Author's response to reviews

Title: Measuring safety culture in Dutch primary care: psychometric characteristics of the SCOPE-PC questionnaire

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Measuring patient safety culture in Dutch primary care: psychometric characteristics of the SCOPE-PC questionnaire.

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Dear editor,

Hereby we send you the revision of our manuscript. Thank you very much for considering our paper for publication in BMC Health Services Research.

We wish to thank the reviewers for the many helpful comments and questions. We hope we were able to address them satisfactorily. Below we have copied the comments and addressed them point by point in blue. Also, we added the phrases we changed in the manuscript. The changes in the manuscript are underlined, with the exception of textual corrections.

When revising the manuscript we explicitly focused on the English language use.

On behalf of all authors,

Yours sincerely,

Natasha Verbakel
Reviewer's report 1.
Title: Measuring patient safety culture in Dutch primary care: psychometric characteristics of the SCOPE-PC questionnaire
Version: 3
Date: 3 January 2013
Reviewer: Maeve O'Beirne

Reviewer's report:
This paper fills a gap that has not been tackled in the literature yet. As the authors state in their introduction, a scale to measure safety culture in primary care outside primary care physician practices, has not yet been described. The authors clearly describe how they are building on a scale that was developed for physician practices.

MINOR ESSENTIAL REVISIONS
1- They do not state why this particular scale was used to build on and not one of the other scales for measuring culture in primary care physician settings. They also do not state why they did not take into account the theoretical framework put forth by Kirk et al (which they site) and incorporate some of the dimensions found in this work into their new questionnaire. Although some of the dimensions are very similar to those from SCOPE, there are a few that are different.

Although the framework of Kirk et al. is very useful we chose to build on the SCOPE questionnaire for general practices. This was because this questionnaire was already translated to Dutch, and more importantly was validated in Dutch general practices, a population quite similar to the other primary care professions we included in our study. In addition, the national profession associations were familiar with the SCOPE questionnaire and their request was to modify and validate it so that it could be used by their professions as well.

Most of the dimensions from Kirk et al. are incorporated in the SCOPE-PC questionnaire. Only “staff education and training about safety issues” is not really represented.

I have revised the last paragraph of the introduction so that both the purpose of the article and the reason to use the SCOPE is more clear:

In the Netherlands an assessment tool for patient safety culture existed only for general practices[15]. In coherence with increasing collaboration within primary care and the organizational similarities between primary care practices, it was desirable and possible to use a generic questionnaire for the complete primary care. In addition, a generic questionnaire enhances comparability between professions and, in a later stage of safety management, it hopefully will generate exchanges of learning and improvement strategies. As both the questionnaire for general practices was already validated and other primary care professions were familiar with it, it was used as a starting point. The aim of this study was to modify the SCOPE questionnaire into a generic questionnaire for the Dutch primary care: the SCOPE-PC questionnaire, and to validate it. SCOPE-PC is a Dutch acronym for systematic culture inquiry on patient safety in primary care.
2-The question is well defined but is not exactly the question that is answered. The stated purpose is to “develop and validate a generic questionnaire that aims to assess the patient safety culture in Dutch primary care. The question that is answered is “to modify and validate the SCOPE tool for Dutch primary care”.

Thank you for your helpful remark, we fully agree and followed your suggestion. In the abstract and introduction section I have adapted the text accordingly.

3-While the methods are appropriate, I believe that they are described in more detail than what is required. The amount of detail makes it difficult to read.

We understand your comment. As we had eleven professions it was an elaborate process to undertake the several steps required for the validation. We have now rephrased the methods section and hope it is more clear to readers. In consecutive order we describe:
- the adjustment of the questionnaire and face validity, consisting of first adjustments, professional pre-test and consensus of adjustments, and a description of the final questionnaire,
- description of data collection, and
- description of analyses, more specifically factor analysis, assessment of reliability and construct reliability.

4-The authors have used both confirmatory factor analysis as well as exploratory factor analysis. The confirmatory factor analysis does not really add to the findings and can probably be removed.

The authors undertook a reasonable recruitment strategy and I believe have obtained sound data on changing the SCOPE tool. They clearly outline the limitations of their recruitment strategy.

The confirmatory factor analysis is an important step in the validation of the questionnaire. The results were the reason for conducting an explorative analysis as well. In my opinion it is important for readers to have the complete information on the methods used and their results to be able appraise the study. Therefore, we think it is perhaps better to keep this analysis in the paper. However, for readability reasons we have summarized the explanation of the confirmatory factor analysis in the methods section. The full description of the CFA is now in appendix 1.

5-I would like to see another column added to table 1. Table 1 describes the percent of the participants who were female in each of the professions, but it is missing a column outlining the percentage of practitioners in each profession who are female so it is difficult to interpret the significance of the gender column.

The discussion and conclusion are supported by the data. The title accurately reflects the contents of the paper. The abstract accurately conveys what was found except that it has the same issue with the question as mentioned above.

Thank you for this suggestion. The reason we did not put age and gender in the table was that the data came from several resources and were presented in different ways. For example, for some groups we have the mean age, and for some the modus of a
class. Including these would have resulted in a chaotic table with a lot of different legends.

Most important is that the age and gender distribution of our sample is representative of the population. Only for dental care practices and general practices are overrepresented in our sample. We included this last information in the results section where we describe our sample:

Overall, the age and gender distribution of the sample were representative for the Dutch professions population, if available (data not shown). However, in both the dental care practices and the general practices females were overrepresented in our sample.

6-The writing is somewhat convoluted and uses words and phrases in ways that are not usually used in English. The writing style makes it difficult to read the paper. I believe that someone with a background in English should edit the paper before it is resubmitted. (although I must say that the English is very much better than my Dutch and I admire anyone who can write in another language)

We have reviewed the text critically and tried to improve the English.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published
Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests: I declare that I have no competing interests

Reviewer's report 2
Title: Measuring patient safety culture in Dutch primary care: psychometric characteristics of the SCOPE-PC questionnaire
Version: 3
Date: 3 February 2013
Reviewer: Carl de Wet
Reviewer's report:
Dear Editor,

Thank you for the opportunity to review this manuscript.

Major Compulsory Revisions

1. Whilst the reported methodology and methods seem appropriate and robust, it is possible that readers may be uncertain why this study was undertaken in the first place. It would be helpful if the authors could better justify and expand on the need for this specific, adapted instrument. By its very definition, culture is ‘different’ within and especially between organisations and teams. This is often used as the rationale for the many different instruments available internationally.
The transferability (or not) of instruments between clinical and geographical settings should therefore be considered.

As we stated in the introduction there was only an assessment tool available for general practices. Other primary care disciplines asked if we could develop and validate a questionnaire for them as well.

2. It would be helpful if the authors could add and expand on the potential usefulness of SCOPE-PC, how they hope it will be used and by whom. For example one implication to consider is whether general practice teams will have to do two surveys, e.g. SCOPE and SCOPE-PC?

The target group for this questionnaire are the eleven primary care professions included in our validation. These professionals can use the SCOPE-PC as an aid to work on their safety management in their practices. General practitioners will still use the SCOPE questionnaire as this questionnaire is more fitted to this group and validated in this population.

3. One potential use of SCOPE-PC is to compare perceptions of safety culture of different primary care providers. Given that the authors chose to include the mean scores with standard deviations in Table 2 for individual survey items, it would be very interesting if they consider and describe this further in the results and add the potential insights and implications in the discussion section. Could a comparison be included between different provider groups, for example as a separate table providing mean culture scores overall and for each factor (dimension)? What is the ‘overall’ perception of safety culture for Dutch primary care? How does his compare to other settings and previous research?

Indeed, we have considered incorporating this in the manuscript. However, for eleven professions we thought it to be too much information for one paper. At the moment we are preparing a separate paper about the perceptions of culture in the different professions.

4. A minimum number of three items are normally required before they can be bundled together as a ‘factor’. The single retained item appears to have face validity and intuitively seems important. If this is important, shouldn’t it be developed into a ‘factor’? Conversely, if it isn’t that important maybe it shouldn’t be included?

We realize that from a methodological point of view this is not a common way to deal with items that do not load to a factor. However, from a professional perspective this is an important subject in practice and will even become more important in the future. Since this questionnaire was developed on request of the professions and they will be the future users we tried to approach it pragmatically. Hopefully with a revision of the questionnaire we can expand this subject to a full factor.

5. Factor correlation is a difficult concept. Inter-correlation between factors is almost inevitable, as they all measure aspects of the main object of interest (in this case, safety culture). The practical usefulness of factors is that they allow
researchers and health care providers, teams and organisations to focus on specific aspects. It helps them to ‘untangle’ and simplify a complex phenomenon. From this perspective, high correlation isn’t necessarily ‘good’ as it can limit the overall usefulness of the instrument. Whilst Table 4 is very useful I would appreciate the authors reconsidering their description and discussion of it to make this clearer.

We have revised the paragraph in the discussion about this point to:

It is interesting to note the absence of a correlation between ‘intention to report events’ and all other dimensions but one: ‘open communication and learning from error’. The absence of correlation between ‘intention to report’ and most dimensions may be explained by a difference in perspective of the dimensions’ questions. In most dimensions respondents are asked about their perceptions on collaboration, support, the notion of abiding and employing the procedures about patient safety. This relates to how everybody feels or thinks of the atmosphere in their practice, and is concerned with how this is at the moment. In contrast, the questions about reporting relate to actual steps to be undertaken when an error occurs, they ask about intentions: What would you do if?

However, the absence of correlation could also be explained by reporting still being very uncommon in primary care: the concept of reporting is not incorporated yet and therefore does not ‘behave’ as the other dimensions do. Additionally, the fact that ‘open communication and learning from error’ does correlate may indicate that this is a main precondition for reporting. Subsequently, one would expect that the coherence of all dimensions will become stronger when safety management activities are more standard in daily practice.

Minor Essential Revisions
1. The word ‘patient’ should be deleted in the title. Quantitative instruments such as SCOPE-PC aim to measure perceptions of ‘safety culture’. Whilst safety culture impacts on ‘patient safety’ it is technically broader and include ‘...values, attitudes, norms, beliefs, practices, policies and behaviours...’ as the authors rightly point out.

I have deleted ‘patient’ from the title.

2. The ‘limitations’ sections should include the main, known limitations of the ‘quick and dirty’ survey method.

Thank you for your remark. A survey will not lead to the core of patient safety but will reflect the perceptions hold by those filling in the questionnaires.

I have added this notion to the limitations section:
Third, a general drawback of measuring culture with a survey is that it will not capture the heart of the current culture, for which a more sophisticated method will be necessary [23]. Options given are participant observation, interviews and focus groups combined with attitudinal surveys and established cultural assessment tools. Indeed, it would be interesting to combine the SCOPE-PC questionnaire with qualitative methods in a future study aiming at describing patient safety culture. However, for professionals themselves, as final users of the product, a survey has the advantage that it is feasible and easy to use.

3. Consider inclusion of the ‘overall’ mean score (SD) for the survey at the end of Table 2. Consider adding the factor-level mean scores (SD) as well. I think aggregating respondent perceptions to the factor and overall level may be of interest to many readers.

Indeed, we think this is interesting for readers. However, we want to give the readers a complete view. In order to do this we have to give more additional information. Otherwise this we only be a number, and without reference less meaningful as we want it to be. At the moment we are preparing a separate paper which provides this information.

4. The abstract mentions ‘...921 questionnaires were returned...’ but Table 1 has 615 total respondents, as it accounts for those respondents that did not meet the inclusion criteria. In my opinion this should be reflected in the abstract.

Thank you for this remark. I have now included in the abstract:

A total of 921 questionnaires were returned. Of these, 615 were eligible for factor analysis. The resulting SCOPE-PC questionnaire consisted of seven dimensions: ‘open communication and learning from errors’, ‘handover and teamwork’, ‘adequate procedures and working conditions’, ‘patient safety management’, ‘support and collegiality’, ‘intention to report events’ and ‘learning organization’ with a total of 41 items. All dimensions had good reliability with alpha’s ranging from 0.70 – 0.90, and the questionnaire had a good construct validity.

Discretionary Revisions


I have included the scree plot in appendix 2.

2. In the abstract ‘results’ section the main findings could be better summarized, for example: ‘...The final, validated instrument has xxx items and xxx factors...’
This is the main output of this study and should be given more prominence.

I have amended the abstract accordingly, see also above.

3. How many different ‘models’ were considered during confirmatory factor analysis?

**We examined the original factor structure of the SCOPE questionnaire for general practitioners as this was the questionnaire we used as a starting point.**

Summary
The authors aimed to adapt a previously validated instrument to measure perceptions of safety culture in primary care. They used an appropriate ‘gold standard’ method and robust analytical methods. Whilst they acknowledge the response rate was ‘low’, it is comparable to or better than similar studies and their overall sample size exceeded the necessary requirements for factor analysis. Overall, the psychometric properties of SCOPE-PC therefore appear to be sound and it is apparent that the study is of a high quality and required considerable effort. It is therefore with considerable regret that I had to suggest a relatively large number of ‘major’ revisions. I sincerely believe that it is possible to address all of these issues and that it would make their work more meaningful to a wider readership.

Please let me know if I can be of further assistance or if any comments require clarification.

Dr. Carl de Wet
Level of interest:
An article of importance in its field
Quality of written English:
Acceptable
Statistical review:
Yes, and I have assessed the statistics in my report.
Declaration of competing interests:
'I declare that I have no competing interests'

Reviewer's report 3
Title: Measuring patient safety culture in Dutch primary care: psychometric characteristics of the SCOPE-PC questionnaire
Version: 3
Date: 19 February 2013
Reviewer: Jason Etchegaray
Reviewer's report:
The authors should be commended for writing a clear and informative manuscript around this safety culture tool. My concern is focused solely on their analytical method:

Minor Essential Revision
If you did not think that the CFA would yield the expected results, why conduct it in the first place? Why not conduct an EFA on half of your sample and then conduct a CFA on the other half?
Thank you for your suggestion. Cross-validation is used to test the stability of the factor structure. We have not performed this validation step as it requires twice the usual sample size. If we would have halved our sample size we would not have met the required sample size of 10 respondents per item. However, this would be an interesting test and hopefully in the future, as we hope to have more completed questionnaires, we will be able to conduct this validation step. We have added a sentence about cross-validation in the discussion in the paragraph conclusions and implications:

In the future, when sufficient data will become available, it would be interesting to perform cross-validation of the questionnaire.

Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests: I declare that I have no competing interests