Further Validation of the Behaviors in Advance Care Planning and ACtions Survey (BACPACS)

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BACKGROUND & RATIONALE

Advance care planning (ACP), is a process that supports adults at any age or stage of health in understanding and sharing their personal values, life goals, and preferences regarding future medical care. There is a need for valid ACP survey tools to understand where people are in the ACP process. This is needed to guide health policy and clinical practice. Content and response process validity are important and have been reported for the Behaviors in Advance Care Planning and ACtions Survey (BACPACS), however there is a need to report validity evidence for its internal structure, relationships with other variables and consequences validity. In our previous study, conversation analysis, content expert review and think aloud cognitive interviewing were useful in refining the new survey instrument entitled BACPACS. We found evidence for both content and response process validity for this new tool. Our objective was to further test the BACPACS tool with respect to internal structure, relationships with with other variables and consequences validity.

METHODS

In developing and providing validity evidence for the BACPACS, we used the framework by Samuel Messick (1988) adopted by the American Educational Research Association (AERA), American Psychological Association (APA), and the National Council on Measurement in Education (NCME) as a field standard. In this framework, all forms of validity are considered to be construct validity, and evidence for the presence of validity is collected from five different sources: content, response process, internal structure, relationships with other variables, and consequences. Figure 1 shows Messick's framework. In our previous study, we found evidence for content and response process validity. In the current study, items from the BACPACS that were asked to all participants regardless of the branching sequences were analyzed. For internal structure validity the Cronbach's alpha reliability coefficient for Likert scale items and the Kuder Richardson reliability coefficient for dichotomous items was used. Factor analysis was also computed for the items. Figures 2 and 3 show the items analyzed. For relationships with other variables, the scores of the BACPACS were correlated with the EQ-5D-5L and the Karnofsky Performance Scale using Spearman rank correlations.

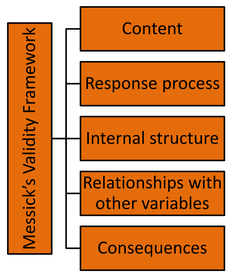

Figure 1. Messick's framework for validity evidence

METHODS

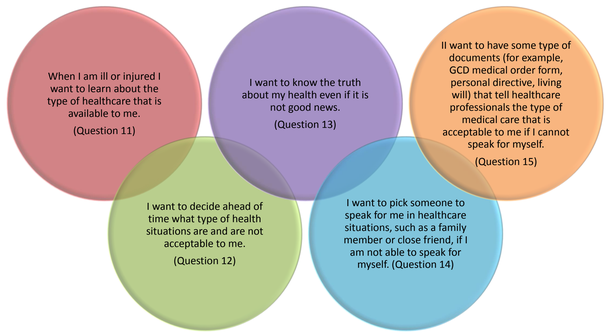

Figure 2. Likert style items
(What is important to patients)

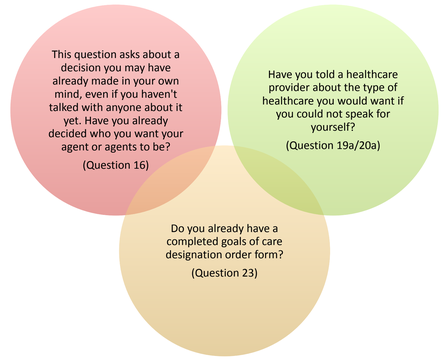

Figure 3. Yes/No style items
(Behavioral action related to ACP)

For consequences validity, items (including those in branching sequences) with outcomes of interest were compared between baseline and at the 3 month follow-up after a randomized controlled trial by analyzing proportions of responses using intention to treat analysis. These included items 19a/20a above (Figure 3) as well as 19 (telling an agent about health care preferences if they could not speak for themselves) and 19c (signing a personal directive). All data were analyzed using Stata version 14.0.

RESULTS

There were n=241 participants at baseline and n=217 participants at the 3-month follow-up. For internal structure validity, the 5 items pertaining to what is important to patients resulted in a Cronbach's alpha of 0.7. Factor analysis showed that the 5 items can be used as a subscale since all items had factor loadings over 0.5 on one factor. The one factor solution accounted for 43% of the variance. The Yes/No items regarding behavioral actions pertaining to ACP resulted in a reliability coefficient of 0.5. A factor analysis of a matrix of tetrachoric correlations of these three dichotomous items revealed a one factor solution that accounted for 91% of the variance and can be used as a subscale as all factor loadings were over 0.35. For validity evidence pertaining to relationships with other variables, the what was of importance to patients subscale total score was not significantly correlated with the EQ-5D-5L self-rated health status on a graduated (0–100) scale (p=0.9) or functional impairment on the Karnofsky Performance Scale. The behavioral actions subscale was moderately correlated with the self-health rated status as those who had higher scores in terms of behavioral action pertaining to ACP rated their health status lower (Spearman's r = -0.23, p =0.0008). It was also weakly correlated functional impairment (Spearman's r = -0.14, p = 0.04). More functional impairment was correlated with higher scores pertaining to ACP behavioral action. Consequences validity was shown before and after a randomized controlled trial of ACP interventions and showed increased ACP behavioral change at the 3-month follow-up with respect to: telling a health care provider about their health care preferences (p=0.04), telling an agent about their health care preferences (p<0.0001), and signing a personal directive (p= 0.03).

FUTURE RESEARCH

- Re-visit the items and branching sequences of the BACPACS
- Determine best practices to ensure the reliability and validity of the BACPACS

LIST OF ABBREVIATIONS

ACP: Advance Care Planning
BACPACS: Behaviours in Advance Care Planning and ACtions Survey
AERA: American Educational Research Association
APA: American Psychological Association
NCME: National Council on Measurement in Education
GCD: Goals of Care Designation

DISCUSSION

When designing a rating scale such as the BACPACS it is important to make two decisions: whether to use dichotomous outcome items such as Yes/No or Likert-scale type items to measure the construct of interest. These decisions can have a considerable impact on the validity and reliability of the obtained measurements. The use of branching has been shown to help respondents make more accurate judgments when a complex decision task is decomposed into a series of smaller, simpler decision tasks. Branching however can be challenging when trying to assess the reliability and validity of tools such as the BACPACS given the subjectivity associated with the topic of ACP in the various branching sequences. The BACPACS tool is feasible for use in a randomized controlled trial to measure patient engagement in ACP. Initial analysis of items answered by all respondents shows evidence for internal structure validity and relationships with other variables validity. Items with outcomes that indicate behavioral change but are subject to branching have shown evidence for consequences validity of the BACPACS. Further work is needed in assessing the branching sequences however it is promising that with the sub-section of data shown here, the BACPACS is showing further validity evidence according to Messick's framework.

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