Reviewer's report

Title: Adolescent School Absenteeism and Service Use in a Population-Based Study

Version: 1 Date: 11 March 2015

Reviewer: Brandy Maynard

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Major Compulsory revisions

1. Background:
   a. Overall, the background could benefit from the use of more current and relevant references. Several references are quite dated (almost 40% of the references are > 7 years old) and in some cases, the type of study cited does not provide adequate evidence of the information being presented. For example, p. 3, line 47, the authors are using a nonempirical article as a citation for their statement that absence is related to higher risk of unemployment- the use of empirical articles that provide evidence of the authors’ claims would be more effective. There is a large body of more up-to-date evidence on this subject that the authors could draw from to improve the introduction.
   b. The authors could also strengthen the MS by building a more compelling case for this study. After reading the study several times, it is not clear what gap this fills or contribution this study makes (the “so what” factor). The authors make a case for the negative health outcomes of students with high absenteeism (although could use better/more up-to-date references as stated above), but have not adequately argued for the need to examine service use or provided a thorough review of studies that examine services use of adolescents in general or those with attendance problems in particular. Also, given the heterogeneity in the group of youth who do have high absentee rates- particularly between those who miss for health related reason and may be excused versus those who skip or miss for non-health reasons, I would hypothesize that the services use would vary within the high absent youth. The authors do not discuss this and also, unfortunately, do not pose this as a research question or address this in their analysis. In sum, the authors need to build a stronger case and rationale for the need for this study, the gap(s) it fills and contributions it makes.

2. Methods
   a. Study design- The authors should add information about the study design. They provide some of this information in the “Sample” section on p. 5, but the authors should provide more detail about the actual design of their study. It seems like the authors are using previously collected data from the youth@hordaland study? Or was this data collected for this study? Please clarify. If the former, and more detail about the study is published elsewhere, the authors should provide a reference.
b. The authors also mention the issue of students being absent on the day the survey is administered in school, which is problematic when doing school-based surveys about absenteeism (lines 97-98). Again, given the nature of this study, more information is needed about how the authors dealt with this issue, particularly reporting the number of students that authors mailed information and/or surveys to and the response rate of those absentee students is important. If there were few students absent, or if the authors obtained a high response rate from those absentee students, that would be a strength of the study.

c. Statistics: I am curious why the authors did not use any control variables in their regressions? The authors have plenty of power with their sample size. Given the differences between low and high groups on demographics tested by the authors, there are some potential confounds that could better, or at least partially explain the results than the attendance variable. The authors do not address this issue in the limitations and offer no rationale for not including covariates in the analysis. This should be addressed- either by adding in the control variables and re-running the analysis or providing a compelling case for not doing so and discussing the limitations of this approach.

Minor Essential revisions

3. Abstract

a. Background- since this study is limited to adolescents in Norway, I recommend being more explicit in the aims: “…to investigate service use of Norwegian adolescents…” Also, in the statement of the aim, restate the comparison group in terms of comparing high absence students with students with low or lower rates of absenteeism and not with their peers.

b. Methods- The last sentence of the methods section is awkwardly worded. I recommend restating “Information on service use was based on adolescent self report data collected in the youth@hordaland-study. Absence data was collected using administrative data provided by the Hordaland County Council.”

c. Results- it would be helpful if the authors would specify the time period for which students would need to be absent 15% or more to be defined as high absence.

d. Results- authors should specify the comparison in line 31- “Compared to their ‘lower absence’ peers…”

e. Conclusions- the last sentence seems to extend recommendations/implications beyond the current study results. Inferring to prevention of dropout or associated adverse consequences through systematic collaboration between school and health personnel seems to be a stretch given the study design and data collected for the present study, particularly when there are studies that find small correlations between dropout and attendance outcomes (e.g., Tanner-Smith and Wilson, 2013, in Prevention Science).

4. Background:

a. The authors refer on line 48 to the “high rate” of school absenteeism, but have not provided any data or citations for this. I see that they discuss prevalence on
page 4, but may be better placed near the beginning of the Introduction.
b. Line 54, p. 3- authors state “Previous studies” but then only cite one study.

5. Methods:
a. Sample- It would be helpful if the authors included more and consistent information about the recruitment and enrollment of the study participants. On line 95-96, they report “Information about the study was sent to all students in upper secondary education by email” and then on line 101-102 report “Invitation to participate in the study was sent to all adolescents…residing in Hordaland County..”. These seem like different, albeit likely highly overlapping, sampling frames. Please clarify. Also, by information, do you mean they received a recruitment letter and then later received the survey if they agreed to participate or did they receive the recruitment letter (info about the study) and the survey at the same time? More information about exactly how recruitment and enrollment occurred would be helpful.
b. Sample- Add the % of the original sample for the n of 8988 that agreed to linkage of data.
c. Instruments- School absence: Authors state that they divided students into two groups- high and “normal” absence. I recommend that the authors re-label “normal” to “low” or “lower” as 0%-15% absence is a fairly broad range and they do not provide any indicator of what the “normal” or perhaps average attendance rate is in the county in which they are conducting the study. Given the likely differences between students with perfect attendance or 1-2 days with those with 10-14% absence, it may have made sense to stratify the sample into 3 categories, low, moderate, and high. Regardless, if the authors do not feel compelled to add a third category, I do not think students absent as high as 14% of possible days would constitute “normal” and thus labeling that group as “normal” seems to be a misnomer.

6. Results
a. Contact with Services- This section could be improved if the authors first began by reporting the % of high and low absence youth who reported contact with any services. A table providing the n and % for each group in each category would also be helpful (and could be added to Table 1).
b. Second paragraph on p. 9- authors refer to “increase” (as well as in Discussion section), however, increase presumes change over time and this was a cross-sectional study comparing groups. I recommend the authors discuss these results in terms of greater likelihood or something similar.
c. Reporting by gender- again I think it would have been more appropriate for the authors to use gender as a control variable in the regressions. Also, it is not clear in the Table 2 who the reference group is for the subgroups. Is the reference group for the girls the entire low absence group or the girls in the low absence group? Please clarify who the reference group is. And is this table providing data for odds of contact with any services?
d. The more interesting story here, I believe, is the variation in service within the group of high absentee students. The authors do not examine this at all, but I
believe could provide much more useful information and have more relevant implications. The majority of the high absence students (70.4%) reported being absent due to illness, while the others were either skipping or perhaps had a legitimate (?) excuse to miss school. Are students who miss school due to illness more or less likely to use any and different services than those who are absent for other reasons? I would be surprised if there was not variation in frequency and contacts within the group of high absence students. This manuscript could be more relevant and offer more robust and useful implications if the authors could parse this out.

e. I question the necessity of all box plots. I would rather the authors present the odds ratios and CIs in a table and clearly indicate the number of participants in each category- for example, the authors report on p. 10 that “in more extreme categories there are few participants” but no where other than Table 3 (reasons for absences) do the authors report the n’s for each category examined. This is important information that is missing. Figure 2 is a good use of a figure.

7. Discussion

a. Recommend the authors begin the discussion section restating the purpose and relevance of this study and then summarize the main findings.

b. 1st full paragraph on p.11 (line 232-244). The authors provide some comparisons of prevalence to another Norwegian study and also provide some comparison to official records in the U.S. The authors state on line 236- authors state “The majority of studies on school absence does not report routine data on absenteeism and are therefore not fit for comparison”- I am not sure what the authors mean by this statement. Prevalence rates using two different US national data sets were reported in Vaughn et al., (Journal of Adolescence, 36, 767-776) and in a study by Henry (2007). Also, the last two sentences in this paragraph are off topic.

c. Overall, the discussion could be improved by attending to the structure and function of paragraphs and situating the findings with the extant literature. The authors also take liberties with and make several conjectures related to interpretations of their results.

8. General: I recommend copyediting the MS as there are a number of grammatical errors throughout, a few sentences with missing words (such as the omission of in/during on p. 8, line 171), awkwardly worded sentences such as p. 2, line 27, and misuse of commas such as p. 3, line 63.

Discretionary revisions
None recommended.

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.