Introduction

Alcohol is a major cause of chronic liver disease worldwide and is associated with a spectrum of liver diseases including fatty liver, alcoholic hepatitis and cirrhosis.

It has been well documented that alcohol consumption per capita, in studies from Europe and North America is related to liver cirrhosis mortality in the general population. The strong relationship between cirrhosis mortality and the levels of alcohol consumption in the population have been repeatedly confirmed at different time periods and different countries in spite of claimed great underreporting of alcoholic cirrhosis. The rates in cirrhosis mortality are about two times higher in men than in women, perhaps because men drink more than women. However, it seems that in women the same level of alcohol consumption impose increased risk of cirrhosis compared with men, a phenomenon not fully explained. It has been disputed whether cirrhosis risk and cirrhosis mortality are dependent on type of beverages such as beer, wine or spirits. The results of recent studies, based on aggregated data, indicated that the spirits consumption rather than beer and wine, and decrease in spirits consumption. Chronic liver cirrhosis mortality increased significantly for men when comparing the 1982–88 rates (before beer ban was lifted) with the rates for 2003–09. Conclusion: The findings do not support the suggestion that spirits consumption rather than the total alcohol consumption affect the cirrhosis mortality.

Methods

The State Alcohol and Tobacco Company of Iceland, which has a monopoly in sales of alcohol in Iceland, provided Statistic Iceland with sales figures. The annual consumption was broken down to beer, wine and spirits in litres of alcohol per 15 years. Total prohibition of alcohol sales was implemented in Iceland in 1908. The prohibition was gradually lifted through the years; in 1917 it was allowed to sell alcohol for medical purposes, and exception was made for light wines 1922, and the ban on distilled spirits was lifted 1935. The ban for selling beer lasted longest or until 1989, altogether for 74 years. Statistic Iceland maintains the National Cause-of-Death Registry. The registry is nation-wide and includes causes of death according to death certificates. The ICD-10 codes available during 1982–2009 were chronic liver diseases (K70, K73-K74), and Mental and behavioural disorders due to use of alcohol (F10). The ICD-10 codes available during a shorter period 1996–2009 were alcohol liver diseases (K70).

To estimate the mortality rates for the different diagnosis and diagnostic categories the numerator used was the number of deaths during the seven years periods 1982–88, 1989–95, 1996–2002 and 2003–09, with corresponding population figures. The seven years rates were compared with the rates in the first period 1982–88, before the beer ban was lifted. The rates in 1996–2002 were compared with the rates in 2003–09 for Alcohol liver diseases. Spearman rank correlation coefficient was computed between the total alcohol consumption in litres of alcohol per 15 years and older, and the annual number of deaths due to Chronic liver diseases (ICD-10 codes K70, K73-K74) during 1989–2009.

Results

The total annual alcohol consumption in litres per 15 years increased from 4.25 l in 1982 to 6.93 l in 2009. There was a steady increase in consumption of beer, since the ban on beer sales was lifted 1989, which measured in alcohol litres, exceeds the amount consumed of spirits in the year 1995. In the year 2009 more than half of the total consumption of alcohol litres was due to beer. In table 1 the number of deaths in chronic liver diseases, alcohol liver diseases and mental and behavioural disorders due to use of alcohol, seven years death rates, rate ratios and 95% confidence intervals per 100 000 are shown for men and women, and the period before the ban on
sales of beer was lifted is used as reference. Among men the rate ratios in
the last period is highest, and the 95% confidence intervals do not
include unity. This is not the pattern in the results among women,
and the rates are similar through the periods.
For other alcohol related diagnosis\textsuperscript{7} such as acute pancreatitis
(K85) and poisoning by alcohol (X45) the rates were low and
similar in both time periods for men and women. One death was
under the diagnosis oesophageal varices (I85) a woman, who was
recorded dead in 2009.
The Spearman rank correlation coefficient between annual alcohol
consumption in litres per 15 years, and number of deaths in
chronic liver diseases per year among men was 0.369, statistically
significant on 0.05 level for one-tailed test.

Discussion
The results show an increase of per capita consumption of total
alcohol litre and increasing rates in chronic liver diseases mortality
and alcohol deaths among men, but not among women. This asso-
ciation was significant and occurred parallel with important change
in type of beverages consumption. During the study period beer
came available for the first time since it was banned in the early
1900s. Apart from the increase in the consumption of beer, con-
sumption of wine increased whereas, consumption of spirits
decreased. However, the total alcohol consumption in the
population increased \(\sim30\%\). The national consumption of alcohol in
Iceland, according to sales figure in Statistic Iceland website, were
during the last century lower than in the other Nordic countries
until the last 10 years when the figures for Iceland passed the
figures from Norway, Sweden and Faeroe Island, however, still
being \(\sim30\%\) lower than in Finland and Denmark.\textsuperscript{7} The incidence of cirrhosis in Iceland has previously been reported to be the lowest
in the western world,\textsuperscript{9,10} which now may be changing.

The findings of this study do not support the suggestion
that spirits consumption rather than the total alcohol consumption
affect the cirrhosis mortality,\textsuperscript{5,6} as the spirits consumption
diminished while other types of beverages increased, especially that
of beer.

The ecological design of the present study used to investigate the
association between the sales figures of alcohol and cirrhosis
mortality is not suitable for causal interpretation on the effect of
alcohol use and risk of cirrhosis for individual level, as has been
stated previously.\textsuperscript{5} This approach does not allow for the difference
in well-known risk factors, other than alcohol use or misuse, to be
taken into account, however the pivotal role of alcohol in the
aetiology of cirrhosis mortality is widely recognized.\textsuperscript{1} In the
present study we divided the population by gender, a method
used in some of the studies with similar design,\textsuperscript{2,3} but not in
others.\textsuperscript{5,6} In the study of 14 European countries the association
of changes in per capita alcohol consumption with changes in cirrhosis
mortality were statistically significant in 13 countries for men and in
nine countries for women.\textsuperscript{3} The per capita consumption of alcohol
in the five countries where the association was not statistically
significant for women, was in general lower than in the other countries, and the
consumption was lowest (average 4.4 alcohol litre per \(\geq15\) years) in
the country (Norway) where the association was not statistically
significant for men.\textsuperscript{3} These European results are thus consistent
with the findings in the present study.

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conducting the analyses, drafting the manuscript, had full access to
all of the data in the study, and agreed on the final version. VR
initiated the study and is the guarantor.

Conflicts of interest: None declared.
Key points

- Alcohol consumption per capita is related to liver cirrhosis mortality.
- Most recent studies indicated that spirits consumption rather than that of beer and wine is associated with cirrhosis mortality.
- Total alcohol consumption increased ~30% after the ban for selling beer was lifted and the association of total consumption and liver cirrhosis mortality was confirmed.
- More than half of the total consumption was due to recent development of beer drinking.
- As spirits consumption decreased and beer consumption increased, the total alcohol consumption seems to affect the cirrhosis mortality.

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Well-being measurement and the WHO health policy

Health 2010: systematic review of measurement scales

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Background: Subjective well-being (SWB) contributes to health and mental health. It is a major objective of the new World Health Organization health policy framework, ‘Health 2020’. Various approaches to defining and measuring well-being exist. We aimed to identify, map and analyse the contents of self-reported well-being measurement scales for use with individuals more than 15 years of age to help researchers and politicians choose appropriate measurement tools. Methods: We conducted a systematic literature search in PubMed for studies published between 2007 and 2012, with additional hand-searching, to identify empirical studies that investigated well-being using a measurement scale. For each eligible study, we identified the measurement tool and reviewed its components, number of items, administration time, validity, reliability, responsiveness, and sensitivity. Results: The literature review identified 60 unique measurement scales. Measurement scales were either multidimensional (n = 33) or unidimensional (n = 14) and assessed multiple domains. The most frequently encountered domains were affects (39 scales), social relations (17 scales), life satisfaction (13 scales), physical health (13 scales), meaning/achievement (9 scales) and spirituality (6 scales). The scales included between 1 and 100 items; the administration time varied from 1 to 15 min. Conclusions: Well-being is a higher order construct. Measures seldom reported testing for gender or cultural sensitivity. The content and format of scales varied considerably. Effective monitoring and comparison of SWB over time and across geographic regions will require further work to refine definitions of SWB. We recommend concurrent evaluation of at least three self-reported SWB measurement scales, including evaluation for gender or cultural sensitivity.

Introduction

Subjective well-being (SWB) contributes to lifelong health and healthy aging; lack of SWB or impaired SWB can contribute to disease and mental disorders.1,2 SWB as a public health goal goes beyond traditional indicators of health, such as mortality, life expectancy at birth and infant mortality rate. European member-