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Do Patient Expectations Influence Patient-Reported Outcomes and Satisfaction in Total Hip Arthroplasty? A Prospective, Multicenter Study

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ABSTRACT

Background: The relationship between patient expectations and patient-reported outcomes (PROs) in total hip arthroplasty (THA) patients is controversial. The purpose of this study was to examine the impact of preoperative patient expectations on postoperative PROs and patient satisfaction.

Methods: This was a prospective multicenter observational cohort study of primary THA patients. Preoperatively, patients completed Hospital for Special Surgery (HSS) Hip Replacement Expectations Survey (expectations), 12 item Short Form Survey (SF-12), University of California, Los Angeles (UCLA) activity score, and Hip Disability and Osteoarthritis Score (HOOS). Postoperatively at 6 months and 1 year, patients completed the Hospital for Special Surgery Hip Replacement Fulfillment of Expectations Survey (fulfillment of expectations), a satisfaction survey, and the same PROs as preoperatively. Stepwise multivariate regression models were created.

Results: A total of 207 patients were enrolled. Follow-up rate was 91% at 6 months and 92% at 1 year. Being employed and lower baseline HOOS predicted higher expectations (employment status: $B = -7.5$, $P = .002$; HOOS: $B = -0.27$, $P = .002$). Higher preoperative expectations predicted greater improvements in UCLA activity, SF-12 physical component score, and HOOS at 6 months (UCLA activity: $B = 0.03$, $P = .001$; SF-12 physical component score: $B = 0.15$, $P = .001$; HOOS: $B = 0.20$; $P = .008$) and UCLA activity at 1 year ($B = 0.02$, $P = .004$). Furthermore, higher expectations predicted higher postoperative satisfaction and fulfillment of expectations at 6 months (satisfaction: $B = 0.21$, $P < .001$; fulfillment of expectations: $B = 0.30$, $P < .001$) and higher fulfillment of expectations at 1 year ($B = 0.17$, $P = .006$).

Conclusion: In patients undergoing THA, being employed and worse preoperative hip function predict of higher preoperative expectations of surgery. Higher expectations predict greater improvement in PROs, greater patient satisfaction, and the fulfillment of expectations. These findings can be used to guide patient counseling and shared decision making preoperatively.

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Total hip arthroplasty (THA) has been established as a highly effective treatment option for the management of hip arthritis [1]. Despite overall favorable results by many metrics, dissatisfaction in THA patients has been reported to be between 7% and 15% [2,3]. Even after a technically sound operation, patients may still have complaints regarding pain and physical function, thus understanding which factors, aside from surgical ones, may influence patient-reported outcomes (PROs) and satisfaction is imperative for appropriately counseling patients. Patient expectations has become increasingly recognized as one such factor [4–7].

Expectations of patients undergoing THA encompass areas of pain relief, improvement in physical function, and improvement in psychological well-being [8–10]. In the existing literature, it is unclear which preoperative patient characteristics are associated with higher expectations. It has been suggested that preoperative functional status may influence expectations; however, recent studies debate this relationship [5,7,11,12].

There are 2 dominant models in the literature characterizing the relationship between patient expectations and satisfaction. The first posits that minimizing the discord between expectations and final outcome is the most important determinant in satisfaction, suggesting that higher expectations lead to lower satisfaction [13,14]. In contrast, the second model emphasizes the placebo effect of optimism on outcome, implying that higher expectations lead to greater satisfaction [15,16].

The data on this topic in THA are sparse. Prior studies did not use a validated expectation tool or were retrospective. In this prospective study, we use the Hospital for Special Surgery Hip Replacement Expectations Survey (HSS-HRES), a well-validated assessment tool for measuring patient expectations. Furthermore, we study these relationships in the United States; the majority of the existing literature is from outside of the United States, and there exist significant differences in expectations across countries [17].

The aims of this study were to (1) determine the relationship between preoperative patient demographics, PROs, and preoperative patient expectations; (2) assess the influence of expectations on the change in PROs; and (3) analyze the impact of expectations on fulfillment of expectations and satisfaction. We hypothesized that worse preoperative function would predict higher expectations, and that higher expectations would predict greater improvement in PROs, fulfillment of expectations, and patient satisfaction.

Methods

This was a prospective observational cohort study including patients from 4 institutions across the United States. Institutional review board approval was obtained at all institutions. Patients were enrolled from May 2014 to June 2015. Inclusion criteria included patients undergoing THA. Exclusion criteria included age <18, bilateral surgery, and non-English speaking. Patients who had a history of a total joint arthroplasty were also excluded, because it was thought that this prior experience might bias the results. An a priori power analysis was conducted to detect differences in the Hip and Osteoarthritis Outcome Score (HOOS); for a beta <0.20, a minimum of 70 patients was required. This is the second arm of a similar study previously published in patients undergoing total knee arthroplasty (TKA) [18].

Data Collection

Preoperatively, patient demographics were collected including age, gender, race, education status, working status, body mass index (BMI), and American Society of Anesthesiologists (ASA) classification score. The first 5 of these demographics were patient reported. Before surgery, patients completed the HOOS [19], the University of California, Los Angeles (UCLA) activity score, and the 12 Item Short Form Survey SF-12v2). They also completed the HSS-HRES (expectations), which is a well-validated 18-question survey that asks patients to rate their expectations on a Likert scale from 0 to 4 [8]. This was scored as suggested by the authors, with the final score as a summation of all of the points, divided by the total number of possible points. It is reported as a percentage from 0 to 100, with 100 representing the highest expectations.

Patients underwent surgery via 1 of 3 approaches: anterior, anterolateral, or posterior.

Postoperative follow-up was obtained at 6 months and 1 year postoperatively. Previous literature has demonstrated that most patients will see maximum improvement by 1 year postoperatively [20]. At each follow-up time point, patients completed the same PRO surveys as preoperatively, including HOOS, UCLA activity, and SF-12v2. They also completed the Hospital for Special Surgery Hip Replacement Fulfillment of Expectations Survey (fulfillment of expectations), which is a modified version of the original expectations survey that asks to what extent each expectation was fulfilled. This was scored in the same fashion as the HSS-HRES. It is reported as a percentage from 0 to 100, with 100 representing the highest fulfillment of expectations. Patients also completed a 4-question validated satisfaction survey [21]. These surveys were completed by pen and paper at postoperative visits, by telephone interview, or via mail. Prior studies have demonstrated that various modes of data collection produce higher quality data [22–24].

Data Analysis

All statistical analyses were performed using Stata version 13.1 (StataCorp, College Station, TX). Descriptive statistics are presented as means and standard deviation for continuous variables and as counts and percentages for categorical variables. We created stepwise multivariate linear regression models to predict (1) patient expectations based on demographics and preoperative PROs; (2) change in PROs based on expectations; (3) fulfillment of expectations based on expectations; and (4) satisfaction based on expectations. We performed a univariate analysis with each independent variable and primary outcome variable. Variables with a *P* value of <.20 on univariate analysis were included in the final multivariate models. Statistical significance was set as *P* < .05.

Table 1
Demographics.

Demographic Variable	Result
Total enrolled	207
Follow-up rate	
6 mo	90.8%
1 y	91.7%
Age (y)	64.7 ± 10.3
Gender	
Female	97 (46.9%)
Male	110 (53.1%)
ASA	
1	14 (6.7%)
2	138 (66.6%)
3	46 (22.0%)
4	3 (1.5%)
Education	
Eighth grade or less	1 (0.5%)
High school degree/GED	29 (14.0%)
Some college	47 (22.7%)
College, 4-y degree	60 (29.0%)
Postgraduate degree	65 (31.4%)
BMI (kg/m ²)	28.0 ± 4.8
Race	
African American	0 (0.0%)
Caucasian	194 (93.7%)
Hispanic/Latino	4 (1.9%)
Asian	6 (2.9%)
Middle Eastern	1 (0.5%)
Other	1 (0.5%)
Work status	
Working	105 (50.7%)
Not working	97 (46.8%)

ASA, American Society of Anesthesiologists; BMI, body mass index; GED, general education degree.

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