Author’s response to reviews

Title: Development and initial validation of an instrument to measure novice nurses’ perceived ability to provide care in acute situations – PCAS

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Title: "Development and initial validation of an instrument to measure novice nurses’ perceived ability to provide care in acute situations - PCAS"

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Dear Dr. Anderson

Thank you for considering our research for publication and providing a constructive review. In our opinion the reviewers’ insight has significantly improved the manuscript. We have edited the manuscript with consideration of the reviews’ comments, highlighting the major changes and clarifications in yellow. Appended to this letter are our responses, point by point, to the comments raised.

I hope that the edits have been made to the satisfaction of the reviewers.

Sincerely Yours

Anders Sterner

-Editor

The paper needs to be theoretically framed to assist readers to understand what problem you are addressing, to ensure that it is addressing a defined need, and to position it in the scientific literature.
See comments from other reviewers about the need to define “acute”. One reviewer suggested that Bandura’s self-efficacy theory may be helpful. You have referenced Benner’s novice to expert work, and that is potentially another theoretical frame.

Response: Thank you for your revision. The theoretical framework of Benner has been incorporated into the background. The term acute, as a concept, and in relation to the novice nurse has also been presented in the background.

-Editor

You also need to consider what is being measured in these new nurses. It may be that the scale identifies difficulties of novices entering nursing or any profession, rather than any deficiencies of training. What does the novice/expert literature have to say about this? Could the scale then be used to track the development of confidence over time? These are potentially issues to address in the discussion.

Response: The scale measures nurses’ perception of their ability to care in acute situations. It does not consider the reasons underlying a perception of inadequacy or difficulties. Training and education are not the only potential reasons for a deficiency, as presented by Benner, experience is needed for development and skill acquisition. The need for personal experience of these situations is imperative and has been mentioned in the manuscript.

-Editor

Second paragraph of the background section – the first sentence starting “a major issue of concern” should be referenced.

As identified by reviewer 1 the construct being measured is unclear and this leads to questions about exactly what this scale is measuring, which is not positive in a study reporting on scale development. There should be more explanation of acute care and exactly what is being measured beyond stating that “acute” means what nurses think it means.

Response: The paragraph is rewritten

-Editor

Similarly, please avoid confusing “ability” with “perceived ability”. If you are not measuring ability objectively but asking nurses about their perceptions of their own ability, then this needs to be clearly stated every time it is mentioned – that is, use the term perceived ability every time.

Response: Thank you for noticing this. It has now been corrected

-Editor

The method used to derive the initial pool of items from the interview data should be described.

Response: We have now elaborated upon this section.

-Editor

Clarify and add details about how the cognitive interviews were conducted.

Response: We have now elaborated upon this section with a description of how ‘think aloud’ and probing cognitive interviewing were conducted
-Editor
The process of developing the scale is unclear, especially the factor analysis. It seems that you did a FA on the 24 items and then a separate FA on the excluded 9 items, identifying different numbers of factors – is this what you meant? There seemed to be 19 items in the final version then it is stated at the end of the results section that the final version has 17 items.

Response: We have now included a figure to demonstrated this and hope that this will help the reader to understand the process from item generation to inclusion in the scale.

-Editor
The response categories for the questions are needed in order to make sense of the items. For example, the items that start with “I estimate my ability…..” can’t be accompanied by an agreement scale, so what categories were used?

Response: The response categories are now presented

-Editor
The clarity of the paper would be improved by setting out the method section much more clearly. It would help to describe and number each step in the process and show clearly the inputs and outputs of each step (eg number of items at the start of the step and number at the end, together with a justification of inclusion/exclusion).

Response: We have now constructed a figure to facilitate understanding of the method and hope that this helps the reader to understand the process from item generation to inclusion in the scale.

-Editor
An overview flow diagram showing how items were generated, selected, refined etc at each step to arrive at the final number of items. All numbers at each stage of the process should be accurate. This will help to resolve inaccuracies, guide the reader, and make the whole process clearer.

Response: We have now constructed a figure and hope that this helps the reader to understand the process from item generation to inclusion in the scale.

-Editor
Discussion – there should be more discussion about the theoretical framing of the scale, relationship to other studies/measures, and recommended uses of the scale, rather than so much detail about the statistical analysis. This would then link with the theoretical framing in the introduction.

Response: A paragraph about this is now included.

-Editor
Please clarify on what basis you conclude that the validity is acceptable? Have you used criteria to judge the validity and if so, what are they?

Response: Content validity was performed through evaluations made by an expert panel. Content validity and face validity were evaluated by the target population through cognitive interviews.

-Reviewer 1
Thank you for the opportunity to review your work. The purpose of the study was to develop and evaluate a psychometric scale to measure novice nurses' self-reported perception of their "ability to care in acute situations". The Perception to Care in Acute Situations scale (PCAS) was developed and the construct validity testing along with other psychometric testing of an instrument was conducted. The topic is original and relevant to nursing.

Overall, the manuscript would be strengthened by, 1) connecting the construct of the "novice nurses' ability to care in acute situations" to a specific theory, e.g., Bandura's self-efficacy theory or other, and 2) presenting the statistical findings in a more concise summary, explained in laymen terms to make it more accessible to clinician-readers who may not be familiar with the statistical testing of an instrument.

More detailed comments are as follows.

Abstract: The aim of the study could have been further refined; specifically, it is unclear what the authors mean by "the perception of their ability to care in acute situations" because it offers some variability in the interpretation of the phrasing.

Some of the abbreviations were not defined, e.g., EFA (line 25, no page number).
The name of the scale should be defined the first time it is used.
The method section in the abstract could have included the information on how the tool was developed, piloted and how many items were included in the final instrument along with how the instrument was evaluated, e.g., number of participants who responded using this tool.

In the abstract's Results section, some numerical data should be reported, e.g., numerical value of the Cronbach alpha indicating good internal consistency, quantitative result of the confirmatory factor analysis.

Response: Thank you for your review. The abstract is now re-written with close attention to your suggestions.

-Reviewer 1
In the abstract's conclusion section, it would be helpful if the authors can comment on the instrument's reliability if this was tested.

Response: The reliability test that was performed was Cronbach alpha and Ordinal alpha

-Reviewer 1
In the Background, the authors stated that novice nurses are poorly prepared for clinical work (lines 7-8). Although this statement is supported with a reference of a recent systematic review, it would be helpful to know whether this is in reference to one specific country or a global statement.

Response: This statement has been clarified by including the term “Western culture”

-Reviewer 1
In the Background section, it would have been helpful to know how "an acute situation" is defined. It would be helpful to include the information about the construct that's being studied in the Background section; some of this information is presented in the section on "scale development" in the Methods section.

Response: The paragraph about the concept, acute and acute in relation to novice nurses has been rewritten.
Background section would benefit from some explanation of how "ability" fits within a certain theory. For example, how is "ability", defined in the manuscript as "perceived performance", different from Bandura's self-efficacy construct? It would also be important to consider factors that influence the nurse's "ability", supported by evidence.

Response: Benners’ theory of Novice to Expert is now discussed in relation to ability to care in acute situations.

As we write, ability in this study reflects perceived performance on a variety of tasks required of nurses who provide care in acute situations. The tasks are specified in the items, for example, “to independently prioritise between actions” or “take instructions over the phone”. All the items in the scale are the result of interviews where novice nurses with less than one year professional experience expressed concerns or deficiencies in their ability to perform in acute situations.

-Reviewer 1
What was/were the reason(s) for choosing only novice nurses with less than a year of professional experience?

Response: The reason for choosing the novice nurse is that this group has been identified as unprepared to care in acute situations. The items generated are also from this group of nurses. This is now described in the manuscript.

-Reviewer 1
In the Methods' section on "Item generation", it would have been helpful to know what recommendations the authors are referring to when addressing item generation (line 46).

Response: This paragraph has been rewritten.

-Reviewer 1
Was there any framework used for the instrument?

Response: No specific framework such as Bandura or Cognitive theories was used when developing the instrument.

-Reviewer 1
The information about the panel of experts should be made more succinct and include objective information about the panel, e.g., number of years of experience relevant to the topic.

Response: Number of years of experience is not an objective measure of expertise, as Benner also points out. We inserted information indicating that two of the panel members had a Phd in the description. It was the research teams opinion that this group of individuals are experts in the topic.

-Reviewer 1
It would be helpful to know what the authors mean by "cognitive interviewing" (pg. 4, line 34).

Response: We have now elaborated upon this section with a description of how think aloud and probing cognitive interviewing is conducted.

-Reviewer 1
Was the "research group" (pg.4, line 47) the same as the panel of experts?

Response: No, the research group was separated from the panel of experts. To clarify this the research group is now described as the “research team” throughout the manuscript.

Reviewer 1
The reason for choosing a 4-point scale could be better supported (pg. 4, line 51).

Response: The reason was to “force respondents to clearly express their perception” We discuss this decision indicating that it was done to avoid “fence sitting” this was also tested in the cognitive interviews.

Reviewer 1
In the section on Sample Selection and Recruitment, the sample size calculation could be more clearly explained (pg. 5, line 23).

Response: There is no “hard and fast rules” about sample size in EFA. Often both subject/item ratio and/or total sample is recommended and we choose to present both as guidance to our sample size calculation.

Reviewer 1
The section on Data Analysis should be presented in a more cohesive, succinct way, including some 'laymen terms' explanations to make the presented statistics more understandable to the clinicians reading this paper.

Response: Many of the concepts are described and choices explained and discussed under the results and discussion section. Considering this is a method article and a range of decisions are made based on different theories, it cannot serve as a textbook in methodology. As we acknowledge that the experience of reading this type of processes is various we have recognized some extensive descriptions in the result but as reviewer 2 concludes “In overall, the operationalization process is described in detail with clear references.” There is no easy way to describe this kind of process to suit everyone.

Reviewer 1
In the section on Ethical Considerations, perhaps the authors can provide a reason(s) for this study not meeting the requirements of the Ethical Review Act 2003:460.

Response: The Act concerning the Ethical Review of Research Involving Humans (SFS 2003:460) applies to situations such as research that involves physical encroachment on a subject or is conducted according to a method that aims to affect the subject physically or psychologically, as well as studies on biological material traceable to specific individuals. Research involving handling of sensitive personal data shall be examined regardless of whether research subjects give their informed consent or not.

Reviewer 1
In the Results, the information should be presented in full paragraphs and explained in a way that would promote understanding of the content among clinicians and researchers not familiar with statistical testing of an instrument.

Response: Please see our response to the data analysis section above!
Reviewer 1
The aim presented in the Discussion section (pg. 9, lines 13-18) is different from the one stated in the Background section. The term of "reliability" is mentioned in the aim in the Discussion section, however, only face and construct validity were explored in the study. As both validity and reliability of an instrument is multidimensional, the authors should be clear and consistent throughout the manuscript as to what type of validity and reliability they are referring to.
Response: Content validity was conducted by an expert panel. Content validity and face validity was evaluated using the target population via cognitive interviews. Reliability is presented in the form of internal consistency by both Cronbach alfa and ordinal alpha.

Reviewer 1
At times, the phrasing is a bit awkward and may not be completely understood by international readers; for example, pg. 4, line 29, "somatic care" - unclear what is meant here and needs to be clarified; pg. 4, line 45, "augmented clarity".
Response: Somatic care is the opposite to psychiatric care. Both the terms Somatic care and somatic wards are often used in international literature. “Augmented clarity” is rewritten.

Reviewer 1
There are some inconsistencies with the in-text referencing (e.g., pg. 9, line 26).
Response: This is corrected.

Reviewer 1
There were some grammar and punctuations errors.
Response: We have payed close attention to this in the revision.

Reviewer 2
I commend you for a well-written article and for your work in this interesting area. Overall evaluation and general comments:
This paper addresses evaluation of novice nurses' ability to provide care in acute situations. The authors develop and examine the psychometric properties of a new self-assessment scale (PCAS). This paper contributes to the knowledge on evaluation of nurses' own perception of their ability to care in acute situations.
Response: Thank you for your review.

Reviewer 2
Title and abstract: The title and abstract clearly signpost the content.
Background: The introduction points out the overall challenge for novice nurses to manage acute care situations, and in line with this the importance of giving them support. Last para, last line - "...To the authors' knowledge there is currently no ..." - Did you undertake a search of the literature or is this based on what the authors are aware of? It will be good to replace this with a more subjective sentence, especially if you had searched the literature prior to the study.
Response: The statement is in regards to our awareness. This is grounded in the earlier studies discussed in this manuscript and the fact that acute situations are not earlier described from the novice nurses perspective.

-Reviewer 2
There is a clear aim with the study.

Methods: The concepts/constructs studied are clearly described. In overall, the operationalization process is described in detail with clear references.

Item generation: The items were created from interviews with 17 novice nurses. As I understand it, these interviews were performed in previous studies. Although there are references, I think it would be good to clarify this further (the sample is described elsewhere).

Response: The paragraph has been rewritten

-Reviewer 2
"Several items were deleted, rewritten and added". - It would be of interest for the reader to have examples of deleted items.

Response: This is a difficult process to describe short at an item level. An item that is deleted can form the basis for a rewrite. To illustrate the difficulties, we can briefly give you an example. One item; I estimate my ability to understand the individual patient’s needs in acute situations as: Was deleted and later rewritten in to two questions with focus on individual patient’s care needs and individual patient’s medical needs.

-Reviewer 2
Were the items added generated from some other source than the interviews?

Response: No other source than interviews and responses from the expert panel and cognitive interviews were used.

-Reviewer 2
Content validity: How were the expert group and the two novice nurses recruited?

Response: We have clarified this process.

-Reviewer 2
A 4-point scale was chosen - Which verbal response categories was drafted?

Response: We have now inserted the response categories in the content validity section.

-Reviewer 2
Results:
This paragraph is clearly written. The tables adds information in relation to the text.
"No missing data was recorded as the electronic questionnaire could not be submitted if there was any
missing data”. - From an ethic perspective, I this should be commented on in the Discussion section.

Response: This is discussed as a potential limitation in the discussion section.