Author’s response to reviews

Title: Quantifying harms to others due to alcohol consumption in Germany: a register-based study

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Authors’ responses to the comments of the Reviewers

Please note that page and line references of the changes made refer to the revised text in track change.

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Quantifying harms to others due to alcohol consumption in Germany: a review and register-based study Ludwig Kraus; Nicki-Nils Seitz; Kevin D. Shield; Gerrit Gmel; Jürgen Rehm BMC Medicine

Editorial Comments:
- Could you please provide an updated URL in your data availability statement? We do not seem to be able to access this at the moment

Authors: We have checked the URL which is correct leading to an archive with the data for 2014: https://www.destatis.de/DE/Publikationen/Thematisch/Gesundheit/AlteAusgaben/TodesursachenstatistikAlt.html; we added the name of the correct Excel file: Ergebnisse der Todesursachenstatistik für Deutschland - Ausführliche vierstellige ICD10-Klassifikation - 2014 (xlsx, 1 MB, Datei ist nicht barrierefrei). There is no direct path to the data. See P19 L404ff.

- In addition, would you be able to clarify in your "Data Availability" statement whether this data is publicaly available? Or would access to this data require permission? If permission is required, could you also state that you received this permission?

Authors: These data are publicly available. See P18 L403.

Reviewer reports:

Reviewer #1:

This is a clearly written paper that provides populations estimates for a range of harms attributable to the drinking of others in Germany. While I have some concerns about some of the assumptions used in the estimates of FAS and FASD I think that overall the paper is a worthwhile addition to the literature.

Authors: We thank the reviewer for this kind remark.

Abstract

The first line is a bit awkward.
Authors: We have changed the wording. See P2 L4: “The consumption of alcohol increases the risk of drinkers to injure others”.

Introduction

P3 L21: consider another word to replace 'drunks'

Authors: We have replaced the word ‘drunks’ with “intoxicated young people”. See P3 L34.

P5 L51: which form of accident . . . is awkward and should be rephrased

Authors: We have changed the sentence taking this and the next comment into account.

See P5 L93-95: “The risk of motor vehicle accidents is reported to progressively increase with increasing alcohol consumption [25]”.

P5 L53: non-linearly doesn't mean a lot without some further information on the relationship.

Authors: See response to the pervious comment.

Broadly speaking, the introduction covers a broad range of types of harms attributable to the drinking of others and a rationale for reducing the focus of your study to three specific types of harm is missing.

Authors: We have included a justification for our choice: See P5 L76-79: “By estimating morbidity and/or mortality of health harms to the newborn resulting from the mother’s drinking, and traffic and interpersonal violence fatalities to others than the drinker, we concentrate on the most severe consequences of harm to others [13]”.
Furthermore, some more clarity on what you are focusing on for assault and car accidents, that is who in each scenario is or isn't drinking, would be beneficial.

Authors: On P3 L31-36 we give an example for each of the three causes of harm to others in which we specify who is drinking and who is not. While we could give more examples we would not be able to cover all possible scenarios of harm to others from intoxicated people. Nevertheless we made the examples more specific on who is harmed by intoxicated individuals.

Method

P7: I'm concerned about the use of any alcohol consumption as a predictor for FAS and FASD - while this is based on a previously published method, the limitations of this should be more explicitly acknowledged.

Authors: Estimates were done based on the best available methodology. Most information on drinking during pregnancy found in the systematic review was about alcohol use, and not about specific patterns of drinking, and this was used in the systematic reviews and meta-analyses underlying the German estimates. We acknowledge the issue on P12 L256-259: “Third, while we used the best available methodology to estimate prevalence of FAS/FASD in lack of a large representative study in Germany, it has to be acknowledged, that using alcohol use as predictor may lead to measurement bias, as the true underlying behaviour is likely binge drinking”.

P7: Why were unpublished rates of drinking during pregnancy used? I've found published rates of consumption during pregnancy such as in this paper https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3607897/ where the prevalence of consumption during pregnancy appears to be much lower.

Authors: Although the data we are using are unpublished, they are based on a large representative sample of the German general population [36]. The reason for using these data is because they are the most recent available data in Germany on alcohol use during pregnancy.
P9 L25: How much did the results taken from 14 countries used in your AAFs vary between countries?

Authors: We expanded on the variability of results between countries, and added a line on the underlying key statistics. See P9 L182-190: “The estimated AAF for others’ drinking was estimated at 14.9% only taking into account situations, were the respondents were sure of the causal attribution to drinking of others. Standard errors and 95% CIs were calculated on the basis of the sample sizes and prevalence rates of the 14 countries resulting in a 95% CI from 12.5% to 17.4%. The underlying variability as measured in interquartile range between countries in the attributions in relevant items were 7.7% for the situation where the others was drinking but not oneself (median: 12.2%; 25 percentile: 8.0%; 75 percentile: 15.7%) and 29.5% for the situation with both self and others drinking (median: 24.9%; 25 percentile: 15.4%; 75 percentile: 44.9%).”

Results

The results are clearly presented and easy to read and understand

Discussion

P11 L20: This paragraph here touches on the framing and decisions surrounding the chosen harms that might be better suited to the introduction.

Authors: We thank the reviewer for the proposal, but we are convinced that FAS and FASD are clearly defined negative health outcomes to the fetus and the newborn. Since we are not aiming to provide a comprehensive estimate of harm to others than the drinker but to three rather severe health outcomes, necessary distinctions to other negative health outcomes are in our opinion part of the discussion.

Reviewer #3:

This study provides estimates of the magnitude of harms to others due to alcohol consumption in three areas; FAS/FASD, road traffic accident fatalities, and interpersonal violence fatalities. The topic is highly important and the study findings add to a rather limited literature on severe harms due to others’ drinking. While the estimates are given for one country and year, the magnitude of the estimates and the methods used to obtain the estimates, are clearly of interest to a broader audience. My comments and suggestions for revision are as follows:
Authors: We appreciate the reviewers comment.

1. **Title:** I suggest 'review' is skipped in the title. As it is, the inclusion of 'review' in the title implies a more comprehensive and/or systematic review of the literature than what is presented in the introduction as background and study motivation.

Authors: We skipped ‘review’ in the title. See P1 L1.

2. P 4, lines 8-10: the statement ("few attempts") should have been backed up by a systematic mapping of the literature, I suggest some re-formulation of this sentence.

Authors: We have changed the text accordingly. See P4 L53-55: “Earlier attempts to estimate harms to others than the drinker (for an overview see [4]) focussed on the social consequences, i.e., the “social victims of others' drinking” [5], by asking....”

3. P. 5, lines 8-14. Please, state here why these three areas were chosen.

Authors: We have included a justification for our choice: See P5 L76-79: “By estimating morbidity and/or mortality of health harms to the newborn resulting from the mother’s drinking, and traffic and interpersonal violence fatalities to others than the drinker, we concentrate on the most severe consequences of harm to others [13]”.

4. P. 7, lines 2 -10. Please provide the estimated quotient for Germany.

Authors: we have added the respective figure. See P7 L124: “...per one case of FAS (1 in 13) or FASD (1 in 67) for countries....”

5. P. 8, lines 16-18: is the statement "[..] gender- and disease-specific AAFs were estimated." correct? However, gender (and age) specific AAFs are identical in Table 2, suggesting one overall AAF. This is also the case in Table 3. Please explain or revise.
Authors: We are sorry, that our text led to confusion. The line refers to the general calculation of AAFs and does NOT refer to the harm to others. We deleted the whole paragraph, which was just intended as background (see P7 L141 – P8 L153), but since it led to confusion, the revised text concentrates only on the statistics actually used (see P8 L156-160).

6. P. 8, lines 23-49. AAF was estimated for non-drivers only, and non-intoxicated drivers killed by intoxicated drivers were not included. Why?

Authors: ICD-Codes on traffic accidents include information on the circumstances of the accident but neither on responsibility nor on alcohol consumption. Thus, drivers killed in an accident caused by another driver cannot be identified. Consequently, the number of non-intoxicated drivers killed by intoxicated drivers cannot be estimated. That the estimate does not include these cases is mentioned on P8 L167-168.

7. P. 9 lines 41-44 states: Only ICD-10 codes which specifically addressed victims or third parties were selected.

a) I assume this means victims of injuries that, with some likelihood, can be attributed to an intoxicated person. However, Table 1 includes numerous ICD-10 codes for drivers of motor vehicles injured in collisions where it seems unlikely that intoxication of the other party could have led to the accident, as for instance: - collision with pedestrians or animals (e.g. V30.5), - collision with railway train (e.g. V45.5), or - collision with fixed or stationary object (e.g. V27.4). Please explain or revise.

Authors: We do not agree with the reviewer here. Assume a drunk driver with 3 people in his car collides with an animal and these people got killed. Of course, for the 3 passengers in the car, this should be subsumed as harm to others, and this is what we did. Similar reasoning applied to the other examples. No changes made.

b) ICD-10 codes for assaults include also neglect and maltreatment. I suggest these are skipped. The number of deaths caused by neglect or maltreatment are probably negligible and the role of alcohol in neglect/maltreatment may well differ from that in interpersonal violence.
Authors: The number of deaths caused by neglect or maltreatment are not negligible. While we agree, that the role of alcohol in neglect and maltreatment may be different, we have no good evidence for quantifying this, and thus assumed the same AAF as in other forms of assault. This assumption has been added to the text. P10 L195-199: “Codes for neglect and maltreatment (children or persons in need for care) were included as we consider it an interpersonal violence if a person dies due these circumstances. The role of alcohol in may differ from that in interpersonal violence, but due to lack of evidence we assumed the same AAF as in other forms of assault”

c) According to Table 3 there were a total of 368 deaths from interpersonal violence in Germany in 2014. However, according to other sources (e.g. World Data Atlas) the homicide rate in Germany in 2014 was almost twice as high, i.e. 0.9/100,000 population or about 720 homicides. Please explain or revise.

Authors: The data we are using for our estimates on third-party road accidents and interpersonal violence come from the cause-of-death statistics, which are based on diagnoses. The statistics the reviewer is referring to are police statistics. Due to not being based on diagnoses these statistics are certainly higher but may be biased by the opinion of the respective officer in charge of the accident or incident. We also included a sentence on page 10 L193 explaining that these statistics are based on diagnoses: “These statistics are based on diagnoses.”

8. P. 11, lines 5-8. Please also state the estimated number of FAS and FASD (not just the rates) to present comparable figures across the three morbidity/mortality domains.

Authors: We have added the respective figures (see P11 L235).

9. P. 12, lines 1-47. The authors note that their estimates of FAS/FASD are substantially higher than earlier estimates. Some further discussion is warranted regarding how this discrepancy may be explained.
Authors: We give an explanation an P13 L268-274: “The lack of original studies in Germany led Spohr and Steinhausen [50] to estimate the incidences of FAS and FASD based on international comparisons and analogies from studies conducted between 1970 and 2000 (FAS: 5 to 20 children per 10,000 live births [51,52]; FASD: 40 to 60 children per 10,000 live births) [51]). Hence, based on rather outdated estimates the annual number…”

10. Discussion: While the morbidity (FAS/FASD) figures and the mortality (road traffic fatalities and violence fatalities) figures are not directly comparable, I miss, nevertheless, a discussion of the relative importance of alcohol's harm to others across these three domains. At least, given that the relative (if not absolute) magnitude of the estimates are fairly valid. Considering the short life expectancy among people with FAS, the figures provided in this study, seem to suggest that alcohol use in pregnancy and in road traffic account for much more harm to others than alcohol-related violence.

Authors: We thank the reviewer for raising this issue. We have added the following sentence in discussion on P17 L362-365: “While the estimates across the three harm domains are not directly comparable, the results suggest that considering the short life expectancy among children with FAS/FASD alcohol use in pregnancy followed by road traffic fatalities account for significantly more harm to others than alcohol-related violence”.