

[Reducing the availability of alcohol](#)

Q8. Is reducing the availability of alcohol effective in reducing deaths from suicide, suicide attempts and acts of self-harm?

Background

Numerous studies have analyzed the relationship between alcohol consumption and suicide on individual and aggregated level. Studies have proven the relationship on individual level. Aggregated-level studies have found association between alcohol consumption in liters per capita and suicide rates in Nordic countries, Eastern Europe, Canada and US. The strength of this association is non-significant in central and southern Europe. However, a limited number of studies directly related to the scoping question exist.

Population/Intervention(s)/Comparator/Outcome(s) (PICO)

Population:	total population in the country
Interventions:	alcohol restrictions, changes in alcohol policy (restriction are different by countries)
Comparisons:	periods before, during and after changes in alcohol policy
Outcomes:	reduction in suicidal behaviours

Search strategy

PubMed and Scopus databases were searched. Keywords used were “suicide”, “alcohol policy” and “alcohol restrictions”. All selected titles were screened in order to identify a subset of relevant papers. Another level of selection was performed by screening the abstracts of the papers. Reference lists of the relevant papers were also examined.

Inclusion and exclusion criteria

Inclusion criteria: all studies analysing the impacts of changes in alcohol policy in relation to suicide.

Narrative description of the studies (including a study-by-study table)

Author	Title	Reference	Study Design	Description of the study	Results
Mann JJ et al (2005).	Suicide prevention strategies. A systematic review.	Journal of the American Medical Association, 294:2064-74.	Systematic review	The aim of this review was to examine evidence on the effectiveness of specific suicide interventions, including those which restricted access to alcohol.	The authors only identified 2 studies that demonstrated restrictions access to alcohol which coincided with decreases in overall suicide rates (in the Soviet Union and Iceland).
Wasserman D, Varnik A, Eklund G (1994).	Male suicides and alcohol consumption in the former USSR.	Acta Psychiatrica Scandinavica, 89:306-13.	Ecological study	The paper analyses correlation between alcohol consumption in liters per capita and suicide, alcohol poisoning, violent and undetermined death rates in males in former Soviet Union (in 15 former Soviet Republics) during 1984-1990 (including <i>Perestroika</i> – 1985-88).	On 1 June 1985, Gorbachev introduced a major anti-alcohol campaign by law in the USSR (known as <i>Perestroika</i> – restructuring). It included increasing the prices of alcoholic beverages, decreasing alcohol production and the number of retail outlets for alcohol. Alcohol was only sold in exchange for coupons at fixed times and the quantity of alcohol sold was limited. Alcohol consumption was strongly correlated with male suicide rates from 1984 to 1990. In Republics with high alcohol consumption (Slavic and Baltic), suicide rates were also higher. In the Caucasian Republics, low alcohol consumption was correlated with low suicide rates. At least for the peak year of 1984, alcohol seems to explain 50% of male suicides in most of the republics. Alcohol

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					consumption also had considerable explanatory value for violent death. The authors conclude that a restrictive alcohol policy might present an opportunity to reduce suicide and other violent deaths.
Wasserman D, Varnik A, Eklund G (1998).	Female suicides and alcohol consumption during <i>Perestroika</i> in the former USSR.	Acta Psychiatrica Scandinavica, 98(Suppl.394):26-33.	Ecological study	The aim of the paper was to analyse the association between reduced alcohol consumption and decreased suicide mortality in females in the former Soviet Union (8 former Soviet Republics) from 1984 to 1990 (including <i>Perestroika</i> – 1985-88).	Alcohol consumption was correlated with suicide rates for females from 1984 to 1990. Compared to males, alcohol seems to have a lower explanatory value for female suicides and violent deaths. The attributable fraction of alcohol for female suicides in the whole USSR was 27%, compared to 50% of male suicides.
Nemtsov A (2003).	Suicides and alcohol consumption in Russia, 1965-1999.	Drug and Alcohol Dependence, 71:161-8.	Ecological study (including case series)	This paper analysed alcohol consumption and suicide rates in Russia in the past decades (1965-1999), including the anti-alcohol campaign during <i>Perestroika</i> . In eight regions, the blood alcohol levels of those who suicided (BAC positive or negative) was analysed.	Suicides are strongly correlated with alcohol consumption in Russia. Alcohol consumption was strongly correlated with BAC-positive suicide numbers in eight regions in Russia. BAC-positive suicide numbers decreased during the anti-alcohol campaign. However, there were no changes in sober (BAC-negative) suicides. The author concluded that alcohol consumption plays an important role in suicide rates, especially for males.
Värnik A et al (2007).	Do alcohol restrictions reduce suicide mortality?	Addiction, 102:251-6.	Case series	The study analysed blood alcohol concentration among suicide victims at	In the analysis, suicide victims were divided by their blood alcohol concentration (BAC) using information from medical autopsies.

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				the time of death, by gender, before, during and after the major anti-alcohol campaign (<i>Perestroika</i>) in Estonia.	For both genders, BAC-positive suicide numbers decreased during the campaign (1986-88) compared to the previous period (1981-84). The largest changes were observed in BAC 2.5‰. There were no changes in BAC-negative suicide numbers. Suicide numbers started to rise after the end of campaign (1989-92). The authors concluded that despite the decrease in BAC-positive suicides, it is not possible to say if the decrease in suicide rates was due to the decrease in alcohol use as such.
Pridemore WA, Snowden AJ (2009).	Reduction in suicide mortality following a new national alcohol policy in Slovenia: An interrupted time-series analysis.	American Journal of Public Health, 99:915-20.	Ecological study	The aim of the paper was to assess the impact of the new national alcohol policy in Slovenia on suicide mortality using interrupted time-series techniques.	In 2003, Slovenia changed its alcohol policy by establishing a minimum age of 18 years for the drinking and purchasing of alcoholic beverages. It also limited where and when alcoholic beverages could be purchased. The analyses of the effect of this new alcohol policy showed an immediate and permanent reduction in male suicide mortality in Slovenia. There was no effect on female suicides. The authors indicated the major potential of alcohol policy in reducing alcohol-related harm.
Sloan FA, Reilly BA, Schenzler C (1994).	Effects of prices, civil and criminal sanctions, and law enforcement on alcohol-related mortality.	Journal of Studies on Alcohol, 55:454-65.	Ecological study	The paper analysed the effects of various public policies on mortality rates by state and year in the USA for the years 1982-1988.	Alcohol prices, civil and criminal sanctions and law enforcement were tested in relation to the alcohol related deaths. The price of alcoholic beverages was significantly associated with suicides. Increases in the monetary price of alcoholic beverages would reduce suicides and

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					deaths from the diseases in which alcohol is a contributing factor. The authors concluded that reductions in alcohol-related mortality may be achieved by implementing a mix of public policies.
Skog OJ (1993).	Alcohol and suicide in Denmark 1911-1924 – experience from a ‘natural experiment’.	Addiction, 88:1189-93.	Case series	The aim of the study was to analyse alcohol consumption and suicide numbers (alcohol abusers and non-abusers) in Denmark from 1911 to 1924. It included the ‘natural experiment’ type of situation.	During WWI, the blockade caused a substantial shortage of many commodities and the taxation of alcoholic beverages increased dramatically in Denmark. In the analysis, suicide victims were divided by their drinking status (abuser or not) according to the coroners report. A decrease in suicides was clear among alcohol abusers. However, there were no clear changes in the numbers of non-abuser suicides. Alcohol consumption was strongly correlated with the suicide numbers of alcohol abusers. The author concluded that the Danish experience confirms that the effect alcohol consumption has on suicide rates, especially among alcohol abusers.
Lester D (1999).	Effect of changing alcohol laws in Iceland on suicide rates.	Psychological Reports, 84:1158.	Ecological study	This paper aimed to explore the effect of changes in Iceland’s alcohol laws on suicide rates.	In 1989 Iceland permitted the sale of strong beer which was associated with a decrease in the consumption of spirits and an increase in the consumption of beer. After the legalization of strong beer, the total suicide rate declined from 15.08 per 100,000 per year in the period 1984-1988, to 11.98 in 1990-1994. This decrease was significant only for females.

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Andreasson S et al (2006).	Estimates of harm associated with changes in Swedish alcohol policy: results from past and present estimates.	Addiction, 101:1096-105.	Ecological study	This paper aimed to compare the actual developments of alcohol-related harm in Sweden with estimates calculated before the changes in alcohol policy in 1995. It also estimated the possible effects of reduced alcohol prices on consumption and alcohol-related harm in the future.	Since joining the EU, several changes have taken place in Sweden: production, wholesale, import and export monopolies were eliminated in 1995. An increase in alcohol consumption was estimated. Predicted alcohol-related harm was based on time-trends 1950-1995 and calculated using estimates of alcohol sales and alcohol consumption. Predicted alcohol-related harm was compared with real alcohol-related harm. The actual levels of harms from assaults and accidents were relatively similar with the predictions. However, instead of the expected increase, suicides and homicides showed a decreasing trend. A possible future tax cut of 40% on spirits and 15% on wine was estimated to increase alcohol consumption by 0.35 litres per capita. This would produce considerable negative effects, with large economic consequences for the Swedish economy.
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Methodological limitations

Rather limited empirical attention has been paid on changes in alcohol policy and its impact on suicides. The main methodological limitation is that most of the studies are ecological in their nature. The main problem of ecological studies is ecological fallacy: being based on aggregated statistics, no comments can be made about changes at the individual level. Three case series exist: one divides suicide victims by their drinking habits (abusers or not) as per coroners' reports (Denmark 1911-24), and two others by blood alcohol concentration at the time of suicide from medical autopsies (Russia and Estonia in relation to *Perestroika*). Most of the studies were not able to adjust for possible confounding factors. An important limitation is also that the different countries are hardly comparable due to the differences in the level of restrictions in alcohol policies. There is absence of systematic reviews on this specific issue.

Directness (in terms of population, outcome, intervention and comparator)

A limited number of studies exist on the reduction of alcohol and its effects on suicide. There are no studies which measure the effect of the reduction of alcohol on other suicidal behaviours. However, the interventions vary in different countries.

Narrative conclusion

There is evidence in the literature that alcohol restrictions (reducing access to alcohol) are effective in decreasing suicide numbers/rates on an aggregated level, especially for males. However, a recent study from Sweden showed that a more liberal alcohol policy and an increase in alcohol consumption did not correspond to an increase the number of suicides. There is evidence that the impact of alcohol on suicidal behaviours differs depending on the country. However, different countries also have different alcohol policies and restrictions, which does not allow for valid comparison. Future research is needed in different cultural contexts.

References

- Andreasson S et al (2006). Estimates of harm associated with changes in Swedish alcohol policy: results from past and present estimates. *Addiction*, 101:1096-105.
- Lester D (1999). Effect of changing alcohol laws in Iceland on suicide rates. *Psychological Reports*, 84:1158.
- Mann JJ et al (2005). Suicide prevention strategies. A systematic review. *Journal of the American Medical Association*, 294:2064-74.
- Nemtsov A (2003). Suicides and alcohol consumption in Russia, 1965-1999. *Drug and Alcohol Dependence*, 71:161-8.
- Pridemore WA, Snowden AJ (2009). Reduction in suicide mortality following a new national alcohol policy in Slovenia: An interrupted time-series analysis. *American Journal of Public Health*, 99:915-20.
- Skog OJ (1993). Alcohol and suicide in Denmark 1911-1924 – experience from a ‘natural experiment’. *Addiction*, 88:1189-93.
- Sloan FA, Reilly BA, Schenzler C (1994). Effects of prices, civil and criminal sanctions, and law enforcement on alcohol-related mortality. *Journal of Studies on Alcohol*, 55:454-65.

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From evidence to recommendation

Factor	Explanation
Narrative summary of the evidence base	Limited epidemiological evidence suggests that alcohol restrictions (reducing access to alcohol) are effective in decreasing suicide numbers/rates on an aggregated level, especially for males. However, alcohol restrictions vary in different countries, which make valid comparison difficult.
Summary of the quality of evidence	The quality of evidence is moderate as it is based on ecological studies and three case series.
Balance of benefits versus harms	<p>The benefits of restricting access to alcohol have been confirmed by a reduction in alcohol consumption and suicide deaths. Furthermore, many studies suggested that such restrictions might lead to a reduction in all alcohol-related deaths, such as accidents, homicide, alcohol cirrhosis, alcohol poisoning, etc.</p> <p>No harm has been reported as a result of implementing the intervention strategies described.</p>
Values and preferences including any variability and human rights issues	According to different countries and cultures, the prevalence of alcohol use varies.
Costs and resource use and any	Implementation of alcohol restrictions is a complicated political issue and is related to country's

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other relevant feasibility issues	taxes. Alcohol companies often try to influence the process. Strong public opposition in relation to restricting access to alcohol in different countries also needs to be considered.
Recommendation(s) At the population level, policies to reduce harmful use of alcohol should be developed as a component of a comprehensive suicide prevention strategy, particularly within populations with high prevalence of alcohol use. Strength of recommendation: STRONG	

Update of the literature search – June 2012

In June 2012 the literature search for this scoping question was updated. The following systematic review was found to be relevant without changing the recommendation:

Crawford MJ, Csipke E, Brown A, Reid S, Nilsen K, Redhead J, Touquet R. The effect of referral for brief intervention for alcohol misuse on repetition of deliberate self-harm: an exploratory randomized controlled trial. *Psychological Medicine* (2010), 40, 1821–1828. doi:10.1017/S0033291709991899