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GENERAL ORTHOPAEDICS

Influence of patients' preoperative expectations on postoperative outcomes after total knee or hip arthroplasty: a systematic review

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- *Purpose:* The association between preoperative expectations and treatment outcomes in total hip arthroplasty (THA) or total knee arthroplasty (TKA) is still unclear. Therefore the aim is to examine the association between preoperative outcome expectations, process expectations, and self-efficacy, and the postoperative outcomes overall outcome, pain, function, stiffness, satisfaction, and quality of life following THA/TKA.
- *Methods:* A systematic review with narrative synthesis was conducted. PubMed, EMBASE, PsycINFO, CINAHL and Cochrane Library were searched from inception to October 17, 2022. Included were prospective longitudinal cohort studies published in English, German, or Dutch, with an adult population undergoing THA/TKA, and including at least one measure of preoperative expectations and the postoperative outcomes mentioned earlier. Two independent reviewers screened the retrieved articles for eligibility, a third solved disagreements. Risk of bias (RoB) was assessed using the QUIPS tool.
- *Results:* Of the 50 included studies, 38 had high RoB and 12 moderate RoB. Unadjusted results suggest a positive association between preoperative outcome expectations and overall outcome in the medium and long term, and between self-efficacy and change in 'overall outcome' in the long term. Adjusted results suggest positive associations between outcome expectations and function and between self-efficacy and overall outcome in the medium term, and for outcome expectations with pain and change in pain, respectively, and self-efficacy and stiffness in the long term.
- *Conclusions:* Preoperative expectations show a possible positive association with specific outcome measures, such as pain or function. For future research, it is advised to link matching specific expectations with specific outcomes.

Keywords: hip prosthesis; knee prosthesis; prospect; pain; function; stiffness; satisfaction; quality of life

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Introduction

Total hip arthroplasty (THA) and total knee arthroplasty (TKA) are amongst the most frequently performed orthopedic surgeries (1). Around 160 000 primary THAs and 125 000 primary TKAs were performed in Germany in 2019 (2). Primary indication for THA and TKA is end-stage osteoarthritis (OA) (3, 4). While every joint can be affected by OA, it is mainly the weight-bearing hip and knee joints which become symptomatic (5).

THA and TKA are highly standardized procedures, with a generally good outcome and cost-effectiveness (6). However, 10–30% of patients are dissatisfied with their surgical outcome (7). Patient's preoperative level of expectations seems to play a role in postoperative outcomes (8, 9). Unrealistically high expectations can result in discouragement and subsequent nonadherence to rehabilitation recommendations, yet unrealistically low expectations can result in low motivation to obtain full benefit from the surgery (10).

In 2012 Haanstra *et al.* conducted a systematic review about the possible influence of patient expectations on THA and TKA outcomes in terms of overall improvement, pain, function, stiffness, and satisfaction (11) (outcomes are italicized throughout the article, to distinguish them from expectations). The rationale for their study was based on the self-efficacy concept and the placebo effect. Self-efficacy is a central aspect of Bandura's social cognitive theory. Bandura describes self-efficacy as the perceived competence over one's own ability to organize and pursue a particular course of action (12). The construct of self-efficacy thus comprises a person's beliefs of being able to do what is needed in a general or specific situation (13, 14). The placebo effect, on the other hand, is based on the patient's belief in the treatment's effectiveness, therefore leading to better outcomes if faith in the specific treatment is high (15). Hence, both aspects may influence on the THA and TKA outcomes.

Haanstra *et al.* included 18 studies but could not identify consistent associations between patients' preoperative expectations and the five investigated outcomes (11). They pointed out the lack of theoretical framing of the expectation construct. In addition, Haanstra *et al.* did not investigate the influence of patients' preoperative expectations on quality of life (QoL), which is known to be an important outcome for patients to be taken into account (9). In the last decade, though, several new studies have been performed regarding this topic. This systematic review aims to replicate the Haanstra *et al.* systematic review but including the latest research findings on the topic as well as QoL as a possible outcome associated with preoperative expectations.

Material and methods

A systematic review with a narrative synthesis was conducted. The protocol was registered with PROSPERO (CRD42021282230). Study preparation, execution, and reporting followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (16).

Eligibility criteria

Study inclusion and exclusion criteria were defined using the PICOS (patient, intervention, comparisons, outcome, study design) approach (17). No comparison elements were defined as this was not applicable to the study. The predefined criteria care presented in Table 1.

Search strategy

Relevant scientific literature pertinent to the topic was identified in online databases, namely, Medline (via PubMed®), Embase® (Elsevier), PsycINFO (APA PsycINFO®), CINAHL® (Ovid), and Cochrane Library (Cochrane). Databases were accessed via the Texas Tech

Table 1 PICOS inclusion and exclusion criteria.

PICOS	Inclusion criteria	Exclusion criteria
Population	Adults ≥18	
Intervention	THA/THA	hip resurfacing and/or unicompartmental knee arthroplasty not reported separately
Outcome	Preoperative: self-efficacy or expectations regarding the process or outcomes. Postoperative: overall outcome, pain, function, stiffness, satisfaction, and/or quality of life	No association between preoperative and postoperative outcomes.
Comparison	NA	NA
Study design	Prospective longitudinal cohort study	Retrospective studies, case reports, commentaries, qualitative studies, editorials, gray literature.
Language	Dutch, English, German	–

THA, total hip arthroplasty; TKA, total knee arthroplasty; NA, not applicable.

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University Health Science Center, Preston Smith Library by a collaborating scientific librarian.

Search terms were developed using the aforementioned PICOS mnemonic. These were compared with the Pubmed search strategy of Haanstra *et al.*, which was then used as a basis and was subsequently adapted and updated. An experienced scientific librarian was involved in final search strategy development. A combination of medical subject headings (MeSH) and/or subject headings adjusted to the target database and keywords were meaningfully linked. The complete search strategy for each database is presented in Appendix 1. All databases were searched for eligible articles from inception up to October 1, 2021. An update of the search was conducted on October 17, 2022.

Study selection process

The review manager software Covidence (Veritas Health Innovation Ltd, Melbourne, Australia) was used for study screening and data extraction. Studies retrieved from the database searches were imported into Covidence and duplicates were removed. To ensure that the reviewers' agreement during study selection reached at least 75%, as per previous recommendations, a pilot screening was performed (8, 18, 19). To this end, the first 50 studies retrieved from the PubMed search were uploaded into Covidence and independently screened by the two reviewers. Both reviewers' pilot screening agreement reached 96%, which was deemed more than sufficient.

Next, a three-reviewer model was employed wherein two blinded reviewers (YM, LR) first independently screened all retrieved references by title and abstract for possible inclusion. In case of uncertainty about whether to include or exclude an article, the study was carried over to full-text review. Subsequently, the same two reviewers screened the selected articles' full texts to check for final eligibility and inclusion into the review. Two reviewers discussed all conflicts occurring at any of the screening stages, and when no consensus could be met, a third blinded reviewer (GS) was involved.

Data extraction

Two reviewers (YM, LR) performed data extraction from the included full texts. For any conflict that could not be solved, the third reviewer (GS) was included. The Covidence software was also used during this process. Prior to establishing the final data extraction template in Covidence, a custom-built data extraction sheet was created using Microsoft Excel (Version 16.57 (22011101), Washington, USA) and piloted by both reviewers using two randomly picked articles included in the Haanstra *et al.* paper to validate the template's operational utility and to refine as necessary. Once finalized, the data extraction template was transferred into Covidence and used for data extraction. The following data were extracted from each study: bibliometric data, study design and setting, population, surgery, type of expectations, definition of expectations, measure of expectations, health outcome measured, measurement time points, association of expectations, strength of association data (i.e. correlation coefficients, *P*-values, odds ratios and/or regression coefficients).

In some of the studies, various associations between different kinds of expectations and postoperative outcomes were addressed, and only the best-fitting associations were extracted. Both reviewers decided independently about any best match of expectation and outcome measured. Conflicts were discussed in a consensus meeting. When no consensus could be met, a third reviewer (GS) was consulted for the final vote. For example, when a study assessed expectations for pain, function, and stiffness preoperatively and each of these outcomes were also evaluated postoperatively the associations between (i) pain expectation versus pain outcome, (ii) stiffness expectation versus stiffness outcome, and (iii) function expectation vs functional outcome were extracted. However, if a study assessed pain expectations preoperatively but evaluated pain and function postoperatively, only the association between pain expectations and pain outcome measure was extracted as it was rated a better match than the association between pain expectations and functional outcome; if a study had multiple measures for the outcome function the most representative measure for hip or knee function was chosen.

Risk of bias assessment

To assess the methodological quality of the included studies, two reviewers (YM, LR) evaluated the risk of bias (RoB) within each study using the updated version of the 'Quality in prognosis studies' (QUIPS) tool developed by Hayden *et al.* (11, 20). The QUIPS tool consists of six domains with 31 items, answered with 'yes' (fulfilled criterion) or 'no' (unfulfilled criterion). The domains are 'study participation', 'study attrition', 'prognostic factor measurement', 'outcome measurement', 'study confounding', and 'statistical analysis and reporting'. The QUIPS tool is presented in appendix 2.

Study quality assessment was performed using Covidence, therefore all QUIPS-tool items were transformed into a custom-built quality assessment template within the software. First, the RoB of all six domains was rated separately as 'very likely' (high RoB), 'maybe' (moderate RoB), or 'unlikely' (low RoB). Based on previous studies, the following predefined scoring approach was used: the domain's RoB was rated 'very likely' if less than 50% of the single items were answered with 'yes'; rated 'maybe' when at least 50% of the items were answered with 'yes'; and rated 'unlikely' when 75% or more of the items were answered with 'yes' (21, 22). The overall score represents the general RoB of the whole study. The following answer categories are available within the QUIPS tool: (i) 'overall high RoB', (ii) 'overall

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moderate RoB', and (iii) 'overall low RoB'. All final rating scores of each domain were considered for the overall score. Each domain was rated with the same importance because no domain could have been reasonably seen as more or less important. Based on previous authors, the following scoring approach was incorporated (23, 24, 25): When all domains were rated as low RoB, the overall score was 'low RoB'. When at least one of the six domains was classified as having a high RoB the overall score was also 'high RoB'. If neither of these applied, thus neither a domain with a high RoB nor all domains with a low RoB, the bias risk was assessed as moderate.

Data synthesis

There was no predefined minimum number of studies required for this systematic review. The large heterogeneity among the included studies precluded a meta-analysis of results. A narrative synthesis of the results is therefore provided. This includes direction and strength of the associations between patients' expectations and outcome measures, sample size, and methodological quality of the included studies.

Heterogeneity of the outcome measures used across the studies was handled by dividing the expectations measured into three categories: (i) 'self-efficacy' (SE), (ii) 'process expectations', and (iii) 'outcome expectations' (OE). To indicate more specifically what kind of expectations were measured, symbols were added to the extracted data. For the postoperative outcomes, a distinction was made between outcome data implying the 'total score' of a certain assessment after surgery, and outcome data implying the 'change' between preoperative and postoperative assessment. For outcome satisfaction a distinction was made for satisfaction with overall outcome, function, pain, stiffness, QoL and other. A distinction was made between results measured in the short term (i.e. ≤ 6 weeks), medium term (i.e. >6 weeks to <6 months), and long term (i.e. ≥ 6 months) following surgery.

An association was assessed as positive if a positive beta coefficient, effect size or odds ratio was significant or a correlation or regression coefficient was >0.3. Negative associations were stated if a negative beta coefficient, effect size or odds ratio was significant or a correlation or regression coefficient was <−0.3. No association was stated if the beta coefficient, effect size or odds ratio was not significant or a correlation or regression coefficient was $-0.3 < r < 0.3$. In cases where the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score was rated with '0' as worst and '100' as best outcome, the association was interpreted exactly the other way around as just described, for example a positive significant correlation coefficient would imply a negative association.

The overall association is indicated as positive (i.e. higher expectations associated with better outcomes) if at least 66% of the associations had a regression coefficient of >0.3 or were significant. The overall association is indicated as negative (i.e. higher expectations associated with worse outcomes) if at least 66% of the associations had a regression coefficient of >−0.3 or were significant. The overall association is indicated as unclear if <66% but more than >33% of the associations had an regression coefficient >0.3 or were significant. The overall association is indicated as no association if <33% of the respective outcomes and either OE, SE, or process expectations had a regression coefficient >0.3 or were significant.

Results

Literature search

During the initial search, 4826 references were retrieved from the selected databases and imported into Covidence, which increased to 9369 after adding the updated search. Of these, 3865 duplicates were removed. This resulted in 5504 unique articles for title and abstract screening, of which 5383 were excluded in accordance with the pre-defined inclusion and exclusion criteria. After selecting 121 studies for full-text screening, another 71 studies were excluded, so 50 studies were ultimately included. Reasons for exclusion are presented in Fig. 1.

Study characteristics

Characteristics of the included studies are presented in Supplementary Table 1 (see section on supplementary materials given at the end of this article). The number of participants varied considerably between studies, ranging from $n = 44$ (26) to $n = 4035$ (27). Eleven studies (28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38) reported on THA and 28 studies (26, 27, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64) on TKA; 11 studies (65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75) included both procedures, with 5 studies (65, 66, 69, 70, 72) reporting the results combined for THA and TKA and 6 studies (67, 68, 71, 73, 74, 75) reporting results by joint separately. Forty-five studies exclusively reported on primary arthroplasty (27, 28, 29, 30, 32, 33, 34, 36, 37, 38, 39, 40, 41, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 75), while three studies presented results for both primary and revision arthroplasties (26, 35, 74). Two studies (31, 42) did not report whether their sample underwent primary or revision surgery.

Twenty studies included a definition of expectations measured (28, 29, 32, 35, 42, 43, 49-51, 53, 60, 61, 62, 63, 65, 66, 69, 70, 72, 75). No study reported on process expectations, 38 studies reported exclusively on OE (26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 43, 44, 45, 46, 47, 50, 51, 52, 53, 55, 56, 57, 59, 62, 64, 66,

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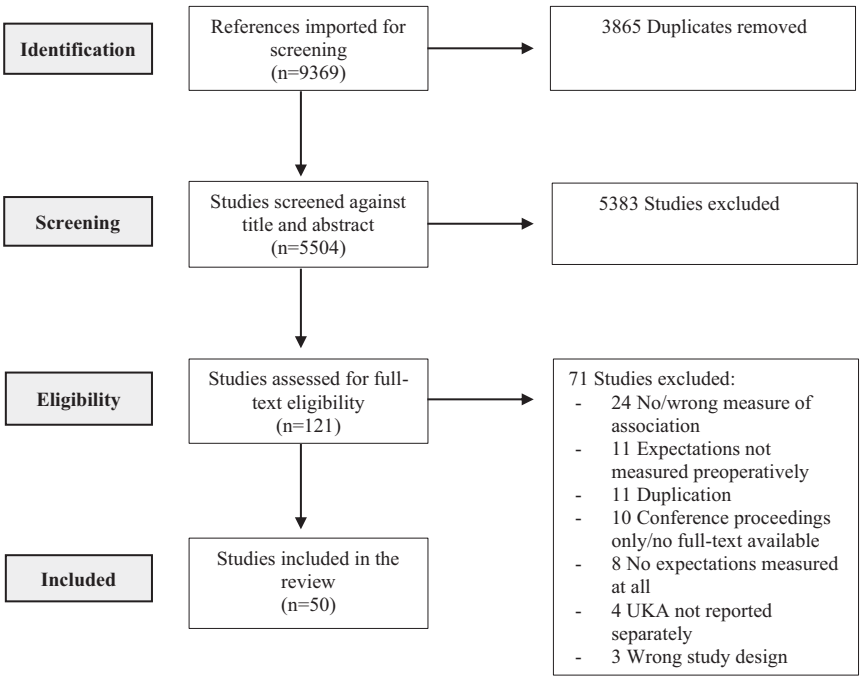

Figure 1

Flowchart of literature search and selection process UKA, unicompartmental knee arthroplasty.

67, 69, 70, 71, 72, 73, 74, 75), nine on SE (28, 48, 49, 54, 58, 60, 61, 63, 65), and 2 (42, 68) reported on both SE and OE. The most frequent measure of expectations was the Hospital for Special Surgery Hip/Knee Replacement Expectations Surveys (HSS-HRES/HSS-KRES), used in 16 studies (27, 29, 33, 34, 36, 39, 41, 45, 47, 50, 57, 62, 68, 71, 73, 75), where the Arthritis Self-Efficacy Scale (ASES) was the most used to measure SE (47, 54, 58, 63, 68). In total, 18 different methods were used to measure expectations for SE. Three studies did not provide information about the measurement instruments used (30, 37, 40).

Function was the most frequently reported outcome, being addressed by 42 studies (26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 65, 66, 68, 69, 70, 71, 72, 74, 75). Stiffness was the least reported outcome, addressed in 16 studies (26, 28, 30, 34, 39, 40, 42, 49, 53, 54, 57, 58, 59, 68, 70, 72). Short-term (≤6 weeks), mid-term (between 6 weeks and 6 months), and long-term (>6 months) postoperative outcomes were measured by 8 (41, 42, 49, 63, 65, 66, 67, 71), 12 (28, 32, 35, 40, 46, 49, 60, 63, 67, 68, 69, 71), and 46 studiesöö (26, 27, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 67, 68, 69, 70, 71, 72, 73, 74, 75), respectively.

Methodological quality of included studies

Overall RoB was moderate-to-high in all studies informing this systematic review. Most studies had a high RoB due to missing reports on study attrition. Detailed information about each study's methodological quality expressed as overall RoB, and per-domain risk, respectively, is presented in Supplementary Table 1 and Appendix 3.

Association between patient expectations and treatment outcomes

Supplementary Tables 2A/B and 3A/B show the associations between expectations and postoperative outcomes. Supplementary Table 2A presents the unadjusted associations of OE and SE and overall outcome, pain, and function, while Supplementary Table 2B presents the adjusted associations. Supplementary Table 3A shows unadjusted associations for the postoperative outcomes stiffness, satisfaction, and QoL, while Supplementary Table 3B shows the adjusted associations.

Overall outcome

Associations between preoperative expectations and postoperative overall outcome were reported in 16 studies (28, 30, 31, 32, 38, 42, 43, 44, 46, 48, 52, 55, 61, 65, 67, 69). WOMAC was the most used instrument (28, 65, 69).

Outcome expectations

No study provided information on short-term associations between OE and overall outcome. One

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study reported a positive medium-term association (unadjusted findings) between OE and overall outcome as well as OE and change in 'overall outcome' (69). No association was found in the adjusted association between OE and overall outcome (32). Nonadjusted findings suggested a positive long-term association between OE and overall outcome (38, 43, 46, 52, 69). No such association was found in the adjusted analysis (37, 42, 46, 55, 67). For change in 'overall outcome', no association was found in the nonadjusted results, while an unclear association was found in the adjusted analysis (30, 31, 37, 44, 69).

Self-efficacy

No study provided information about the short-term associations between SE and overall outcome. One study found a medium-term association between SE and *overall outcome* in both the unadjusted and adjusted analyses (28). For the unadjusted results, the overall association was unclear. By contrast, in the adjusted results an overall association was found with higher SE resulting in better outcomes (28). For the long term, two studies (61, 65) reported unadjusted results, finding no association between SE and overall outcome, while the association between SE and change in 'overall outcome' was found to be positive (48). When adjusted, no association between SE and overall outcome (42, 61, 65) and an unclear association between SE and change in 'overall outcome' was found (48, 61).

Pain

Twenty studies reported an association between preoperative expectations and postoperative pain (27, 30, 34, 39, 42, 49, 51, 53, 54, 55, 57, 58, 60, 61, 68, 69, 70, 71, 72, 75). The WOMAC pain subscale was used in most studies (27, 30, 42, 49, 53, 54, 60, 61, 68, 69, 72).

Outcome expectations

The short-term association between OE and pain was investigated in one study (71). While a significant unadjusted positive association was found for THA, it was nonsignificant for TKA, resulting in an overall unclear association. Unadjusted results showed a positive medium-term association between OE and pain (69, 71) and an unclear association between OE and change in pain, again significant for THA but not for TKA (68). Unadjusted results showed an unclear long-term association between OE and pain (30, 34, 39, 51, 55, 57, 69, 71, 72) and no association between OE and *change in pain* (51, 55, 68, 69). When adjusted, a positive association was found between both OE with *pain* (27, 30, 42, 53, 57, 72, 75) and OE with change in pain (69, 70).

Self-efficacy

The association between SE and pain in both the short- and medium term was reported by one study, finding no association based on unadjusted results (63). For the long term, no association was found between SE and pain (49, 54, 58, 60, 61) or for SE with change in pain (49). When adjusted, no association was found between SE and pain (42, 54, 60, 61), while the association between SE and change in pain was unclear (61).

Function

Twenty-six studies reported the association between preoperative expectations and postoperative function (27, 29, 30, 32, 34, 39, 42, 49, 50, 51, 52, 53, 54, 55, 56, 57, 60, 61, 65, 66, 68, 69, 70, 71, 74, 75). The most frequently used measure was the WOMAC function subscale (27, 30, 42, 49, 53, 54, 60, 61, 68, 69, 70).

Outcome expectations

The short-term association between OE and function was investigated in two studies, with unadjusted analysis revealing an unclear relationship (66, 71) and adjusted analysis in one study finding a positive association (66). Unadjusted analysis found an unclear medium-term association between OE and both function (69, 76) and change in function (68). One study reported adjusted results and found a positive association between OE and function (32). Nonadjusted long-term results suggest no associations between OE and function (30, 34, 39, 51, 52, 55, 56, 57, 69, 71, 74) and OE and change in function (50, 51, 55, 68, 69). In the adjusted results, unclear associations were found for OE with both function (27, 30, 34, 42, 53, 57, 75) and change in function (29, 50, 69, 70).

Self-efficacy

No study provided information about the association between SE and function in either the short or the medium term. No associations for the long-term outcomes were found for SE with function (49, 54, 60, 61, 65), or for SE and change in function (49) in the unadjusted associations. Six adjusted associations were reported between SE and function, showing an unclear association overall (42, 54, 60, 61, 65).

Stiffness

Seven studies reported on the association between preoperative expectations and postoperative stiffness (30, 34, 39, 42, 49, 57, 68). Most frequently used

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measure was the WOMAC stiffness subscale (30, 42, 49, 68), followed by the Hip/Knee disability and Osteoarthritis Outcome Score (HOOS/KOOS) (34, 39, 57).

Outcome expectations

No study provided information on the short-term association between OE and postoperative stiffness. One study reported a medium-term association between OE and change in stiffness in an unadjusted analysis (68), finding a positive association for THA, but not for TKA, thus resulting in an overall unclear association. For the long term, no unadjusted association was found between OE and stiffness (30, 34, 39, 57) or between OE and change in stiffness (68). Adjusted associations between OE and stiffness suggest an overall unclear association (30, 42, 57).

Self-efficacy

No study provided information on association between SE and stiffness in either the short or the medium term. One study reported unadjusted results between SE and stiffness and between SE and change in stiffness, suggesting no association (49). Another study reported adjusted results for the long-term association between SE and stiffness (42). While no overall association was found in the unadjusted analysis, a positive overall association was found for the adjusted result.

Satisfaction

Twenty-two studies reported an association between preoperative expectations and postoperative satisfaction (26, 29, 33, 34, 35, 36, 38, 39, 40, 41, 44, 45, 47, 50, 52, 53, 57, 59, 62, 69, 70, 73). The majority used a Likert scale to evaluate satisfaction (26, 33, 34, 36, 38, 41, 44, 53, 57, 59, 62, 70, 73). General satisfaction was assessed in most studies (26, 29, 33, 34, 35, 36, 38, 40, 41, 44, 47, 50, 52, 53, 57, 59, 62, 69, 70, 73), with some assessing specifically pain (39), QoL (39, 45), or other satisfaction domains (34, 39, 45, 57).

Outcome expectations

No study provided information on short-term associations between OE and postoperative satisfaction. The medium-term association between OE and general satisfaction was investigated in one study, revealing no association (40). No long-term unadjusted association was found for OE and general satisfaction (26, 29, 33, 34, 35, 36, 38, 40, 41, 44, 47, 50, 52, 57, 59, 62, 64, 69, 70), OE and QoL satisfaction (39), or OE and other types of satisfaction (34, 39, 57). An unclear association was found for pain satisfaction (39). Adjusted analysis suggests an unclear association between OE and general satisfaction (29, 37, 44, 47, 53, 57, 64, 73), no association between OE and QoL satisfaction (45), and unclear associations between OE and other domains of satisfaction (45).

Self-efficacy

Associations between SE and satisfaction were not investigated in any study.

Quality of life

Eleven studies (29, 34, 39, 42, 44, 50, 51, 57, 65, 70, 72) reported on the association between preoperative OE and postoperative QoL. Most used the Short Form 36 (SF-36) (42, 51, 65, 72) or Short Form 12 (SF-12) (29, 34, 39, 50, 57, 70).

Outcome expectations

No study provided information on associations between OE and QoL in the short or medium term. Seven studies (34, 39, 44, 51, 57, 72) reporting unadjusted long-term associations found no associations between OE and QoL. Unadjusted results for the association between OE and change in QoL suggest an unclear association (50, 51). The same holds for the adjusted results, with no association between OE and QoL (42, 44, 57, 72), and an unclear association between OE and change in QoL (29, 50, 70).

Self-efficacy

No study provided information on associations between SE and QoL in the short or medium term. One study reported no long-term association between SE and QoL in the unadjusted and the adjusted analysis (65).

Discussion

The objective of this systematic review was to examine the association between preoperative OE, SE, or process expectations on the one hand, and postoperative outcomes, including overall outcome, pain, function, stiffness, satisfaction, and QoL on the other hand, in patients who underwent THA or TKA. No studies reported on the association between process expectations and outcomes, and only a limited number of reports were found for medium- and short-term outcomes. The unadjusted results suggest a positive overall association between preoperative OE and overall outcome in the medium and long term, and between SE and change in 'overall outcome' in the long term. The adjusted results suggest positive associations between OE and function and for SE and overall outcome in the medium term, and for OE with pain and change in pain,

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and SE and stiffness in the long term. The RoB was high in the overwhelming majority of the included studies.

The current review can be considered as an update of the systematic review of Haanstra *et al.* Comparing both reviews shows multiple differences in findings, which has multiple explanations. First, the current review included 50 studies, compared to 18 in Haanstra *et al.* back in 2012. This reflects how much attention to this topic has increased throughout the past decade, and the new results give more thorough insight into the topic. Besides, the differences between Haanstra *et al.*'s findings and may be due to several differences in study execution. Although we built our search strategy based on the PubMed search string provided in their article, our search strategy had to be slightly adapted in response to adjustments incorporated into the various data bases since 2012. Additionally, some studies included in Haanstra *et al.* did not measure expectations preoperatively according to their accompanying abstract (77), or did not include a separate analysis for partial hip or hip resurfacing arthroplasty and unicompartmental knee arthroplasty (77, 78, 79, 80). This is why those articles were not included in the current review. In addition, the current review includes a sixth postoperative outcome, QoL. Furthermore, data synthesis was slightly changed, adding the 'change' categories for the outcomes. The rationale for this was that some studies reported change scores, which provide different information versus total scores. Moreover, different types of satisfaction were distinguished according to the included outcomes (e.g. overall, pain, function, stiffness, QoL). Important to mention, only the best matches between preoperative expectations and postoperative outcomes are reported in both reviews. As the 'best match' is up to interpretation, different choices might have been made by each reviewer team. In the current study, final 'best matches' choices were made after consulting a second, and if needed a third reviewer, to improve the quality of the decisions. Last, for quality assessment an updated version of the QUIPS tool was used. Hayden *et al.* advised not to use a summated score as Haanstra *et al.* did (20), therefore the categories high, medium, and low RoB were used instead of percentages.

As mentioned, short- and medium-term associations were reported rarely. Some interesting results are found for the long term, though the results should be interpreted with caution due to the high RoB of the included studies. In the unadjusted results positive overall associations were found only for the outcome category 'overall outcome', on the one hand between OE and overall outcome and on the other between SE and change in 'overall outcome'. The latter, however, was only based on two associations. By contrast, for the other outcome categories, mostly no overall association was found (19 categories), and for three outcome categories the association was unclear. Nevertheless, the adjusted analyses' findings give a very different impression. The positive overall associations for the 'overall outcome' category seen with unadjusted data disappeared and turned into no or unclear association. For the other outcomes however, only four categories remained concluding no association. To all four of these categories it applies that only a small number of associations have been reported (maximum five), so those results should be interpreted with caution. Furthermore, once adjusted analysis were performed, eight categories reported an unclear overall association, and three an overall positive association. The latter applied to the association of OE with pain, OE with change in pain, and SE with stiffness. Again, it should be noted that the last two associations mentioned are based on a low number of reported outcomes, with three reports or one report, respectively.

The results of the current systematic review raise two main questions. The first is why there is so much heterogeneity between the unadjusted and adjusted results. The explanation may be two-fold. On the one hand, in the unadjusted results some studies reported many associations. As every reported association was counted equally, this way a single study could have a major influence on the final result of the outcome category. On the other hand, some included studies reporting adjusted results, only included preoperative expectations under certain conditions following an unadjusted analysis. For example, Lopez-Olivo *et al.* (54) only added baseline predictors to the multiple linear regression analysis if the nonadjusted correlation coefficient was significant at the $P \leq 0.30$ level. Although this is good scientific practice, it might have resulted in positively biased results for the adjusted associations.

The second question is, why the findings for overall outcomes in both the unadjusted and adjusted results are quite opposite to the results of the other outcome categories' findings. A possible explanation might be the specificity of the outcome. Overall outcome is a broad concept, and the included studies linked many of different aspects of expectations to the overall outcome. However, it is questionable how far preoperative expectations for specific actions relate to the overall outcome. For the more specific outcomes (e.g. function, pain, stiffness), generally overall expectations or expectations regarding the respective specific outcome were used. This might result in a greater or stronger association, as the expectation for pain might relate better to pain outcome than to overall outcome. Besides, Bandura emphasized the importance of measuring SE for specific actions (12), so this might apply for expectations as well. For future research, it is therefore recommended to use matching expectations and outcomes.

Strengths and limitations

The current review included 50 articles, with rather large populations and varying hospital settings, contributing

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to a good external validity. However, due to the many measurement methods used and different definitions of expectations, it was not possible to perform a meta-analysis. The same problem was previously addressed in the review of Haanstra *et al.* (11). Still, less than half of the included articles provided a definition of expectations or SE, and multiple different scoring methods were used. Besides, despite the high number of articles included, some categories still lack enough data to draw valid conclusions, especially when applied to the short and medium term. The results of the current review should be interpreted with the medium-to-high RoB of the included articles in mind. Most of the studies had a high RoB due to missing reports on study attrition. In the absence of a standardized scoring approach provided by Hayden *et al.* (20), a rather conservative scoring approach was predefined that was in accordance with previous authors, resulting in a high RoB overall score in case one domain was scored as high RoB (23, 24, 25).

Conclusion and future research

This review shows that interest in the field of patient expectations for TKA/THA has grown over the years since the review of Haanstra *et al.* (11). Where they found only limited evidence for an association between expectations and outcomes, in the current review, when adjusting for other factors, *pain* and other specific outcomes such as function, stiffness, and satisfaction, show a positive, or possibly positive, association with preoperative expectations. However, the results should be interpreted with caution due to the high RoB in most studies. For future research, more high-quality studies using harmonized definitions and outcome measures are needed to improve understanding of the association between preoperative expectations and postoperative outcomes following THA and TKA. It is also advised to include more specific outcomes besides overall outcomes and to link matching specific expectations to specific outcomes.

Supplementary materials
This is linked to the online version of the paper at https://doi.org/10.1530/EOR-23-0087.

ICMJE Conflict of Interest Statement
The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the work reported here.

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References

1 Abdelaal MS, Restrepo C & Sharkey PF. Global perspectives on arthroplasty of hip and knee joints. *Orthopedic Clinics of North America* 2020 **51** 169–176. (https://doi.org/10.1016/j.ocl.2019.11.003)

2 Grimberg A, Jansson V, Lützner J, Melsheimer O, Morlock M & Steinbrück A. Endoprothesenregister Deutschland (EPRD). *Jahresbericht* 2020 **2020** 1–131.

3 Lützner C & Günther K-P. Langfassung zur S3-Leitlinie „Indikation Hüfttotalendoprothese" 178–001. *AWMF Online*, DGOU(version 1.0) 2021 1–120.

4 Lützner J, Lange T, Kopkow C, Aringer M, Böhle E, Bork H, Dreinhöfer K, Friederich N, Gravius S, Heller K-D, Hube R, *et al.* Langfassung zur S2k-Leitlinie „Indikation Knieendoprothese" 033–052. *AWMF Online*, DGOOC(version 1.0) 2018 1–26.

5 Bronner F & Farach-Carson MC *Bone and Osteoarthritis*. London: Springer 2007.

6 Kamaruzaman H, Kinghorn P & Oppong R. Cost-effectiveness of surgical interventions for the management of osteoarthritis: a systematic review of the literature. *BMC Musculoskeletal Disorders* 2017 **18** 183. (https://doi.org/10.1186/s12891-017-1540-2)

7 Beswick AD, Wylde V, Gooberman-Hill R, Blom A & Dieppe P. What proportion of patients report long-term pain after total hip or knee replacement for osteoarthritis? A systematic review of prospective studies in unselected patients. *BMJ Open* 2012 **2** e000435. (https://doi.org/10.1136/bmjopen-2011-000435)

8 Mancuso CA, Duculan R, Cammisa FP, Sama AA, Hughes AP, Lebl DR & Girardi FP. Fulfillment of patients' expectations of lumbar and cervical spine surgery. *Spine Journal* 2016 **16** 1167–1174. (https://doi.org/10.1016/j.spinee.2016.04.011)

9 Waljee J, McGlinn EP, Sears ED & Chung KC. Patient expectations and patient-reported outcomes in surgery: a systematic review. *Surgery* 2014 **155** 799–808. (https://doi.org/10.1016/j.surg.2013.12.015)

10 Stevens M, van den Akker-Scheek I & van Horn JR. A Dutch translation of the self-efficacy for Rehabilitation Outcome Scale (SER): a first impression on reliability and validity. *Patient Education and Counseling* 2005 **58** 121–126.

11 Haanstra TM, van den Berg T, Ostelo RW, Poolman RW, Jansma EP, Cuijpers P & de Vet HC. Systematic review: do patient expectations influence treatment outcomes in total knee and total hip arthroplasty? *Health and Quality of Life Outcomes* 2012 **10** 152. (https://doi.org/10.1186/1477-7525-10-152)

12 Bandura A *Self-Efficacy: The Exercise of Control*. 10. Print. ed. New York, NY: Freeman 2008.

13 Benight CC & Bandura A. Social cognitive theory of posttraumatic recovery: the role of perceived self-efficacy. *Behaviour Research and Therapy* 2004 **42** 1129–1148. (https://doi.org/10.1016/j.brat.2003.08.008)

14 Crow R, Gage H, Hampson S, Hart J, Kimber A & Thomas H. The role of expectancies in the placebo effect and their use in the

EFORT Open Reviews (2024) **9** 107–118
https://doi.org/10.1530/EOR-23-0087

delivery of health care: a systematic review. *Health Technology Assessment* 1999 **3** 1–96. (https://doi.org/10.3310/hta3030)

15 Colagiuri B, Schenk LA, Kessler MD, Dorsey SG & Colloca L. The placebo effect: from concepts to genes. *Neuroscience* 2015 **307** 171–190. (https://doi.org/10.1016/j.neuroscience.2015.08.017)

16 Page MJ, Moher D, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, *et al.* PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *BMJ* 2021 **372** n160. (https://doi.org/10.1136/bmj.n160)

17 Prill R, Karlsson J, Ayeni OR & Becker R. Author guidelines for conducting systematic reviews and meta-analyses. *Knee Surgery, Sports Traumatology, Arthroscopy* 2021 **29** 2739–2744. (https://doi.org/10.1007/s00167-021-06631-7)

18 Tricco AC, Lillie E, Zarin W, O'Brien K, Colquhoun H, Kastner M, Levac D, Ng C, Sharpe JP, Wilson K, *et al.* A scoping review on the conduct and reporting of scoping reviews. *BMC Medical Research Methodology* 2016 **16** 15. (https://doi.org/10.1186/s12874-016-0116-4)

19 Peters MDJ, Marnie C, Tricco AC, Pollock D, Munn Z, Alexander L, McInerney P, Godfrey CM & Khalil H. Updated methodological guidance for the conduct of scoping reviews. *JBI Evidence Synthesis* 2020 **18** 2119–2126. (https://doi.org/10.11124/JBIES-20-00167)

20 Hayden JA, van der Windt DA, Cartwright JL, Côté P & Bombardier C. Assessing bias in studies of prognostic factors. *Annals of Internal Medicine* 2013 **158** 280–286. (https://doi.org/10.7326/0003-4819-158-4-201302190-00009)

21 Schut L, Wangensteen A, Maaskant J, Tol JL, Bahr R & Moen M. Can clinical evaluation predict return to sport after acute hamstring injuries? A systematic review. *Sports Medicine* 2017 **47** 1123–1144. (https://doi.org/10.1007/s40279-016-0639-1)

22 Reurink G, Brilman EG, de Vos RJ, Maas M, Moen MH, Weir A, Goudswaard GJ & Tol JL. Magnetic resonance imaging in acute hamstring injury: can we provide a return to play prognosis? *Sports Medicine* 2015 **45** 133–146. (https://doi.org/10.1007/s40279-014-0243-1)

23 Middlebrook A, Middlebrook N, Bekker S & Rushton A. Physical prognostic factors predicting outcome following anterior cruciate ligament reconstruction: a systematic review and narrative synthesis. *Physical Therapy in Sport* 2022 **53** 115–142. (https://doi.org/10.1016/j.ptsp.2021.11.007)

24 Bruls VEJ, Bastiaenen CHG & de Bie RA. Prognostic factors of complaints of arm, neck, and/or shoulder: a systematic review of prospective cohort studies. *Pain* 2015 **156** 765–788. (https://doi.org/10.1097/j.pain.0000000000000117)

25 van Tunen JAC, Dell'Isola A, Juhl C, Dekker J, Steultjens M, Thorlund JB & Lund H. Association of Malalignment, muscular dysfunction, proprioception, laxity and abnormal joint loading with tibiofemoral knee osteoarthritis - a systematic review and meta-analysis. *BMC Musculoskeletal Disorders* 2018 **19** 273. (https://doi.org/10.1186/s12891-018-2202-8)

26 Vissers MM, de Groot IB, Reijman M, Bussmann JB, Stam HJ & Verhaar JA. Functional capacity and actual daily activity do not contribute to patient satisfaction after total knee arthroplasty. *BMC Musculoskeletal Disorders* 2010 **11** 121. (https://doi.org/10.1186/1471-2474-11-121)

27 Goodman SM, Mandl LA, Parks ML, Zhang M, McHugh KR, Lee YY, Nguyen JT, Russell LA, Bogardus MH, Figgie MP, *et al.* Disparities in TKA outcomes: census tract data show interactions between race and poverty. *Clinical Orthopaedics and Related Research* 2016 **474** 1986–1995. (https://doi.org/10.1007/s11999-016-4919-8)

28 Brembo EA, Kapstad H, Van Dulmen S & Eide H. Role of self-efficacy and social support in short-term recovery after total hip replacement: a prospective cohort study. *Health and Quality of Life Outcomes* 2017 **15** 68. (https://doi.org/10.1186/s12955-017-0649-1)

29 Jain D, Bendich I, Nguyen LL, Nguyen LL, Lewis CG, Huddleston JI, Duwelius PJ, Feeley BT & Bozic KJ. Do patient expectations influence patient-reported outcomes and satisfaction in total hip arthroplasty? A prospective, multicenter study. *Journal of Arthroplasty* 2017 **32** 3322–3327. (https://doi.org/10.1016/j.arth.2017.06.017)

30 Judge A, Cooper C, Arden NK, Williams S, Hobbs N, Dixon D, Günther KP, Dreinhoefer K & Dieppe PA. Pre-operative expectation predicts 12-month post-operative outcome among patients undergoing primary total hip replacement in European orthopaedic centres. *Osteoarthritis and Cartilage* 2011 **19** 659–667. (https://doi.org/10.1016/j.joca.2011.03.009)

31 Kästner A, Ng Kuet VSC, Petzke F, Budde S, Przemeck M, Müller M & Erlenwein J. The virtue of optimistic realism - expectation fulfillment predicts patient-rated global effectiveness of total hip arthroplasty. *BMC Musculoskeletal Disorders* 2021 **22** 180. (https://doi.org/10.1186/s12891-021-04040-y)

32 Oettingen G & Mayer D. The motivating function of thinking about the future: expectations versus fantasies. *Journal of Personality and Social Psychology* 2002 **83** 1198–1212. (https://doi.org/10.1037/0022-3514.83.5.1198)

33 Palazzo C, Jourdan C, Descamps S, Nizard R, Hamadouche M, Anract P, Boisgard S, Galvin M, Ravaud P & Poiraudeau S. Determinants of satisfaction 1 year after total hip arthroplasty: the role of expectations fulfilment. *BMC Musculoskeletal Disorders* 2014 **15** 53. (https://doi.org/10.1186/1471-2474-15-53)

34 Ponzio DY, Rothermel SD, Chiu YF, Stavrakis AI, Lyman S & Windsor RE. Does physical activity level influence total hip arthroplasty expectations, satisfaction, and outcomes? *Journal of Arthroplasty* 2021 **36** 2850–2857. (https://doi.org/10.1016/j.arth.2021.03.052)

35 Samy AM, Mahmoud AA & El-Tantawy A. Dual mobility cup: does it improve Patient's satisfaction after total hip arthroplasty? A prospective comparative randomized study. *Journal of the American Academy of Orthopaedic Surgeons* 2021 **29** e1141–e1150-e50. (https://doi.org/10.5435/JAAOS-D-20-00882)

36 Yapp LZ, Clement ND, Macdonald DJ, Howie CR & Scott CEH. Patient expectation fulfilment following total hip arthroplasty: a 10-year follow-up study. *Archives of Orthopaedic and Trauma Surgery* 2020 **140** 963–971. (https://doi.org/10.1007/s00402-020-03430-6)

37 Aggarwal A, Naylor JM, Adie S, Liu VK & Harris IA. Preoperative factors and patient-reported outcomes after total hip arthroplasty: multivariable prediction modeling. *Journal of Arthroplasty* 2022 **37** 714–720.e4. (https://doi.org/10.1016/j.arth.2021.12.036)

38 Arden NK, Kiran A, Judge A, Biant LC, Javaid MK, Murray DW, Carr AJ, Cooper C & Field RE. What is a good patient reported outcome after total hip replacement? *Osteoarthritis and Cartilage* 2011 **19** 155–162. (https://doi.org/10.1016/j.joca.2010.10.004)

39 Blevins JL, Chiu YF, Lyman S, Goodman SM, Mandl LA, Sculco PK, Figgie MP & McLawhorn AS. Comparison of expectations and outcomes in rheumatoid arthritis versus osteoarthritis patients undergoing total knee arthroplasty. *Journal of Arthroplasty* 2019 **34** 1946–1952.e2. (https://doi.org/10.1016/j.arth.2019.04.034)

40 Blum CL, Lepkowsky E, Hussein A, Wakelin EA, Plaskos C & Koenig JA. Patient expectations and satisfaction in robotic-assisted total knee arthroplasty: a prospective two-year outcome study. *Archives of Orthopaedic and Trauma Surgery* 2021 **141** 2155–2164. (https://doi.org/10.1007/s00402-021-04067-9)

41 Deakin AH, Smith MA, Wallace DT, Smith EJ & Sarungi M. Fulfilment of preoperative expectations and postoperative patient satisfaction after total knee replacement. A prospective analysis of 200

EFORT Open Reviews (2024) **9** 107–118
https://doi.org/10.1530/EOR-23-0087

patients. *Knee* 2019 **26** 1403–1412. (https://doi.org/10.1016/j.knee.2019.07.018)

42 Engel C, Hamilton NA, Potter PT & Zautra AJ. Impact of two types of expectancy on recovery from total knee replacement surgery (TKR) in adults with osteoarthritis. *Behavioral Medicine* 2004 **30** 113–123. (https://doi.org/10.3200/BMED.30.3.113-123)

43 Escobar A, García Pérez L, Herrera-Espiñeira C, Aizpuru F, Sarasqueta C, Gonzalez Sáenz de Tejada M, Quintana JM & Bilbao A. Total knee replacement: are there any baseline factors that have influence in patient reported outcomes? *Journal of Evaluation in Clinical Practice* 2017 **23** 1232–1239. (https://doi.org/10.1111/jep.12765)

44 Filbay SR, Judge A, Delmestri A & Arden NK. Evaluating patients' expectations from a novel patient-centered perspective predicts knee arthroplasty outcome. *Journal of Arthroplasty* 2018 **33** 2146-52.e4.

45 Ghomrawi HMK, Lee LY, Nwachukwu BU, Jain D, Wright T, Padgett D, Bozic KJ & Lyman S. Preoperative expectations associated with postoperative dissatisfaction after total knee arthroplasty: a cohort study. *Journal of the American Academy of Orthopaedic Surgeons* 2020 **28** e145–e150. (https://doi.org/10.5435/JAAOS-D-18-00785)

46 Hamilton DF, Shim J, Howie CR & Macfarlane GJ. Patients follow three distinct outcome trajectories following total knee arthroplasty. *Bone and Joint Journal* 2021 **103–B** 1096–1102. (https://doi.org/10.1302/0301-620X.103B6.BJJ-2020-1821.R1)

47 Hawker GA, Conner-Spady BL, Bohm E, Dunbar MJ, Jones CA, Ravi B, Noseworthy T, Dick D, Powell J, Paul P, *et al.* Patients' preoperative expectations of total knee arthroplasty and satisfaction with outcomes at one year: a prospective cohort study. *Arthritis and Rheumatology* 2021 **73** 223–231. (https://doi.org/10.1002/art.41510)

48 Hawker GA, Conner-Spady BL, Bohm E, Dunbar MJ, Jones CA, Ravi B, Noseworthy T, Woodhouse LJ, Faris P, Dick D, *et al.* The relationship between patient-reported readiness for total knee arthroplasty and likelihood of a good outcome at one year. *Arthritis Care and Research* 2022 **74** 1374–1383. (https://doi.org/10.1002/acr.24562)

49 Hirschmann MT, Testa E, Amsler F & Friederich NF. The unhappy total knee arthroplasty (TKA) patient: higher WOMAC and lower KSS in depressed patients prior and after TKA. *Knee Surgery, Sports Traumatology, Arthroscopy* 2013 **21** 2405–2411. (https://doi.org/10.1007/s00167-013-2409-z)

50 Jain D, Nguyen LL, Bendich I, Nguyen LL, Lewis CG, Huddleston JI, Duwelius PJ, Feeley BT & Bozic KJ. Higher patient expectations predict higher patient-reported outcomes, but not satisfaction, in total knee arthroplasty patients: a prospective multicenter study. *Journal of Arthroplasty* 2017 **32** S166–S170-s70. (https://doi.org/10.1016/j.arth.2017.01.008)

51 Kumar M, Battepathi P & Bangalore P. Expectation fulfilment and satisfaction in total knee arthroplasty patients using the 'PROFEX' questionnaire. *Orthopaedics and Traumatology, Surgery and Research* 2015 **101** 325–330. (https://doi.org/10.1016/j.otsr.2014.12.016)

52 Kuroda Y, Matsumoto T, Takayama K, Ishida K, Kuroda R & Kurosaka M. Subjective evaluation before and after total knee arthroplasty using the 2011 Knee Society Score. *Knee* 2016 **23** 964–967. (https://doi.org/10.1016/j.knee.2016.06.008)

53 Lingard EA, Sledge CB & Learmonth ID. Patient expectations regarding total knee arthroplasty: differences among the United States, United Kingdom, and Australia. *Journal of Bone and Joint Surgery. American volume* 2006 **88** 1201–1207.

54 Lopez-Olivo MA, Landon GC, Siff SJ, Edelstein D, Pak C, Kallen MA, Stanley M, Zhang H, Robinson KC & Suarez-Almazor ME. Psychosocial determinants of outcomes in knee replacement. *Annals of the Rheumatic Diseases* 2011 **70** 1775–1781. (https://doi.org/10.1136/ard.2010.146423)

55 Mannion AF, Kämpfen S, Munzinger U & Kramers-de Quervain I. The role of patient expectations in predicting outcome after total knee arthroplasty. *Arthritis Research and Therapy* 2009 **11** R139. (https://doi.org/10.1186/ar2811)

56 Nilsdotter AK, Toksvig-Larsen S & Roos EM. Knee arthroplasty: are patients' expectations fulfilled? A prospective study of pain and function in 102 patients with 5-year follow-up. *Acta Orthopaedica* 2009 **80** 55–61. (https://doi.org/10.1080/17453670902805007)

57 Ponzio DY, Chiu YF, Salvatore A, Lee YY, Lyman S & Windsor RE. An analysis of the influence of physical activity level on total knee arthroplasty expectations, satisfaction, and outcomes: increased revision in active patients at five to ten years. *Journal of Bone and Joint Surgery* 2018 **100** 1539–1548. (https://doi.org/10.2106/JBJS.17.00920)

58 Razmjou H, Boljanovic D, Wright S, Murnaghan J & Holtby R. Association between neuropathic pain and reported disability after total knee arthroplasty. *Physiotherapy Canada* 2015 **67** 311–318. (https://doi.org/10.3138/ptc.2014-46)

59 Thambiah MD, Nathan S, Seow BZ, Liang S & Lingaraj K. Patient satisfaction after total knee arthroplasty: an Asian perspective. *Singapore Medical Journal* 2015 **56** 259–263. (https://doi.org/10.11622/smedj.2015074)

60 Wylde V, Dixon S & Blom AW. The role of preoperative self-efficacy in predicting outcome after total knee replacement. *Musculoskeletal Care* 2012 **10** 110–118. (https://doi.org/10.1002/msc.1008)

61 Wylde V, Trela-Larsen L, Whitehouse MR & Blom AW. Preoperative psychosocial risk factors for poor outcomes at 1 and 5 years after total knee replacement. *Acta Orthopaedica* 2017 **88** 530–536. (https://doi.org/10.1080/17453674.2017.1334180)

62 Yapp LZ, Clement ND, Macdonald DJ, Howie CR & Scott CEH. Changes in expectation fulfillment following total knee arthroplasty: a 10-year follow-up study. *Journal of Arthroplasty* 2020 **35** 1826–1832. (https://doi.org/10.1016/j.arth.2020.02.064)

63 Cremeans-Smith JK, Greene K & Delahanty DL. Resilience and recovery from total knee arthroplasty (TKA): a pathway for optimizing patient outcomes. *Journal of Behavioral Medicine* 2022 **45** 481–489. (https://doi.org/10.1007/s10865-022-00287-5)

64 Munn JS, Lanting BA, MacDonald SJ, Somerville LE, Marsh JD, Bryant DM & Chesworth BM. Logistic regression and machine learning models cannot discriminate between satisfied and dissatisfied total knee arthroplasty patients. *Journal of Arthroplasty* 2022 **37** 267–273. (https://doi.org/10.1016/j.arth.2021.10.017)

65 van den Akker-Scheek I, Stevens M, Groothoff JW, Bulstra SK & Zijlstra W. Preoperative or postoperative self-efficacy: which is a better predictor of outcome after total hip or knee arthroplasty? *Patient Education and Counseling* 2007 **66** 92–99. (https://doi.org/10.1016/j.pec.2006.10.012)

66 Aree-Ue S, Roopsawang I & Kawinwonggowit V. Factors Predicting Functional Ability among Older Adults undergoing Hip and Knee Arthroplasty. *Pacific Rim International Journal of Nursing Research* 2019 **23** 156–169.

67 Bethge M, Bartel S, Streibelt M, Lassahn C & Thren K. Illness perceptions and functioning following total knee and hip arthroplasty. *Zeitschrift für Orthopädie und Unfallchirurgie* 2010 **148** 387–392. (https://doi.org/10.1055/s-0030-1250149)

68 Cross M, Lapsley H, Barcenilla A, Parker D, Coolican M & March L. Patient expectations of hip and knee joint replacement surgery and postoperative health status. *Patient* 2009 **2** 51–60. (https://doi.org/10.2165/01312067-200902010-00006)

EFORT Open Reviews (2024) **9** 107–118
https://doi.org/10.1530/EOR-23-0087

69 Gandhi R, Davey JR & Mahomed N. Patient expectations predict greater pain relief with joint arthroplasty. *Journal of Arthroplasty* 2009 **24** 716–721. (https://doi.org/10.1016/j.arth.2008.05.016)

70 Gonzalez Saenz de Tejada M, Escobar A, Bilbao A, Herrera-Espiñeira C, García-Perez L, Aizpuru F & Sarasqueta C. A prospective study of the association of patient expectations with changes in health-related quality of life outcomes, following total joint replacement. *BMC Musculoskeletal Disorders* 2014 **15** 248. (https://doi.org/10.1186/1471-2474-15-248)

71 Hafkamp FJ, de Vries J, Gosens T & den Oudsten BL. High pre-operative expectations precede both unfulfilled expectations and clinical improvement after total hip and total knee replacement. *Journal of Arthroplasty* 2020 **35** 1806–1812. (https://doi.org/10.1016/j.arth.2020.02.061)

72 Mahomed NN, Liang MH, Cook EF, Daltroy LH, Fortin PR, Fossel AH & Katz JN. The importance of patient expectations in predicting functional outcomes after total joint arthroplasty. *Journal of Rheumatology* 2002 **29** 1273–1279.

73 Neuprez A, Delcour JP, Fatemi F, Gillet P, Crielaard JM, Bruyère O & Reginster JY. Patients' Expectations Impact Their Satisfaction following Total Hip or Knee Arthroplasty. *PLoS One* 2016 **11** e0167911. (https://doi.org/10.1371/journal.pone.0167911)

74 Suda AJ, Seeger JB, Bitsch RG, Krueger M & Clarius M. Are patients' expectations of hip and knee arthroplasty fulfilled? A prospective study of 130 patients. *Orthopedics* 2010 **33** 76–80. (https://doi.org/10.3928/01477447-20100104-07)

75 Tilbury C, Haanstra TM, Verdegaal SHM, Nelissen RGHH, de Vet HCW, Vliet Vlieland TPM & Ostelo RW. Patients' pre-operative general and specific outcome expectations predict postoperative pain and function after total knee and total hip arthroplasties. *Scandinavian Journal of Pain* 2018 **18** 457–466. (https://doi.org/10.1515/sjpain-2018-0022)

76 Hafkamp FJ, Gosens T, de Vries J & den Oudsten BL. Do dissatisfied patients have unrealistic expectations? A systematic review and best-evidence synthesis in knee and hip arthroplasty patients. *EFORT Open Reviews* 2020 **5** 226–240. (https://doi.org/10.1302/2058-5241.5.190015)

77 Quintana JM, Escobar A, Aguirre U, Lafuente I & Arenaza JC. Predictors of health-related quality-of-life change after total hip arthroplasty. *Clinical Orthopaedics and Related Research* 2009 **467** 2886–2894. (https://doi.org/10.1007/s11999-009-0868-9)

78 Hartley SM, Vance DE, Elliott TR, Cuckler JM & Berry JW. Hope, self-efficacy, and functional recovery after knee and hip replacement surgery. *Rehabilitation Psychology* 2008 **53** 521–529. (https://doi.org/10.1037/a0013121)

79 Brokelman R, van Loon C, van Susante J, van Kampen A & Veth R. Patients are more satisfied than they expected after joint arthroplasty. *Acta Orthopaedica Belgica* 2008 **74** 59–63.

80 Riddle DL, Wade JB, Jiranek WA & Kong X. Preoperative pain catastrophizing predicts pain outcome after knee arthroplasty. *Clinical Orthopaedics and Related Research* 2010 **468** 798–806. (https://doi.org/10.1007/s11999-009-0963-y)