Author’s response to reviews

Title: Measuring patient safety culture in Taiwan using the Hospital Survey on Patient Safety Culture (HSOPSC)

Authors:

I-Chi Chen (FL001@mail.oit.edu.tw)
Hung-Hui Li (hhlee@saturn.yzu.edu.tw)

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Author’s response to reviews: see over
March 21, 2010

Editorial Board,
BMC Health Services Research

Dear editors,

First we would like to thank you for the prompt review of our paper. “Measuring patient safety culture in Taiwan: an application of Hospital Survey on Patient Safety Culture (HSOPSC) in Chinese culture” (MS: 5727961023123037).

We have revised the paper under the guidance of the reviewers’ comments. And we also revised the title of the paper to “Measuring patient safety culture in Taiwan using the Hospital Survey on Patient Safety Culture (HSOPSC)” to better reflect the scope of this study.

Following this letter are the point-by-point responses to the comments by the reviewers, and a list of changes made in the revision.

Sincerely yours,

I-Chi Chen
Lecturer
Department of Health Care Administration, Oriental of Technology, 58, Sec 2, Sihchuan Road, Pan Chiao City, Taipei County, Taiwan, R.O.C.
Tel: +886-2-77380145 ext 6223
Fax: +886-2-77380898
Email: FL001@mail.oit.edu.tw
Responses to reviewer comments

First, I would like to thank the reviewers for making some excellent suggestions to make valuable improvements to the paper. The paper has been revised under the guidance of the reviewers’ comments and the details about the revision are given as follows.

**Reviewer**: Caroline Brand  
**Reviewer’s report:**
Thank you for addressing the suggested revisions. I am happy with the responses

*Response: Thank you.*
Reviewer: Johan Hellings

Reviewer's report:
The paper certainly is certainly improved, but I still do not agree that the method used is the appropriate research approach to investigate the patient safety culture in hospitals. The numbers of respondents of each hospital are still too small and the proportion of the supervisors in the total sample size is too high.

Perhaps this is not a problem, but the data, dividing the scores of the supervisor group and the other respondents are not presented as suggested. Why were these data not presented? Because answering the questions of this questionnaire can be interpreted as critical for the work of supervisors, one can imagine that the supervisors will answer more positively.

The proportion supervisors versus other respondents is not normal and so the data remain unclear until the data can prove that there is no significant difference between the scores with the other respondents. And if there is a statistically difference it needs to be discussed.

The issue of the data is very important, because this study used a quantitative approach (questionnaire) to measure safety culture, but with very limited respondents, compared to other patient safety culture research. With such limited respondents and the proportion supervisors doubts can be formulated whether such a questionnaire is actually reliable and valid, since validating something as deep and complex as cultural assumptions is intrinsically very difficult.(Schein,2004).

I can therefore not agree with the title of this paper. I can agree that it is a small pilot study and also the beginning for more research, but with these data one must be very caution in speaking about patient safety culture in Taiwan and the Chinese culture.

For me the research method chosen and the data presented are not acceptable for assessing the safety culture in Taiwan as suggested in the paper.

The other questions were sufficiently answered.
Johan Hellings
Response: Thank you for the suggestion. As mentioned in the previous response, the definition for supervisor used in this study is rather broad, from head of medical and nursing department, chief resident, laboratory director, head nurse, to team leaders who might supervise only a handful of people. This is rather common in Taiwan to refer them to supervisors. We believe this might be the reason that the number seems high to you.

The differences in average positive response rate between the supervisors and non-supervisors have been examined and the results are provided in the result section. The average positive response rates for the supervision group were slightly higher than the rates for the non-supervision group on 9 dimensions, but were equal or lower on 3 dimensions. Nevertheless, statistical tests indicate that the differences are not significant.

We have revised the title of the paper to better reflect the scope of this study. We also acknowledged the need for expanding the scale of the survey in Taiwan to cover more health care providers and practitioners for the future research in the paper.
Reviewer: Freedom Nkholuleko Gumede
Reviewer's report:

- Major Compulsory Revisions

1. Background: Page 4: 2nd paragraph: 2nd sentence: How many of the 14945 cases were adverse events?
   Response: Reference [1] did not provide this information to public so we don’t have the exact number.

2. Results: Page 13: 2nd and 3rd paragraphs: Nothing is gained by reporting all these measures, instead a single sentence summarizing the information in these paragraph would be sufficient.
   Response: Revised as suggested.

3. Results: Page 14: 2nd paragraph: Same comment as above in 2.
   Response: Revised as suggested.

4. Results: Page 14: 4th paragraph: 2nd sentence: What is meant by "deeper meaning"?
   Response: The description has been rephrased.

5. Results: Page 15: 2nd paragraph: 3rd sentence: What is the implication of the low CR values on the conclusion(s) of the study?
   Response: Low CR values indicate low internal consistency. There are several possible reasons for low internal consistency. One reason is that the factor structure of the model for some items might not completely fit the data well; another possible reason is that the sample size of the data might not be large enough to achieve consistency. We have acknowledged the need for expanding the scale of the survey for the future research in the conclusion section.

6. In general the Tables are very poor.
   6 (i) Table 1: Page 23: The table needs to be improved by showing count(%) of supervisors and non-supervisors separately for each of the categorical variables. Within this tables difference between supervisors and non-supervisors (if any) should be assessed. The footnotes should be below the table.
   Response: The statistics computed separately for the supervisors and non-supervisors are added in Table 1, and the discussions of the
differences are provided in the result section.

6 (ii) Table 2: Page 24: The analysis presented in this table seems incorrect. The authors may correct me if I am wrong. For comparing the distributions of positive responses table between AHRQ and Taiwan, chi-squared test can be used, it is not necessary to compute average positive response rate. Even if the average response rates were to be used (which I contend is incorrect), a t-test should be used and not a Z-test, and p-values should be reported and not the test statistics. The footnotes should be below the table and not underlined.

Response: The main reason for using average positive response rates in the comparison is that we are more interested in testing the differences between the AHRQ data and Taiwan data at the dimension-level, rather than at the item-level within each dimension. We agree that it is more appropriate to use t-test for such comparison, thank you for the suggestion. Table 2 has been revised according to the suggestion. The t-test results coincide with previous test results.

6 (iii) Table 3: Page 25: This table should be deleted and the information it contains should be summarized in the text.

Response: Table 3 was suggested by one of the reviewers. We believe the table is necessary because description of the information in Table 3 has been removed from the text (see comments 2 & 3).

6 (iv) Table 4: Page 26: It not clear what information is presented in this table and how the results should be interpreted. Nevertheless, p-values should be reported for each dimension instead of the test statistics "t-value". The footnotes should be below the table and not underlined.

Response: Table 4 shows the regression estimations for each dimension of the HSOPSC model on the data, which provides an indication of the explanation power of individual dimension on patient safety culture. The interpretations of the results are given in the “HSOPSC application in Taiwan” subsection. Table 4 has been revised according to the suggestion.

6 (v) Table 5: Page 27: The footnotes should be below the table and not underlined.

Response: Revised.
- Minor Essential Revisions
  None.

- Discretionary Revisions
  None.
### List of changes

<table>
<thead>
<tr>
<th>Original</th>
<th>Revised</th>
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| **Title**  
Measuring patient safety culture in Taiwan: an application of Hospital Survey on Patient Safety Culture (HSOPSC) in Chinese culture | **Title**  
Measuring patient safety culture in Taiwan using the Hospital Survey on Patient Safety Culture (HSOPSC) |
| **Data analysis**  
… Second, descriptive statistics and a proportional variable Z-test were used to explore the differences between the data of this study and the 2007 AHRQ database. (Page 9, 1st paragraph) | **Data analysis**  
… Second, descriptive statistics and $t$-test were used to explore the differences between the data of this study and the 2007 AHRQ database, and also used to examine the differences in average positive response rate between the supervisors and non-supervisors within the data. (Page 9, 1st paragraph) |
| **Result**  
In the following sections… The comparison between our data and the AHRQ data are also given. Finally, the results of applying HSOPSC in Taiwan are given. (Page 9, 2nd paragraph) | **Result**  
In the following sections… The comparison between our data and the AHRQ data are also given. Following that are results comparing the differences in average positive response rate between the supervision group and non-supervision group. Finally, the results of applying HSOPSC in Taiwan are given. (Page 9, 2nd paragraph) |
| **Demographic statistics**  
… in charge with patient safety affairs. (Page 10, 1st paragraph) | **Demographic statistics**  
… in charge with patient safety affairs. Table 1 also shows the demographic statistics separately for the supervisors and non-supervisors… (Page 10, 1st paragraph) |
| **HSOPSC application in Taiwan**  
The Goodness of Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI)… (Page 13, last paragraph) | **HSOPSC application in Taiwan**  
…thus indicates goodness of fit for the HSOPSC model with the Taiwan data. Furthermore, as shown in Table 3, almost all of the CFA statistics meet their respective goodness of fit criteria. The CFA results indicate acceptable model fitness between the hypothetical model of patient safety culture and the data in this study. (Page 15, 1st paragraph) |

Table 1 also shows the demographic statistics separately for the supervisors and non-supervisors.
<table>
<thead>
<tr>
<th>HSOPSC application in Taiwan</th>
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<tbody>
<tr>
<td>The confirmatory factor analysis results shown above indicate acceptable model fitness... (Page 14, last paragraph)</td>
<td>Table 4 shows the regression estimations for each dimension of the HSOPSC model... (re-written) (Page 15, 2nd paragraph)</td>
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<td>Table 5 shows the construct reliability (CR) values which are often used in conjunction with SEM. According to [13], CR values between 0.6 and 0.7 may be acceptable... (Page 15, 2nd paragraph)</td>
<td>Table 5 shows the construct reliability (CR) values which are often used in conjunction with SEM. According to [13], CR values larger than 0.7 suggest good reliability... (re-written) (Page 16, 1st paragraph)</td>
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<tr>
<th>Conclusion</th>
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<tr>
<td>The original AHRQ database is a large heterogeneous samples... (Page 19, 2nd paragraph)</td>
<td>The internal consistency of the data in this study was lower than that of the AHRQ data. The original AHRQ database is a large heterogeneous samples... (Page 20, 2nd paragraph)</td>
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</table>

<table>
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<tr>
<th>Table 1 - Demographic characteristics of respondents</th>
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<tbody>
<tr>
<td>(Page 23)</td>
<td>▪ Add demographic characteristics for supervisors and non-supervisor (Page 24-25)</td>
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<tr>
<th>Table 2 - Average positive response rate for the HSOPSC results for Taiwan and AHRQ data</th>
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<td>(Page 24)</td>
<td>▪ Replace column “Z-test” with “p-value” ▪ Move footnote below the table (Page 26)</td>
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<th>Table 4 - Regression estimations for HSOPSC dimensions</th>
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<tr>
<td>(Page 26)</td>
<td>▪ Change “Standard regression” to “Factor weight” ▪ Replace column “t-value” with “p-value” ▪ Remove column “R2” (Page 28)</td>
</tr>
</tbody>
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<tbody>
<tr>
<td>(Page 27)</td>
<td>▪ Re-arrange the order of the 12 dimensions to match the order in Table 2 and Table 4 ▪ Move footnote below the table (Page 29)</td>
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