Reviewer's report

Title: Prevalence and risk factors of alcohol and other substance use disorders in young adulthood: A population-based study

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Reviewer: Elisabeth Wells

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1. Overall the authors have competently reported prevalence but their attempt to show that behavioral and affective predictors trump most other predictors of substance use disorders is flawed by the cross-sectional design without any indication of time-course even retrospectively, and their interpretations of their findings related to associations needs major revision. After careful consideration, and writing all the points below, I have finally decided that this paper should be restricted to presenting prevalence plus comparison of those with and without SUD in terms of risk factors (Table 3). This means that the whole focus of the paper needs to be shifted and Table 4 and the attendant sections in Results and Discussion should be removed. The authors have worked hard to present more than prevalence and a description of the inter-relation of risk factors but I do not think that their data warrants this analysis.

2. The authors acknowledge that their data is primarily cross-sectional and that this prevents them from making causal inferences. Consequently it seems rather inflated to claim, as they do in the Introduction, that ‘despite several identified risk factors at individual, interpersonal and societal levels, a detailed understanding of the processes leading to SUDs is lacking’, with the implication that this study will remedy this lack. Their literature review is reasonably comprehensive. I think that they would be better to mention that most studies focus on one predictor and do not report the relationships between then, instead reporting the relationship between the predictor and the outcome, controlling for possible confounders. They themselves also do not report on relationships between their domains but rather just provide evidence about the impact of including various predictor domains in different models. Therefore revision of the Introduction is required.

3. A single five point item on trait anxiousness provides a very limited assessment of ‘affective factors’. There is no way the authors can remedy this problem but they should acknowledge it. Some mention of how comprehensive or otherwise their assessment is in other domains is also warranted.

4. This point is now irrelevant to revision as I recommend the removal of Table 4 from the paper. However I think that it is important for the authors to understand the problems in Table 4. “The interpretation of Models 1 to 5 (p14-15) fails to acknowledge the problem with the way in which the authors have analysed and presented their results. The leftmost column in Table 4 presents the univariate results from each predictor on at a time. The problem with all subsequent models is that the change in ORs from the univariate model may have occurred because
of the relationships within a domain, as well as because of control for age and sex, and whatever other domains have been entered. For the behavioral and affective factors, comparisons are appropriate across Models 1 to V and if the text focussed only on these there would be no statistical problem (there are still epidemiological problems in terms of understanding what is going on). It is the interpretation within other domains which is difficult. There are two columns missing which may have been omitted to save space or for which the analyses may not have been done. The first omitted column should have presented the results of entering each block on its own, without including age and sex (heading ‘Blocks’). The column of ‘block’ models would show how much the associations between the variables within each block decreased the ORs. The second omitted column should have been labelled ‘Blocks + age and sex’. This would show whether or not the introduction of age and sex altered the ORs. To illustrate, consider the domain of ‘Learning & education’. Both learning difficulties at school and basic education have substantial ORs in the univariate analysis. When they are entered into model IV and V the ORs are much reduced and non-significant in Model V. The reader is left uncertain as to whether learning difficulties at school became non-significant because it was associated within its own domain with basic education or whether it declined because of variables from other domains (I would suspect the attention or behaviour problems variable from the behavioural and affective factors). For Models 1 to 5 there should be a row at the bottom giving either the log likelihood or -2LL. This would enable readers to compare across nested models to see if adding a domain was an improvement, even although ORs for individual variables within the domain may not have been.”

5. Again, this point is now irrelevant, given my recommendation to remove Table 4 but again I wish the authors to read and think about my comments. “The discussion of parental factors is marred by a failure to think through possible causal pathways. The two parental factor variables can reasonably be assumed to be temporarily prior to the onset of drinking in the young people. Refer to these factors as A. Refer to behavioural and affective factors as B and substance disorder as C. If the temporal order is A to B to C, then if A and B are entered simultaneously in a regression model to predict C then the coefficient for A indicates only the direct effect of A and not the indirect effect mediated through B. This needs to be clearly discussed. Indeed, the whole analysis strategy in Table 4 would be appropriate if the blocks of variables entered had some temporal order and implied causal structure. As the authors say that they are looking only at associations it is not clear why they chose this analytic strategy.” After reading this paper I finally decided that this analytic strategy was unjustified, hence my recommendation of the removal of Table 4 and related material.

Minor essential revisions

P16 Mention that the NCS-R and NESARC were both US studies. Try to make sure that the country in which studies were carried out are mentioned, where possible, as even among developed countries there are differences in drinking patterns and the prevalence of substance use disorders.
Throughout the manuscripts there are a few places in which words like ‘a’ and ‘the’ are omitted, although overall the standard of the English is excellent.

**Level of interest:** An article of limited interest

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests