

BMJ Open Patient decision aids for hip and knee arthroplasty decision-making: a scoping review protocol

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ABSTRACT

Introduction Total hip arthroplasty (THA) and total knee arthroplasty (TKA) are effective methods carried out widely in patients with end-stage hip and knee osteoarthritis (OA). Despite the trend towards shared decision-making in surgical decisions, patients often struggle to fully participate due to a lack of informational support. Patient decision aids (PtDAs) which provide evidence-based sources of health information can address this issue and facilitate shared decision-making. However, most existing studies and systematic reviews focus on the effects of PtDAs in the decision-making process for THA and TKA, with little attention given to a comprehensive scoping review of the range and scope of research in this area. Therefore, this review aims to assess the state of the literature on PtDAs for THA and TKA, describe the features of PtDAs for patients with OA who are considering primary elective THA or TKA and identify the questions in the implementation of decision-making.

Methods and analysis This scoping review will be conducted according to the framework recommended by Arksey and O'Malley. The search will be limited to articles written in English and Chinese, while the publication date restriction is from 'inception' to 'February 2025'. Studies on PtDAs for patients with OA considering primary elective THA and TKA will be considered for inclusion. Five electronic databases will be searched (CINAHL, Pubmed, Embase, PsycINFO and Web of Science). Studies for inclusion will be selected independently by two review authors. Data will be extracted using a predefined data extraction form. Findings will be presented in tabular form. A narrative description of the evidence will complement the tabulated results.

Ethics and dissemination This scoping review does not require ethical approval, as it will involve a secondary analysis of existing literature. Findings will be published in a peer-reviewed journal.

Registration details Open Science Framework (<https://doi.org/10.17605/OSF.IO/9JCG3>).

INTRODUCTION

Osteoarthritis (OA) is a chronic degenerative joint disease, leading to pain, stiffness, limited movement, and even deformity and disability.¹ The Global Burden of Diseases, Injuries, and Risk Factors Study 2019 shows that hip and knee OA rank 11th in terms of disability, and the years lived with disability

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This review will be conducted using the framework recommended by Arksey and O'Malley.
- ⇒ The restriction of publication date is from 'inception' to 'October 2023'; the latest literature will not be included.
- ⇒ Only articles written in English and Chinese will be included.
- ⇒ This study will consult stakeholders to enhance the results of the review.

due to OA increased by 114.5% from 1990 to 2019.² This means that hip and knee OA not only decrease the quality of life of patients but also bring a huge burden to society. In China, the prevalence of symptomatic knee OA in 2016 was 8.1% (nearly 110 million patients).³ By 2019, China had the highest number of prevalent OA cases globally, with 132.81 million affected individuals.⁴ Therefore, the medical burden and financial impact of hip and knee OA in China is substantial and increasing. Attention should be paid to the treatment, symptom improvement and quality of life of these patients.

Total hip arthroplasty (THA) and total knee arthroplasty (TKA) are effective methods carried out widely in patients with end-stage hip and knee OA.⁵ Although shared decision-making involving treatment option description, patient preferences, tailored information, deliberate choice and creation of choice awareness⁶ is becoming more common in surgical decision-making, patients often find themselves excluded from the process for several reasons. First, the information provided by orthopaedic surgeons is often insufficient due to the limited time spent with patients.^{7 8} Second, surgeons may unintentionally provide less information to certain patients based on patients' demographic characteristics such as race/ethnicity⁹ and socioeconomic status.¹⁰ For example, surgeons may offer less medical information and display lower interpersonal



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skills when dealing with women.⁷ Thirdly, some surgeons have an overconfidence bias, believing they can accurately predict which patients will benefit from surgery and assuming their patients have better outcomes than reported.^{11 12} This often ignores patient preferences. In fact, 25% of patients undergoing surgery do not meet the surgical indications,¹³ and these patients are more likely to feel dissatisfied or even regretful, especially when facing postoperative complications, such as infection, revision and so on.^{13–15} As a result, patients often lack the necessary information to make choices aligned with their informed preferences.

Additionally, studies have found that due to a lack of information about surgical experiences from surgeons or other patients, individuals may hesitate, fear and become less willing to undergo THA and TKA, which can delay necessary surgeries.^{16 17} Therefore, patients have a significant need for informational support. Patient decision aids (PtDAs) can help solve these issues. PtDAs are interventions designed to support patients in making decisions, by making the decision explicit, providing evidence-based information about options and associated benefits/harms and helping clarify the congruence between decisions and personal values.¹⁸ These aids supplement, rather than replace, the patient–practitioner interaction and come in various forms, such as leaflets, interactive media or video.¹⁹

PtDAs for patients with OA who are considering primary elective THA and TKA have been designed to provide objective information about surgical and non-surgical treatment options, helping patients understand benefits and risks, partially bridging the knowledge gap with surgeons and then being able to participate in decision-making.^{20 21} As confirmed by systematic review,²² PtDAs for patients with OA are effective in the process and outcome of decision-making. They can help decrease decisional conflict, gain more knowledge and make more informed values-based choices. What is more, in terms of health outcomes, studies showed that patients who use these PtDAs experience greater improvements in quality of life,²³ better pain relief^{23 24} and lower cost.^{25 26} However, the implementation of these PtDAs is not extensive enough.²⁷ One of the possible influencing factors is the mismatch between the perspectives of surgeons and patients on PtDAs. Patients tend to have a more positive attitude towards PtDAs, while surgeons think that patients' literacy is insufficient.²⁸ Additionally, what other factors will affect the implementation of PtDAs?

Currently, there is no related review. The existing systematic review on PtDAs for patients with OA mainly assesses the effectiveness of PtDAs in total joint arthroplasty decision-making.²² To gain a more comprehensive understanding of problems that may be encountered in the implementation, it is necessary to carry out a scoping review. This will hopefully promote the use of PtDAs in the clinic.

METHODS AND ANALYSIS

To review all relevant articles, the methodology of a scoping review is selected. This review will be conducted using the framework recommended by Arksey and O'Malley,²⁹ with the review process organised into six stages: Stage 1: identifying the research question; Stage 2: identifying relevant studies; Stage 3: study selection; Stage 4: charting the data; Stage 5: collating, summarising and reporting the results; and Stage 6: consultation exercise. The review has been registered on the Open Science Framework. The registration DOI is <https://doi.org/10.17605/OSF.IO/9JCG3>. The study was planned to start in October 2024 and end in October 2025.

Patient and public involvement

Patients and the public will not be involved in the design of this study. But in Stage 6, we will invite stakeholders to comment on the results of the study and their feedback will be incorporated into the final article.

Stage 1: identifying the research question

With the guidance of the objective, the primary question for this review is: What is the implementation of PtDAs on decision-making for primary elective THA and TKA?

On the basis of the initial exploratory research, the following research subquestions were identified:

1. What are the main features of the PtDAs developed for patients with OA?
2. How is the intervention carried out?
3. What problems do surgeons and patients encounter in the cognition and the use of PtDAs?
4. What factors affect the extensive adoption and implementation of PtDAs?

Stage 2: identifying relevant studies

According to the framework, for practical convenience, the coverage of review in the field of language and time span should be decided originally. Therefore, the search will be limited to articles written in English and Chinese, while the publication date restriction is from 'inception' to 'February 2025'.

A three-step search strategy will be used in this review and will be conducted under the guidance of a librarian. First, a preliminary search will be conducted in PubMed, which uses keywords in the research question: 'hip arthroplasty', 'knee arthroplasty', 'patient decision aids', 'decision making' and 'implementation'. After analysing the words contained in the titles and abstracts of all retrieved articles and expanding key concepts by applying synonyms and wildcards, more accurate index terms and keywords will be identified (detailed in online supplemental appendix). As the second step, the index terms and keywords will be integrated into a full search strategy by using the Boolean operators OR and AND (detailed in online supplemental appendix), which will be used again in PubMed and then extended to each subsequent database (CINAHL, Embase, PsycINFO and Web of Science). Additionally, grey literature will also be searched to

Table 1 Eligibility criteria

	Inclusion criteria	Exclusion criteria
Participants	Patients with hip or knee OA, whether primary or secondary, and considering primary elective THA or TKA.	The main cause of THA or TKA is not OA, such as trauma.
Concept	PtDAs developed for patients with hip or knee OA to support their decision-making about whether to choose primary elective THA or TKA. PtDAs can provide evidence-based sources on surgical and non-surgical treatment options in the form of leaflets, video and so on.	PtDAs that do not pertain to the minimum criteria of the International Patient Decision Aid Standards (IPDAS). The minimum criteria ^{30 31} contain six items: (1) health condition or problem, (2) explicitly stating the decision under consideration, (3) options available for the index decision, (4) positive features of each option, (5) negative features of each option and (6) describing what it is like to experience the consequences of the options.
Context	Patients use PtDAs in natural situations.	–
Type of study	All primary studies, which include experimental, observational and qualitative study designs. Reviews.	Articles that cannot get the full text.

OA, osteoarthritis; PtDAs, patient decision aids; THA, total hip arthroplasty; TKA, total knee arthroplasty.

decrease bias. Finally, the reference list of articles selected for inclusion will be searched for additional sources.

Stage 3: study selection

Articles identified through Stage 2 will be obtained and uploaded into EndNote. Duplicate articles will be removed automatically.

According to the eligible criteria (table 1), two independent reviewers will conduct an appraisal of the titles and abstracts to judge whether articles match the criteria. Discrepancies will be reconciled by a third reviewer. Those articles that do not meet the eligibility criteria will be excluded. If the relevance is unclear from the title and abstract, articles will continue to full text where eligibility will be determined.

Then the full texts of all articles that meet the inclusion criteria will be retrieved and reviewed to determine which articles will be subject to data extraction and synthesis. The full-text review will also be conducted by two independent reviewers, and a third reviewer will reconcile any differences in selection. Studies excluded at this stage will be described, and reasons for exclusion will be noted.

Stage 4: charting the data

Based on the preliminary scoping phase, a data extraction framework including seven categories was developed. This framework will be used to assess all full-text articles meeting our inclusion criteria. The framework will include (1) general publication information such as author list, journal, country, year of publication and so on; (2) study details such as aim, methodology, sample size and setting; (3) study population information such as demographic characteristics and characteristics of the decision to be made (THA or TKA); (4) PtDA information such as PtDA name, type and IPDAS criteria; (5) intervention details such as patient exposure to PtDA, duration and comparator (if any); (6) important results such as patients' experience, surgeons' experience and

patient' demands and (7) influencing factors of implementation such as barriers and facilitating factors. It will be pilot-tested by two independent reviewers on a sample of the included studies in order to ensure that the coding framework is consistently applied. Discrepancies will be resolved by discussion or by arbitration of a third reviewer. If necessary, the categories will be modified, and the data extraction framework revised accordingly. Modifications will be detailed in the full scoping review report. The study authors will be contacted for any missing or incomplete data.

Stage 5: collating, summarising and reporting the results

To characterise and summarise the results, a map of the data extracted from the included papers will be presented in a diagrammatic or tabular form. A descriptive analysis of the collected data will provide information on the body of research that has been conducted on PtDAs for THA and TKA decision-making. A narrative thematic summary may help find the existing problems in the implementation of PtDAs. Results will be presented descriptively and will follow Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews guidelines. This scoping review will help practice in the field of decision-making for patients with OA who are considering primary elective THA and TKA.

Stage 6: consultation exercise

To enhance the results of the review, a consultation will be endorsed, which will involve two groups of stakeholders: managers and staff members from local hospitals and patients and their caregivers. After summarising the results, stakeholders will be recruited and sign informed consent forms. Focus group discussions, a qualitative method of data collection, will be used. According to the final number of recruits, we will divide them into several groups. Before discussion, they will learn about the findings of the review alone. The discussion will be

carried out in a private room. Each focus group included two researchers. One is an experienced surgeon who will conduct the interviews and help respondents to remain focused on the topic, and the other is an observer who will ask supplementary questions and take notes during the process. Data collection will end when saturation is reached, with no new themes emerging. After that, we will analyse the data by thematic analysis and extract valuable insights that the scoping review alone will not show. Stakeholders' feedback will also be incorporated into the final article.

DISCUSSION

This scoping review will fill an important gap in the literature, as no scoping review of PtDAs for patients with OA who are considering primary elective hip and knee TJR has been conducted.

As a scoping review, results from this study will provide a descriptive overview of available evidence. Furthermore, it can analyse the current possible problems in the implementation of PtDAs and provide reference for medical staff.

Overall, evidence collated through this scoping review may be beneficial for learning the implementation of PtDAs designed for patients with OA who are considering primary elective TJR or helping patients engage in decision-making.

ETHICS AND DISSEMINATION

As this scoping review will collect and synthesise data from publicly available sources, no ethical approval is required. The results of this scoping review will be used to summarise the current field of PtDAs in hip and knee arthroplasty. The data will be informative for various stakeholders, including researchers, public health organisations, hospitals and patients. When data collection and summarisation are completed, we aim to produce an article reporting the results of the scoping review that will be disseminated to stakeholders through open access publication in a relevant orthopaedics journal. We will also aim to present and disseminate results at relevant conferences.

Contributors OC and JJ are mainly responsible for the protocol writing. QL and JJ are mainly responsible for the design and revision of the protocol. CZ and HY will be mainly responsible for study selection. OC and CZ will be mainly responsible for charting data. OC and HY will be responsible for reporting results. OC and JJ will be responsible for the discussion. QL is responsible for the guidance of the whole study and is the guarantor. All authors contributed to the article and approved the submitted version.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, conduct, reporting or dissemination plans of this research. Refer to the Methods section for further details.

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