Reviewer's report

Title: Relation between body mass index and depression: A structural equation modeling approach

Version: 2 Date: 18 January 2007

Reviewer: Fiona Shrive

Reviewer's report:

General
The authors have improved the manuscript greatly. The organization and flow of the manuscript is greatly improved. The content is more appropriate and focuses on the research objective at hand.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. I still have a major concern over the conclusions the authors draw. The data is cross sectional and thus no temporal relationship can be established between any of the variables. For example, on page 11 the authors state that "higher BMI results in more severe depression". Given that you do not know whether people have a higher BMI and develop depression or develop depression and their BMI increases you can not draw conclusions about one "resulting" in the other.
2. I still do feel that the justification for why only the Ontario population was used. If the modeling is completely computer generated then surely it would be exactly the same to complete the same models on a larger dataset including the entire Canadian population. Was a specific variable only available for the Ontario population? Was the data more readily available? Using the Ontario population is fine, however the reasoning needs to be properly justified in the manuscript.
3. The missing data for the variables of eating habit and relatives with depression are not significant! These variables are present in approximately 10% of cases! This is a major statistical issue. I would encourage the authors to either exclude the model using those variables or address the issue of reduced sample size in a more forward way. This is not an issue to be glossed over.
4. The choice of figures is odd. Figure 1 is Studkard's model which the authors adapt and figure 2 is Model 1 which the authors do not feel results in a good fit with the data. Are either of these figures necessary?
5. Lastly, the author do not clearly articulate their message about gender and depression. In the modelling process they exclude gender and depression as it is non-significant. Subsequently, an analysis is presented stratified by gender. The rationale for this analysis should be discussed in the methods section and more precisely in when discussing the results.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. The section entitled "Subjects and Data Collection" might be better described as "Data Source"
2. The sentence on page 4 "In CCHS-1.2 dataset there were 76 pregnant women..." should be moved to the "subjects and data collection" section
3. On page 5, the sentence "It was no other continuous variable in the dataset..." should be removed. If the variable selected is appropriate and valid then this sentence is unnecessary and draws into question the validity of the selected variable. Is it an appropriate proxy for depression? If so, it does not matter that another one was not available.
4. Page 5, paragraph 3 - it should be structured the same way as the other paragraphs - "Stress management: is the ability to handle ...."
5. For the variable SES, is the construct of 4 variables a standardized, validated proxy for SES? If so, the authors may want to state that and reference it.
6. The authors say that the RMSEA statistic and CFI are used to assess the fit of the models. A brief description of how these statistics work (i.e. how do they measure fit?) and the type of values that would indicate a "good" fit should be stated and referenced.

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Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions
Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
'I declare that I have no competing interests'