

SUPPLEMENTAL MATERIAL

Validity and reliability of Patient-Reported Outcomes Measurement Information System (PROMIS®) using Computerized Adaptive Testing (CAT) in patients with advanced chronic kidney disease

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Supplement A – Visual illustration of Computerized Adaptive Testing (CAT)

Example Computerized Adaptive Testing (CAT)

using Patient-Reported Outcomes Measurement Information System (PROMIS®)

Physical Function

To estimate an individual's level of physical function, the CAT starts with the item that has the highest information value for the average level of the general population.

1. Does your health now limit you in doing two hours of physical labor?

"Somewhat"



Based on the answer, the individual's level of function is estimated somewhere at the lower side of the scale (the width of the bar indicates the precision), therefore the next question concerns a more 'easy' activity.

2. Are you able to do chores such as vacuuming or yard work?

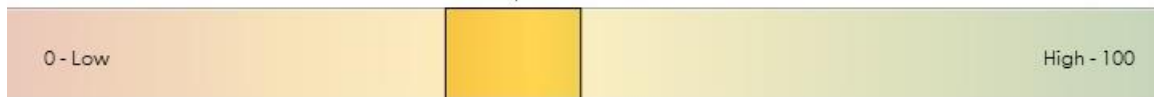
"With a little difficulty"



Based on the answer, the individual's level of function is likely a little higher (precision increases) and therefore the next question concerns a slightly more 'difficult' activity.

3. Does your health now limit you in walking more than a mile (1.6 km)?

"Somewhat"



The CAT now reached sufficient precision (SE: 1.8) and the estimated T-score is 43.



Figure S1. Visual illustration of Computerized Adaptive Testing (CAT) using Patient-Reported Outcomes Measurement Information System (PROMIS®) Physical Function

Supplement B – PROMIS CAT item characteristics

Table S1. Characteristics of items used in PROMIS CATs.

PROMIS CAT	Items used / total item bank	Top 3 items used	Items per patient
Physical Function	28 / 121	<ol style="list-style-type: none"> Does your health now limit you in doing two hours of physical labor? (n=205) Are you able to do chores such as vacuuming or yard work? (n=122) Does your health now limit you in walking more than a mile (1.6 km)? (n=119) 	Median (IQR): 4 (3-6) Min-max: 3-12 12 items: n=8 (3.9%)
Pain Interference	24 / 40	<ol style="list-style-type: none"> How much did pain interfere with your day to day activities? (n=203) How much did pain interfere with your ability to participate in social activities? (n=109) How often was pain distressing to you? (n=95) 	Median (IQR): 4 (2-12) Min-max: 2-12 12 items: n=75 (36.9%)
Fatigue	27 / 95	<ol style="list-style-type: none"> How often did you have to push yourself to get things done because of your fatigue? (n=203) I have trouble starting things because I am tired. (n=180) How exhausted were you on average? (n=33) 	Median (IQR): 5 (4-6) Min-max: 4-12 12 items: n=6 (3.0%)
Sleep Disturbance	22 / 27	<ol style="list-style-type: none"> My sleep quality was... (n=203) I had trouble sleeping. (n=203) I had a problem with my sleep. (n=201) 	Median (IQR): 10 (8-12) Min-max: 6-12 12 items: n=71 (35.0%)
Anxiety	21 / 29	<ol style="list-style-type: none"> I felt uneasy... (n=203) I felt tense... (n=157) I felt anxious and worried... (n=142) 	Median (IQR): 7 (6-10) Min-max: 5-12 12 items: n=44 (21.7%)
Depression	21 / 28	<ol style="list-style-type: none"> I felt depressed. (n=204) I felt unhappy. (n=144) I felt discouraged about the future. (n=130) 	Median (IQR): 8 (5-12) Min-max: 3-12 12 items: n=55 (27.0%)
Ability to Participate in Social Roles and Activities	23 / 35	<ol style="list-style-type: none"> I have trouble doing all of my regular leisure activities with others ... (n=203) I have trouble doing all of the activities with friends that I want to do... (n=132) I have trouble doing all of the family activities that I want to do... (n=114) 	Median (IQR): 5 (4-6) Min-max: 3-12 12 items: n=13 (6.4%)