Responsiveness of PROMIS Physical Functioning Measure in Rheumatoid Arthritis

> Ron D. Hays October 25, 2011 (Morning) Denver, Colorado

#### **Future Issues**

- Bootstrapped SE for ES
- Standardized response mean
- More anchors in memo/future paper

# Joan Broderick's comment

- about interpreting ES is supported by 2000 publication in <u>Pharmacoeconomics</u>.
  - "Researchers evaluating measures sometimes hail their virtues based solely on the magnitude of the HR-QOL score of differences without considering the size difference one should expect theoretically. A 'bigger the better' mentality is associated with a lack of hypotheses or theory about the underlying process. In a quest to show that an instrument is responsive to change over time, instrument developers may proclaim the validity of a HR-QOL measure because it changes over time, but fail to note that the degree of change should vary depending on whether the consequence of the intervention or perturbation in status is minor (e.g. getting bumped by a pedistrian) or major (e.g. getting hit by a truck)."

#### Background

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 One-year longitudinal observational study of 451 persons who met American College of Rheumatology criteria for RA

- Baseline, 6 months and 12 months post-baseline

- Designed to evaluate responsiveness of PROMIS "20"-item physical functioning short-form ("Are you able to wash your back?" excluded).
- Legacy measures
  - SF-36 Physical functioning scale and Health Assessment Questionnaire

## Retrospective Rating of Change in Physical Activity

We would like know about any changes in how you are feeling now compared to how you were feeling 6 months ago.

How has your ability to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair changed

- Got a lot better
- Got a little better
- Stayed the same
- Got a little worse
- Got a lot worse

## Better Group

We would like know about any changes in how you are feeling now compared to how you were feeling 6 months ago.

How has your ability to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair changed

- Got a lot better (n = 21) or a little better (35)

## Worse Group

We would like know about any changes in how you are feeling now compared to how you were feeling 6 months ago.

How has your ability to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair changed

- Got a lot worse (n = 30) or a little worse (n = 113)

### Sample

#### Sample Characteristics

% female = 81%
% white = 87%
Mean Age (range) = 65 (20-70+)
Mean education (range) = 14 years (1-18)

#### **Responsiveness Results**

#### Effect Size By Measure



Reported getting a lot or a little better (better) or a lot or a little worse (worse) on retrospective change anchor.<sup>12</sup>

# Prospective Change Effect Sizes by Anchor Change Subgroups

	Wave 3 -	Wave 1	F Statistic	Wave 3 -	Wave 2	F Statistic
	Better (n = 56)	Worse (n = 143)		Better (n = 55)	Worse (n = 143)	
PROMIS	0.21	-0.27	30.71	0.31	-0.17	23.54
SF-36	0.17	-0.38	21.43	0.10	-0.24	12.49
HAQ	0.16	-0.23	15.66	0.24	-0.11	13.47

Wave 3 is 12 months after wave 1. Wave 2 is 6 months after wave 1.

Better = got a lot better or a little better on anchor. Worse = got a lot worse or a little worse on anchor.

# Prospective Change Effect Sizes by Anchor Change Subgroups

	Wave 3 – Wave 1			VVave 3 – VVave 2		
	Better	Same	Worse	Better	Same	Worse
	(n = 56)	(n = 252)	(n = 143)	(n = 55)	(n = 245)	(n = 143)
PROMIS	0.21	0.03	-0.27	0.31	0.05	-0.17
SF-36	0.17	0.04	-0.38	0.10	0.07	-0.24
HAQ	0.16	0.02	-0.23	0.24	0.01	-0.11

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		PROMIS V	<i>v</i> s change in activity (	wave 3–2)	
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### Change in PROMIS Physical Functioning Score by Anchor Change Subgroup

	Lot Better	Little Better	Same	Little Worse	Lot Worse
	(n = 21)	(n = 35)	(n = 252)	(n = 113)	(n = 30)
Wave 3 – Wave 1	1.94 <sup>a</sup>	1.63 <sup>a,b</sup>	0.27 <sup>b</sup>	-1.68 <sup>c</sup>	-3.20 <sup>d</sup>
Wave 3 – Wave 2	3.26 <sup>a</sup>	1.96 <sup>a,b</sup>	0.43 <sup>b,c</sup>	-0.82 <sup>c</sup>	-3.16 <sup>d</sup>

#### Questions?

