Patient Demographic Factors Affect Response Rates to Patient-Reported Outcomes Measures for Total Hip Arthroplasty Patients

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INTRODUCTION:

The Hip Disability and Osteoarthritis Outcome Score (HOOS JR) is a widely used patient-reported outcomes questionnaire for total hip arthroplasty (THA). However, as not all patients complete HOOS JR, a subset of the THA population may be underrepresented. This study aims to investigate the association between patient demographic factors and HOOS JR response rates.

METHODS: This was a retrospective cohort study of adult, English-speaking patients who underwent primary THA by a fellowship-trained arthroplasty surgeon between 2017 and 2023 at a single, high-volume academic institution. HOOS JR completion status—complete or incomplete—was recorded for each patient within 90 days from surgery. Standard statistical analyses were performed to assess completion against multiple patient demographic factors.

RESULTS:

Of the 2,908 total patients, 2,112 (72.6%) had complete and 796 (27.4%) incomplete HOOS JR questionnaires. Multivariate analysis yielded statistical significance ($P<0.05$) for distribution of patient age, race, insurance, marital status, and income quartile with respect to questionnaire completion. There was no significance for patient sex or religion. Specifically, when compared to the overall completion rate, completion rates were significantly higher (all $P<0.001$) for patients ages 60 to 79 (75.4%), who identified as white (76.7%), had Medicare insurance (81.4%), were married (78.3%), and were in the highest income quartile (76.2%). Conversely, failure to complete HOOS JR (all $P<0.001$) was associated with patients ages 18 to 39 (59.8%), who identified as black (36.4%) or "other" race (39.6%), were never married (38%), and were in the lower half income quartiles (43.9%, 35.9%) when compared to overall incomplete rate.

DISCUSSION AND CONCLUSION:

Multiple patient demographic factors may affect HOOS JR response rate. Overall, our analyses suggest that older patients who identify as white and are of higher socioeconomic status are more likely to participate in the questionnaire. Efforts should focus on capturing those patient groups less likely to participate.

Table 1. THA Demographics

	Totals (%)	PROM Completion Status		Multivariate Adjusted p-value $P<0.05$	Chi-square p-value $P<0.05$
		Complete	Incomplete or Null		
Sex					
Female (%)	1656 (100)	1226 (74.0)	430 (26.0)	0.012	0.050
Male (%)	1252 (100)	886 (70.8)	366 (29.2)		0.050
Age (years, range)					
18-39	97 (100)	39 (40.2)	58 (59.8)	0.006	<0.001
40-59	558 (100)	374 (67.0)	184 (33.0)		0.001
60-79	1845 (100)	1391 (75.4)	454 (24.6)		<0.001
80+	409 (100)	308 (75.3)	101 (24.7)		0.186
Race					
White (%)	2046 (100)	1569 (76.7)	477 (23.3)	0.019	<0.001
Black or African American (%)	428 (100)	272 (63.6)	156 (36.4)		<0.001
Asian (%)	66 (100)	48 (72.7)	18 (27.3)		0.982
Other (%)	369 (100)	223 (60.4)	146 (39.6)		<0.001
Insurance					
Medicare (%)	988 (100)	804 (81.4)	184 (18.6)	<0.001	<0.001
Medicaid (%)	10 (100)	8 (80.0)	2 (20.0)		<0.001
Private (%)	1898 (100)	1295 (68.2)	603 (31.8)		<0.001
Workers' Comp (%)	13 (100)	11 (84.6)	2 (15.4)		0.330
Marital Status					
Married (%)	1411 (100)	1105 (78.3)	306 (21.7)	<0.001	<0.001
Divorced/Separated/Widowed (%)	562 (100)	413 (73.5)	149 (26.5)		0.600
Never Married (%)	815 (100)	505 (62.0)	310 (38.0)		<0.001
Other (%)	121 (100)	89 (73.6)	32 (26.4)		0.811
Religion					
Christian (%)	1375 (100)	986 (71.7)	389 (28.3)	0.868	0.306
Jewish (%)	542 (100)	420 (77.5)	122 (22.5)		0.005
Muslim (%)	26 (100)	11 (42.3)	15 (57.7)		<0.001
Hindu (%)	7 (100)	6 (85.7)	1 (14.3)		0.436
Buddhist (%)	15 (100)	11 (73.3)	4 (26.7)		0.949
Agnostic/Atheist (%)	46 (100)	33 (71.7)	13 (28.3)		0.895
Other (%)	898 (100)	645 (71.8)	253 (28.2)		0.531
Income Quartile					
1 (%)	255 (100)	143 (56.1)	112 (43.9)	0.009	<0.001
2 (%)	298 (100)	191 (64.1)	107 (35.9)		<0.001
3 (%)	443 (100)	320 (72.2)	123 (27.8)		0.869
4 (%)	1890 (100)	1440 (76.2)	450 (23.8)		<0.001