Author’s response to reviews

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

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Author’s response to reviews: see over
Dear editor,

Thank you very much for the constructive and detailed comments regarding manuscript MS 485933591515216 “Adolescent School Absenteeism and Service Use in a Population-Based Study”. We have carefully revised the manuscript according to the comments and suggestions from the reviewers, which has led to quite extensive changes. We consider the manuscript to be greatly improved. Below you will find our responses to each of the suggestions.

We look forward to hearing from you in due course.

Yours sincerely,
On behalf of the authors, Kristin Gärtner Askeland

Reviewer: Brandy Maynard

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.

   Response: We highly appreciate the thorough review and valuable suggestions. The background section has been revised according to the propositions above, and new references were included. The included references are:


These references were included in the discussion section in the manuscript in the earlier version and are now used in 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.

Response: We appreciate the comments and have tried to build a stronger case by including the suggestions put forward by the reviewers. In addition, we have added a relevant perspective about work absenteeism among adults. Within a clinical perspective, highlighting systematic follow up of youth is expected to be of interest to the reader, and is also relevant for evaluation and future research.

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.

Response: This is an important clarification. We are using previously collected data from the youth@hordaland study, and have included a subheading named Study design where this is clarified:

“This population-based study employs previously collected data from the youth@hordaland-survey of adolescents in the county of Hordaland in Western Norway, conducted during spring in 2012. The youth@hordaland-study is a cross sectional study with a main aim to assess mental health problems and service use in adolescents.”
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.

Response: We agree that we have not given adequate information about the study procedure, especially concerning the adolescents that were absent the day the schools allocated an hour to complete the questionnaires. We have now elaborated on the study procedure:

“All adolescents in the three age cohorts in Hordaland were invited to participate in the study (n= 19 430). The adolescents received information about the study and login details via their official school e-mail, followed by an SMS reminder for the majority of the students. One school class (about 45 minutes) during regular school hours was allocated for the completion of the Internet based questionnaire. A teacher was present to organize the data collection and to ensure confidentiality. For those not at school during the allocated school completion, the questionnaire could be completed at other times at their convenience during the study period. Some schools arranged catch up days, and we also arranged for participation for adolescents in hospitals or institutions during the study period. Those not enrolled in school at the time of the study received log on information through postal mail. However, adolescents who had dropped out of school were not included in the current study sample, as one of the main variables was school absenteeism.”

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.

Response: This is another important comment that we have considered thoroughly. In preparing the previous version of the manuscript we did run the analyses with control variables, but decided to report the unadjusted estimates as the differences were small. These considerations should have been stated in the manuscript.

In the present version of the manuscript, we have included three absence groups instead of two. This changed the estimates and made it difficult to stratify on gender as the tables are now bigger. We have therefore decided to add the suggested control variables to the analyses and to control for gender instead of stratifying.

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.

Response: The suggested changes have been made to the manuscript and the aim now reads:

“The aim of the current study was to investigate service use of Norwegian adolescents with moderate and high absenteeism in comparison to students with lower rates of absence.”

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.”

Response: We agree that this is a better wording and have changed the manuscript accordingly:

“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.

Response: We have included a specification:

“High absence (defined as being absent 15% or more the past semester) was found among 10.1% of the adolescents.”

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

Response: We have now changed this sentence as suggested. In addition, we have changed the odds ratios according to the estimates found when using three absence groups:

“Compared to peers with low absence, adolescents with high absence were more likely to be in contact with all the services studied, including mental health services (odds ratio (OR) 4.32), adolescent health clinics (OR 2.11) and their general practitioner (GP) (OR 1.94).”

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).

Response: We agree with the comment and have limited the implications as follows:
"This finding suggests a potential to address school absenteeism through systematic collaboration between schools and health personnel."

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.

Response: We agree with the comment and have moved the information on prevalence of school absenteeism to the first paragraph of the background. In this process, we deleted the sentence this comment refers to, as it was superfluous.

b. Line 54, p. 3- authors state “Previous studies” but then only cite one study.

Response: We agree with the comment and have inserted a second citation:


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.

Response: We agree that the sampling procedure is not clearly stated in the manuscript, and have changed the sample section to answer the comments:

“All adolescents in the three age cohorts in Hordaland were invited to participate in the study (n= 19 430). The adolescents received information about the study and login details via their official school e-mail, followed by an SMS reminder for the majority of the students. One school class (about 45 minutes) during regular school hours was allocated for the completion of the Internet based questionnaire. A teacher was present to organize the data collection and to ensure confidentiality. For those not at school during the allocated school completion, the questionnaire could be completed at other times at their convenience during the study period. Some schools arranged catch up days, and we also arranged for participation for adolescents in hospitals or institutions during the study period. Those not enrolled in school at the time of the study received log on information through postal mail. However, adolescents who had dropped out of school were not included in the current study sample, as one of the main variables was school absenteeism.
Data from the youth@hordaland-survey include information on sociodemographic variables, familial socioeconomic status, use of health care and social services, daily life functioning, as well as extensive information on mental health. Of the 19 430 adolescents who were invited to participate, 10 220 (53%) agreed to participate and 8988 (87.9% of the original sample) approved the linkage to administrative data on school absence.

The study and the link between youth@hordaland and data on school absence were approved by the Regional Committee for Medical and Health Research Ethics in Western Norway.

b. Sample- Add the % of the original sample for the n of 8988 that agreed to linkage of data.

Response: The suggested percentage has been added:

"Of the 19 430 adolescents who were invited to participate, 10 220 (53%) agreed to participate and 8988 (87.9% of the original sample) approved the linkage to administrative data on school absence."

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.

Response: These are important considerations, and we agree with the reviewer. Based on comments from both reviewers, we have decided to divide the sample into three categories. The categories are now low absence (0-3%), moderate absence (3-15%) and high absence (more than 15%). We have changed the wording in the abstract accordingly.

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).

Response: We agree with the comment and have added a sentence to the section. The first sentence now reads:

"Among the adolescents with low absence, 40.6% had been in contact with one or more services the past semester, compared to 53.8% of the adolescents with moderate absence and 60.0% with high absence."
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.

Response: This is an important point, and we have now changed the wording in the results and two sentences in the discussion. The paragraph in the results section now reads:

“Although the absolute numbers were low, there was a twofold higher likelihood of mental health service use for adolescents with moderate absence (5.0% versus 2.5% for low absence) and a fourfold higher likelihood for those with high absence (10.1% versus 2.5%) compared to low absence (p<.000).”

In the discussion, the text has been changed to:

“There was a greater likelihood of moderate and high levels of absence among girls, adolescents of low socioeconomic status and those who were living alone or with peers.”

“While we have not assessed the causal factors, one possible hypothesis is that parents and caregivers have an important regulatory role in school behavior also in this age-group.”

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?

Response: After considering the review comments carefully, we have decided to use gender as a control variable in the regressions instead of stratifying on gender. In the stratified analyses in the previous version of the manuscript, the reference group for the girls in table 2 was the girls in the low absence group.

The table did not provide data for odds of contact with any service; however, we consider this to be a very good idea. We have therefore included an additional row in the table that states the odds ratios 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.
Response: This is an interesting comment and we have conducted further analyses to examine the variation in service use in the group of students with high absence. However, we have not found any significant differences between the groups regarding contact with services or any of the background variables. We have included a paragraph on this in the results section:

"To examine differences within the group with high absence, the group was divided into students with high absence who reported illness related absence (n=162) and those who did not (n=630). There were no significant differences regarding service use or differences in any of the background variables in the two groups."

The limited scope of the present study does not allow us to investigate this further, but it is a good idea for future research in this area.

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.

Response: We agree with the comment, and have changed the results section on frequency of contact accordingly. We now present a table with the requested information, the OR and CIs and the number of participants in the moderate and high absence groups for each frequency of contact with the specified services. As the table is quite large we have decided to combine the categories ‘monthly’ and ‘once a week’ into the category ‘once a month or more often’. This makes the estimates more robust and the table easier to read and interpret.

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

Response: We agree and have included the following text to the beginning of the discussion:

"The purpose of the present study was to examine service use among adolescents with different levels of absenteeism in a population based sample of Norwegian adolescents. Information on which services students with absence are in contact with is important to identify where students at risk can be met and where interventions can be implemented."

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.
Response: We agree that we have not been clear, and will try to elaborate on this. In our study we have included routinely collected data on absenteeism from the schools. In our opinion this is not directly comparable to self reported absenteeism, which has been used in the suggested studies. Further, we report absence during the past semester, while most studies examine absence the past month. I our opinion, this difference will influence the results as more students will be absent during a semester than during a month. We have tried to be more specific in our explanation of this in the revised version of the manuscript. Further, the last two sentences in the paragraph have been deleted and the paragraph now reads:

“We found that 10.1% of students had high absence (defined as being absent 15% or more). This is somewhat lower than the 14.3% that has been previously reported for Norwegian adolescents [4]. This discrepancy might be due to differences in data collection procedures, where the latter study increased the likelihood of responses from students with absenteeism by including two opportunities to complete the questionnaire at school. Although some of the schools participating in the present study arranged catch up days, this was not done consistently. Few studies report routine data on absence collected by the schools and comparison to other studies is therefore challenging. A study from the US showed lower rates of absence by assessing self-reported absence the past 30 days (11% reporting any absence and 2% reporting high absence) [24]. However, figures based on official records in the US estimate that between 14 to 37% of students in the 12th grade (17-18 years old) miss about 11% of school or more [25]. Although not directly comparable, these figures indicate that high rates of absenteeism are common across countries.”

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.

Response: We agree with the comments, and have aimed to improve the discussion according to the proposition above.

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.

Response: We have done our best to improve the grammar in the manuscript.

Reviewer II: Christopher Kearney

This article addresses problematic absenteeism and use of services among adolescents. The authors surveyed thousands of adolescents to determine mental health issues and service use. Absenteeism was divided into high and low based on a 15% cutoff. A better strategy would have been to examine the absenteeism data dimensionally instead of categorically. Knowing, for example, that youths with more severe absenteeism use more services than youths with less severe absenteeism is not particularly new or noteworthy. A better strategy would be to identify the point at which the adolescents began to use services (e.g., at 10% absenteeism, 12% absenteeism, etc.). In essence, such an approach would allow for some information on when families tend to seek services.
Response: We agree with the reviewer that identification of a specific point of service use would be very useful. In order to try to determine such a “cut-point” we used receiver operating characteristics curves where absenteeism was entered as a predictor of service use. However, such cut-offs always balance sensitivity with specificity; When balancing these equally, we obtain a cutoff = 3.5, with Area Under the Curve = 0.599 (poor). Running analyses separately for boys and girls, we obtained very similar results. Below, we have attached two plots illustrating the trade-offs between sensitivity and specificity using different cut-offs separately for boys and girls.
In conclusion, these findings illustrate that absenteeism – in itself – is not a very strong predictor of service use, in line with the other results that demonstrate that many students with high absence were not in contact with services. Furthermore, it demonstrates that selecting a specific cut-off must be motivated by the main purpose of using the cut-off: Either to identify as many as possible (i.e. high sensitivity and therefore selecting a low cut-off) or to identify only those in contact with services (i.e. high specificity, and therefore selecting a relatively high cut-off).

The authors also refer to normal absence as less than 15%, but even 14% absenteeism translates to 1/7 days missed and is quite substantial and can lead to many problems. Less severe absenteeism would seem to be a better description. In addition, the authors should exclude youths with no or very little absenteeism, perhaps including a less severe group that has 3-15% absenteeism.

Response: We agree with the comment and have decided to use three absence groups instead of two based on the comments from both reviewers. These groups are adolescents with low absence (0-3%), moderate absence (3-15%) and high absence (more than 15%).

Among adolescents who had no services, specific characteristics of this group would be interesting to target dissemination of services. What type of adolescents are most likely to never receive services and why?

Response: This is an interesting question which we will consider for future research. However, as the focus of the present study is absenteeism; we believe it is outside the scope of the study to investigate adolescents who have no services regardless of absence.