Reviewer’s report

Title: Hypocholesterolemia is an independent risk factor for depression disorder and suicide attempt in Northern Mexican population

Version: 1 Date: 10 Oct 2017

Reviewer: Emily Goldmann

Reviewer’s report:

Dear Authors,

I would like to commend you on a thoughtful and thorough revision of this manuscript. There are still a few remaining issues that need to be addressed, in my opinion, as follows:

1. You provide excellent responses to reviewer comments, particularly where the reviewer has asked for clarification or additional information. However, some of this information has not been added to the text, including:

   - The additional rationale for conducting this study in this specific population. You make an excellent point about the high suicide rate (which is also increasing) in Mexico; this helps make the case for why this study is important and should be included in the Introduction's text

   - Please add to the Methods that this is an adult population. The reader will not know what the admitting practices are at the included hospitals.

   - The authors provide good rationale for the matching variables and exclusion criteria in responses to the reviewer. It would be helpful to include some of this information in the manuscript as well in the Methods (rationale for matching and exclusion criteria) and discussion of non-linear relationship (Discussion)

   - Please add how suicidal attempt was defined/measured to the Methods section

2. Thank you for revising the p-values as both reviewers suggested (p<0.001 instead of p=0.000). There is one remaining instance of p=0.000 on p. 6 line 132

3. I'm not sure that the statistical analysis is fully appropriate given the matched design. I previously inquired if CONDITIONAL logistic regression and McNemar's test were used, as (to my knowledge) these are approaches to analyzing matched data, but I do not see a response about this from the authors. This is different from "adjusted" or multiple regression, where regression models include covariates, in addition to the independent variable. This is an important issue that I feel must be addressed prior to publication, as this could influence the study's results. It may be helpful to speak with a biostatistician. Also, no need to say "logistic binary regression"; "logistic regression" is sufficient.
Additionally, p. 6 line 141: these are not bivariate regressions adjusted for age, sex and BMI; they are bivariate logistic regressions using data matched on age, sex, and BMI (and, as mentioned above, should be conditional logistic regressions).

4. In the authors' response to the reviewer comment on socioeconomic background (given that SES is likely a confounder of the relationship of interest), the authors state: "All participating subjects received (had the right to) access to similar health care options depending on the type of job they had" -- This suggests that subjects had different occupations, and therefore different SES... Then, the authors state: "This in itself is an approximation of their socioeconomic status and was used in the pairing process between cases and controls". I do not see any SES variable (e.g., occupation) included as a matching variable -- only age, sex, and BMI -- in the Methods. Was this another variable on which cases and controls were matched? This needs to be clarified in the text. If cases and controls were not matched on an SES variable, the authors should consider adding this variable as a covariate in regression analysis, as SES is a potential confounder here.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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