

# Predictors of willingness to undergo elective musculoskeletal surgery

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**Purpose:** Knowledge of what influences patients' willingness to undergo elective orthopedic surgery is vital to the patient shared decision-making process. We sought to document the prevalence and identify the predictors of unwillingness to undergo surgery among a cohort of hip/knee, foot/ankle, neck/back, and hip/knee patients.

**Patients and methods:** Patient demographics and information on patient health status, perceptions of risk and success of surgery, and willingness to undergo surgery were collected. Sequential logistic regression models were used to investigate the influence of the captured variables on willingness to undergo surgery.

**Results:** Overall, 392 (20%) of 1946 participants reported being unwilling to undergo or unsure about undergoing ("unwilling/unsure") surgery if it was offered to them. From adjusted analyses, low income and non-White ethnicity were associated with a greater likelihood of being unwilling/unsure. Compared with hip/knee patients, neck/back patients were more likely to report being unwilling/unsure (odds ratio: 1.90 [95% confidence interval: 1.36, 265]); no differences were found between the remaining anatomical groups. However, when perceptions of risk and success were additionally considered, the influence for the neck/back cohort was significantly attenuated. Foot/ankle and elbow/shoulder patients were found to be significantly less likely to report unwillingness when perceptions were considered.

**Conclusion:** In addition to demographic/economic influences, perceptions of surgical risk and success play a critical role in patients' willingness to undergo surgery.

**Keywords:** risk perception, orthopedic surgery, patient perceptions, ethnicity

## Introduction

The number of elective ambulatory physician visits (primary care and specialist) for musculoskeletal diseases (MSDs) exceeded 15.5 million in Canada in 1998/99.<sup>1</sup> In Ontario alone, there were 1.3 million visits to orthopedic surgeons in 2005/06.<sup>2</sup> Recent estimates have ranked MSDs second to cardiovascular disease as the most costly group of diseases in Canada, estimated at more than C\$20 billion; the vast majority of these costs are associated with short- and long-term disability.<sup>3</sup>

Orthopedic surgical interventions such as hip/knee replacements in particular, but also foot/ankle fusions, shoulder/elbow tendon repairs, and neck/back fusions have been shown to be effective in alleviating the symptomatic burden associated with musculoskeletal conditions and restoring some of the functional abilities previously limited or lost.<sup>4,5</sup> However, limited research has shown that many who would benefit from such interventions decide not to undergo surgery.<sup>6-10</sup> These studies highlight the preference-sensitive nature of orthopedic surgery. Decisions to undergo these

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procedures entail a process of patient education and shared decision-making between the patient and surgeon. Optimizing this process requires an understanding of the factors that inform a patient's willingness to undergo surgery if recommended.

Unfortunately, there is minimal work within the MSD literature documenting the extent of patients' willingness to undergo surgery if recommended and little on identifying factors that influence willingness. To date, the vast majority of such work has been undertaken among hip and knee replacement cohorts. These studies have shown that demographic characteristics (eg, age, sex, and ethnicity) and arthritis-related pain and functional disability may be associated with willingness to undergo surgery.<sup>11–14</sup> However, whether similar findings would be observed among broader anatomical MSD orthopedic cohorts is unknown. Further, these studies have not considered how patients' perceptions of the surgical procedures influence willingness.

Knowledge of which patient characteristics and how perceptions of surgery influence patients' willingness to undergo elective surgery for MSDs if offered is vital to the patient educational and shared decision-making process. Such knowledge can be used to develop and implement processes that are targeted and tailored to the respective patient populations, ultimately aligning expectations of relevant stakeholders and thereby optimizing outcomes and realizing better care.

In this study, we document the prevalence of unwillingness to undergo elective orthopedic surgery if offered among a cohort of individuals seeking orthopedic care for hip/knee, foot/ankle, neck/back, and hip/knee MSDs. Additionally, we investigate the association between unwillingness and a broad range of patient demographic, socioeconomic, and health status characteristics. Further, adjusted for these characteristics, we investigate the influence of patient perceptions of the risk and success of orthopedic surgery on willingness to undergo surgery.

## Materials and methods

### Study sample

Consecutive patients referred for consultation to the orthopedic clinic of an academic hospital in Toronto, Canada were recruited between 2008 and 2010. Study inclusion criteria were age  $\geq 18$  years and consultation for a nontraumatic musculoskeletal condition. Patients were excluded if they were unable to give consent, complete the questionnaires in the English language, or had an emergent musculoskeletal condition (ie, trauma, myelopathy related) or

inflammatory condition (eg, rheumatoid arthritis). The study was approved by the Institutional Research Ethics Board, University Health Network. Written informed consent was obtained from all study participants.

### Study outcome and measures

Consenting patients completed a questionnaire prior to surgical consultation to provide an understanding of patient perceptions before influence of the surgical consultation. All responses were self-reported. Participating surgeons confirmed, post-consultation, whether eligibility/exclusion criteria were met.

#### Willingness to undergo surgery (study outcome)

Participants were asked how willing they were to choose surgery as a treatment option if offered. Responses were recorded as “unwilling,” “unsure,” or “willing” (referent group).

#### Perceptions of surgical risk and success

Participants were asked how risky and how successful they believed surgery would be for their condition. Responses were respectively recorded as “risky,” “unsure,” or “not risky” (referent group) and “unsuccessful,” “unsure,” or “successful” (referent group).

#### Health status

The Medical Outcomes Study Short Form 36 (SF-36)<sup>®</sup> was used to capture health status in three domains: bodily pain, physical function, and mental health.<sup>15</sup> Individual items were recorded on a five-point Likert scale and overall domain scores standardized to a 0–100 scale; higher scores represent better health. Participants identified the presence of comorbid conditions based on a list of 18 diagnoses, with the option of reporting others. A Charlson Comorbidity Index score was assigned to each participant.

#### Patient characteristics

The questionnaire further captured demographic and socioeconomic characteristics, including age, sex, household income (low: <C\$45,000, middle: C\$45,000–60,000, and high: >C\$60,000 [referent group]; as nearly 18% of the sample did not provide income information, a missing category was also retained), level of education (secondary school graduation or less; post-secondary [referent group]), and ethnic background (White [referent group], Asian, Black, South Asian, other). Body mass index (BMI) kg/m<sup>2</sup> (normal:  $\leq 24.9$  [referent group], overweight: 25.0–29.9, obese:  $\geq 30$ ) was calculated.

Participants were asked if they had had any surgeries in the past (yes/no). Finally, the anatomic region for which they were seeking the surgical consultation was recorded: hip/knee, foot/ankle, elbow/shoulder, or neck/back. Hip/knee was used as the referent group in regression analyses.

## Statistical analysis

Patient responses of “unsure” for the questions of willingness to undergo surgery and perception of risk and success were first analyzed as a separate category and collapsed with the responses of “unwilling,” “risky,” and “unsuccessful,” respectively. We found the associations were essentially unchanged between the two analyses; as such, we present the collapsed data here.

Study measures were reported for the overall population (means and standard deviations or proportions, as appropriate), and compared by willingness status (unwilling/unsure vs willing). Statistical comparisons were made by way of independent *t*-test or chi-square test, as appropriate.

A sequential series of logistic regression models was analyzed. The first considered all patient characteristics and health status variables as predictors of unwilling/unsure (vs willing) to undergo surgery (Model 1). Then, perception of surgical risk (Model 2) and perception of surgical success (Model 3) were independently added to Model 1. Finally, perception of surgical risk and success were simultaneously added to Model 1 (Model 4).

Findings from this series of regression analyses suggested the possibility that the influence of anatomical region on unwillingness to undergo surgery was mediated by perceptions of surgical risk and success. Thus, two further logistic regression models were assessed, whereby all patient characteristics and health status measures were considered as predictors of perceptions of risky/unsure (vs not risky) (Model 5) and predictors of perceptions of unsuccessful/unsure (vs successful) (Model 6).

All statistical analyses were performed with SAS<sup>®</sup> software (v 9.2; SAS Institute, Cary, NC, USA).

## Results

A total of 2000 patients were enrolled in the study, of whom 1946 (97%) provided complete data and were retained as the analytical sample. By anatomical region, the sample was comprised as follows: 454 (23%) neck/back, 767 (39%) hip/knee, 377 (20%) shoulder/elbow, and 348 (18%) foot/ankle. Sample characteristics are presented in Table 1 for the overall cohort and also by anatomical region.

Overall, 392 participants (20.1%) reported being unwilling/unsure about having surgery for their condition if offered to them. Sample characteristics by willingness status are presented in Table 2. Except for mean age, comorbidity index score, and mental health score, significant differences were found between the willingness sample subsets across all study measures. Among participants reporting unwilling/unsure, a greater proportion were female, reported non-White ethnicity, and fewer reported any previous surgeries. The distribution of anatomical regions for which consultation was being sought also differed significantly between the groups. Finally, those who reported unwilling/unsure more often reported perceiving surgery as unsuccessful/unsure and risky/unsure for their condition.

Results from the first set of logistic regression models (Models 1 to 4) are presented in Table 3. Consistently across models, increasing age; lower income; and Black, South Asian, and “other” race were associated with a greater likelihood of reporting being unwilling/unsure about having surgery if offered. Individuals reporting any previous surgeries were less likely to report unwilling/unsure.

Initially, neck/back patients were more likely to report being unwilling/unsure to consider/about having surgery than hip/knee patients (odds ratio [OR]: 1.90 [95% confidence interval (CI): 1.36, 2.65]); no differences in likelihood were found between the remaining anatomical groups and hip/knee (Model 1). Introducing risk perception into the model (Model 2), the effects for neck/back became attenuated and nonsignificant, while the effects for foot/ankle attained statistical significance. For foot/ankle, individuals were less likely to report unwilling/unsure than hip/knee (OR: 0.63 [0.40, 0.97]). Individuals perceiving surgery as risky/unsure were significantly more likely to report unwilling/unsure (OR: 3.47 [2.39, 5.04]).

Similarly, the introduction of perceptions of success into the model (Model 3) rendered the effects for neck/back nonsignificant, with greater attenuation in the magnitude of effect. The effects for foot/ankle again showed a lower likelihood for unwilling/unsure, as did, additionally, elbow/shoulder (OR: 0.55 [0.35, 0.87]), compared with hip/knee. Individuals reporting perceiving surgery as unsuccessful/unsure were significantly more likely to report unwilling/unsure (OR: 7.39 [5.04, 10.85]).

With perceptions of risk and success simultaneously considered in the model (Model 4), the effects for neck/back attenuated further, and the reduced likelihood of reporting unwilling/unsure among foot/ankle and elbow/shoulder, compared with hip/knee, remained. The magnitude

**Table 1** Sample characteristics, overall and by surgical cohort, including tests of differences across cohorts

	Overall sample (n = 1946)	Foot/ankle (n = 348)	Elbow/shoulder (n = 377)	Neck/spine (n = 454)	Hip/knee (n = 767)	P value
<b>Proportion (%)</b>						
Sex						
Female	48.6	60.7	39.2	48.1	48.1	<0.0001
Income						
Low	23.2	22.4	27.1	19.4	23.8	0.0626
Education						
Secondary school or less	32.6	21.6	33.4	37.8	34.1	<0.0001
Ethnicity						
White	78.4	81.1	74.8	79.2	78.3	0.1897
Asian	5.0	4.2	5.3	5.6	4.9	
Black	4.5	2.8	5.3	4.1	5.0	
South Asian	4.3	3.9	4.0	4.1	4.9	
Other	7.8	8.1	10.6	6.9	6.9	
Body mass index						
Overweight/obese	58.2	54.1	64.0	58.0	69.0	<0.0001
<b>Mean (SD)</b>						
Age	51.9 (18–93)	49.0 (18–84)	50.7 (18–90)	49.0 (18–87)	55.5 (18–93)	<0.0001
Charlson comorbidity index	1.5 (1.9)	1.5 (1.9)	1.3 (1.7)	1.5 (1.9)	1.7 (1.9)	0.0011
Bodily pain	40.5 (23.5)	47.9 (24.3)	42.5 (23.7)	37.0 (23.7)	38.1 (22.1)	<0.0001
Physical functioning	52.2 (28.6)	60.7 (28.6)	66.1 (25.2)	47.3 (27.8)	44.4 (27.1)	<0.0001
Social functioning	63.1 (29.1)	70.1 (27.2)	67.2 (28.5)	54.9 (54.9)	62.8 (28.4)	<0.0001
Mental health	68.7 (20.3)	71.4 (18.9)	70.2 (19.8)	65.0 (21.1)	69.0 (20.3)	<0.0001
General health	66.3 (21.1)	68.9 (21.3)	67.9 (20.3)	61.1 (22.0)	67.3 (20.4)	<0.0001
<b>Proportion (%)</b>						
Previous surgery						
Yes	84.7	85.9	83.3	81.8	86.6	0.1358
Perception of success						
Unsuccessful/unsure	55.7	59.6	58.1	69.7	44.5	<0.0001
Perception of risk						
Risky/unsure	68.0	64.6	64.5	85.2	61.1	<0.0001
Willingness for surgery						
Unwilling/unsure	20.1	17.2	18.9	28.9	17.0	<0.0001

of effect for perceptions of risk (OR: 1.83 [1.21, 2.76]) and success (OR: 6.16 [4.09, 9.27]), although somewhat attenuated, remained statistically significant, suggesting that each have independent effects on willingness to undergo surgery.

The results from the final set of regression analyses (Models 5 and 6) are presented in Table 4. The changes in effects observed for the anatomical groups in the previous set of regressions were supported by findings that neck/back patients were significantly more likely to perceive surgery for their condition as risky (OR: 3.62 [2.58, 5.10]) and unsuccessful (OR: 3.07 [2.29, 4.10]). Compared with hip/knee, foot/ankle and shoulder/elbow patients were more likely to perceive surgery as unsuccessful; no differences for these groups were noted for surgical risk. These findings suggest that perceptions of risk and success probably mediate the effects on willingness to undergo surgery for these groups,

and variably so across groups, adjusted for demographic and socioeconomic characteristics and health status.

## Discussion

Overall, 20% of the sample patients presenting for elective MSD consultation were unwilling/unsure about accepting surgery for their condition if offered to them. Previous work has shown that mere referral to a spine surgeon increased patient concerns about the need for surgery, regardless of surgical candidacy.<sup>10</sup> Among hip and knee replacement patients, it has been reported that symptom severity and information sources are the two main factors influencing patient decision-making.<sup>16</sup> In those awaiting carpal tunnel surgery, the main reason for choosing surgery was symptom severity rather than fear of progression.<sup>17</sup> More recently, Bedermen et al demonstrated additional variation in the shared decision-making process, whereby family physicians

**Table 2** Patient demographics and perception of surgical success and risk compared across those unwilling/unsure versus willing to consider surgery

Variable	Category	Willingness for surgery status		
		Unwilling/unsure (n = 392)	Willing (n = 1554)	P value
Sex	Female	54.8%	47.1%	0.0061
Type of surgery	Hip/knee	33.2%	40.9%	<0.0001
	Spine/neck	33.4%	20.8%	
	Shoulder/elbow	18.1%	19.7%	
	Foot/ankle	15.3%	18.6%	
Mean BMI, kg/m <sup>2</sup> (SD)		26.3 (5.0)	27.4 (5.5)	0.0002
BMI	Overweight/obese	54.8%	64.7%	0.0005
Mean age, years (SD)		52.3 (16.6)	51.7 (15.3)	0.5027
Comorbidity count		1.5 (1.9)	1.6 (1.9)	0.4266
Bodily pain		45.4 (24.9)	39.2 (23.1)	<0.0001
Mental health		67.7 (21.5)	68.9 (19.9)	0.3109
Physical function		55.5 (28.6)	51.6 (28.5)	0.0147
Ethnicity	White	66.8%	81.5%	<0.0001
	Asian	6.7%	4.6%	
	Black	7.8%	3.6%	
	South Asian	6.7%	3.4%	
	Other	11.9%	6.9%	
Education	Up to secondary school	36.8%	31.6%	0.0498
Previous surgery	Yes	77.1%	86.5%	<0.0001
Perception of success	Unsuccessful/unsure	86.8%	47.9%	<0.0001
	Successful	13.2%	52.1%	
Perception of surgical risk	Not risky	12.4%	37.0%	<0.0001
	Risky/unsure	87.6%	63.0%	

**Abbreviations:** BMI, body mass index; SD, standard deviation.

**Table 3** Logistic regression results; outcomes: Unwilling/Unsure vs Willing to undergo surgery, odds ratio (95% confidence interval).

Predictors		Model 1	Model 2	Model 3	Model 4
Age		<b>1.02</b> (1.01, 1.03)	<b>1.02</b> (1.01, 1.03)	<b>1.02</b> (1.01, 1.03)	<b>1.02</b> (1.01, 1.03)
Sex (ref: Male)	Female	1.27 (0.96, 1.68)	1.25 (0.93, 1.67)	1.13 (0.84, 1.53)	1.13 (0.83, 1.54)
Income (ref: high)	Low	<b>1.81</b> (1.28, 2.58)	<b>1.80</b> (1.25, 2.61)	<b>2.00</b> (1.37, 2.94)	<b>1.92</b> (1.31, 2.83)
	Missing	<b>1.82</b> (1.29, 2.57)	<b>1.84</b> (1.28, 2.63)	<b>2.05</b> (1.41, 2.98)	<b>2.00</b> (1.37, 2.92)
Education (ref: >high school)	≤high school	0.94 (0.69, 1.27)	0.92 (0.67, 1.26)	0.95 (0.68, 1.32)	0.95 (0.68, 1.32)
Race (ref: White)	Asian	1.36 (0.77, 2.38)	1.20 (0.66, 2.20)	1.42 (0.77, 2.62)	1.33 (0.71, 2.49)
	Black	<b>2.87</b> (1.63, 5.06)	<b>2.82</b> (1.56, 5.07)	<b>2.70</b> (1.44, 5.07)	<b>2.71</b> (1.43, 5.13)
	Other	<b>2.23</b> (1.42, 3.50)	<b>2.25</b> (1.40, 3.64)	<b>2.32</b> (1.40, 3.82)	<b>2.45</b> (1.48, 4.07)
	South Asian	<b>2.99</b> (1.65, 5.42)	<b>3.34</b> (1.75, 6.38)	<b>4.35</b> (2.23, 8.52)	<b>4.07</b> (2.04, 8.14)
Comorbidity Count		0.99 (0.91, 1.07)	0.98 (0.90, 1.06)	0.98 (0.90, 1.07)	0.99 (0.91, 1.07)
Body Mass Index (ref: Normal)	Overweight	0.80 (0.59, 1.09)	0.75 (0.55, 1.04)	0.77 (0.55, 1.07)	0.74 (0.52, 1.03)
	Obese	0.73 (0.51, 1.06)	0.70 (0.47, 1.02)	<b>0.66</b> (0.44, 0.98)	<b>0.66</b> (0.44, 0.98)
Surgical Cohort (ref: Hip/Knee)	Foot/Ankle	0.76 (0.51, 1.15)	<b>0.63</b> (0.40, 0.97)	<b>0.55</b> (0.35, 0.86)	<b>0.54</b> (0.35, 0.85)
	Elbow/Shoulder	0.75 (0.49, 1.14)	0.68 (0.43, 1.07)	<b>0.55</b> (0.35, 0.87)	<b>0.53</b> (0.33, 0.84)
	Neck/Spine	<b>1.90</b> (1.36, 2.65)	1.40 (0.99, 1.99)	1.16 (0.80, 1.67)	1.06 (0.73, 1.53)
Physical functioning		1.01 (1.00, 1.01)	1.01 (1.00, 1.01)	1.01 (1.00, 1.01)	1.01 (1.00, 1.01)
Mental Health		0.99 (0.99, 1.00)	0.98 (0.99, 1.00)	0.98 (0.99, 1.00)	0.99 (0.99, 1.00)
Bodily Pain		<b>1.02</b> (1.01, 1.02)	<b>1.02</b> (1.01, 1.03)	<b>1.01</b> (1.01, 1.02)	<b>1.01</b> (1.01, 1.02)
Previous surgery (ref: no)	Yes	0.60 (0.42, 0.86)	0.65 (0.45, 0.95)	<b>0.60</b> (0.41, 0.88)	<b>0.63</b> (0.43, 0.93)
Perception of risk (ref: not risky)	Risky/unsure		<b>3.47</b> (2.39, 5.04)		<b>1.83</b> (1.21, 2.76)
Perception of success (ref: successful)	Not successful/unsure			<b>7.39</b> (5.04, 10.85)	<b>6.16</b> (4.09, 9.27)

**Note:** Bold text denotes statistical significance.



had the highest overall preferences for surgery, while surgeons had the least. Additionally, surgeons placed the highest importance on the location of pain, whereas family physicians considered walking tolerance and symptom severity to be of similar importance. These studies support the common belief that patient willingness to consider MSD surgery is largely influenced by symptom severity and degree of disability.<sup>8</sup> The results of the current large study suggest a much more complex process.

We found that of the patients unwilling/unsure about accepting surgery, 88% perceived the operation as being risky and unsuccessful. Further work on understanding the impact of surgical consultation on patient perceptions and willingness to undergo surgery, particularly of those patients deemed surgical candidates, needs to be undertaken. If those patients deemed surgical candidates remain unwilling to have surgery because of predetermined perceptions of risk and success (despite surgical consultation), this may indicate a strong need for pre-consultation patient education.

**Table 4** Logistic regression results for perceptions of surgical risk and success, odds ratio (95% confidence interval)

Predictor	Risky/unsure vs not risky	Unsuccessful/ unsure vs successful
Age	1.00 (0.99, 1.01)	0.99 (0.98, 1.00)
Sex (referent: male)		
Female	1.20 (0.95, 1.52)	1.57 (1.25, 1.96)
Income (referent: high)		
Low	1.08 (0.8, 1.47)	0.88 (0.66, 1.16)
Missing	1.17 (0.83, 1.63)	0.97 (0.72, 1.32)
Education (referent: less than secondary school)		
Secondary school or less	1.29 (0.99, 1.67)	1.09 (0.85, 1.39)
Race (referent: White)		
Asian	1.33 (0.77, 2.29)	0.92 (0.56, 1.49)
Black	1.61 (0.86, 3.03)	1.36 (0.78, 2.36)
Other	1.31 (0.83, 2.07)	1.10 (0.72, 1.66)
South Asian	0.71 (0.40, 1.27)	0.81 (0.46, 1.43)
Comorbidity count	1.03 (0.96, 1.10)	1.02 (0.96, 1.09)
Body mass index (referent: normal)		
Overweight	1.20 (0.91, 1.56)	1.05 (0.82, 1.36)
Obese	1.12 (0.83, 1.52)	1.13 (0.85, 1.51)
Surgical cohort (referent: hip/knee)		
Foot/ankle	1.25 (0.92, 1.71)	1.58 (1.17, 2.14)
Elbow/shoulder	1.20 (0.87, 1.66)	1.89 (1.37, 2.60)
Neck/spine	3.62 (2.58, 5.10)	3.07 (2.29, 4.10)
Physical functioning	1.00 (0.99, 1.01)	1.00 (1.00, 1.01)
Mental health	0.99 (0.99, 1.00)	1.00 (0.99, 1.01)
Bodily pain	1.00 (0.99, 1.01)	1.01 (1.001, 1.013)
Previous surgery (referent: no)		
Yes	0.74 (0.52, 1.04)	0.98 (0.72, 1.34)

We found that those of greater age, lower socioeconomic status, and of non-White race (Black, South Asian, and other) were more likely to be unwilling to undergo surgery. While a decreased likelihood has been shown among Blacks in previous work in hip and knee replacement cohorts,<sup>12,17–20</sup> we also report a decreased likelihood among South Asians. Notably, these effects were adjusted by anatomical region and persisted even when perceptions of surgical risk and success were considered. Among hip and knee cohorts, a lesser expectation of outcome, less personal experience with the surgery, less trust in medical care, and fear of surgical pain and difficulty walking after surgery have been proposed as potential explanations for racial differences.<sup>13,19–22</sup> Differences may also be related to findings of differential preferences based on a family-centered model of medical decision-making versus an individual patient autonomy model across ethnicities.<sup>21</sup> Irrespective of the mechanism of effect, this and previous work highlight that differences exist across racial groups, and that across-the-board approaches to patient education and decision-making processes are likely to decrease overall effectiveness.

## Limitations

The data analyzed in this study were captured prior to surgical consultation; specific diagnoses and disease severity were not considered. The benefit of this is that the findings are likely to be broadly representative of populations seeking elective orthopedic care for MSDs. However, a limitation of not considering these factors is that differential distributions between cohorts may partially explain differences in perceptions or willingness across anatomical cohorts, or influence the seeking of care. We note, however, that our analyses considered and adjusted for health status (physical functioning, bodily pain, mental health, and comorbidity) and previous surgical experience. The health status measures were purposively selected because they were generic, thus comparable across groups.

Our cohort was recruited from an academic, tertiary care hospital, which may limit generalizability. A recent study compared functional outcomes prior to and following knee placement between surgeries performed in five academic (including the hospital from which the current patients were recruited) and five community hospitals. Differences in health-related quality of life, pain, and function were not found between the groups.<sup>22</sup> Further, the included degenerative diagnostic categories and patient mix are typical of community practice and not specific to tertiary care.

Future work may be directed toward understanding the impact of surgical consultation on perceptions of risk, success, and willingness to consider surgery.

## Conclusion

This study identified pertinent patient factors to be considered throughout the patient educational and shared decision-making process in MSD care. Contrary to common belief, patient pain and disability are not the primary drivers for willingness to consider surgery in the orthopedic population seeking surgical consultation. This work identifies a multifactorial process, including broad ethnic differences. Future investigations might focus on identifying what consultative factors may be negatively or positively associated with changes in patient perceptions of surgical risk and success and overall willingness to undergo surgery if recommended.

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## Disclosure

The authors declare no conflicts of interest in this work.

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