

# Patient Factors Associated with Patient-Reported Outcome Measure Discordance following Primary Total Hip Arthroplasty

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## INTRODUCTION:

PROMs (Patient-Reported Outcome Measures) are key components of a value-driven healthcare model and exist for postoperative evaluation of patients following total hip arthroplasty (THA). Commonly used PROMs in total joint arthroplasty include the Patient Global Impression of Change (PGIC) and Patient Acceptable Symptom State (PASS). The Minimal Clinically Important Difference (MCID) and Substantial Clinical benefit (SCB) are metrics used to assess meaningful change in PROMs. Some patients undergo primary THA and report success in one measure, and failure in another leading to a discordance. For example, past work has identified patients that underwent total joint arthroplasty and reported the highest level of satisfaction after surgery yet had not achieved the threshold for meaningful change. Therefore, this study aimed to determine if specific patient-level factors were associated with an increased risk of discordant PROMs following primary THA.

## METHODS:

This was a single-center retrospective study that included all patients who 1) underwent primary unilateral THA from June 2019-December 2021 and 2) completed pre- and postoperative HOOS Jr (Hip dysfunction and Osteoarthritis Outcome Score) and 1-year postoperative PASS or PGIC questionnaires. Patients who underwent bilateral or staged THA were excluded. Four PROM combinations were included: PGIC/MCID (n=678), PGIC/SCB (n=1,342), PASS/MCID (n=1,168), and PASS/SCB (n=1,168). Patients were divided into discordant or non-discordant groups within each PROM combination [Table 1]. Chart review was performed to collect 18 patient-level variables. Univariate and multivariate analyses were used to identify factors that were associated with discordance.

## RESULTS:

Rates of discordance were 27.6% for PGIC/MCID, 14.5% for PGIC/SCB, 15.9% for PASS/MCID, and 19.8% for PASS/SCB [Table 2]. Postoperative lumbar procedures within a year or primary THA were associated with an increased likelihood of a patient having discordant PROMs in three of the four groups: PGIC/MCID (OR = 3.17, CI: 1.363-7.552, p = 0.008), PGIC/SCB (OR = 2.55, CI: 1.063-5.768, p = 0.037), and PASS/MCID (OR = 2.76, CI: 1.157-6.226, p=0.023). Preoperative orthopaedic procedures within a year of primary THA that were not lumbar-related were significant in three of the four groups: PGIC/SCB (OR = 2.671, CI: 1.183-5.677, p = 0.019), PASS/MCID (OR = 2.21, CI: 1.041-4.405, p = 0.04), and PASS/SCB (OR = 2.325, CI: 1.159-4.506, p = 0.018).

## DISCUSSION AND CONCLUSION:

This study aimed to explore various patient characteristics that may be associated with the likelihood of a patient having discordant PROMs one year following primary THA. Rates of PROM discordance in postoperative THA patients ranged from 14.5% to 27.6%. Overall, patients who underwent a lumbar procedure within a year after THA or who had an unrelated orthopaedic procedure within a year prior to THA were significantly more likely to have discordant PROMs. These results highlight the need for risk adjustment of these performance metrics if they are to be used for quality assessment.

Table 1: PROM Comparison Groups

Group	Non-Discordant (ND)	Discordant (D)
PGIC/MCID	<ul style="list-style-type: none"> <li>Much Improved / MCID achieved</li> <li>Very much worse – minimally improved / MCID not reached</li> </ul>	<ul style="list-style-type: none"> <li>Much improved / MCID not reached</li> <li>Very much worse – minimally improved / MCID achieved</li> </ul>
PGIC/SCB	<ul style="list-style-type: none"> <li>Very much improved / SCB achieved</li> <li>Very much worse – minimally improved / SCB not reached</li> </ul>	<ul style="list-style-type: none"> <li>Very much improved / SCB not reached</li> <li>Very much worse – minimally improved / SCB achieved</li> </ul>
PASS/MCID	<ul style="list-style-type: none"> <li>PASS “Yes” / MCID achieved</li> <li>PASS “No” / MCID not reached</li> </ul>	<ul style="list-style-type: none"> <li>PASS “Yes” / MCID not reached</li> <li>PASS “No” / MCID achieved</li> </ul>
PASS/SCB	<ul style="list-style-type: none"> <li>PASS “Yes” / SCB achieved</li> <li>PASS “No” / SCB not achieved</li> </ul>	<ul style="list-style-type: none"> <li>PASS “Yes” / SCB not reached</li> <li>PASS “No” / SCB achieved</li> </ul>

PASS: “Do you consider that your current state is satisfactory?” [Yes, No]

PGIC: “Since your total hip/knee replacement one year ago how would you rate your overall health” [Very much improved, much improved, minimally improved, no change, minimally worse, much worse, very much worse]

MCID achieved = increase in 18 points on HOOS Jr. questionnaire between pre- and post-operative scores

SCB achieved = increase in 22 points on HOOS Jr. questionnaire between pre- and post-operative scores

Table 2: PROM Comparison Group Demographics and Discordant Rates for Primary THA Patients

Group	Patients (n)	Age (mean ± SD)	Sex (% male)	Discordant, n(%)
PGIC/MCID	678	68.9 ± 9.29	44.1	187 (27.6)
PGIC/SCB	1342	67.6 ± 9.44	40.4	194 (14.5)
PASS/MCID	1168	67.8 ± 9.2	42.1	186 (15.9)
PASS/SCB	1168	67.9 ± 9.2	42.1	231 (19.8)