Reviewer's report

**Title:** No association between age at menarche and substance use among Canadian adolescent girls: Results of a cross-sectional study

**Version:** 1  **Date:** 24 October 2011

**Reviewer:** Sara Wood

**Reviewer’s report:**

The research question posed by authors is well defined. The methods of data collection and measures used to collect data are well described. The discussion and conclusions are balanced, appear to build upon previous research (although I am unaware of research within this area specifically) and place findings in context (although see second point below). The title and abstract accurately convey what the paper finds and the writing is clear and understandable.

**Minor essential revisions**

1. 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.

2. 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.

3. 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.

4. 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.

5. 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”.

6. 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”.

Discretionary revisions

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

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests