Reviewer’s report

Title: Screening with the double surprise question to predict deterioration and death: an explorative study

Version: 0 Date: 14 Jun 2019

Reviewer: Nicola White

Reviewer's report:

Overall

I would like to applaud the authors on such a well written and interesting piece of research. Whilst there has been an increase in research using the SQ, which has always been shown to be 'prognostically' challenging, the introduction of the second question could indeed improve the sensitivity of the question.

The manuscript details a prospective study followed by a blinded retrospective medical notes review. I have not seen this approach before and applaud the novelty of it. The authors review the case notes for survival at one year and extract data on palliative care use during the last year. The results are well reported and the conclusions are fair. Thank you for putting this research together.

I think this manuscript should be accepted pending some of the suggestions below:

Abstract
The abstract is very clear and precise. The final sentence states that it is a pilot study, I think this should be incorporated in to the design section.

Introduction
The introduction contains all of the references I would expect when discussing the Surprise Question in primary care.

Lines 57-62 discuss the prognostic capabilities of the SQ. I think I would disagree that it is mainly used with cancer as many of the studies identified in the references cited were End Stage Renal Failure or Heart Failure. I would also disagree with the statement that the SQ is a sensitive predictor at 1-year mortality - again one of the references cited says "ranged between 11.6% and 95.6% for specificity". The prognostic accuracy of the SQ has been reported as extremely variable from previous research. It might be clearer to report this wide variation and that the DSQ could help to improve this variation.

It would be helpful in this introduction to note that the purpose of the SQ was not to predict survival but to identify need. (Lynn, J. (2005). Living long in fragile health: the new demographics shape end of life care. Hastings Center Report, 35(7), s14-s18.)

Minor comments

Lines 45-6: there are two statements here made about the age - it would help to have a reference for these statements.
Line 52: it would be helpful to have a reference that says PC is predominately restricted to cancer.
Line 51: systematic change to systematically

Methods

Could you clarify if the two doctors produced one response between them to the SQ & DSQ or if they answered independently?

There is some confusion and repetition in the presentation of the information - it might be helpful to follow a reporting guideline for structure. For example, the data collection section is slightly redundant as it repeats information previous said or reports information that should be in different sections (e.g. discussing bias [lines 127-131] could go in the analyses section, lines 123-6 could go in the outcome measures section [I would also remove the reference to the tables in this section - perhaps table 1 should be supplementary?]). Additional suggestions of this nature are made in the minor comments below.

For the secondary outcome measures, it would be helpful to have a definition of palliative care and why these four outcomes were selected as a measure of this.

Minor comments

In the design section, I would usually just expect the description of the study design (i.e. prospective cohort study with retrospective medical record review). Included in this section are parts of the procedures. I would add another section of "setting" (which follows standard STROBE reporting guidelines) to include details of the location, dates, procedures etc.

In the participants section, I would relocate the ethical detail (lines 94-9) to either the setting or its own heading "ethics". In this section, would it be possible to add some demographics about the GPs? They were also participants and it would be helpful to know information such as years of practice etc.

In the outcome measures section, you have described the analysis of the SQ & DSQ responses. I would move this to the analysis section. In this section, your primary outcome is death at 1-year. How did you find this out - I assume by the GP medical records - but it makes it easier to read if it is fully transparent. Equally for the secondary outcomes, perhaps reiterate that it was through a medical records review that the information was extracted.

In the data collection section, can you explain why you need to control if advanced care planning had already been performed?

Results

The flowchart really aids the description, thank you.

The statistics for the primary outcome, with the addition of the table, are appropriate. What I find difficult to digest is the paragraph explaining them. It doesn't seem to follow a process but jumps around between groups.

Perhaps it might help to stage the information with subheadings relevant to the SQ? I leave this to the discretion of the authors but my suggestion would be:

1. Death prevalence overall "Out of the 292 patients screened, 26 died (9% mortality); two of these were not identified from the SQ"

2. Subheadings for SQ1 & SQ2 / group number - what was the overall accuracy i.e. total number of correct estimates? This would help to give an overall idea to the reader rather than going in with the
diagnostic testing immediately. From what I can tell - SQ1 - 153 (129+24) correct / 292 total (52% accuracy). SQ2 - 135 (10+125) correct / 161 total (84% accuracy).

Rather than just reporting the statistics as has been done on lines 171-172, it might be easier to just refer to the table or expand on the explanation as has been done on lines 167-170.

Discussion

This is the first mention that this is a pilot study. Why was it a pilot? This should be added in to the design section.

I think a limitation of GP bias should be addressed. Whilst the researcher was blind extracting the information, the GPs could potentially recall the small number of patients in group 3. This might have impacted how they treated the patient. A small bias, but one that should be noted none the less.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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