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What Do Scottish Patients Expect of Their Total Knee Arthroplasty?



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ABSTRACT

Background: The aim of this study was to carry out an in-depth assessment of patient expectations before surgery in a representative sample of the Scottish population undergoing primary total knee arthroplasty and also assess the influence of demographic factors and preoperative functions on expectations.

Methods: This was a prospective cohort study of 200 patients treated in our institution from November 2011 to July 2013. Patients received standard preoperative preparation including consultation with a surgeon, an information booklet and a DVD. Patients completed the Hospital for Special Surgery Knee Replacement Expectation Survey along with the EuroQol EQ-5D-3L health questionnaire on the day of admission.

Results: Fifty-nine percent of the cohort were women, mean age 67.7 years (45–84 years), mean body mass index 32.5 (21–50), mean preoperative Oxford Knee Score 17 (1–44). Relief of pain and improved ability to walk were the most important expectations, followed by the ability to use public transport and/or drive, ability to change position, ability to walk down stairs, and the ability to carry out routine daily activities and/or chores. Some expectations were unrealistic. No relationships between expectations and demographics, including preoperative function, were found.

Conclusion: This study suggests that patients have very high and sometimes unrealistic expectations regarding their improvements after total knee arthroplasty even after detailed preoperative consultation and education. In addition, these expectations cover a wide range of dimensions. We suggest that to effectively manage patients' expectations, it is important to assess each patient individually and reinforce what expectations can realistically be achieved.

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Patient-reported outcome measures (PROMs) are an important method of assessing outcome after total knee arthroplasty (TKA) and are being increasingly widely used to monitor quality and measure the performance of health care providers [1]. At the same time, there is currently a political drive to make health care services more accountable to the public, to promote patient involvement, and offer patient choice [2]. In NHS England, there is now a government requirement to routinely collect PROMs for all patients

undergoing primary hip and knee arthroplasty and certain other common surgical procedures [3].

It has been reported that fulfilment of patients' expectations has a significant impact on their level of satisfaction after surgery [4–6]. There is conflicting evidence on the relationship between patient expectations and outcomes after TKA. Some authors have demonstrated that higher expectations, particularly with regard to pain relief and walking ability, were associated with better outcomes as measured by PROMs [7–9]. Other studies have shown that unrealistic or unfulfilled expectations can lead to poorer outcomes [10,11]. There is conflicting evidence as to the influence that demographics and preoperative functions have on expectation levels [5,8,9,12,13]. Hence, it is essential for surgeons to have a good understanding of what patients expect and the factors influencing these expectations to successfully manage them during preoperative consultation and patient education process.

Therefore, the aim of this study was to carry out an in-depth assessment of patient expectations before surgery in a

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representative sample of the Scottish population undergoing primary TKA. The secondary outcome was to assess the influence of demographic factors and preoperative functions on expectations.

Methods

This was a prospective cohort study which was approved by the West of Scotland Research Ethics Committee 4. All patients who had their operations under the care of two consultant orthopedic surgeons (MS and JMcA) in our unit from November 2011 to July 2013 were approached for inclusion into the study at their pre-assessment clinic (initially the study information was posted to patients before their preoperative assessment; however, this proved unreliable). The inclusion criteria were having a primary TKA and being able to give informed consent. Patients were excluded if they declined to take part, were unable to give informed consent or if they were not scheduled to attend follow-up at our institution (patients attending from Orkney and Shetland Islands had their routine follow-up appointments in their local hospitals and they were only asked to return to our institution if they had problems with their joint replacement). In addition, the ethics committee required that patients had at least 24 hours to decide whether or not to take part in the study so patients scheduled for surgery the day after their preassessment also had to be excluded. Patients were consented into the study on their admission to hospital.

On the day of admission, patients were given the Hospital for Special Surgery (HSS) Knee Replacement Expectation Survey (Fig. 1) along with the EuroQol EQ-5D-3L health questionnaire to complete [14,15]. These are validated questionnaires to assess preoperative expectations and general health status, respectively. The HSS Knee Replacement Expectation Survey requires patients to rate 17 different expectations from very important to not having the expectation. Patients were also asked a further open question to identify any other important expectations they may have. Before receiving these questionnaires, all patients had received standard preoperative preparation including consultation with the surgeon, an information booklet and a DVD (both given at preassessment). The preoperative educational materials given to the patients had been developed by a multidisciplinary team and then undergone lay and external review to ensure that content was at an appropriate education and reading comprehension level. The preoperative education explicitly covered the first 15 expectations given on the HSS Knee Replacement Expectation Survey; however, the surgeon only discussed sexual activity or psychological well-being if this was first raised by the patient. The choice of collecting patients' expectations on admission standardized the point in the patient journey for all patients and ensured that expectations given were those remaining after full education and consultation. This allowed the identification of persistent and enduring unrealistic expectations. Baseline demographic details (age, gender, weight, height, Oxford Knee Score [OKS, 0–48 scale with 0 being worst and 48 being best]) and number of comorbid conditions were collected. Data on geographical location and socioeconomic status (Scottish Index of Multiple Deprivation [SIMD] and SIMD health domain) were taken from the patients' postcode [16]. The SIMD combines 38 indicators across 7 domains, namely: income, employment, health, education, skills and training, housing, geographic access, and crime to identify small area concentrations of multiple deprivation across the whole of Scotland in a fair way. It is categorized into 6505 data zones being ordered from most deprived to least deprived, which are usually represented by quintiles, deciles, or vigintiles for clarity.

Statistical Analysis

The primary outcome for the study was the proportion of patients having the expectations listed on the study questionnaire. To identify these proportions to within an uncertainty of 15%, the 95% confidence intervals for any proportion needed to be $\pm 7.5\%$. This required 170 patients. Assuming a loss to follow-up of 15% gave 196 patients. Therefore, 200 patients were required to be recruited to the study.

Descriptive statistics were used to summarize the data on demographics and expectations. The EQ-5D-3L domain results were used to calculate an overall health Visual Analogue Score as per the United Kingdom Visual Analogue Score value set [17]. This summarizes the 5 dimensions of the self-reported questionnaires into one number.

Expectations were ranked by the proportion of patients who stated it as "very important." Expectation scores were calculated by allocating a value of 3 to the response "very important," 2 for "somewhat important," 1 for "a little important," and 0 for "I do not expect this" and "this does not apply to me." The mean score for each expectation was calculated, range 0–3, and then, the expectations ranked again on this mean.

To determine the relationship between patient expectations, patient demographic details (age, gender, and geographic location), and preoperative characteristics (body mass index [BMI] and the presence of comorbidity), the total expectation score for each patient was calculated giving a score with a range from 0 to 51 (0 = no expectations). This then allowed the comparison of expectation score with respect to the patient variables using univariate general linear models. The intention was then to use a multivariate model with all those variables showing significance in the univariate models to identify independent predictors of expectations. However, this final step of the statistical methodology was not required because of no single variable being found to be a significant predictor.

Results

During the study period, 330 patients were seen at the pre-assessment clinic and went on to have a primary TKA operation. Of these, 200 were recruited and 197 patients completed and returned their preoperative questionnaires for analysis (Fig. 2).

Demographics

For the analyzed cohort ($n = 197$), 59% of the patients were women, mean age was 67.7 years (45–84 years), mean BMI was 32.5 (21–50), and mean preoperative OKS was 17 (1–44). One hundred and eleven right and 86 left knee arthroplasties were carried out. Patients were distributed across the SIMD quintiles but with slightly more in the middle 3 quintiles (Table 1). The SIMD health domain distribution was reasonably even across the quintiles (Table 1). Most patients lived in urban locations (Table 1). The results from the EQ-5D-3L showed that most patients chose the same response for each of the sections and that the mean health score was 71 (18–100; Table 1).

Expectations

The mean number of expectations per patient was 14 (range, 1–17). The mean expectations score was 36 (3–51). Relief of pain and improved ability to walk were considered the most important expectations, followed by the ability to use public transport and/or drive, ability to change position, ability to walk down stairs, and the ability to carry out routine daily activities and/or chores (Fig. 3).

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