

# *Survey Instruments: What Every Nurse Needs to Know*

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# Step 1: Finding a Survey Instrument

- Find a survey instrument that has already been developed and tested: DO NOT reinvent the wheel. Instruments that:
  - Measure your concepts of interest Match the population you are studying
  - Possess acceptable results for reliability and validity
  - Obtain permission for use
- Think about adapting existing instruments
  - Obtain permission
    - Write to the developer(s)
    - Specify exactly what and how you intend to adapt



## Alarm Survey: Conducted with over 4,700 healthcare professionals, 1,371 nurses

Question	Results: Strongly Agree % + Agree % Responses
5. Alarm sounds and/or visual displays should differentiate the priority of alarm	Very high agreement Greater than 90%
6. Alarm sounds and/or visual displays should be distinct based on the parameter (e.g. heart rate) or source (device type):	Very high agreement Greater than 90%
7. Nuisance alarms occur frequently	High agreement 66 – 89%
8. Nuisance alarms disrupt patient care	High agreement 66 – 89%
9. Nuisance alarms reduce trust in alarms and cause caregivers to inappropriately turn alarms off at times other than setup or procedural event	High agreement 66 – 89%
14. The alarms used on my floor/area of the hospital are adequate to alert staff of potential or actual changes in a patient's condition	High agreement 66 – 89%
17. Clinical staffs sensitive to alarms and respond quickly	High agreement 66 – 89%
18. The medical devices used on my unit/floor all have distinct outputs (i.e., sounds, repetition rates via displays, etc.) that allow users to identify the source of the alarm	High agreement 66 – 89%
25. Smart alarms (e.g., where multiple parameters, rate of change of parameters, and signal quality are automatically assessed in their entirety) would be effective to use for improving clinical response to important patient alarms	High agreement 66 – 89%
27. There is a requirement in your institution to document that the alarms are set and are appropriate for each patient	High agreement 66 – 89%
19. When a number of devices are used with a patient, it can be confusing to determine which device is in an alarm condition	Majority agree 50-65%
21. Central alarm management staff responsible for receiving alarm messages and alerting appropriate staff is helpful	Majority agree 50-65%
23. Alarm integration and communication systems via pagers, cell phones, and other wireless devices are useful for improving alarms management and response	Majority agree 50-65%
26. Clinical policies and procedures regarding alarm management are effectively used in my facility	Majority agree 50-65%

**No Reliability and Validity Measures Obtained**



Research Report

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## **The Development and Validation of the Interprofessional Attitudes Scale: Assessing the Interprofessional Attitudes of Students in the Health Professions**

Jeffrey Norris, MD, Joan G. Carpenter, MN, CRNP, Jacqueline Eaton, PhD, Jia-Wen Guo, PhD, RN, Madeline Lassche, MSNEd, RN, Marjorie A. Pett, MStat, DSW, and Donald K. Blumenthal, PhD

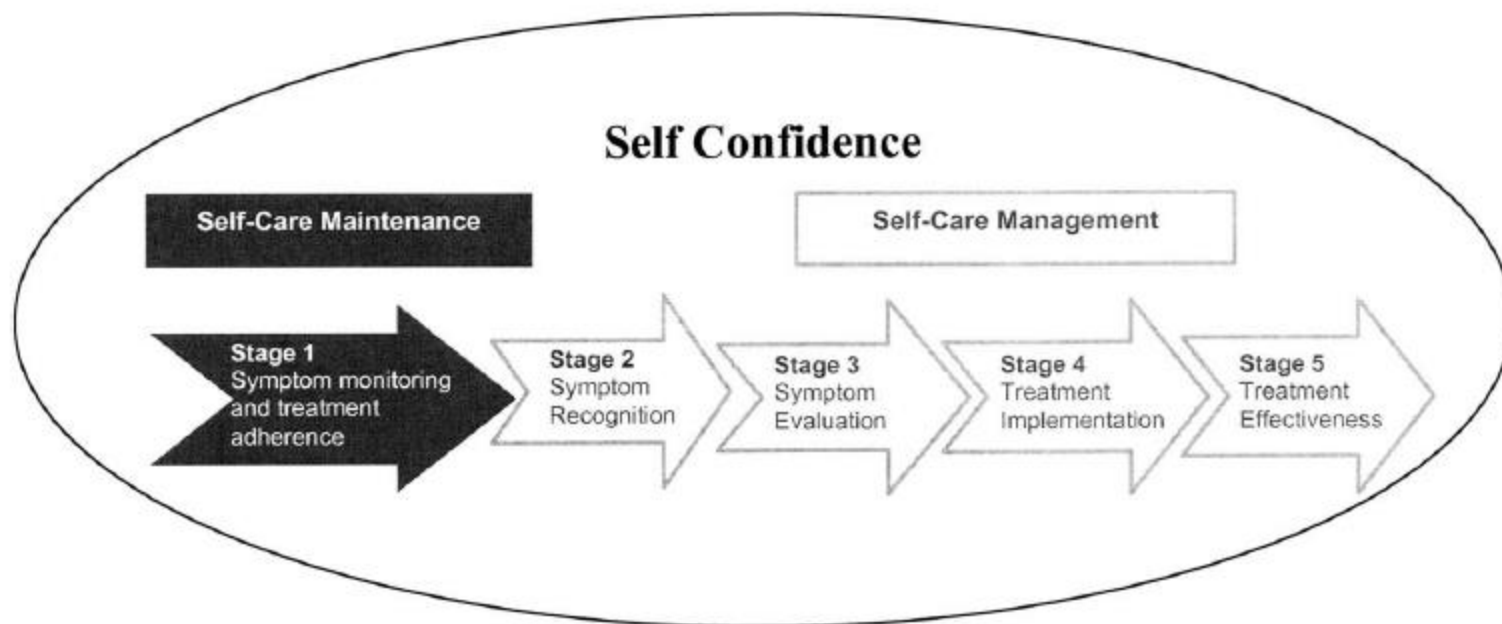
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Academic Medicine, Vol. XX, No. X / XX XXXX

# Step 2: Create Your Own Survey Instrument

- Review the literature
- Identify and map your concepts of interest
- Form a team: Suggestion, never work alone!
- Generate items
  - Write clear unambiguous items
  - Target items to population of interest
  - Avoid double-barreled items, e.g.:
    - Please rate your confidence and certainty about performing IV insertions.
    - To what extent did your nurse address your concerns and questions during your hospitalization?
    - How often do experience sadness and distress about your health condition?
- Determine response options

# Mapping your Concepts



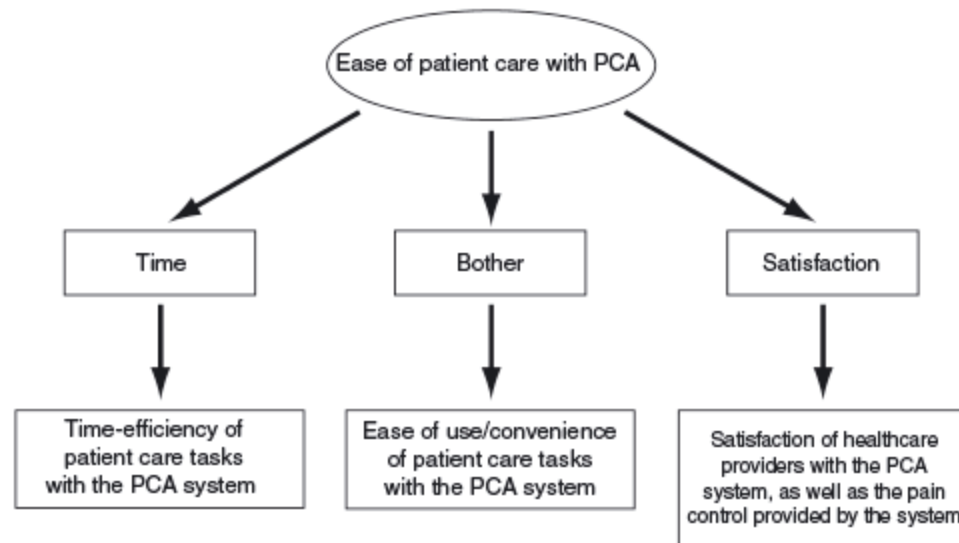
Journal of Cardiac Failure Vol. 10 No. 4 2004

## Methods

### Psychometric Testing of the Self-Care of Heart Failure Index

BARBARA RIEGEL, DNSc, RN, CS, FAAN,<sup>1,2</sup> BEVERLY CARLSON, MS, RN, CNS, CCRN,<sup>2</sup> DEBRA K. MOSER, DNSc, RN,<sup>3</sup>  
MARGE SEBERN, PhD, RN,<sup>4</sup> FRANK D. HICKS, PhD, RN,<sup>5</sup> AND VIRGINIA ROLAND, MSN, RN, CS<sup>6</sup>

*Philadelphia, Pennsylvania; San Diego, California; Lexington, Kentucky; Milwaukee, Wisconsin; Chicago, Illinois; Saginaw, Michigan*



## JAN RESEARCH METHODOLOGY

### Ease of care with patient controlled analgesia systems: questionnaire development and validation

Gale Harding, Sue Vallow, Nancy K. Leidy, William Olson, David J. Hewitt, Rosemary Polomano, Winnie W. Nelson & Jeff R. Schein

Accepted for publication 14 February 2007

# More on Generating Items

- Seek assistance from a researcher experienced in survey instrument development
- Make sure your stem items:
  - Are derived from the concepts of interest
  - Match the conceptual basis for the scale
- Avoid acquiescence items: Examples “Strongly Agree to Strongly Disagree”
  - “I found the new technology easier to use?”
  - “I am able to care for myself”



# Selecting Response Choices

## *Likert Scale: Ordinal level or rank data*

Nuisance alarms occur frequently on my unit?

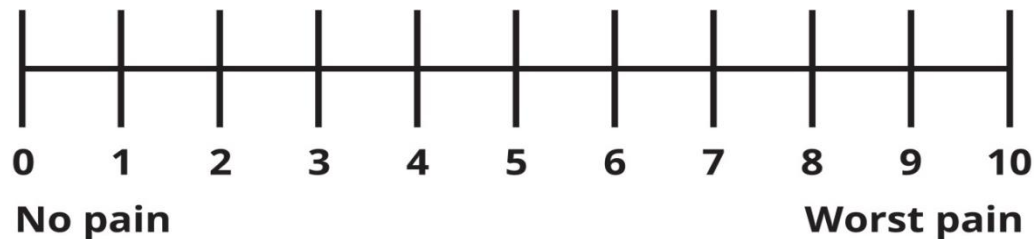
1	2	3	4	5
Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree

How often do you ask a colleague to double check your medication calculations?

1	2	3	4
Never	Occasionally	Frequently	Always

## *Continuous Scales: Ratio and Interval Scales*

How much pain are you having right now?



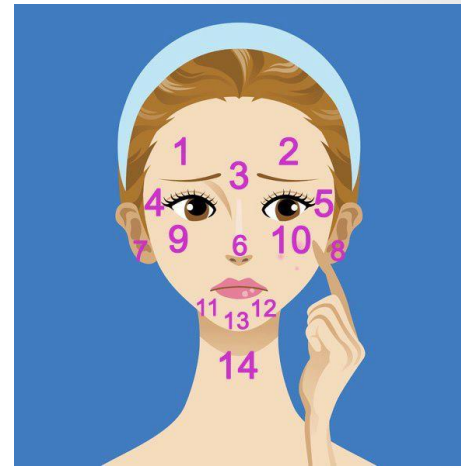
I have high self-esteem.

Not very true of me 1.....2.....3.....4.....5.....6.....7 Very true of me

# Step 3: Obtain Your First Measures of Validity and Reliability

- Validity: Does the measure actually measure what it is supposed to measure?
- Face Validity
  - Confidence gained from careful inspection of the concept “on the face”
  - Does not alone provide convincing evidence of measurement validity; crudest form of validity
- Content Validity
  - Establishes that a measure covers the full range of concept meaning
  - Researchers may:
    - Solicit **the opinions of experts**
    - Verify with literature to ensure all aspects or dimensions of the concept
- Interrater Reliability
  - Establishes agreement between raters who may be conducting survey interviews

# Face Validity



- The instrument is examined by:
  - Experts in the field (Colleagues)
  - Users
- Each item is inspected for its appropriateness to the construct being measured
  - Wording
  - Clarity
  - Relevance
- Instructions must be written and reviewed
- Researchers can use:
  - Focus groups
  - One-on-one assessments
  - Group consensus building
- Questionable item should be further evaluated

# Example: Content Validity

The scale items shown below have been developed to measure one dimension of the construct of safe sexual behaviors among adolescents, namely **assertiveness**. Please read each item and score it for its relevance in representing this concept.

**Assertiveness** is defined as the use of verbal and interpersonal skills to negotiate protection during sexual activities.

Item	Relevance Rating			
	Not Relevant	Somewhat Relevant	Quite Relevant	Highly Relevant
1. I ask my partner about his/her sexual history before having intercourse.	1	2	3	4
2. I don't have sex without asking the person if he/she has been tested for HIV/AIDS.	1	2	3	4
3. When I am having sex with someone for the first time, I insist that we use a condom.	1	2	3	4
4. I don't let my partner talk me into having sex without knowing something about how risky it would be.	1	2	3	4

Please comment on any of these items, including possible revisions or substitutions, or your thoughts about why an item is not relevant to the concept of assertiveness. Please suggest any additional items you feel would improve the measurement of assertiveness relating to adolescents' safe sexual behaviors.

# Step 4: Plan Your Study to Test Your New Instrument

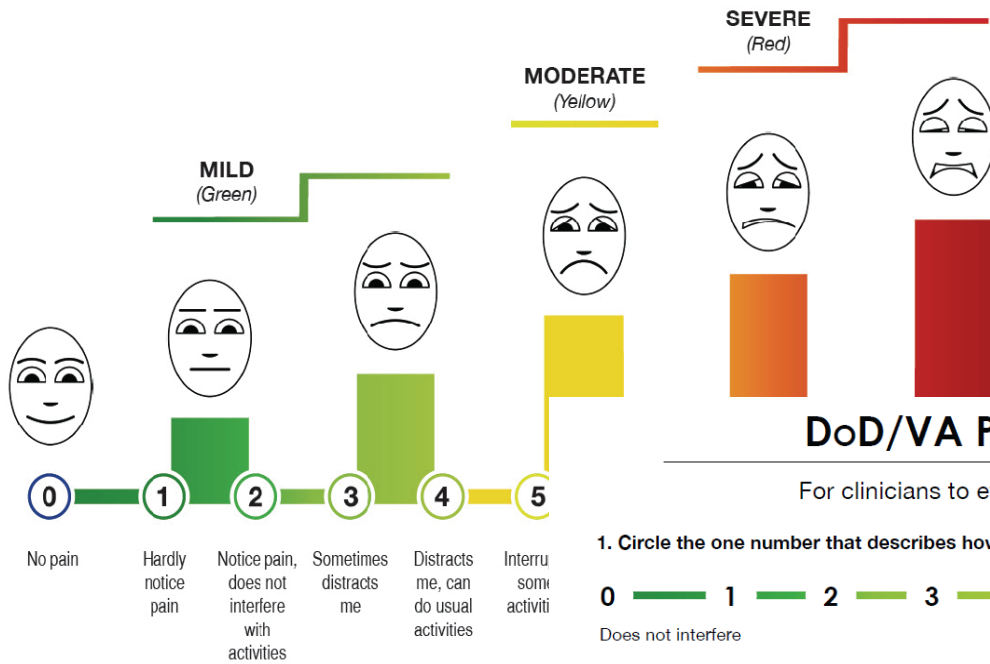
- Researchers must plan for reliability and validity (R & V) testing:
  - Must be incorporated into your research design
  - Needs to be outlined in statistical methods
  - Some types of reliability and validity are obtained before, during and after your study
- Pilot your survey instrument
  - Ask respondents to complete a few evaluative questions, e.g., Were the items clearly worded?
- Ready to conduct your survey

# Types of Reliability

Timing	Prior	During		After
	<b>Interrater Reliability</b>	<b>Test-retest Reliability</b>	<b>Alternate Forms Reliability</b>	<b>Internal Consistency Reliability</b>
<b>Description (Action)</b>	Assess the concordance or agreement of 2 or more raters or interviewers with the same respondents, and correlate responses	Administer an instrument on 2 separate testing occasions (days, a week or weeks apart), and correlate responses	Concurrently administer a R & V “gold standard” instrument with the new instrument, and correlate responses	Obtain a Cronbach’s alpha using all data from all respondents, and examine the Cronbach’s alpha if each item is deleted
<b>Rationale</b>	Acceptable agreement between or among raters must exist to reduce errors with data collection	Determines the stability of performance of an instrument	Determines the equivalence of an instrument to another similar R & V measure	Measures how well one item predicts the response to another, and can identify “bad” items
<b>Test Measure</b>	Correlation Coefficient	Correlation Coefficient	Correlation Coefficient	Cronbach’s alpha

# Test-Retest Reliability: During

- Tests if a measure is consistent across time
- Administer the same test to the same sample on 2 separate occasions, then the scores are correlated
  - Barring an event that would have some bearing on results, one can expect with stable attributes being measured to get somewhat similar results
    - Quality of life
    - Attitudes about social injustice
    - Knowledge of pharmacology
- Correlation coefficient is computed
  - Range from -1.00 through .00 to +1.00
  - A high correlation coefficient is indicative of test-retest reliability
  - Desirable to have a high correlation of  $> 0.8$ , but sometimes a lower correlation such as 0.6 may be acceptable



## Test-retest Reliability

### DoD/VA PAIN SUPPLEMENTAL QUESTIONS

For clinicians to evaluate the biopsychosocial impact of pain

1. Circle the one number that describes how, during the past 24 hours, pain has interfered with your **ACTIVITY**:



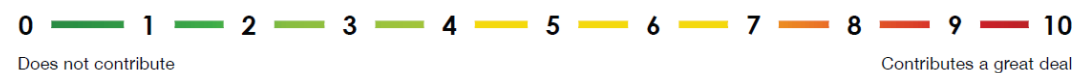
2. Circle the one number that describes how, during the past 24 hours, pain has interfered with your **SLEEP**:



3. Circle the one number that describes how, during the past 24 hours, pain has affected your **MOOD**:



4. Circle the one number that describes how, during the past 24 hours, pain has contributed to your **STRESS**:



\*Reference for pain interference: Cleeland CS, Ryan KM. Pain assessment: global use of the Brief Pain Inventory. Ann Acad Med Singapore 23(2): 129-138, 1994.



# Test-Retest Reliability: During

DVPRS 2.0 Items	Mean	Std. Dev.	Sig**	Correlation** (r) Sig.
<b>Pain Intensity Scale</b>				
Test	4.25	2.0	p=.001	0.637
Retest	3.53	1.9		p <.001
<b>Supplemental Question: Interference with Usual Activity</b>				
Test	5.71	3.0	p=.001	0.712
Retest	4.52	2.9		p <.001
<b>Supplemental Question: Interference with Sleep</b>				
Test	5.05	3.3	p=.008	0.774
Retest	4.29	3.2		p <.001
<b>Supplemental Question: Affect Mood</b>				
Test	3.69	2.9	p<.001	0.732
Retest	2.95	2.6		p <.001
<b>Supplemental Question: Contribute to Stress</b>				
Test	3.86	2.9	p=.004	0.696
Retest	3.26	2.8		p <.001

\*\*Pearson's Product Moment Correlation

# Questions

- Why might you not get acceptable test-retest reliability for a pain intensity measure?
- Why did the RAs in this study ask patients on the second testing occasion whether they had any major events in their life?
- Why do researchers have to plan for this type of reliability in their study?

# Alternate-Forms (Parallel Forms)

## Reliability: During

- When subjects' answers to slightly different versions of survey questions are correlated, alternate-forms reliability is being tested
- The alternate form instrument should be a “gold standard” and has to:
  - Be similar
  - Have established reliability and validity
  - Be administered at the same time
- If the two sets of responses are not too different, alternate forms reliability is established

# DoD/VA PAIN SUPPLEMENTAL QUESTIONS

For clinicians to evaluate the biopsychosocial impact of pain

1. Circle the one number that describes how, during the past 24 hours, pain has interfered with your usual **ACTIVITY**:

0 1 2 3 4 5 6 7 8 9 10  
Does not interfere Completely interferes

2. Circle the one number that describes how, during the past 24 hours, pain has interfered with your **SLEEP**:

0 1 2 3 4 5 6   
Does not interfere

3. Circle the one number that describes how, during the past 24 hours, pain has affected your **MOOD**:

0 1 2 3 4 5 6   
Does not affect

4. Circle the one number that describes how, during the past 24 hours, pain has affected your **WALKING ABILITY**:

0 1 2 3 4 5 6   
Does not contribute

\*Reference for pain interference: Cleeland CS, Ryan KM. Pain assessment: global use of the Brief Pain Inventory. Ann Acad M

The correlation coefficient between the two scores was robust and significant,  $r = 0.93$  ( $P < 0.001$ ), and supported alternate forms reliability.

9. Circle the one number that describes how, during the past 24 hours, pain has interfered with your:

**A. General Activity**

0 1 2 3 4 5 6 7 8 9 10  
Does not Interfere Completely Interferes

**B. Mood**

0 1 2 3 4 5 6 7 8 9 10  
Does not Interfere Completely Interferes

**C. Walking Ability**

0 1 2 3 4 5 6 7 8 9 10  
Does not Interfere Completely Interferes

**D. Normal Work (includes both work outside the home and housework)**

0 1 2 3 4 5 6 7 8 9 10  
Does not Interfere Completely Interferes

**E. Relations with other people**

0 1 2 3 4 5 6 7 8 9 10  
Does not Interfere Completely Interferes

**F. Sleep**

0 1 2 3 4 5 6 7 8 9 10  
Does not Interfere Completely Interferes

**G. Enjoyment of life**

0 1 2 3 4 5 6 7 8 9 10  
Does not Interfere Completely Interferes

# Internal Consistency Reliability: After

- How good does one item predict the response to another
  - Cronbach's alpha: Most widely used method for evaluating internal consistency
  - Can be interpreted like other reliability coefficients
    - Normal range of values is between .00 and +1.00
    - Higher values reflect a higher internal consistency
  - For an instrument, a Cronbach's alpha of  $\geq 0.80$  is desirable, but  $\geq 0.7$  is often accepted
  - Instrument subscale items may have alphas  $\geq 0.60$
- Allows researchers to identify “good” and “bad” items

## Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) for Quality Improvement of Pain Management in Hospitalized Adults: Preliminary Psychometric Evaluation

Gordon et al

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**Table 3. Subscale Item-to-Total Correlations and Cronbach  $\alpha$**

	<i>SUBSCALE MEAN IF ITEM DELETED</i>	<i>SCALE VARIANCE IF ITEM DELETED</i>	<i>CORRECTED ITEM-SUBSCALE TOTAL CORRELATION</i>	<i>CRONBACH IF ITEM DELETED</i>
<b>Affective Subscale (Cronbach <math>\alpha = .82</math>)</b>				
How much the pain caused you to feel anxious	9.95	78.56	.659	.773
How much the pain caused you to feel depressed	11.51	81.42	.658	.773
How much the pain caused you to feel frightened	11.62	81.47	.685	.726
How much the pain caused you to feel helpless	9.89	78.41	.597	.804
<b>Pain Severity and Sleep Interference Subscale (Cronbach <math>\alpha = .83</math>)</b>				
Least pain in 24 hours	19.79	120.37	.552	.836
Worst pain in 24 hours	15.63	123.12	.570	.818
Estimate of percentage of time in severe pain	19.46	107.15	.676	.787
Pain interfered or prevented you from falling asleep	18.95	95.25	.716	.774
Pain interfered or prevented you from staying asleep	19.03	97.73	.678	.787
<b>Perceptions of Care Subscale (Cronbach <math>\alpha = .70</math>)</b>				
Pain relief in the first 24 hours	15.94	23.11	.454	.689
Were you allowed to participate in decisions about pain treatment?	14.84	20.14	.498	.646
How satisfied are you with the results of your pain treatment?	15.55	23.12	.627	.498
<b>Activity Interference Subscale (Cronbach <math>\alpha = .82</math>)</b>				
Pain interfered or prevented you from activities in bed	5.53	13.02	.694	N/A
Pain interfered or prevented you from activities out of bed	5.32	13.59	.694	N/A
<b>Adverse Effects Subscale (Cronbach <math>\alpha = .63</math>)</b>				
Severity of nausea	7.21	44.55	.461	.524
Severity of drowsiness	6.01	42.97	.491	.499
Severity of itching	7.86	54.97	.282	.649
Severity of dizziness	8.20	54.15	.435	.556

# Types of Validity

Timing	Prior		During Criterion-Related		After Construct Validity	
	Face Validity	Content Validity	Concurrent Validity	Predictive Validity	Known or Contrasted Groups	Factor Analysis
Description (Action)	Experts or end users inspect items	Experts inspect and rate the relevance of items	Concurrently administer a R & V “gold standard” instrument with the new instrument, and correlate responses	Correlate the score(s) from a new instrument with another criterion measure	Conduct a comparison of groups with a known high and low amount of the attribute	Analyze all responses to identify item groupings or subscales
Rationale	Assesses items for face value	Assesses relevance of items to concepts of interest	Measures how good an instrument correlates with responses to a “gold standard”	Measures if scores on new instrument predict scores on another criterion at the same time or in the future	Determines if an instrument can detect statistically significant differences between groups	Determines extent that an instrument measures concept(s) of interest
Test Measure(s)	No statistic	Content Validity Index (CVI)	Correlational Statistics	Correlational Statistics	Group Comparison Statistics	Factor Analysis Statistics

# Criterion Validity

- Is established when scores obtained on one measure can be accurately compared to those obtained with a more direct or already validated measure of the same phenomenon
  - For example, compare self-reports of alcohol consumption to a blood, breathe or urine test
- The criterion measure that researchers select can be measured either at the same time as a new measure to be validated or at another time
  - Concurrent Validity: Exists when a measure yields scores that are closely related to scores on a criterion measured at the same time
  - Predictive Validity: Is the ability of a measure to predict scores on a criterion measured in the future



# DoD/VA PAIN SUPPLEMENTAL QUESTIONS

For clinicians to evaluate the biopsychosocial impact of pain

1. Circle the one number that describes how, during the past 24 hours, pain has interfered with your usual **ACTIVITY**:



2. Circle the one number that describes how, during the past 24 hours, pain has interfered with your **SLEEP**:



3. Circle the one number that describes how, during the past 24 hours, pain ha



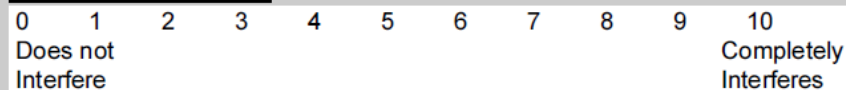
4. Circle the one number that describes how, during the past 24 hours, pain ha



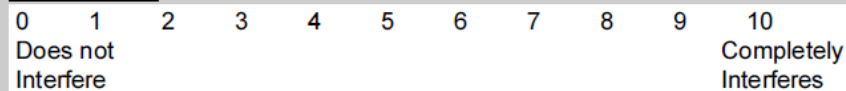
## Concurrent Validity: During

9. Circle the one number that describes how, during the past 24 hours, pain has interfered with your:

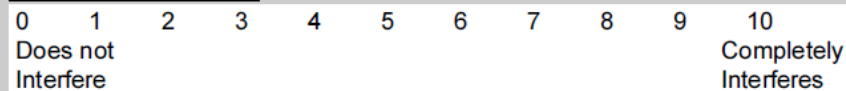
**A. General Activity**



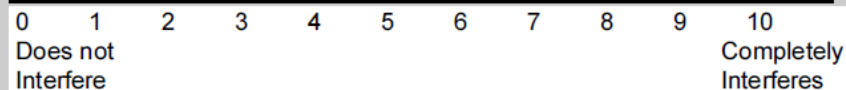
**B. Mood**



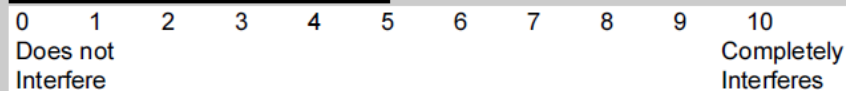
**C. Walking Ability**



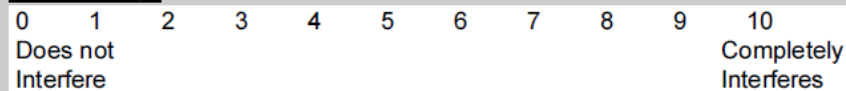
**D. Normal Work (includes both work outside the home and housework)**



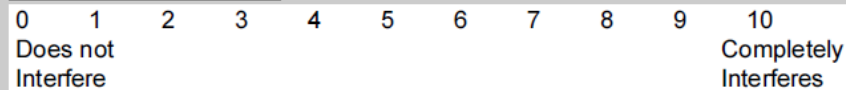
**E. Relations with other people**



**F. Sleep**



**G. Enjoyment of life**



\*Reference for pain interference: Cleeland CS, Ryan KM. Pain assessment: global use of the Brief Pain Inventory. Ann Acad M

The correlation coefficient between the two scores was robust and significant,  $r = 0.93$  ( $P < 0.001$ ), and supported concurrent validity.

This method obtains both concurrent validity and alternate forms reliability.

# Construct Validity

- Construct validity: Determines the extent to which the instrument actually measures the concept(s)
  - Contrasted or Known Groups Validity
  - Factor Analysis

ORIGINAL ARTICLE **Example of Known or Contrasted Groups Approach**

# Development and validation of a new instrument to evaluate the ease of use of patient-controlled analgesic modalities for postoperative patients

Gale Harding<sup>1</sup>, Jeff R. Schein<sup>2</sup>, Winnie W. Nelson<sup>3</sup>, Sue Vallow<sup>3</sup>, William H. Olson<sup>2</sup>, David J. Hewitt<sup>4</sup>, Rosemary C. Polomano<sup>5</sup>**Table 5. Known-groups validity: analysis of the Patient Overall EOC and subscale scores compared with the presence/absence of self-reported IV PCA problems.**

	IV PCA problem, mean (SD) (n=70)	No IV PCA problem, mean (SD) (n=57-60)*	Difference <sup>†</sup>	t-value	p-value	Effect size
Comfort with Device	4.31 (0.82)	4.63 (0.44)	0.32	2.80	0.006	0.71
Confidence with Device	4.45 (0.83)	4.84 (0.30)	0.39	3.65	<0.001	1.29
Movement	4.10 (0.97)	4.66 (0.59)	0.56	4.02	<0.001	0.95
Knowledge/Understanding	3.28 (1.41)	3.47 (1.34)	0.19	0.79	0.429	0.14
Pain Control	3.04 (1.37)	3.69 (1.10)	0.65	2.90	0.004	0.59
Dosing Confidence	4.58 (0.62)	4.54 (0.92)	-0.04	-0.26	0.795	-0.04
Overall EOC	3.96 (0.54)	4.30 (0.39)	0.34	4.06	<0.001	0.86
Satisfaction	3.94 (1.07)	4.35 (0.69)	0.40	2.59	0.011	0.59

EOC, Ease-of-Care; IV, intravenous; PCA, patient-controlled analgesia; SD, standard deviation.

\*Variable because of missing data.

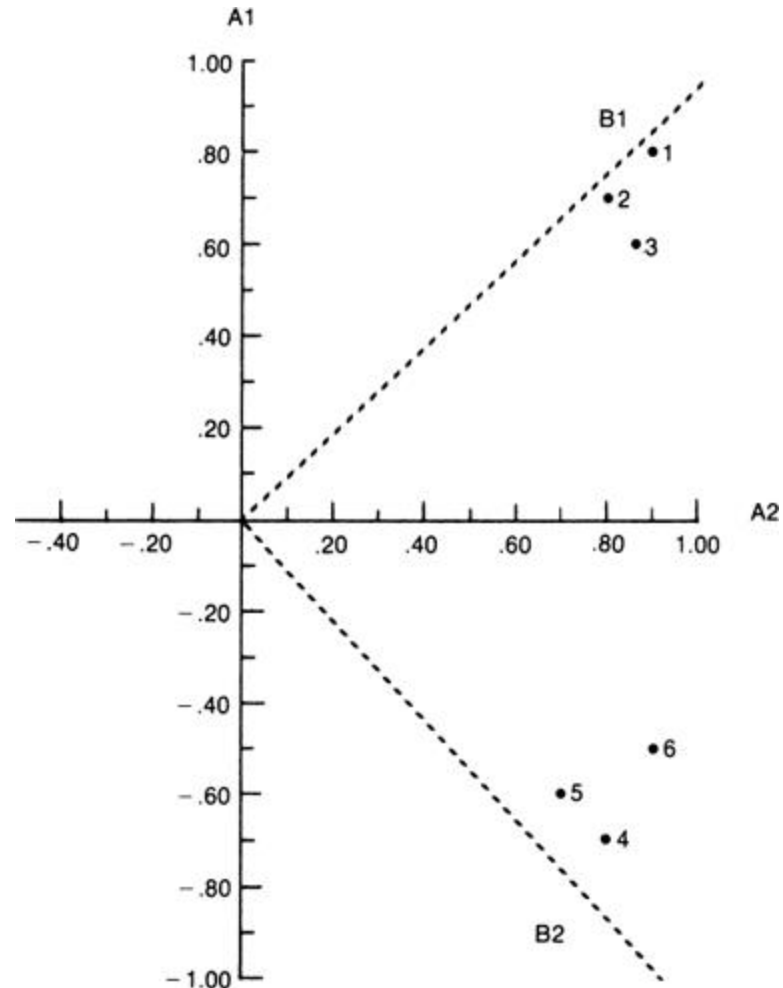
<sup>†</sup>Difference based on the mean subscale score for patients with no IV PCA-related problem minus the mean subscale score for patients with an IV PCA-related problem.

# Analysis of Scale Development Data

Exploratory factor analysis (EFA):

- Determines subscales for an instrument
- Uses what is called a factor rotation

# Illustration of Factor Rotation: Think Abstractly



# What You Get From a Factor Analysis?

- Factor structure
- Factor loadings (the correlation of the item to the factor)
  - Want a loading of .3 to .4 at a minimum to establish an item belongs on a factor
- Amount of variance explained by the factor
  - Desirable to explain at least 60% of the variance in your new measure

## Methods

## Psychometric Testing of the Self-Care of Heart Failure Index

BARBARA RIEGEL, DNSc, RN, CS, FAAN,<sup>1,2</sup> BEVERLY CARLSON, MS, RN, CNS, CCRN,<sup>2</sup> DEBRA K. MOSER, DNSc, RN,<sup>3</sup>  
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*Philadelphia, Pennsylvania; San Diego, California; Lexington, Kentucky; Milwaukee, Wisconsin; Chicago, Illinois; Saginaw, Michigan*

**Table 4.** Factor Loadings of the Self-Care of Heart Failure Index Derived from the Exploratory Factor Analysis with Principal Axis Factoring With Oblimin Rotation

<b>Self-care maintenance</b>			
Weigh yourself daily?		.49	
Eat a low sodium diet?		.34	
Take part in regular physical activity?		.55	
Keep your weight down?		.46	
Get a flu shot every year?			.35
<b>Self-care management</b>			
<i>Symptom recognition</i>			
How quickly did you recognize trouble breathing or ankle swelling as a symptom of heart failure?			.62
<i>Treatment implementation</i>			
Reduce the salt in your diet			.68
Reduce your fluid intake			.75
Take an extra water pill			.57
Call your doctor or nurse for guidance			.35
<i>Treatment evaluation</i>			
How sure were you that the remedy helped or not?			.45
<b>Self-care self-confidence</b>			
Confident that you can evaluate the importance of your symptoms?			-.76
Confident that you can recognize changes in your health if they occur?			-.83
Confident that you can do something that will relieve your symptoms?			-.44
Confident that you can evaluate the effectiveness of whatever you do to relieve your symptoms?			-.64

## Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) for Quality Improvement of Pain Management in Hospitalized Adults: Preliminary Psychometric Evaluation

**Table 4. Rotated Factor Component Matrix and Factor Loadings for Continuous Level Variables**

TOTAL ITEMS RETAINED 18	FACTOR COMPONENTS				
	1	2	3	4	5
NAME OF SUBSCALE	AFFECTIVE	PAIN SEVERITY AND SLEEP INTERFERENCE	PERCEPTIONS OF CARE	ACTIVITY INTERFERENCE	ADVERSE EFFECTS
VARIANCE EXPLAINED TOTAL 64.05%	31.36%	11.23%	8.42%	6.9%	6.14%
CRONBACH OVERALL 0.86	0.82	0.83	0.70	0.82	0.63
Least pain in 24 hours	-.035	.528	-.450	.235	.162
Worst pain in 24 hours	.200	.535	-.151	.420	.130
Estimate of percentage of time in severe pain	.029	.627	-.406	.317	.139
Pain interfered or prevented you from activities in bed	.135	.229	-.074	.791	.068
Pain interfered or prevented you from activities out of bed	.194	.203	-.110	.807	.073
Pain interfered or prevented you from falling asleep	.343	.822	-.010	.089	.102
Pain interfered or prevented you from staying asleep	.268	.812	-.068	.090	.064
How much the pain caused you to feel anxious	.734	.227	-.126	.224	.021
How much the pain caused you to feel depressed	.745	.209	-.240	-.067	.129
How much the pain caused you to feel frightened	.804	.151	-.190	.014	.098
How much the pain caused you to feel helpless	.673	.097	-.134	.403	.102
Severity of nausea	.138	.140	.079	.026	.713
Severity of drowsiness	.079	.024	-.024	.304	.694
Severity of itching	-.217	.013	.069	.397	.460
Severity of dizziness	.138	.132	-.063	-.124	.762
Pain relief in the first 24 hours (%)	-.176	-.143	.699	-.117	.070
Were you allowed to participate in decisions about pain treatment?	-.167	-.017	.745	-.005	-.025
How satisfied are you with the results of your pain treatment?	-.195	-.147	.794	-.028	.050



# Psychometric properties of the Kansas City Cardiomyopathy Questionnaire (KCCQ)

Ruth Masterson Creber, Rosemary Polomano, John Farrar and Barbara Riegel  
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**Table 2.** Principal component factor analysis with promax rotation, Kansas City Cardiomyopathy Questionnaire

KCCQ 23 items	Factor components				
	Social Interference	Physical Limitations	Symptoms	Independent Care	Self-efficacy
Total variance (explained=67.16%)	40.36%	8.70%	6.93%	5.80%	5.37%
Cronbach's alpha at baseline (n=280)	0.904	0.842	0.856	0.80	0.626
Cronbach's alpha at 6 months (n=243)	0.874	0.856	0.852	0.885	0.608
1. Dressing yourself	0.352	0.382 <sup>a</sup>	0.283	0.832	0.043
2. Showering/bathing	0.261	0.318 <sup>a</sup>	0.155	0.893	-0.021
3. Walking 1 block on level ground	0.450	0.784 <sup>a</sup>	0.445	0.204	0.037
4. Doing yard work, housework or carrying groceries	0.570	0.812 <sup>a</sup>	0.269	0.267	0.062
5. Climbing a flight of stairs without	0.555	0.837 <sup>a</sup>	0.379	0.295	0.137

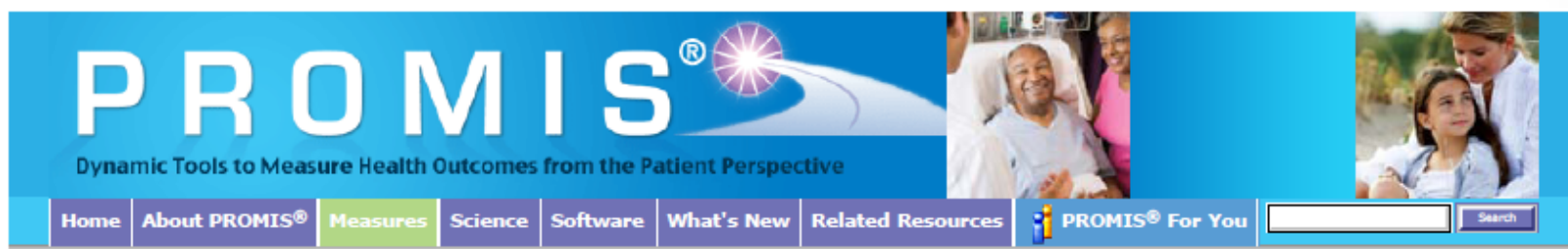
**Conclusions:** We recommend eliminating the quality of life subscale and including those items in the social interference subscale, and eliminating the self-efficacy items and re-evaluating the items related to independent care.

2 weeks					
8. How many times did you have swelling in your feet, ankles or legs when you woke up in the morning	0.214	0.275	0.863 <sup>a</sup>	0.137	0.069
9. How much has swelling in your feet, ankles or legs bothered you?	0.321	0.410	0.913 <sup>a</sup>	0.121	0.056
10. How many times has fatigue limited your ability to do what you want?	0.778	0.588	0.407 <sup>a</sup>	0.015	0.121
11. How much has your fatigue bothered you?	0.754	0.607	0.427 <sup>a</sup>	-0.020	0.154
12. How many times has SOB limited your ability to do what you wanted?	0.694	0.808	0.528 <sup>a</sup>	0.112	0.142
13. How much has your SOB bothered you?	0.619	0.778	0.557 <sup>a</sup>	0.061	0.210
14. How many times have you been forced to sleep sitting up in a chair with at least 3 pillows because of SOB?	0.368	0.463	0.668 <sup>a</sup>	0.094	-0.009
15. How sure are you that you know what to do, or whom to call, if your HF gets worse?	0.193	0.143	0.012	0.021	0.840 <sup>a</sup>
16. How well do you understand what things you are able to do to keep your HF from getting worse?	0.182	0.130	0.110	-0.055	0.860 <sup>a</sup>

# What is new?

## Validated Patient-Reported Outcomes (PROs)

**PROMIS®**: Patient Reported Outcomes Measurement Information System (PROMIS), funded by the National Institutes of Health (NIH) (\$100 million), is a system of highly reliable, valid, flexible, precise, and responsive assessment tools that measure patient-reported health status.



The image shows the top section of the PROMIS website. On the left, the PROMIS logo is displayed in large white letters on a blue background, with a stylized sunburst icon to the right. Below the logo, the tagline reads "Dynamic Tools to Measure Health Outcomes from the Patient Perspective". To the right of the logo are two small photographs: one of a man in a hospital bed being visited by a woman, and another of a woman and a child. Below the logo and photos is a navigation menu with the following items: Home, About PROMIS®, Measures (highlighted in green), Science, Software, What's New, Related Resources, PROMIS® For You, and a search box with a "Search" button.

<b>Instrument Overview</b>
<b>Available Instruments</b>
<b>Selecting an Instrument</b>
<b>Domain Framework/ Definitions</b>
<b>PROMIS Translations</b>
<b>Instrument Details</b>
<b>Software Demonstration</b>
<b>Sample Questions</b>
<b>Request PROMIS Forms</b>
<b>Publications by Year</b>
<b>Publications by Domain</b>

[Home](#) >> [Measures](#) >> Available Instruments

### Available Instruments

You can access available PROMIS® instruments through the [Assessment Center](#), which can be administered online or through an offline computer.

You can also [download instruments](#) from the Assessment Center for paper-based administration or entry of information into other data collection platforms. [Updated information](#) on available Pediatric and Parent Proxy Item Banks (as of March 22, 2015). Available item banks (in bold) are available from the [Assessment Center](#). You can also download PDFs of all PROMIS forms through this [link](#).

The Assessment Center's [scoring manuals](#) not only include scoring instructions, but also domain definition(s), instrument options, differences between instruments, instrument stats, and meaning of scores.

PROMIS instruments can also be emailed to you. [Register](#) to receive this.

Tables 1 through 4 list the calibrated item banks, static short forms, and profiles (fixed collections of static short forms measuring 7 of the most important PROMIS® concepts). Tables 5 and 6 highlight instruments that will be available in Assessment Center soon.

<http://www.nihpromis.org/>

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