Author’s response to reviews

Title: The Cedar Project: Using Indigenous-Specific Determinants of Health to Predict Substance Use among Young Pregnant-Involved Indigenous Women in Canada

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Editor Comments:

1. Please note that all manuscripts must contain all the following sections under the heading 'Declarations'. The Declarations should follow the Conclusions section, and be before the References.

Abbreviations

Ethics approval and consent to participate

Consent for publication

Availability of data and material

Competing interests

Funding

Authors' contributions

Acknowledgements

Please see here for details on the information to be included in these sections:
If the information required is already provided in the main manuscript, please also copy the relevant statements to the Declarations.

If any of the sections are not relevant to your manuscript, please include the heading and write 'Not applicable' for that section.

Response: This information has been added to the manuscript, after the Conclusions section and before the References.

2. Please provide figure titles/legends under a separate heading of 'Figure Legends' after the References. If Figure titles/legends are within the main text of the manuscript, please move them.

Figure files should contain only the image/graphic, as well as any associated keys/annotations. If titles/legends are present within the figure files, please remove them.

Response: This has been completed.

Edle Ravndal (Reviewer 1):

1. The objective of the study is "to describe the social context of pregnant-involved young Aboriginal women, who uses substances and to explore whether or not an Indigenous-Specific Determinants of Health Model can predict substance use among this population". The objective is important but quite ambitious. Since the total sample consists of 3 different populations it makes the analyses that are complicated in themselves even more complicated. Even if the methods are well described, I really don't know what comes out of all the analyses, except that the conclusion is that the ILCDS Model is not fully supported.

Response: The authors believe that the lack of previous research that examines and/or includes important Aboriginal-specific determinants of health to contextualize the lives of pregnant-involved young Aboriginal women precludes the importance and timeliness of this analysis. While the ILCSD Model was not well-supported (due, likely in part, to the suggested limitations of the analysis), the analysis does provide novel empirical support for integrating socio-historical contexts into SDoH research with this population. Given the current pathologizing discourses related to substance use among this population, we believe the contribution of a counter-narrative to these approaches, through a more contextualized depiction of women’s lives is timely and an important contribution. This idea has been strengthened throughout the discussion:
This study reports on empirical support for the importance of integrating socio-historical contexts into models of determinants of substance use and supports a counter-narrative to the current pathologizing discourse in Canada, where “Aboriginal Status” is often cited as a determinant of health on its own (Mikkonen & Raphael, 2010). Instead, by using an Aboriginal-specific model, it was possible to explore how determinants that uniquely impact Aboriginal health in Canada (including residential school histories, racism, and intergenerational trauma) have differentially impacted the health status and experiences of Aboriginal women, in an appropriately nuanced and fluid manner. This is one of the first studies to evaluate an Aboriginal-specific social determinants model to identify predictors of substance use among pregnant-involved Aboriginal women. The inclusion of variables that measured the lifelong and future impacts of colonialism and cultural continuity provide a more complete picture of the social determinants of substance use, from an Aboriginal-specific perspective. Given the lack of previous research in this area that includes and explicitly acknowledges the important contexts of substance use among young pregnant-involved Indigenous women (Anonymous, 2016), this study is a timely and important contribution to the research landscape.

As evidenced by this study, these contextual factors are paramount to creating a fuller understanding of substance use and pregnancy. Further, highlighting the structural and social determinants of substance use provides actionable targets for interventions that can support women and their children. Importantly, by including the variables in this analysis related to women’s socio-political-historical contexts, we were able to present a fuller depiction of women’s actual lives, in keeping with previous qualitative findings from work with this same population (Anonymous, 2016; Anonymous, 2017). Indeed, a common criticism of quantitative research is its inability to produce rich and contextualized data. By developing methods for capturing and measuring Indigenous-specific determinants of health, such as intergenerational trauma, foster care and racism experiences, it will be possible to provide richer and more useful empirical data to support and develop understandings in this area of research.

Perhaps it would be better in the first round just to give good descriptions of the 3 different populations, explore what they have in common, and try to highlight in what areas they need more specific help?

Response: Thank you for the suggestion. One of our overarching goals with this analysis was to highlight the contexts of use, in an effort to counter pathologizing and biomedical discourses and approaches that aim to provide help or support specifically to women who use substances during pregnancy. Specifically, we wanted to make explicit the role of socio-historical contexts in young Indigenous women’s experiences with substance use, in an effort to begin to move towards addressing the structural determinants of use to prevent the harms related to substance
use for women’s lives, while also humanizing and contextualizing their experiences. As such, simply highlighting areas in which they need more help, in our opinion, would in some ways reinforce previous, ineffective, and at times harmful approaches to supporting Indigenous mothers.

3. I also question how the dependent substance use variables are defined into heavy/light use, especially that light drug use was defined as using less than daily.

Response: The dependent use variables were defined based on previous approaches used with a samples of current drug users and the definition of light drug use was in keeping with previous approaches (references in the methods section) that defined this as less than daily. While this is not a perfect measure, as stated in the methods section, this dichotomization was based on the following rationale:

Given that all the participants were women who used drugs at enrollment, creating outcome variables to distinguish between light and heavy use allowed for an exploration of the relationships between social determinants of health and substance use. This was also particularly relevant given that pregnant-involved women who have a history of heavy drug and/or alcohol use are more likely to use alcohol and/or drugs during pregnancy, and also, heavy use of substances during pregnancy specifically, is associated with greater harms for both the mother and the foetus (Hunting, 2012; Salmon, 2011). While this variable measures level of use within the past 6 months and, therefore, is not measuring use during a pregnancy necessarily, it is nonetheless an important and relevant measure to examine the impact of the social determinants of health on substance use among pregnant-involved young Aboriginal women. Figure 1 depicts the hypothesized relationship between the distal, intermediate and proximal determinants of health, and the three dependent variables.

4. Throughout the paper there is an in-consequent use of marking sub-headings in italics and underlining.

Response: Thank you, these have been edited to be consistent throughout the manuscript.

5. The English should be worked on - especially when using terms as: pregnant-involved, survival sex, accessing a social worker, counselor etc.

Response: The definition for pregnant-involved has been moved to appear directly after the first use of the term. The following definition for survival sex work has been added as a footnote at the first use of the term: “The practice of people who are homeless or otherwise socially
disadvantaged in society, trading sex for food, a place to sleep, or other basic needs, including drugs.” The other terms have been clarified further in the table to make it clear that these were the services used by the participant within the previous 6 months.

6. In the paper 6 tables and 1 figure are included, which are too many tables, and sometimes also are difficult to read.

Response: The tables are provided to display all of the analyses but we welcome further guidance on how to condense/remove some of the tables or perhaps some could be moved into an appendix of some sort? Table 2 has been edited to make some of the terms easier to read and the display of information more clear.

7. All references are not written identical in the paper, and it is problematic to present references with no authors, just "Anonymous”.

Response: Anonymous was included to allow for blinded review as it is a paper by the main author. This will be updated for publication.

8. I also question the length of the paper and think it would profit from being shorter.

Response: The paper has been condensed considerably.

Eeva Ekholm (Reviewer 2):

1. The scope of the study is interesting, how social determinants of health influence alcohol and drug use during a woman’s life span. The author’s state that the question of substance use during pregnancy should be broadened to use before, during and after pregnancy. I agree with the author’s view. The article is interesting and well-written.

Response: Thank you very much.

2. However, there are several methodological limitations in this study. The term pregnant involved comprises a methodological problem. How big a share of the women 14-30 years in this studied population does this "pregnant involved” include?
Response: The following rationale has been added to further clarify our choice of sample: Not restricting the sample to women who were currently pregnant, or any defined outcome of pregnancy, was a purposeful decision to explore women’s life experiences with substances and pregnancy more fully, while rejecting the notion that women’s health is only of import if it relates to the health of a foetus or child. Almost all of the participants had ever been pregnant indicating that substance use experiences and pregnancy experiences are very relevant to this population and likely occur across the life span.

3. Study question 1 asks what are the contexts of lives of pregnant-involved young Aboriginal women who use alcohol and drugs? It would be important to compare these determinants with women who have not become pregnant or who do not use drugs.
Response: We agree. However, given the data used for this analysis, this would not have been possible. We have however suggested this as future research in this area. We still feel that the current analysis provides a valuable initial look into an area with little previous findings.

4. As it is, the manuscript is a description of a high risk subpopulation of aboriginal women. How do the women who have stayed clear of drugs differ in relation to the described risk factors? If the research question is the life context of this risk group, it would at least be important to know when they were pregnant and did they give birth and take care of the baby. Substance abuse earlier and later in life may have different determinants.
Response: We have added the following sentence in cohort definition to make clear the reason for not focusing on the outcome of the pregnancy: Not restricting the sample to women who were currently pregnant, or any defined outcome of pregnancy, was a purposeful decision to explore women’s life experiences with substances and pregnancy more fully, while rejecting the notion that women’s health is only of import if it relates to the health of a foetus or child.

5. The Cedar project has published papers this year about social determinants of substance use among young pregnant-involved Indigenous women in Canada and quantitative analysis of these women’s experiences and self representations. Did these studies serve as a ground for the present study with quantitative design? The authors do not, however, refer to these previous reports? Also previous findings on these data on pregnant-involved substance abusing women would be important to convey to the readers.
Response: The currently published papers with this specific population are based on qualitative approaches to understanding women’s life experiences with substance use and pregnancy. To date, there have been no quantitative research findings published related to young pregnant-
involved Indigenous women in the Cedar Project. However, we have added a reference to these papers in the discussion to add to the discussion of the relevance of this study’s findings. The following has been added:

Further, highlighting the structural and social determinants of substance use provides actionable targets for interventions that can support women and their children. Importantly, by including the variables in this analysis related to women’s socio-political-historical contexts, we were able to present a fuller depiction of women’s actual lives, in keeping with previous qualitative findings from work with this same population (Anonymous, 2016; Anonymous, 2017). Indeed, a common criticism of quantitative research is its inability to produce rich and contextualized data, Importantly, by including the variables in this analysis related to women’s socio-political-historical contexts, we were able to present a fuller depiction of women’s actual lives, in keeping with previous qualitative findings from work with this same population (Anonymous, 2016; Anonymous, 2017). Indeed, a common criticism of quantitative research is its inability to produce rich and contextualized data. By developing methods for capturing and measuring Indigenous-specific determinants of health, such as intergenerational trauma, foster care and racism experiences, it will be possible to provide richer and more useful empirical data to support and develop understandings in this area of research.