O124 Evaluation of a screen-to-CAT approach for PROMIS sleep disturbance in solid organ transplant recipients

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Objective: To assess whether a screen-to-CAT (stCAT) stopping rule for the PROMIS Sleep Disturbance (PROMIS-SD) item bank would similarly classify sleep disturbance among solid organ transplant (SOT) recipients compared to the standard computer adaptive test (CAT) stopping rule.

Methods: Cross-sectional analysis of data from a convenience sample of adult kidney (KTR), kidney-pancreas, and liver (LTR) transplant recipients. Participants completed the PROMIS-SD via CAT, using the standard stopping rule (minimum of 4 items, stop if standard error of measurement is < 0.3 or a maximum of 12 items were administered). Using data obtained from the application programming interface, we simulated the stCAT stopping rule: as if participants responding “Never” to the screener item would not have been administered further items (screened-out). These participants got a T-score derived from the “running T-score” of that item/response option (39.4). For all other participants (screened-in), the final T-score from the full CAT was used. Standardized mean differences (SMD) assessed the magnitude of score differences, with values < 0.2 considered negligible. Misclassification was defined as the proportion of screened-out participants with a full CAT T-score ≥ 60, indicating moderate to severe sleep disturbance.

Results: Among 739 participants, mean (SD) age was 53 (14) years; 61% were male, 64% white, 48% KTRs, 17% KPTRs, and 35% LTRs. 58 participants (8%) were screened-out by stCAT. Their mean (SD) CAT T-score was 39.2 (5.83; range = 26.3–51.8). SMDs indicated negligible differences overall (0.03), in KTRs (-0.06), and KPTRs (-0.14), and a medium difference in LTRs (0.56). No participants (no/mild sleep disturbance: 529, moderate/severe sleep disturbance: 210) were misclassified by stCAT compared to CAT T-scores. Screened-out participants, who would have completed only 1 item under stCAT, completed a median (IQR) of 5 (5-11) items under the standard stopping rule (total = 419 for all 58 participants). stCAT would have saved 361 items for these participants (6/person on average).

Conclusions: The stCAT approach would have accurately identified sleep disturbance among SOT recipients and reduced item burden. The findings support the potential use of stCAT for efficient screening of sleep disturbance in SOT recipients.