Reviewer's report

Title: Evaluation of drinking patterns and their impact on alcohol-related aggression: a national survey of adolescents behaviours

Version: 2 Date: 8 July 2013

Reviewer: Kara KD Thompson

Reviewer's report:

This study addresses an important issue in the alcohol literature. As the authors point out, the multicollinearity among measures of alcohol consumption impedes the statistical inclusion of several items concurrently. As a result, researchers typically choose a single indicator of consumption based on practical considerations. This has several limitations, including the fact that patterns of consumption are particularly important for predicting alcohol related harm, as the authors point out. The author’s uses a large, school-based sample of Italian youth aged 15-19 and uses a unique analytical approach to identify drinking patterns. I believe this study does make a significant contribution to the field, but that the manuscript could be strengthen in several areas prior to publication.

Major Compulsory Revisions

1. While the authors address an important issue, the introduction needs to be strengthened. Specifically, I would like to see a more comprehensive review (at least another page), particularly about the link between alcohol use and aggression.

2. Can the authors please comment on why rotation procedures were not performed? Given the high correlations among alcohol measures, I believe an oblique rotation, such as direct oblimin, would have been appropriate.

3. The authors could do a better job overall of explaining how the PCA factors are interpreted, as well as how the composite scores were calculated. In the "statistical analysis" section, the authors say “due to the nature of the indicators, each component increases (positive loading) or decreased (negative loading) with the increasing frequency of the three indicators. My understanding of factor loadings is that a positive loading means that higher levels of an indicator are associated with higher levels on that factor and a negative loading would mean that lower levels of an indicator are associated with higher levels on that factor. Therefore, the DI pattern which has the following loadings (-.538*alcohol use + 0.816*intoxication -.210*binge), would be interpreted as youth who (1) drink infrequently, (2) who do not binge drink, but (3) do experience intoxication. Also, the minimum and maximum composite values presented in the results section (page 7-8) are particularly unclear. How can a person have a pattern of DE if they score zero on all three alcohol indicators? Overall, it would strengthen the paper to spend much more time interpreting the patterns that were found, as well as why they may be interesting or important. I found the DI pattern particularly interesting. It accounted for 21% of the variance and, if I am interpreting it
correctly, it shows that youth experience intoxication far below the typical “binge”
criteria and that there are a substantial proportion of youth who experience
intoxication even though they drink infrequently.

4. The models predicting alcohol-related aggression are interesting, but the
authors need a better rationale in the discussion for why using the patterns are
better than using just a single indicator. The fact that binge drinking and
intoxication occur jointly (as noted on page 9) is not a sufficient reason for using
patterns. Most indicators occur jointly. The authors need to express the added
value of using these drinking patterns, over and above a single measure such as
binge drinking, as well as comment on the potential limitations. For example,
what do the alcohol patterns tell us about the relationship between alcohol and
aggression that the single indicators do not? Perhaps draw on the finding that
moderate levels are associated with lower levels of aggression. Or what percent
of the variance in aggression did the individual indicators compared to the
patterns explain?

Minor Essential Revisions

5. There are several English grammatical errors and at times, the manuscript
does not read well as a result of this. This is particularly problematic in the
introduction. As one example, there should not be paragraphs composed of a
single sentence.

6. Please include the mean age and standard deviation of the sample.

7. Please include the correlations between the 3 alcohol use measures, as well
as the correlations between the drinking patterns and the frequency of use of
specific alcoholic beverages.

8. Please provide a reference for the variance inflation factor on page 7.

Discretionary Revisions

9. It would be helpful to tell the reader why you choose those three measures of
alcohol use rather than other common measures such as typically quantity or
volume.

10. The authors discuss the correlations between the drinking patterns and
frequency of use of specific beverages in the discussion, but this may be better
suited for the results section.

11. It would add clarity to the paper if the authors would consistent refer to the
measure of alcohol frequency as “frequency” rather than “alcohol use”.

12. I would like to see the eigenvalues of the PCA and the factor loadings
presented in a table.

13. I do not think figure 1 adds anything to the paper and is confusing. I would
recommend deleting it.

14. Figure 2 is also difficult to understand, but with additional explanation of the
patterns, it may become clearer.

Level of interest: An article whose findings are important to those with closely
related research interests

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

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests