

Discussion of Issues and Approaches Presented by Templin and Teresi



drhays@ucla.edu

<http://twitter.com/RonDHays>

<http://gim.med.ucla.edu/FacultyPages/Hays/>

Discussion Points

- Always use familiar along with unfamiliar (“more sophisticated”) methods
- Sophisticated approaches often may not lead to different conclusions but they could and you can often learn something unique
- All “quantitative” methods identify problems but supplemental approaches (“qualitative”) needed to find out why

Item-Scale Correlation Matrix-- Patient Satisfaction Questionnaire

| | Technical | Interpersonal | Communication | Financial |
|----------------------------------|-----------|---------------|---------------|-----------|
| Communication | | | | |
| 1 | 0.58† | 0.59† | 0.61* | 0.26 |
| 2 | 0.47† | 0.50† | 0.50* | 0.25 |
| 3 | 0.58† | 0.66† | 0.63* | 0.23 |
| 4 | 0.66† | 0.66† | 0.67* | 0.25 |
| 5 | 0.66† | 0.71† | 0.70* | 0.25 |
| Financial | | | | |
| 1 | 0.35 | 0.35 | 0.35 | 0.72* |
| 2 | 0.17 | 0.14 | 0.15 | 0.65* |
| 3 | 0.25 | 0.23 | 0.23 | 0.61* |
| 4 | 0.18 | 0.15 | 0.16 | 0.67* |
| 5 | 0.31 | 0.27 | 0.29 | 0.70* |
| 6 | 0.24 | 0.23 | 0.22 | 0.73* |
| 7 | 0.25 | 0.23 | 0.25 | 0.55* |
| 8 | 0.34 | 0.31 | 0.31 | |
| 0.64* Cronbach's alpha | 0.80 | 0.82 | 0.82 | 0.88 |

Note – Standard error of correlation is 0.03. Technical = satisfaction with technical quality. Interpersonal = satisfaction with the interpersonal aspects. Communication = satisfaction with communication. Financial = satisfaction with financial arrangements.

*Item-scale correlations for hypothesized scales (corrected for item overlap). †Correlation within two standard errors of the correlation of the item with its hypothesized scale.

MTMM.EXE (2.3): Multitrait-Multimethod Program

Hayashi, T., & Hays, R. D. (1987). A microcomputer program for analyzing multitrait-multimethod matrices. *Behavior Research Methods, Instruments, & Computers*, 19 (3), 345-348.

MTMM matrix for PROMIS-LEGACY methods

N = 143; DFS = 140

| METHOD TRAIT | 1 | 2 | 3 | 4 | 5 | 6 | 2 | 1 | 2 | 3 |
|----------------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| 1. 1. DEPRESSI | 1.00 | | | | | | | | | |
| 2. FATIGUE | .50 | 1.00 | | | | | | | | |
| 3. PAIN | .42 | .57 | 1.00 | | | | | | | |
| 4. PHYSFUNC | .24 | .70 | .46 | 1.00 | | | | | | |
| 5. SLEEP | .30 | .40 | .34 | .32 | 1.00 | | | | | |
| 6. SOCFUNC | .41 | .64 | .47 | .65 | .44 | 1.00 | | | | |
| 2. 1. DEPRESSI | [.67] | .59 | .44 | .46 | .50 | .56 | 1.00 | | | |
| 2. FATIGUE | .44 | [.76] | .53 | .72 | .38 | .62 | .67 | 1.00 | | |
| 3. PAIN | .30 | .59 | [.66] | .56 | .23 | .48 | .50 | .66 | 1.00 | |
| 4. PHYSFUNC | .22 | .46 | .38 | [.71] | .24 | .50 | .33 | .56 | .51 | 1.00 |
| 5. SLEEP | .33 | .49 | .37 | .43 | [.75] | .46 | .57 | .56 | .37 | |
| 6. SOCFUNC | .46 | .59 | .47 | .55 | .28 | [.61] | .68 | .71 | .58 | |

| METHOD TRAIT | 2 | 4 | 5 | 6 |
|----------------|------|------|------|---|
| 2. 4. PHYSFUNC | 1.00 | | | |
| 5. SLEEP | .29 | 1.00 | | |
| 6. SOCFUNC | .36 | .46 | 1.00 | |

(Total z = 5.18 Mean z = .86)

Average convergent validity correlation is .698

Average off-diagonal correlation is .481

DIF

- Logistic (ordinal) regression
- Item response regressed on
 - Total scale score
 - Group
 - Interaction between total scale score and group

TABLE 2. Item-Scale Correlations for Revised Scales (n = 666)

| Item | Mean | SD | Getting Needed Care | Getting Care Quickly | Communication | Office Staff | Customer Service |
|--|-------|-------|---------------------|----------------------|---------------|--------------|------------------|
| Finding office/clinic (5) | 63.54 | 34.21 | 0.39* | 0.33 | 0.34 | 0.29 | 0.34 |
| Getting specialty referral (12) | 55.04 | 27.57 | 0.44* | 0.24 | 0.21 | 0.21 | 0.29 |
| Getting necessary care (25) | 69.83 | 36.83 | 0.57* | 0.47 | 0.45 | 0.50 | 0.40 |
| Delays getting care (26) | 75.46 | 35.53 | 0.43* | 0.27 | 0.26 | 0.27 | 0.30 |
| Help or advice (16) | 66.94 | 27.17 | 0.43 | 0.56* | 0.56 | 0.58 | 0.27 |
| Appointment for cavity (18) | 59.45 | 30.89 | 0.37 | 0.63* | 0.47 | 0.47 | 0.24 |
| Appointment for routine care (20) | 62.45 | 32.39 | 0.38 | 0.66* | 0.54 | 0.50 | 0.25 |
| Care for mouth pain/dental problem (22) | 57.77 | 22.92 | 0.38 | 0.49* | 0.36 | 0.39 | 0.23 |
| Office wait (27) | 54.60 | 36.96 | 0.19 | 0.33* | 0.42← | 0.41← | 0.16 |
| Providers listen carefully (30) | 71.31 | 31.43 | 0.42 | 0.60 | 0.73* | 0.65 | 0.27 |
| Explanations (32) | 70.36 | 32.83 | 0.33 | 0.49 | 0.68* | 0.56 | 0.21 |
| Show respect (33) | 77.12 | 29.03 | 0.42 | 0.56 | 0.75* | 0.65 | 0.28 |
| Explained to child (38) | 76.33 | 25.93 | 0.21 | 0.34 | 0.47* | 0.35 | 0.17 |
| Spent enough time with child (39) | 67.48 | 31.01 | 0.39 | 0.61 | 0.73* | 0.63 | 0.30 |
| Treated with courtesy and respect (28) | 77.95 | 28.35 | 0.39 | 0.57 | 0.63 | 0.78* | 0.26 |
| Helpful (29) | 70.24 | 30.68 | 0.47 | 0.66 | 0.72 | 0.78* | 0.27 |
| Understanding written material (47) | 72.50 | 29.44 | 0.38 | 0.25 | 0.23 | 0.19 | 0.46* |
| Help from customer service (49) | 69.44 | 31.99 | 0.39 | 0.24 | 0.24 | 0.24 | 0.40* |
| Paperwork (51) | 81.14 | 24.22 | 0.28 | 0.21 | 0.22 | 0.20 | 0.39* |
| Hard time speaking with providers (31) | 82.27 | 29.61 | 0.17 | 0.18 | 0.24 | 0.16 | 0.21 |
| In exam room with child (35) | 66.64 | 35.47 | 0.18 | 0.23 | 0.29 | 0.25 | 0.10 |
| Child had hard time speaking with providers (37) | 91.17 | 18.88 | 0.09 | 0.10 | 0.18 | 0.14 | 0.13 |
| Got interpreter (32b) | 73.87 | 15.39 | 0.23 | 0.22 | 0.27 | 0.19 | 0.20 |
| Child got interpreter (32d) | 62.25 | 11.00 | 0.08 | 0.13 | 0.15 | 0.10 | 0.13 |

Item numbers in survey shown in parentheses in first column. Items were transformed linearly to a 0–100 possible range, with higher score being a more positive experience.
 ← indicates item-scale correlation that exceeds correlation of item with its hypothesized scale.
 *Correlation of item with hypothesized scale.
 Bolded entries indicate means correlation with hypothesized scale is less than 0.30 or less than correlations with other scales in the same row.

of the continuum the probability is highest for one response, *always*. Indeed, the item depicted in Figure 2, item 31, was 1 of the 5 items dropped from the communication scale based on the CTT analyses.

The information curve provides an indication of the amount of information the scale yields at different points along the underlying continuum. Information is inversely related to

Because the participation rate was 50%, some caution is warranted in interpreting the study results. Nonetheless, separate analyses of a CAHPS[®] item similar to item 27⁶ revealed that the negative wording of this item confuses respondents. As a result, when CAHPS[®] 3.0 was released, the item was worded in terms of being seen within 15 minutes

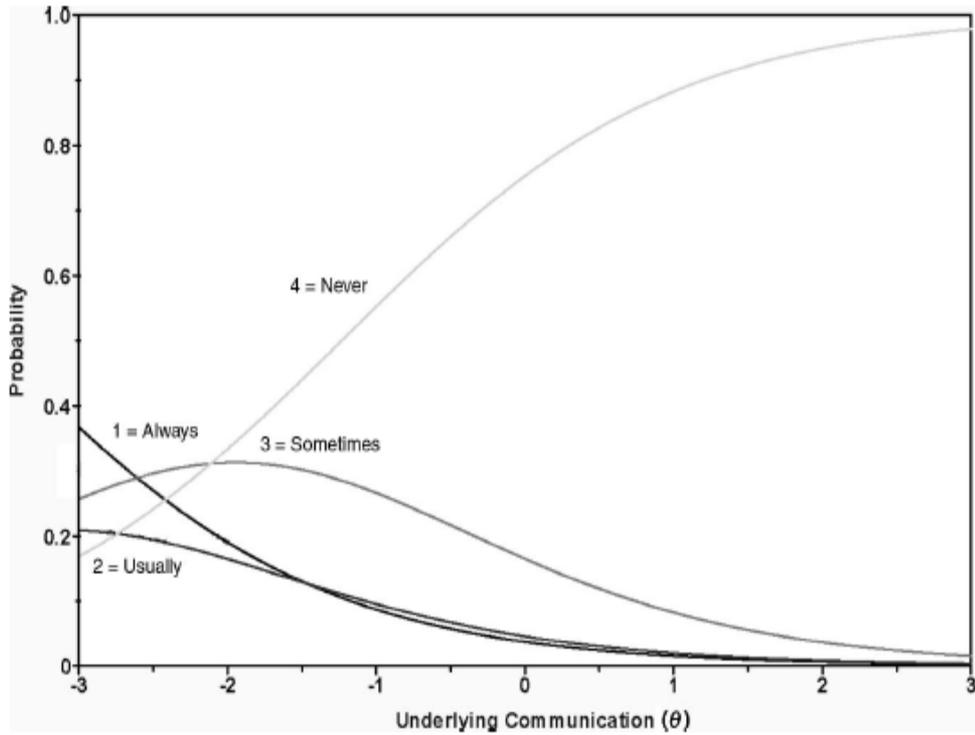


FIGURE 2. Item Characteristic Curve for Item 31.

S66

Hard time speaking with or understanding child's dentist because you spoke different languages

- Complex item?
- Insufficient number of individuals in sample for which these item applies
- Something else?

Person Fit

- Large negative Z_L values indicate misfit.
- Person responded to 14 items in physical functioning bank ($Z_L = -3.13$)
 - For 13 items the person could do the activity (including running 5 miles) without any difficulty.
 - However, this person reported *a little difficulty* being out of bed for most of the day.