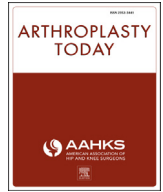




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Original research

Physical therapists collect different outcome measures after total joint arthroplasty as compared to most orthopaedic surgeons: a New England study

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ABSTRACT

Background: Following total knee and hip arthroplasty, patient progress can be assessed with patient-reported outcome measures (PROMs) and performance-based outcome measures (PBOMs). The American Joint Replacement Registry 2016 guide recommends collecting several measures, including Patient Reported Outcome Measure Information System Global, Knee Injury and Osteoarthritis Outcome Score Jr, and Hip Injury and Osteoarthritis Outcome Score Jr. This study aimed to assess the current and anticipated use of PROMs and PBOMs by New England physical therapists.

Methods: An online survey was conducted in July and August of 2015 asking physical therapists in New England to rate their current and anticipated future use of PROMs and PBOMs in terms of clinical decision making associated with the treatment and care of patients after total hip and knee replacement.

Results: There were 122 responses. The most often used and recommended PROMS were the Numeric Pain Rating Scale (99.2% and 97.5%, respectively) and Lower Extremity Function Scale (76.2% and 77.0%). There was significant variability in the use of different PBOMs, but the most often used and recommended were the Timed Up and Go (93.4% and 85.2%) and the Single Leg Balance Test (90.2% and 87.7%).

Conclusions: This study suggests that orthopaedic surgeons and physical therapists use different PROMs and PBOMs for postoperative assessment of total joint patients and highlights the need for more collaboration and consistency between these disciplines.

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Introduction

In the United States, the prevalence of hip and knee osteoarthritis has increased substantially over the last 20 years and is the greatest cause of chronic disability in older adults [1,2]. Although there are measures to slow the progression of the disease, elective total joint arthroplasty (TJA) is the recommended treatment after

non-surgical measures have failed [3,4]. TJA is a major surgical procedure, and recovery time can vary between patients with the most improvement in health-related quality of life quantified by the Quality of Wellbeing Index between 3 and 6 months post-operatively [5]. Physical therapists play an important role in treating patients before and after TJA [6]. The main goals of rehabilitation post-TJA are to maximize functional independence and to minimize complications [7].

There are 2 common ways of assessing outcomes after TJA: the patient's assessment of his/her own function (patient-reported outcome measures or PROMs) and observed physical performance (performance-based outcome measures or PBOMs). Common PROMs include the Knee Injury and Osteoarthritis Outcome Score (KOOS), Hip Injury and Osteoarthritis Outcome Score (HOOS), and the Lower Extremity Function Scale (LEFS) [8,9]. Examples of PBOMs include the Timed Up and Go (TUG), 6-Minute Walk Test,

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Table 1
Outcome measures used in cross-sectional survey of New England physical therapists.

PROMs	PBOMs
Numeric Pain Rating Scale	Sit to Stand Test
LEFS	Walking Speed
OXS	6-Minute walk test
OHS	TUG
EQ-5D	Timed Stair Climb
KOOS	Tinetti Mobility Test
HOOS	Single Leg Balance
WOMAC	Functional Reach Test

EQ-5D, Euro-Quality of Life; OHS, Oxford Hip Score; OXS, Oxford Knee Score.

and the Stair Climbing Test [10,11]. Currently, there is no absolute consensus in the literature on the appropriate PROMs and PBOMs following total hip or knee arthroplasty (THA or TKA) [12–14]. However, the American Joint Replacement Registry (AJRR) 2016 guide recommends collection of PROMs including Veterans RAND 12 Item Health Survey or Patient Reported Outcome Measure Information System Global and HOOS or KOOS Jr [15]. Also in a recent American Academy of Hip and Knee Surgeon symposium, the HOOS Jr and KOOS Jr were recommended for quality assessment in TJA [16].

Both PROMs and PBOMs are useful and provide different clinical data. PROMs do not require a clinical visit, and therefore might be easier to collect than PBOMs especially when following a large number of patients [17]. To utilize a more patient centered approach to medicine, the Center for Medicaid and Medicare Services has recently highly valued the use of PROMs based on goals stated by the National Quality Strategy and Institute of Medicine due to the Affordable Care Act [18,19]. PROMs provide useful information about patients' perceptions of physical function but are highly influenced by pain [20]. However, patient perception may not correlate well with actual functional performance and may overstate functional improvement especially in the early postoperative period [10,11]. PBOMs on the other hand can be harder to collect, but may provide important objective information about functional performance and progress through rehabilitation [11,20]. Recent studies have recommended the use of both PROMs and PBOMs for evaluating patient progress after THA/TKA [10]. McAuley et al [21] found that physical therapists use a wide range of outcome measures when evaluating THA and TKA patients in Canada.

The aim of this study is to assess current and anticipated use of PROMs and PBOMs of physical therapists practicing in New England. There is very little known about outcome measures that therapists use pre-TJA and post-TJA. This information is important because orthopaedic surgeons and physical therapists work toward the same goal of optimizing patient recovery. The motivation for this study is to establish a foundation of current practice from which to develop standardized sets of outcome measures for orthopaedic surgeons and physical therapists to collect pre-TJA and post-TJA.

Material and methods

The study was cross-sectional in design. It was executed as an online questionnaire requiring 10–15 minutes to complete distributed via email to licensed physical therapists practicing in New England (Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut). A cover letter of instructions was developed, and reminder emails were sent 12, 21, and 36 days after the initial correspondence on July 15, 2015. Physical therapists who treated patients undergoing THA and/or TKA in the last 5 years were invited to complete the survey and those who had not were asked to decline. The online survey platform LimeSurvey was used

and anonymity was ensured by assigning each response a random numeric code. The study was approved by the Committee on Human Subjects.

The survey had 4 sections consisting of a modified version of the survey developed by McAuley et al [21] obtained with permission from the lead author. The first section documented location of practice, education background, and demographic characteristics of the therapist. The second and third sections evaluated the use of PROMs and PBOMs (Table 1). These measures were queried specifically in terms of clinical decision making (day-to-day thinking and reasoning that clinicians execute to plan, administer, modify, and evaluate a therapeutic intervention for a given patient after THA or TKA). These specific PROMs and PBOMs were chosen based on the work of McAuley et al and the Osteoarthritis Research Society International (OARSI) advisory group recommendations [21,22]. Responders were asked to rate their current use of each measure on a 4-point scale (0 = not familiar, 1 = familiar no experience, 2 = some experience, 3 = considerable experience). The third section asked about anticipated future use of specific measures using a modified scale (0 = unable to rate, 1 = unlikely to use, 2 = likely to use, 3 = will use and recommend) (Fig. 1). The fourth section asked for their opinions about most valuable measures outright, other modalities used, and number of postoperative treatment sessions patient receive.

Initially, the survey was sent to 14 physical therapists in various practices throughout New England for feedback on language clarity and organization. Based on their comments the survey was modified.

Data were exported into an Excel spreadsheet and converted into SPSS. Analyses of responses were reported in frequencies and percentages and visualized with graphs for comparison (Figs. 2 and 3). Following the approach used by McAuley et al [21] variables were dichotomized from the ordinal 4-point scales to used/familiar (3, 2) and not used/unfamiliar (1, 0). Paired sample t-tests were used to compare the use of each outcome measure for current and future use. Significance was set at $P < .05$.

Results

Seven hundred twenty-four emails were sent. Of the 724 emails, 95 failed to be transmitted. Therefore 629 surveys were successfully sent. Of those, 168 responses were received, and of those, 19 responses were not interested in completing the survey and 27 of them did not treat patients who had undergone TJA. Therefore, this produced 122 complete responses.

Table 2 shows the demographic data of the physical therapists who completed the survey (Table 2). Physical therapists reported treating patients on average for 13.5 ± 0.5 sessions post-TKA and 11.2 ± 0.4 sessions post-THA.

Regarding current and future use of PROMs for clinical decision making, responders most commonly use and recommend the Numeric Pain Rating Scale and the LEFS (Fig. 2a). More specifically, in relation to the Numeric Pain Rating Scale, 99.2% reported current considerable experience and 97.5% would use and recommend it in the future. In relation to the LEFS, 76.2% reported considerable experience and 77.0% would use and recommend it in the future. Therapists were more likely to use and recommend the Oxford Hip Score and Oxford Knee Score in the future than in the past for clinical decision making (t-test, $P < .05$).

Among PBOMs used for clinical decision making, responders most commonly use and recommend the Single Leg Balance Test and the TUG (Fig. 2b). More specifically, in relation to the Single Leg Balance Test, 90.2% reported current considerable experience and 87.7% would use and recommend it in the future. In relation to the TUG, 93.4% reported considerable experience and 85.2% would use and recommend it in the future. Therapists were less likely to use and recommend the 6-

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