey.										
	Country									
Question	02 Germany	06 United kingdom	08 Mexico	09 Sweden	10 Finland	11 Norway	12 The Netherlands	14 Czech Republic	15 Hungary	17 Brazil
VFES: On a scale from 1 to 10, where 1 is not at all scared and 10 is very scared, how scared were you just after the incident had happened?		X		no	no			no	no	X
VMED: Did you seek medical attention from a doctor, nurse, paramedic or other health professional either at the time that the person did this to you or in the next day or so?		X		no	no			X	X	X
VDBI: Had you or the other person been drinking before this incident?		X		no	no			X	X	X
VICP: Was the other person in this incident your current spouse/partner/romantic (non-cohabiting) partner?		X		no	no			X	X	X
VFPA: Thinking back over the last 2 years, about how often were any of these aggressive things...done to you by your current spouse, partner or someone with whom you have a close romantic relationship?		... "by...someone you have/had a...romantic relationship"		no	no			X	X	X
VPAL: Were any of these aggressive things done to you in the past 12 months by anyone in a romantic relationship with you?		no		no	no			X	no	X

(cont.) Table 1: Countries and questions included in respective survey.										
	Country									
Question	02 Germany	06 United kingdom	08 Mexico	09 Sweden	10 Finland	11 Norway	12 The Netherlands	14 Czech Republic	15 Hungary	17 Brazil
VSMP: What is the most physically aggressive thing you have done during the last two years to someone who was or had been in a close remantic relationship with you?		X		<i>no</i>	<i>no</i>			<i>no</i>	<i>no</i>	X
VSLA: On a scale from 1 to 10. where 1 is minor aggression, and 10 is life-threatening aggression, how would you rate the level of this aggressive act?		X		<i>no</i>	<i>no</i>			<i>no</i>	<i>no</i>	X
VSFA: On a scale from 1 to 10, where 1 is not at all angry, and 10 is very angry, how angry were you just after the incident had happened?		X		<i>no</i>	<i>no</i>			<i>no</i>	<i>no</i>	X
VSFS: On a scale from 1 to 10, where 1 is not at all scared and 10 is very scared, how scared were you just after the incident happend?		X		<i>no</i>	<i>no</i>			<i>no</i>	<i>no</i>	X
VSDB: Had you or the other person been drinking before this incident?		X		<i>no</i>	<i>no</i>			<i>no</i>	<i>no</i>	X

(cont.) Table 1: Countries and questions included in respective survey.										
	Country									
Question	02 Germany	06 United kingdom	08 Mexico	09 Sweden	10 Finland	11 Norway	12 The Netherlands	14 Czech Republic	15 Hungary	17 Brazil
VSIP: Was the other person in this incident your current spouse/partner/romantic (non-cohabiting) partner?		X		<i>no</i>	<i>no</i>			<i>no</i>	<i>no</i>	X
VSTF: Before you were 16 years old (age 15 or younger), did someone in your family try to make you do sexual things or watch sexual things?		X		<i>no</i>	<i>no</i>			..."under age 15"	<i>no</i>	X
VSTO: Before you were 16 years old (age 15 or younger), did someone other than a family member try to make you do sexual things or watch sexual things?		X		<i>no</i>	<i>no</i>			..."under age 15"	<i>no</i>	X
VAST: Since the age of 16 (16 or older), was there a time when someone forced you to have sexual activity that you really did not want?		X		<i>no</i>	<i>no</i>			..."older than 15"	<i>no</i>	X
VASP: Was this your spouse, partner or someone you had a close romantic relationship with?		X		<i>no</i>	<i>no</i>			X	<i>no</i>	X

(cont.) Table 1: Countries and questions included in respective survey.										
	Country									
Question	02 Germany	06 United kingdom	08 Mexico	09 Sweden	10 Finland	11 Norway	12 The Netherlands	14 Czech Republic	15 Hungary	17 Brazil
Drinking variables:										
Abstainer/ former drinker/ drinker	X	X	X	X	X	X	X	X	X	X
Binge-drinking, resp.	X	<i>no</i>	?	X	?	X	X	X	X	X
Risk-drinking, resp.	X	X	X	X	X	X	X	X	X	X
Risk-drinking, partner	<i>no</i>	X	<i>no</i>	<i>only drin/abst.</i>	X	<i>no</i>	<i>no</i>	X	<i>no</i>	X
Other aggression-related variables:										
CEXPg: In the last 12 months, have you ever...Gotten into a fight while drinking?	X	X	X	X	X	X	<i>no</i>	X	<i>no</i>	X
CINJ: Have you or someone else been injured as a result of your drinking?	X	X	X	X	X	X	X	X	X	X
FSEff: ... you become more aggressive toward other people? (generally)	<i>no</i>	X	<i>no</i>	X	X	<i>no</i>	<i>no</i>	X	X	X

Appendix D: Social inequalities

Prevalence (percentages) of abstaining, heavy drinking and binge drinking (HED) by country, gender and educational level (age: 25-69)

	Current abstaining						Heavy drinking						Binge drinking					
	Men			women			men			women			men			women		
Switzerland	8.8			21.3			14.3			4.9			1.2			0.2		
by SES (lo mi hi)	19.2	8.3	5.3	35.2	17.6	16.2	22.1	13.4	12.8	4.1	4.7	7.9	1.5	1.2	1.0	0.3	0.1	0.4
Germany	4.2			5.8			18.5			10.9			28.4			6.1		
by SES (lo mi hi)	12.3	4.8	2.6	17.2	6.0	2.5	16.2	18.9	18.2	7.1	9.7	14.2	32.5	31.3	24.8	7.5	6.2	5.7
Italy	8.4			21.5			32.0			8.6			X			X		
by SES (lo mi hi)	7.3	8.0	11.3	29.2	21.6	12.7	52.8	30.0	25.2	12.3	8.9	3.2						
France	4.4			8.5			23.0			7.2			X			X		
by SES (lo mi hi)	10.0	3.5	3.0	14.9	8.6	4.7	32.3	22.3	19.2	6.5	6.8	7.7						
UK	8.4			14.1			17.4			9.0			X			X		
by SES (lo mi hi)	10.6	6.3	9.2	19.2	15.8	6.2	16.5	21.1	13.5	7.0	9.5	10.1						
Israel	26.4			45.7			6.5			2.3			7.2			1.9		
by SES (lo mi hi)	35.6	25.9	19.7	65.2	48.6	27.5	9.0	6.7	3.8	1.5	2.1	3.0	7.1	8.3	4.8	0.9	2.1	2.1
Mexico	21.2			55.3			10.1			0.9			32.0			1.7		
by SES (lo mi hi)	24.0	20.1	18.2	63.1	49.4	39.7	9.2	8.2	10.1	1.1	0.6	0.9	31.3	35.9	25.4	2.0	0.9	3.5
Sweden	7.7			14.0			5.2			2.2			23.0			4.9		
by SES (lo mi hi)	15.4	6.3	5.5	25.6	12.5	10.8	5.7	4.7	4.9	2.5	2.2	2.0	21.9	25.4	19.1	3.4	5.1	5.4
Finland	7.0			7.6			10.3			3.5			47.3			12.8		
by SES (lo mi hi)	12.4	5.0	6.0	14.4	4.5	7.1	13.0	10.3	8.3	5.8	2.6	3.2	43.5	49.0	47.7	11.5	15.7	10.3
Norway	5.6			5.8			7.5			2.6			13.5			4.1		
by SES (lo mi hi)	10.6	3.2	5.2	9.8	4.5	4.7	11.3	7.1	5.6	2.5	2.2	3.2	12.6	16.3	10.8	5.5	3.5	4.0
Netherlands	12.6			29.1			16.3			6.8			31.0			7.5		
by SES (lo mi hi)	24.1	12.4	6.6	54.4	27.7	15.6	22.2	15.8	14.3	5.6	6.2	11.0	32.1	32.0	26.8	7.8	8.2	4.1
Austria	5.2			14.4			25.7			6.1			X			X		
by SES (lo mi hi)	4.9	5.3	8.4	15.3	13.4	10.1	28.2	22.8	12.0	6.5	4.9	13.0						

Appendix E: Societal-level factors

Table 1. The countries and their Gender Equity Scores

Country	Gender Equity
Sri Lanka	-0.79
India	-0.66
Nigeria	-0.52
Costa Rica	-0.52
Mexico	-0.23
Japan	0.08
Italy	0.25
Brazil	0.26
Switzerland	0.52
Argentina	0.53
Hungary	0.53
Spain	0.64
Israel	0.74
Russia	0.75
Kazakhstan	0.75
Uganda	0.77
Czech Rep.	0.82
Austria	0.89
Germany	1.00
UK	1.06
Netherlands	1.08
USA	1.18
France	1.24
Canada	1.46
Finland	1.81
Norway	1.85
Iceland	1.86
Denmark	1.89
Sweden	2.06

Table 2. Correlations between measures of gender equity and gender ratios in drinking in lower and higher income countries

	GDP > 23,000				GDP < 23,000			
	R-drink	R-week	R-heavy	R-HED	R-drink	R-week	R-heavy	R-HED
GES	-0.65	0.46	0.43	-0.05	-0.62	-0.37	-0.14	0.10
	0.02	0.14	0.16	0.88	0.04	0.29	0.72	0.80
	13	12	12	12	11	10	9	9
GEM	-0.50	0.28	0.48	0.16	-0.86	-0.31	-0.77	-0.68
	0.10	0.40	0.13	0.63	0.01	0.54	0.07	0.20
	12	11	11	11	7	6	6	5