WHAT ARE THE FLOOR AND CEILING EFFECTS OF PROMIS CAT DOMAINS?
RESULTS FROM A LARGE PATIENT REGISTRY

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Purpose: The Patient-Reported Outcomes Measurement Information System (PROMIS) computer adaptive tests (CAT) have emerged as an efficient technique for measuring patient-reported outcomes in orthopaedic patients. The purpose of this study was to investigate the floor and ceiling (F/C) effects of PROMIS CATs in patients presenting to a sports medicine, shoulder, hip, and elbow orthopaedic clinic.

Methods: Patients prospectively completed PROMIS CATs, including physical function (PROMIS-PF), upper extremity function (PROMIS-UE), pain interference (PROMIS-PI), and depression (PROMIS-D), at their initial encounter and were retrospectively included in this study. Patients were grouped as either preoperative or nonoperative and as with either shoulder, knee, hip, or elbow complaints. F/C effects were defined as the proportion of respondents scoring the highest (ceiling) or lowest (floor) possible scores.

Results: 3,460 patients were included. PROMIS-PF demonstrated negligible F/C effects across knee and hip patients (≤0.2%). PROMIS-UE demonstrated negligible F/C effects in all shoulder patients (<2%; p=0.069-0.147) but displayed minor floor effects in preoperative elbow patients (7.1%; p=0.009) and minor ceiling effects in nonoperative elbow patients (6.9%; not different than preoperative elbow patients; 3.6%; p=0.378). PROMIS-PI displayed negligible F/C effects in all patients (<2%) except for minor floor effects in nonoperative elbow patients (6.3%; p<0.001). Finally, PROMIS-D displayed moderate to significant floor effects in all patient groups (12.7-34.7%). PROMIS-D had 0% ceiling effects in all groups.

Conclusions: PROMIS-PF, PROMIS-UE and PROMIS-PI demonstrated generally favorable F/C effects for both nonoperative and preoperative patients, with the exception of minor F/C effects for PROMIS-UE and floor effects for PROMIS-PI in elbow patients. These findings justify consideration of PROMIS-PF for clinical and research applications in knee and hip patients. However, the PROMIS-UE and PROMIS-PI may not be suitable for all orthopaedic populations, specifically elbow patients, and additional studies are required to optimize their use. Additionally, we found moderate to significant floor effects for the PROMIS-D in all patient populations, which may be multifactorial in nature and limit its widespread utility.