Author’s response to reviews

Title: Misconceptions about traumatic brain injury among nursing students in India: Implications for nursing care and curriculum

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Author’s response to reviews:

Response to reviewer’s comments:

Reviewer1: Ingrid Poulsen, PhD. (Reviewer 1)

Dear authors,

Your manuscript is interesting and it is an important area of nursing, namely education of nursing students. However, I have some concerns, I hope you can solve.

We thank the reviewer for the valuable comments in improving the manuscript. Kindly find the point-by-point response to the reviewer’s comments:

1. In the introduction, the importance of misconceptions are mentioned many times, but it would help to know what kind of misconceptions it is. Give some examples please.

Response: We have added various specific TBI-related misconceptions with examples and evidence (both recent and past) in the second para of Background section.

2. You are using a questionnaire developed for patients, not for students and it has never before been used for students. You have to argue for why it can be used with your purpose
Response: The CM-TBI questionnaire was developed initially by Gouvier et al. 1988 for the general public. Subsequently, variations of CM-TBI questionnaire have been used in numerous studies to assess TBI knowledge in the general population, educational professionals, rehabilitation staff, and nursing students [Farmer et al. (1997), Guilmette TJ et al. (2004), Hux K et al. (2006), Ernst WJ et al. (2009), Merz ZC et al. (2017), McKinlay A et al. (2018) and Schellinger SK et al. (2018)].

For the present study, we used the CM-TBI questionnaire used by Pappadis et al. (2011), Pretorius et al. (2013) and Pappadis et al. (2017).

We used the present 40-item CM-TBI questionnaire for the following reasons (1) the 40-item CM-TBI questionnaire allows for comprehensive assessment when compared to other shorter variations. (2) the 40-item CM-TBI was reported to have good reliability and internal consistency with a Cronbach’s α ranging from 0.69 to 0.84 [Pappadis et al. (2011) and Pretorius et al. (2013)]. (3) A short variant of present 40-item CM-TBI questionnaire was used already in nursing students [16]. (4) Swift and Wilson (2001) found that medical professionals who do not specialize in brain injury hold many of the same misconceptions as the general public. The utility of CM-TBI questionnaire among both general public and nursing students would allow for such valid comparisons (between general public and nursing students). (5) More importantly, any questionnaire developed specifically for nursing students would have led to medicalising the problem without much relevance for public health education. The 40-item CM-TBI questionnaire has merit and scope in providing valuable information on the health education needs of nursing students, who also assumes a critical role of health communicator when providing care for TBIs.

We have added the same in the main manuscript to bring in more clarity.

3. Was the questionnaire initially validated otherwise than by Cronbach’s Alpha, please add to manuscript?

Response: Prior to administration, the questionnaire was validated independently by three experts in the field of nursing education and public health for clarity, relevance and content. We have mentioned this in the revised manuscript.

To bring more clarity and relevance, reviewers also suggested to consider the two-items namely “People who have had one brain injury are more likely to have a second one” and “A person who has a brain injury will be ‘just like new’ in several months” (that lacked specificity and were misleading due to cultural differences in semantics) for removal. Following our analysis on internal consistency, the two items were removed. This has been mentioned already in the manuscript.

4. Why did you sum the four answer possibilities into only two?

Response: Springer et al proposed two scoring schemes: dichotomized categories of “true” or “false” (probably true is considered true; probably false is considered false) and a stringent 4-point scale (any response other than absolutely true or false is considered incorrect) [Springer et al. (1997)]. Numerous published studies have used dichotomized categories for scoring [Ernst WJ et al. (2009), McKinlay A et al. (2018) Pretorius et al. (2013) and Pappadis et al. (2017)]. A Cronbach’s α of 0.95 was reported for dichotomised categories while the Cronbach’s α was 0.33 when the stringent 4-point scale was used [Pretorius et al. (2013)]. Therefore, dichotomised scoring was selected for the current study.
We have added the same in the main manuscript to bring in more clarity.

5. The sentence on page 11: "The overall mean score for our sample was 22.73 with Standard Deviation (SD) of 4.69. This was significantly higher than the median score of 19.5 (t(142)=8.249, p-value=0.001), indicating the enormity and importance of TBI misconceptions" needs more explanation as you in Table 2 use percent to describe the misconceptions.

Response: Though we have used percent to describe individual misconceptions in Table 2, the acceptable internal consistency had allowed us to use the questionnaire as scale with total score ranging from 0 to 38 (mentioned already in Table 3).

Also, we have already mentioned the following lines in our manuscript: “With no cut-off defined for CM-TBI, we arbitrarily hypothesized a conservative cut-off that corresponded with the median value of total CM-TBI score to suggest the need for intervention. The mean score on CM-TBI for the sample was then compared with our arbitrary cut-off using one-sample t-test.”

We assumed a conservative cut-off of 19.5 for population mean (though parsimonious cut-off was required for nursing students) when using one-sample t-test. This is also in line with nursing curriculum that requires 50% as passing grade in India. So misconceptions was arbitrarily defined acceptable for a score upto 19.5 (median score for 38 items) in present study. Even with the liberal cut-off, the nursing students had a significantly higher misconception when compared to the maximum allowable misconception (even for general public), indicating the enormity of TBI-misconceptions and the need for immediate intervention for nursing students.

To avoid confusion, we have removed the words “indicating the enormity and importance of TBI misconceptions..” from result section and added them relevantly in the Discussion section.

6. The reader is not informed of what content the curriculum for nursing students have with respect to TBI. Thus, it is difficult to know what to think of the results. Is the study more aimed to consider educational and didactic practice?

Response: We sincerely regret for this missing information. We now have added the existing curriculum content for nursing students with respect to TBI in India. We hope this should provide better interpretation and understanding of study results. The study considers both theoretical instructions and practicum exposure (as mentioned in Implications for nursing care) for improving misconceptions among nursing students.

7. I just wonder: is age of nursing students in India normally as low as in your study?

Response: Yes, age of nursing students in India is normally as low as in our study. B.Sc nursing is a basic nursing course which is offered immediately after junior college to applicants in India. As per Indian Nursing council, the minimum age of admission for B.Sc Nursing shall be 17 years on 31st December of the year in which admission is sought (ref: http://www.indiannursingcouncil.org/nursing-programs.asp?show=elig-crit).

8. I suggest the discussion should be more reflective towards the existing curriculum and the use of the questionnaire, which not was developed for students. This should also be discussed in limitations.

Response: Some of the issues were already addressed appropriately through comment no: 6,4,3 and 2.
In addition, we have discussed few lines on scoring system of the questionnaire in the limitations para.

Reviewer 2 (Reviewer 2): PEER REVIEWER ASSESSMENTS:

We thank the reviewer for the valuable comments in improving the manuscript.
1. GENERAL COMMENTS: This is an interesting research topic. The problem under investigation is justified, and the data are well analysed and presented. However, as shown in the reference list, the whole paper was mainly guided by old references and thus threatening the validity of the conclusions.

Response: We now have added new references in the revised manuscript without removing the old references. With replication studies not demonstrating significant changes in TBI misconceptions in various settings over time [McKinlay A et al (2018)], we believe that the time invariant findings from older studies still holds the value and strengthen the validity of the conclusions especially with regard to nursing students with limited research on TBI.

The misconceptions demonstrated in present study which are comparable or even higher when compared to previous old studies in fact indicate the graveness of the situation.

2. REQUESTED REVISIONS:
The authors need to explore the emerging results in a wider global context taking into account more recent studies.

Response: We now have added a para on “Global relevance for nursing curriculum and care” by taking into account more recent studies.

3. ADDITIONAL REQUESTS/SUGGESTIONS:
More details about the background of the researcher who distributed the Qs and how this might affect the response rate are needed.

Response: We have added the background of the researcher who distributed the Qs and its implications in the limitations section.

Regarding response rate, the background of the researcher would have hardly affected the response rate in our study. Though all the students returned the questionnaire, there were 11 respondents with incomplete or multiple responses that does not allowed for valid conclusions and hence were excluded from the analysis.