Author’s response to reviews

Title: The Association Between Hope, Marital Status, Depression and Persistent Pain in Men and Women Following Cardiac Surgery

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Author’s response to reviews:

Dear Dr. Touran, Editor, BMC Women’s Health

Please find attached our revised manuscript entitled "The Association Between Hope, Marital Status, Depression and Persistent Pain in Men and Women Following Cardiac Surgery" (BMWH-D-17-00157). We thank the reviewers for their helpful comments and advice, and are grateful for the opportunity to make the suggested amendments to improve the quality of our manuscript. Revisions/clarifications have been highlighted in red in the manuscript and have been detailed below for ease of referencing. We hope the article now meets the standards required for publication in BMC Women’s Health. Our responses to each of the comments from the referee is below each comment in italics.

Reviewer #1:

Comment 1: the paper begins with an overview of CVD, symptoms, and self-management following surgery. It then moves to a discussion of hope. The transition into the discussion on hope is missing. This discussion then leads into the study purpose, which focuses on differences between men and women on several factors following heart surgery. In the introduction, the need to examine differences between men and women was not provided. The concept of sex was not introduced. What is the purpose of this study based on?

Response: We appreciate and thank the reviewer for helpful comments and advice on how to improve the manuscript. We have reworded the first paragraph of the Introduction to make the transitions into hope more seamless. We have also included more information about the
relationship between hope and the key variables including sex differences to clarify the issue as suggested by the reviewer. Since the number of studies with the HHI is limited in the cardiac population, differences related to hope and sex is poorly described, justifying our approach to stratify by sex. Moreover, it’s particularly important to investigate sex differences in the cardiac surgery population since women, in general, have been differentially excluded from cardiovascular research and sex-stratified analyses are recommended by the American Heart Association.

Comment 2: A theoretical presentation that defines and shows the proposed/anticipated relationships between key variables is needed

Response: As proposed by the reviewer, we have included more information about the relationship between hope and the key variables in the introduction.

Comment 3: Inclusion of a framework or theory would help to provide context to the discussion. Also, what are the limitations and clinical implications of this study and the findings, respectively.

Response: We appreciate the comment from the reviewer and have included a reference to Snyder’s (2002) well-established theory about hope in the first paragraph of the Introduction. This theory is particularly relevant for cardiac health since the theory suggest that hope is related to goal achievement. To clarify the issue we have made corresponding modifications throughout the text. We have also rewritten parts of Limitations and the Conclusion as suggested by the reviewer.

Reviewer #2:

Comment 1: Overall this paper has some interesting findings, but the conclusions as stated are not supported by the actual data in the manuscript. The results do not directly address approaches to strengthen hope, but instead identify factors that need to be addressed in order to strengthen hope. This distinction needs to be made clear.

Response: We thank the reviewer for helpful comments and advice on how to improve the manuscript. We agree with the reviewer that the conclusion drawn in the paper did not flow directly from the data. To maintain clarity, we have rewritten parts of the introduction, discussion and the conclusion of the paper and have tried to make the distinction more clear that the results were focused on identifying factors that needed to be addressed to strengthen hope versus approaches to strengthen hope.

Comment 2: On page 10, first paragraph, please summarize the highlights of Table 4.

Response: The highlights of Table 4 is now summarized on page 13.

Comment 3: In the abstract one of the key findings is that women who were divorced, single, or widowed, had lower hope scores. As written, 'marital status', this is not clear. Please reword so
it is clear that living alone - divorced, single or widowed - and female sex are associated with lower hope.

Response: We agree with the reviewer, and have reworded the suggested paragraph.

Comment 4: Page 6, Aim - please reword aim 2, so it is clear that you are examining hope after cardiac surgery and not the factors, as listed, after cardiac surgery. Consider, ‘…between hope after cardiac surgery and the following…..’

Response: Aim 2 is reworded as suggested by the reviewer.

Comment 5: Page 8, 4th line - reference 58 is not in any way relevant to the STATA software. Please delete and provide the manufacturer and city for STATA, instead.

Response: Reference #58 (new #49) has been corrected as suggested on the STATA web page (https://www.stata.com/support/faqs/resources/citing-software-documentation-faqs/).

Comment 6: Page 7 and 8 - there is some confusion in the definitions/categories of 'marital status'. On page 7, there is a category 'living with children' that does not appear on page 8, when the seven categories were collapsed into 2 categories. Please reconcile how you grouped 'living with children'.

Response: We apologize to the reviewer, our variable "Marital status” did not include living with children, however, we had another background variable asking about this. In our sample, only 7 participants were living with children (3 men and 4 women), and it was not meaningful to include this category in our analysis. The correct grouping of marital status is “married/cohabitant/partner and divorced/widowed/single”. The definition of marital status has been corrected on page 9.

Comment 7: Page 8 - in the list of selected covariates, time is one of the factors. Please make it clear that this refers to follow-up time.

Response: Time is changed to “time after surgery” when appropriate.

Comment 8: In several places you refer to valve surgery and CABG surgery, as well as CABG/valve surgery. It would be clearer if you referred to them as isolated valve surgery and isolated CABG surgery, so they are distinct from the combined CABG and Valve surgery.

Response: We agree with the reviewer, and have changed valve surgery into “isolated valve surgery”, and CABG surgery into “isolated CABG surgery” when appropriate throughout the text.

Comment 9: Page 10 - when discussing the findings related to isolated valve surgery; please make it clear that the positive association with hope is relative to isolated CABG surgery. Similarly, it is important to better describe the sex*marital status interaction. Perhaps something like, 'while neither sex nor marital status, as main effects, demonstrated significant associations
with hope, women who were divorced/widowed/single were significantly more likely to have lower hope scores over the study period.

Response: We have rewritten the paragraph as suggested.

Comments on Tables:

- Table 1 - to be consistent, under marital status, change 'married' to 'married/cohabitant/partner'.

Response: Married has been changed to “married/cohabitant/partner” as suggested.

- Table 1 - comorbidities are discrete, not continuous. Change from mean to either median, or report the proportion with 2+ comorbidities.

Response: Number of comorbidities is now reported as median (range).

- Table 2- title - change 'itmes' to 'items'

Response: The spelling error in the title has been corrected.

- Table 3 - title - change the title so it is clear you are modeling 'higher' Herth Hope Index scores.

Response: The title of the table is reflecting what we are modeling, variables associated with the Herth Hope Index total score across time, not only higher scores. However, we have included information in the subtitle that higher scores are associated with higher levels of hope.

- Table 3 - there is something wrong with the label for age. According to the footnote, it should read ‘>65,’ not ‘<6’

Response: The label for age has been corrected to” > 65”