Author's response to reviews

Title: Age at menarche and current substance use among Canadian adolescent girls: Results of a cross-sectional study

Authors:

Ban Al-Sahab (bsahab@yorku.ca)
Chris I. Ardern (cardern@yorku.ca)
Mazen J. Hamadeh (hamadeh@yorku.ca)
Hala Tamim (htamim@yorku.ca)

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Author's response to reviews: see over
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Dear Madam/Sir

Please find attached a copy of the revised manuscript whose title has been changed based on the reviewer’s suggestion from “No association between age at menarche and substance use among Canadian adolescent girls: Results of a cross-sectional study” to “Age at menarche and current substance use among Canadian adolescent girls: Results of a cross-sectional study”. All comments of the reviewers have been addressed below. All modifications in the text have been marked by red color.

Please let me know if you need further information…

Yours sincerely,

Ban Al-Sahab
School of Kinesiology and Health Science
Bethune College, 4700 Keele Street
Toronto ON M3J 1P3, Canada
Tel: 416-736-2100 Ext. 23340
Fax: 416-736-5774
Email: bsahab@yorku.ca
Editor:

Editor: Background section of abstract needs context info.
Authors: Acknowledged. The requested information has been added.

Editor: Experimental research that is reported in the manuscript must have been performed with the approval of an appropriate ethics committee. Research carried out on humans must be in compliance with the Helsinki Declaration (http://www.wma.net/e/policy/b3.htm), and any experimental research on animals must follow internationally recognized guidelines. A statement to this effect must appear in the Methods section of the manuscript, including the name of the body which gave approval, with a reference number where appropriate. Please clarify whether you received ethics approval.

Authors: Our study is using data from a Canadian governmental agency, Statistics Canada. Based on our communication with them, we were informed that they conduct their own internal ethical reviews. Please find below a copy of their communication:

“The NLSCY was not approved/reviewed by an ethics committee. As I mentioned in my earlier email, Statistics Canada does not work the same way as a University and there is no Ethics Review Board. We instead have a rigorous internal development approach that consists of an advisory group or panel of experts who initially determine the content. We then go through various stages of internal review before we test the questionnaire using focus groups and one-on-one interviews. Once the testing has been completed there is another internal review before the questionnaire is sent to senior management for approval. This approval includes that of the Chief Statistician of Canada”.

This information is highlighted in the last 2 sentences of the first paragraph in the methods section.

Reviewer 1

Reviewer: The study is limited to the behaviour reported in the past 12 months only. Thus any relationship between menarche and substance use initiation cannot be explored via this study nor can any substance using behaviour over one year old. As such this study is ill-placed to compare its findings to those studies examining pubertal association with the onset of risk-taking behaviours or studies quantifying the level at which those experiencing early puberty deviate from others during very early adolescence. Authors ought to acknowledge the limitations of examining the relationship between menarche and substance use using broad definitions of risk behaviour (e.g. smoked/not smoked in past 12 months) in a limited timeframe (past 12 months only).

Authors: A point well taken. The limitations of using broad definitions for substance use outcomes within the past 12 months were added to the discussion of the paper (page 14).
Reviewer: The vast majority of study participants had already undergone menarche and may be currently engaged in some level of experimental adolescent behaviour at this time. Thus potentially concealing the relationship between menarcheal timing and substance use behaviours. Without examining data with more categories of risk behaviour some behaviours will go unnoticed. Alternatively, it is possible that by age 14-15 years early maturers behaviour is reflective of average and late maturers. However, conclusions such as this cannot be drawn without longitudinal data.

Authors: Longitudinal analysis would have been ideal for this research question. Unfortunately in the NLSCY, the data collected on substance use differ by age groups; i.e. the measures of smoking, alcohol drinking and substance use is different among 14-15 year olds and 16-17 year olds. Due to these differences, comparability of outcomes across time was not feasible.

Reviewer: The conclusion that girls attaining early puberty in Canada might undergo smooth pubertal transition or at least similar to late maturing girls is unfounded as this study has only captured a snapshot of behaviour aged 14-15 years which for some early maturing girls may be a significant time period post-menarche and is thus not comparable to late maturing girls, some who have yet to experience menarche.

Authors: The authors agree with the reviewer. This sentence has been deleted from the paper.

Reviewer: Further conclusions stating that ‘emotional stress associated with early maturations might not play a role in substance using initiation’ seems out of place in a study that is not examining substance use initiation. Authors ought to associate this comment with current substance use as no data are presented to determine the proportion who have ever initiated use of substances or the age at which initiation occurred.

Authors: Acknowledged. The sentence has been paraphrased.

Reviewer: The age of the sample is highlighted and reasons are given for why it has been used. However, considering the age of the sample authors ought to justify why any findings would be relevant to current adolescents in Canada.

Authors: The authors agree with the reviewer that the results might not be generalizable to current Canadian adolescents. The study findings can only be generalized to girls in 2000/2001. Due to the absence of Canadian literature in this area and due to the unavailability of further recent data, the authors conducted this study to get an overview understanding of this association. Studies using more recent data are highly warranted. This limitation has been addressed in the discussion section (page 14).

Reviewer: Conclusions do not summarise the importance of this study in a public health policy or practice context.

Authors: A point well taken. Suggested changes have been made.
Reviewer: The title gives the impression that the study has found evidence which definitively rules out any relationship between menarche and substance use among Canadian girls. I do not believe these claims can be substantiated nor is it the aim of the study. Instead the title ought to reflect the original aims of the article including the age group of the sample under investigation and the study’s focus on current substance using behaviours.

Authors: Acknowledged. The title has been revised.

Reviewer: The background information fails to provide any details of what the youth substance use issues are in Canada in comparison to other countries and fails to justify why it is important to examine them at age 14-15 years. Several studies, some of which are referenced in this article, state that age of risk-behaviour initiation is prior to 14 years or earlier. Therefore researchers need to explain why ages 14-15 were chosen.

Authors: As suggested by the reviewer, the association between age at menarche and age of initiation of substance use has been widely addressed in the literature. The authors, however, were interested in the practices of substance use during mid-adolescence. It has been shown that smoking, alcohol drinking and drug use at this age might affect girls’ future practices. Moreover, the drawback of assessing age of initiation is that it will limit the analysis to substance users only. However, we have added in the discussion section the possibility of explaining the disagreement between our results and the literature to the selected age group of the participants (Page 13, 1st paragraph).

Reviewer: Details of current Canadian youth risk-behaviour and Canadian legislation surrounding alcohol and other substances would be helpful for the reader.

Authors: A point well taken. Information about the Canadian youth-risk behaviours has been added to the discussion section (Page 11, 2nd paragraph)

Reviewer: The authors do not appear familiar with those relevant studies that have utilised multivariate analysis to examine the relationship between pubertal timing and substance use behaviours. Furthermore, some references seem to be outdated thus the article would benefit from additional literature searches.

Authors: A considerable number of papers that have examined the association between substance use and pubertal timing used bivariate analysis. However, references 9, 21, 22, 24 have used multivariate analysis.

Reviewer: The findings relating to paternal relationship and school-life are interesting and reflect those found in other articles. Furthermore, these variables although answered at age 14-15 may reflect importance experiences which have the potential to influence behaviours throughout adolescence. Authors ought to be aware of literature associated with menarche and paternal relationships.

Authors: In the literature, parent-child relationship has been shown to be associated with substance use. In the present paper, the authors reported two studies (reference number 29 & 33) supporting these findings. Please refer to the discussion section (page 13, 2nd paragraph, last two sentences).
Reviewer: The definitions for substance use behaviours seem inconsistent. Smokers and drug users were categorised to represent those who either did or did not smoke or use drugs. However, instead of doing similar in the alcohol use category those who did not report an experience of drunkenness in the past 12 months are defined as non-heavy drinkers. It appears that this could also include many young people who had not engaged in drinking alcohol at all, is this the case or was the sample limited to those reporting alcohol use?

Authors: Heavy drinking was defined as being drunk in the past 12 months. Non-alcohol drinkers were categorized as non-heavy drinkers. Current alcohol drinking was not used in this study due to its high prevalence (43.3%) among the study participants. Moreover, Statistics Canada reports on the NLSCY have used the same definition of alcohol and drug use as the outcomes of this study. (Reference: Hotton T, Haans D: Alcohol and drug use in early adolescence. Health Rep 2004, 15:9-19).

Reviewer: Table titles need to be explicit. Substance use outcomes in tables also ought to be defined more clearly e.g. Current smoker instead of Smoking etc.

Authors: A point well taken. The titles of tables 1, 2 and 3 have been revised. Moreover, substance use outcomes were more clearly stated in the tables.

Reviewer: Background, 2nd paragraph – text should clarify that the increase in acquiring HIV or Hepatitis is though injecting drug use, not just illicit drug use.

Authors: Acknowledged. Suggested changes have been made.

Reviewer 2

Reviewer: I find the statistical analysis difficult to follow. In particular, I find it difficult to understand why the data have been weighted to represent 295,042 Canadian girls and these figures used in the analyses – why have the authors not presented percentages and ORs from the survey itself and then estimated wider percentages from these results afterwards? It would benefit readers to have an explanation as to why this method was chosen and what benefits it brings.

Authors: The principle idea of weighting is to estimate the number of people in the population that each person in the sample “represents”. Weighting allows the generalizability of the results from the study sample to the whole Canadian population. Statistics Canada only allows the weighted results to be reported. However, an explanation of the weights has been added for the readers in the methods section (Page 8, 2nd paragraph).

Reviewer: Some limitations are stated in the discussion. However, I think a potential limitation that is currently missing is the target age used (14-15) years, which may be a little late to identify any differences between early / average / late menarche. For instance, at 14-15 years, most of the girls will have already started menstruating and even those in the late category may have been menstruating for
over a year. Any association between current substance use and menarche age is therefore less likely to be identified than if a younger age range had been used. This may not necessarily be important here (i.e. was the theory that differences will remain throughout adolescence?) However, it may help explain differences between the current findings and those from previous research in the discussion which appears to survey teenagers at younger ages. It would be useful to discuss this within the text.

Authors: The association between age at menarche and age of initiation of substance use has been widely addressed in the literature. The authors, however, were interested in the practices of substance use during mid-adolescence. It has been shown that smoking, alcohol drinking and drug use at this age might affect girls’ future practices. Moreover, the drawback of assessing age of initiation is that it will limit the analysis to substance users only. However, and as suggested by the reviewer, we have added in the discussion section the possibility of explaining the disagreement between our results and the literature to the selected age group of the study participants (Page 13, 1st paragraph).

Reviewer: The authors do not mention what the response rate was at cycle 4. In the results it is mentioned that the response rate is 72.7% but this is the percentage of people that answered all the necessary information, not the number of people that agreed to participate in this round of questioning. It would be useful to add this information in.

Authors: Acknowledged. The response rate of cycle 4 has been added to the discussion section (Page 14, last paragraph)

Reviewer: The authors do not mention how they defined “drunk” - was this left to the users’ discretion? Definitions of drunk may differ quite widely between teenagers, particularly among those that have little experience of drinking (i.e. it may be easy for teenagers to detect they are affected by alcohol, but the point at which they decide they are drunk may differ considerably). It would be useful to include a definition if one was provided to participants.

Authors: The authors agree with the reviewer. Unfortunately, Statistics Canada did not provide the definition of drunk in the questionnaires. Therefore, it was left to the teenager’s discretion.

Reviewer: The authors’ definition of heavy drinking is drunk once in the last 12 months – I am not sure I would agree with this, particularly if teenagers haven’t been provided with a definition of “drunk” For instance, it is possible that a person drank alcohol once 12 months ago and has not drunk since. It’s not necessarily a problem in the main text where this term is defined, but it may give a confusing impression in the abstract where percentages of heavy drinkers are provided. The authors may wish to change this term to something like “have been drunk once in the last 12 months”.

Authors: A point well taken. The definition of heavy drinking was added to the abstract.
Reviewer: Similarly, authors define current drug use as use within the last 12 months. This is confusing since current smokers are defined as use at least once a week. Authors may wish to re-term as “use within the last 12 months”.

Authors: Acknowledged. The suggested changes have been made to the abstract.

Reviewer: If the authors have reliability and/or validity scores for the measures used I would suggest adding these in to the methods.

Author: Based on Statistics Canada, the smoking questions are adapted from the Youth smoking Survey, the WHO Survey on Health Behaviours in School Children and the Western Australia Child Health Survey. The questions on alcohol were adapted from the Western Australia Child Health Survey and from questions provided by Dr. Richard Tremblay of the University of Montreal. The questions on the use of drugs and addictive substances were adapted from the N.W.T. Health Attitudes, Knowledge and Behaviours Study. Unfortunately, no information was available about the reliability or the validity of the scores.