A new competency-based instrument to assess residents' self-efficacy and knowledge in palliative care

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OBJECTIVE

- To evaluate a new competency-based instrument to assess residents' self-efficacy and knowledge in palliative care

BACKGROUND

- Despite consensus concerning palliative care (PC) resident competencies, internal medicine (IM) residents continue to report a lack of PC training[1]
- We developed and piloted a competency-based instrument to identify Yale IM resident knowledge and self-efficacy in 5 PC core domains to inform a new competency-based resident PC curriculum
- Validation of this competency-based instrument will be important for ongoing assessment of PC curricula

METHODS

Survey Content

- A 2-part, IRB-approved, email instrument with a knowledge test (KT) and self-efficacy inventory (SEI)
  - **KT:**
    - 14 multiple choice questions (A-D)
    - Questions based on published PC competencies,[1] using input from palliative medicine and medical education experts
  - **SEI:**
    - 35 self-efficacy statements with a 4-point Likert scale (never, sometimes, mostly, always)
    - Statements based on published core resident PC competencies[1]
- Collectively, the KT and SEI address 18 core resident PC competencies across 5 domains:[1]
  1. Pain and Symptom Management (PSM)
  2. Communication (COMM)
  3. Psychosocial, Spiritual, and Cultural Aspects of Care (PSC)
  4. Terminal Care and Bereavement (TCB)
  5. Palliative Care Principles and Practice (PCPP)

Subjects

- Survey was distributed to residents in all Yale IM tracks (IM-Traditional, IM-Primary Care, IM-Pediatrics) during June-July 2015
  - Included incoming, current, and outgoing residents

Psychometric Analysis

- **KT:** means and standard deviations, standard item analysis (difficulty and discrimination indices)
- **SEI:** means and standard deviations; measurement of internal consistency (Cronbach's alpha); factor analysis and Pearson's Bivariate Correlation (with a significance level set at p=0.01) to investigate variable relationships among the domains

Table 1. Difficulty and Discrimination Indices for each KT item by PC Domain

PC Domain	Item	Difficulty Index	Discrimination Index
PSM	1	0.19	0.27
	2	0.63	0.50
	3	0.66	0.50
COMM	4	0.67	0.68
	5	0.73	0.13
	6	0.96	0.05
PSC	7	0.84	0.23
	8	0.93	0.18
	9	0.96	0.13
TCB	10	0.51	0.63
	11	0.87	0.32
	12	0.88	0.18
PCPP	13	0.57	0.59
	14	0.80	0.36

Question may be too easy/difficult

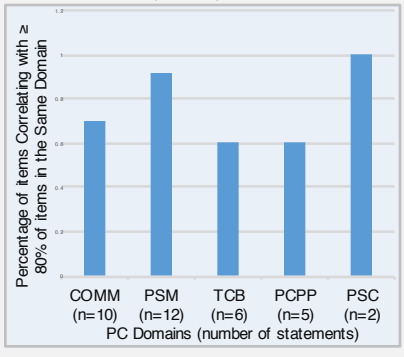
Question may not be as effective

Table 2. Cronbach's alpha for SEI: Overall and by Subscale

Scale	Cronbach's alpha	Number of Items
SEI Inventory	0.954	35
Subscale	**Cronbach's alpha**	**Number of Items**
COMM	0.885	10
PSM	0.905	12
PCPP	0.799	5
TCB	0.822	6
PSC	*	2

*The PSC subscale was two items, so a Cronbach's Alpha statistic was not appropriate. Instead, a bivariate analysis was done and indicated a Pearson Correlation of .426 and significance at the 0.01 level (2-tailed)

Figure 1. Variable Relationships Within the Domains: Results of Pearson's (Bivariate) Correlation



RESULTS

- 83 residents completed the survey (30% response rate)
- **KT:**
  - Mean score: 73 ± 14%
  - Difficulty index range: 0.19-0.96 with 10/14 items ranging 0.63-0.89 (Table 1)
    - 5/6 items in PSC and COMM ranging 0.84-0.96
  - Discrimination index range for 13/14 items: 0.13-0.68 (Table 1)
    - 5/6 items in PSC and COMM ranging 0.05-0.23
- **SEI:**
  - Mean score: 2.64 (range 1.7-4.0)
  - Cronbach's Alpha: 0.954 overall (Table 2)
  - Factor analysis: not completed 2/2 inadequate sample size
  - Bivariate Correlations highlighted:
    - All PC Domains: ≥ 60% of items correlated with ≥ 80% of statements in each respective domain (Figure 1)
    - PSM and PSC performed best; TCB and PCPP performed the least well (Figure 1)

CONCLUSIONS

- A new competency-based tool to assess PC knowledge and self-efficacy is feasible to utilize and demonstrates promising psychometric qualities
  - **KT:**
    - Moderate level of difficulty (optimal difficulty = 0.63) and discrimination (acceptable = ≥ 0.30)
    - Items in the COMM and PSC domains perform least well, highlighting the challenge in testing competencies that depend heavily on communication
      - Competency in these domains might be better evaluated using other methods
  - **SEI:**
    - Excellent internal consistency (Cronbach's alpha) points to its reliability in probing the overall construct of PC
    - Results suggest that items in all domains overall correlate well
      - Items in PCPP (n=5) and TCB (n=6) correlated the least well, which may be due to the smaller number of items or suggest that these items may correlate better with other PC domains
      - PSC items correlated well, however the number of items was small (n = 2)

Future Directions

- With these results, we plan to further refine our instrument and re-deploy the survey in June 2016
  - Add one additional KT item in the PCPP domain
  - Add additional SEI items to TCB, PCPP and PSC domains
- With a larger sample size, we will be able to perform additional psychometrics and draw further conclusions about the validity of this new instrument[2]

REFERENCES

1. Schaefer, et al. Raising the bar for the care of seriously ill patients: results of a national survey to define essential palliative care competencies for medical students and residents. *Academic Medicine*. 2014; 89(7): 1024-1031.
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