Author's response to reviews

Title: Characteristics of unit-level patient safety culture in hospitals in Japan: a cross-sectional study

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Author's response to reviews: see over
Dear Dr. Calumpita,

We are grateful to reviewers for the critical comments and useful suggestions that have helped us to improve our paper. We have taken all these comments and suggestions into account in the revised version of our paper as follows.

**Comments from reviewers:**

*Liane Ginsburg*

1. It is important to state that this study measures ‘perceptions of patient safety culture’ (or patient safety climate) and not actual ‘patient safety culture’ which cannot really be measured by this type of survey. I think that even the AHRQ materials are moving away from calling it PS culture. This requires some rather small, but important, changes to the wording the manuscript in several places.

<table>
<thead>
<tr>
<th>The wording was changed as follows: (Discussion, P10, L220)</th>
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<tbody>
<tr>
<td>Pre: “<strong>PSC</strong> in nursing homes is lower than that in acute care hospitals [17, 18].”</td>
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<tr>
<td>Post: “<strong>Percent positive scores of PSC</strong> in nursing homes are lower than that in acute care hospitals [17, 18].”</td>
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</tbody>
</table>

2. Page 7 – In 136–137: when you talk about units do you mean unit types? For instance you state that each unit had between 5 and 115 responders and this makes me wonder whether 115 people who may have indicated they work on a “general ward” in one hospital actually work on one of several general wards in that hospital (rather than all on the same ward). If so, then I think you are reporting on respondents from different types of units rather than from different units. Please clarify.

| We use ‘units’ and ‘unit types’ properly. Most of ‘general ward’ had less than 30 respondents, but an ‘outpatient unit’ of a university hospital had 115 respondents who belong to one nursing unit. That might be one of exceptions, but that is not surprising at all. |
3. Page 7, ln 150 – this paragraph gets equal attention to the subsequent paragraph (p8, ln 161); however the 2nd paragraph (p8, ln 161) describing which dimensions contribute most strongly to high PSC cluster membership for each unit type strikes me as far more useful. Perhaps a bit more time could be spent on these results. For instance, in table 3 – is it possible to include additional columns for long term care and rehab units in this table. Since these 2 unit types get attention elsewhere in the data as being less likely to be high cluster units, it would be instructive to see which dimensions are most likely to predict high PSC cluster membership. See also point 6 below.

In table 3, we added the results of ‘Long-term care ward’ and ‘Critical care centre, ICU or CCU’, but the analyses for the other unit types did not reach convergence because of the insufficient sample size. We added following sentences:

(Results, P8, L163-170)
“By unit type, the most important sub-dimension for categorising a unit as high-PSC was ‘Supervisor/manager expectations and actions promoting safety’ in ‘General ward’ (OR = 2.3) and ‘Long-term care ward’ (OR=27.08). ‘Non-punitive response to error’ in ‘Administration unit’ (OR = 3.8), ‘Hospital handoffs and transitions’ in ‘Physicians’ unit’ (OR = 2.2), ‘Feedback and communication about error’ in ‘Outpatient unit’ (OR = 6.4) and Staffing’ in ‘Critical care centre, intensive care unit (ICU) or coronary care unit (CCU)’ (OR=9.28). The GLMMs for the other unit types did not reach convergence because of the insufficient sample size.”

(Discussion, P11, L234-247)
“In addition, ‘Supervisor / manager expectations and actions promoting safety’ and ‘Organizational learning - continuous improvement’ might also relate to the categorisation as high-PSC unit, but the confidence intervals of ORs for those two sub-dimensions were too large to confirm the relationships.

In ‘Critical care centre, ICU or CCU’, the ‘Staffing’ might relate to the categorisation as high-PSC unit. Sufficient resources might be required to control the higher level of intrinsic hazard, complexity, variety or rapidity of work in those areas and to maintain the PSC. The AHRQ 2012 Hospital Comparative Database report showed that the average percent positive score across the sub-dimensions in emergency departments in the United States was the lowest among all work units [12]. In the United States, some studies also reported poor PSC at emergency departments or ICUs although our study showed moderate PSC [28, 29]. Reasons of
the deference between the United States and Japan should be investigated in future research.”

4. Table 3 – the column for physician unit looks like hospital management support scores were also predictive of high cluster membership. However, this is not highlighted in table 3.

It is not significant because the P value is 0.054.

5. P9, paragraph starting on line 198 – it is still not clear to this reviewer what an administrative unit is. Are these patient care units? Please provide clarification for international readers regarding the nature of these units. If they don’t provide direct care, then perhaps they should be excluded from these analyses. With other PSC surveys, the items/dimensions are not particularly relevant to staff who do not work in direct care areas and these areas are therefore often excluded from these surveys and analyses. Please describe these units in greater detail and justify their inclusion or remove them.

Large population of administrative workers in hospitals cannot be ignored, and many previous studies regarding PSC in hospitals included administrative workers as target population. Therefore, we cannot exclude them from our study, but we added following explanation:

(Methods, P6, L117-118)
“Administration unit’ includes accountancy sections, personnel sections, supplies sections or general sections in which most of the staff don’t provide direct care.”

6. P11, paragraph starting on line 231 – these seem to be some of your most interesting findings (while the findings discussed re LTC in the previous paragraph are interesting, they are less novel). As per my point above, can you discuss in more detail the dimensions that explain cluster membership for some of the different types of units you study. This discussion would help to enhance the contribution your paper makes to the literature.
In table 3, we could add the results of ‘Long-term care ward’ and ‘Critical care centre, ICU or CCU’, but the analyses for other unit types did not reach convergence because of the insufficient sample size. We added following sentences:

(Results, P8, L163-170)

“By unit type, the most important sub-dimension for categorising a unit as high-PSC was ‘Supervisor/manager expectations and actions promoting safety’ in ‘General ward’ (OR = 2.3) and ‘Long-term care ward’ (OR=27.08). ‘Non-punitive response to error’ in ‘Administration unit’ (OR = 3.8), ‘Hospital handoffs and transitions’ in ‘Physicians’ unit’ (OR = 2.2), ‘Feedback and communication about error’ in ‘Outpatient unit’ (OR = 6.4) and ‘Staffing’ in ‘Critical care centre, intensive care unit (ICU) or coronary care unit (CCU)’ (OR=9.28). The GLMMs for the other unit types did not reach convergence because of the insufficient sample size.”

(Discussions, P11, L234-247)

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7. Ln 236 – Please remove or amend statement that it is difficult to establish causation - causation cannot be established with this design.

We changed the sentence as follows:
Finally, we thank the reviewers for his/her constructive comments that have helped to improve our manuscript. Looking forward to hearing from you.

Yours truly,