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Biopsychosocial Determinants for Total Knee Replacement Decisions Among Older Adults With Chronic Knee Osteoarthritis: A Scoping Review

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Abstract

Background: Total knee replacement (TKR) is a common surgical intervention for older adults with chronic knee osteoarthritis (KOA). Given the prevalence of comorbidities in this population, health priorities may vary, influencing decision-making regarding TKR. Despite the increasing number of TKRs, no scoping review has systematically examined the determinants shaping older adults' decisions using a biopsychosocial (BPS) model.

Materials and Methods: Searches were undertaken in commercially produced and grey literature sources. Eligible studies included English-language qualitative and quantitative studies that investigated determinants influencing older adults' decision towards TKR. Two independent reviewers screened the results. The data were then independently extracted, which was then collated and synthesized, using the BPS model.

Results: Out of 999 abstracts screened, 23 studies met the inclusion criteria. The included studies took place in Australia, Canada, Germany, Japan, Kuwait, Sweden, Taiwan, Turkey, the United Kingdom and the United States. Ten studies used qualitative study designs while thirteen used varying quantitative study designs. Under BPS model, these determinants were grouped into biological determinants: baseline physical health, disease severity, and pain symptoms; psychological determinants, including coping strategies, feelings of loss, mental stress, depression, and anxiety; and social determinants: support networks, financial resources, health insurance, and access to referral systems and surgery.

Conclusion: The decision for TKR in older adults with chronic KOA is shaped by an intricate interplay of biological, psychological, and social factors. The most consistent determinants included the desire for pain relief and the ability to regain physical function. Religion and spirituality significantly influence stress and anxiety in older adults and transportation system also presents significant challenges for TKR surgery. A multifaceted strategy that improves the structures, processes, and outcomes of decision for TKR surgery is required among older adults with chronic KOA. Future research with large, representative samples and a focus on the BPS framework is needed to further explore this complex decision-making process.

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Introduction

Total knee replacement (TKR) is a surgical procedure aimed at reducing pain and improving function in patients with chronic knee osteoarthritis (KOA).[1,2] It involves replacing the tibiofemoral and sometimes patellar joint surfaces.[3,4] TKR is commonly recommended when KOA becomes chronic and conservative treatments fail to provide adequate relief.[5] Approaches such as exercise, non-steroidal anti-inflammatory drugs (NSAIDs), and weight management are typically employed to manage symptoms; however, when these interventions do not sufficiently alleviate pain or improve quality of life, TKR is often considered the most appropriate option.[6,7]

The global rise in KOA has led to a significant increase in TKR surgeries, with 96.2% of procedures in 2018 being KOA-related.[1,8] Older adults, especially those aged 70 years and above, are the primary recipients, with TKR rates expected to increase by 85% globally by 2030.[2] Countries like South Korea, Taiwan, India and Malaysia have also seen substantial growth in TKR surgeries.[9-11]

TKR is recognized for its efficacy in alleviating pain and enhancing physical function, which ultimately leads to an improved quality of life for patients suffering from chronic KOA.[1] Patient satisfaction with TKR procedures ranges widely, with reported satisfaction rates between 75% and 95%. Notably, the rate of dissatisfaction has decreased to as low as 10% compared to findings from earlier studies.[12-14]

Several factors influence the decision-making process regarding TKR, including age, gender, comorbidities, body mass index (BMI), disease severity, pain levels, and social factors.[15-17] Traditional biomedical models predominantly emphasize biological factors, which may not adequately address the complexity of conditions like KOA. In contrast, George Engel's biopsychosocial (BPS) model incorporates biological, psychological, and social dimensions, thereby enhancing patient-centred care, improving clinical outcomes, and promoting cost-effectiveness.[18-20]

Key biological determinants in the decision-making process for TKR include the severity of KOA, pain intensity, radiographic findings, and functional limitations.[21,22] Higher grades of KOA (grade 2 or higher) and significant radiographic damage correlate with an increased likelihood of undergoing TKR and achieving favourable surgical outcomes.[23] Factors such as severe pain and comorbidities, particularly obesity, also play a crucial role in influencing the decision.[24,25] Additionally, considerations of frailty and fall risk are particularly pertinent for older adults contemplating TKR.[26,27]

Psychological factors, including patients' perceptions of TKR's benefits and risks, self-management confidence, and prior experiences with conservative treatment, significantly impact their decision-making.[16,28] Concerns regarding the worsening of symptoms and negative past experiences may lead to hesitation in pursuing surgery.[29] Furthermore, social determinants such as support networks, socioeconomic status, and cultural beliefs are crucial in this decision-making process, with strong social support and favourable socioeconomic conditions generally enhancing the likelihood of pursuing TKR, whereas limited support and adverse cultural factors may hinder willingness to undergo the procedure.[15,30]

Given TKR's widespread application and influences on life quality, it is crucial to comprehend the various factors that influence this decision, particularly among older adults with intricate health profiles. The BPS model integrates all the determinants to offer a holistic perspective, understanding interconnectedness, and comprehensive decision-making solutions.[31] This may help healthcare providers assist older adults in making informed choices about TKR, enhancing patient care and surgical outcomes.

In this scoping review, we aim to systematically examine the determinants influencing older adults' decisions regarding TKR through the lens of the BPS model, addressing the gap in existing research that has yet to provide a comprehensive mapping of literature on this topic.

Methodology

A scoping review was chosen as the research methodology for this study because it facilitates a breadth of literature in the field of study, helps to identify gaps in knowledge and condenses key findings into conclusions that can guide future research.[32] The review followed best practice standards in the conduct and reporting of scoping reviews (PRISMA scoping review).[33] A total of five steps of scoping review were adopted, namely (1) identify the research question, (2) identify previous research relevant to this review, (3) iterative team approach selection, (4) data extraction by summarizing quantitative and qualitative thematic analysis, and (5) collate, summarize, and reporting the results.[33] The recommended consultation with stakeholders was not implemented since it is considered an

optional component.[33,34] The methodological quality or risk of bias were not assessed as this is an optional requirement for scoping reviews.[34,35] The protocol of this scoping review has been registered on the Open Science Framework database (DOI 10.17605/OSF.IO/32AZW).

Defining the Research Question

The review question is structured within the framework of the Population-Concept-Context (PCC) model,[36] signifying that the primary focus of the study is on older adults with chronic KOA, with the concept being the biopsychological determinants for TKR decisions, and the context being TKR for chronic KOA . Thus, this review sought to answer the following research question: "What are the biopsychosocial determinants for TKR decisions among older adults with chronic KOA?"

Eligibility Criteria

The population includes older adults with chronic KOA, covering mean age study population 60 years or over or if the study mean/median age was <60 but reported results on a subgroup analysis of older adults with a mean/median age ≥60. Only studies addressing the topic of biopsychosocial determinants were considered eligible for inclusion. The context of this review was limited to TKR decisions. In instances where a study explored the decisions making for total joint arthroplasties other than TKR, we included articles only if it was possible to extract and differentiate the information specifically pertaining to TKR decisions from the data related to other total joint arthroplasties. Certain types of publications, such as editorials, case studies, reviews, expert opinion papers and studies that were published as abstracts only were excluded from the review. Additionally, studies that investigated the factors influencing TKR decisions based on rehabilitation outcome were excluded. The study exclusively encompassed articles that have been published in English. Table 1 provides an overview of inclusion and exclusion criteria.

Identifying Relevant Literature

A preliminary literature search was conducted on PubMed to explore the existing body of literature and establish key terms and Medical Subject Headings (MeSH) relevant to the field of study. This search was performed by CVL and independently verified by DKAS. Search terms, developed based on the population, concept, and context are presented in Table 2. A comprehensive search was conducted across five academic databases (EBSCOhost, Scopus, PubMed, Web of Science and the Journals@ OVID) from year 2013 to December 2023, supplemented by an updated search in April 2024 to capture current literature. The databases were selected based upon accessibility and applicability to the research question. Search syntax for each database is provided in Appendix A. To reduce the risk of publication bias, we also reviewed the reference lists of all selected articles manually to identify any additional relevant articles.

Study Selection Process

In this study, a systematic approach was employed to select relevant studies. First, studies were imported into Rayyan software[37] to identify and eliminate relevant duplicate entries. To select relevant studies, a two-step process was implemented; reviewing the title and abstract followed by screening the full text. Both screening processes were conducted by two independent reviewers (CVL and MAA) with any screening discrepancies discussed and conflicting votes resolved by a third reviewer (DKAS).

Data Extraction

A customised data extraction form was developed based on the PCC framework[36] including author, country, design, method, study populations, objectives and collective findings from BPS model (Appendix C). Data were extracted independently by CVL and reviewed by MAA or DKAS. Discrepancies in data extraction between reviewers were resolved through further review and discussion.

Data Synthesis

Key themes following the BPS model were presented in the table and figure using descriptive and thematic analysis. The three components of the BPS model include the biological component, which describes the physiological traits of the individual; the psychological component focuses on the behaviours and emotions of an individual; the social component emphasizes on the sociocultural, environmental and economical of an individual and lastly, the integrative component where all these factors are integrated as a whole to understand the relationship between all the three components in the decision-making process. This model was chosen for this study because it explains the intricate interactions between biological, psychological and social components that can offers some implications for the relationships between an individual health outcome and the disease.[20] According to the three components of BPS model, this scoping review aggregates and discusses the determinants influencing the TKR decisions among older adults with chronic KOA. The findings were divided into themes related to biological, psychological and social factors with integrative factors.

Table 1. Inclusion & Exclusion Criteria.

	Population	Concept	Context	Studies
Inclusion criteria	Older adults with chronic KOA (mean age ≥60 years or over or if the study mean/median age was <60 but reported results on a subgroup analysis of older adults with a mean/median age ≥60)	Studies exploring the biopsychosocial determinants affecting TKR decisions (if possible, to extract and differentiate the information specifically pertaining to TKR decisions from the data related to other total joint arthroplasties)	TKR for chronic KOA	Human English Quantitative and qualitative studies Published and unpublished studies (e.g., thesis)
Exclusion criteria	Adults with or without KOA <60 years old	Studies investigated the factors influencing TKR decisions based on rehabilitation outcome Studies exploring BPS determinants impact on outcome of TKR Studies that do not specifically explore BPS determinants as a primary focus	Other conditions that require TKR	Animal Non-English Editorials, case studies, reviews, expert opinion papers and studies that were published as abstracts only

Results

Study Selection

999 references were identified from five electronic databases (EBSCOhost = 816, Scopus = 5, PubMed = 156, Web of Science = 9 and Journals@ OVID = 10). After removing 418 duplicates, the remaining 581 references were retained for titles and abstract screening. During the screening process, 90% of the references were independently selected for inclusion by two reviewers, while 10% (n = 58) of the remaining decisions conflicted. Reviewers held meetings to discuss their results and were able to solve 90% of the conflicts. Where consensus was not reached, a third party was invited to reach an agreement for the remaining conflicts. 554 articles were excluded due to lack of relevance by title and abstract. The final stage of the study selection was the full-text screening which involved a critical reading of the eligible articles. A total of 27 articles were eligible for full-text screening. Articles were included if the outcome assessed was TKR decisions, including the decision pathway taken, prediction for future TKR and indecision related to TKR. In contrast, articles were excluded if older adults with chronic KOA are not the intended population, did not address the research question and results were not specific to exploring biopsychosocial determinants for TKR decisions. 20 studies met the inclusion criteria, and 3 articles were added by reviewing the reference lists of included articles. Thus, 23 publications were finally included in the review. The process of selecting studies is depicted in Figure 1 below.

Characteristics of Included Articles

Table 3 (Appendix C) lists the characteristics of studies incorporated in the scoping review. The included studies took place in Australia,[16,38] Canada,[39-41] Germany,[42] Japan,[43] Kuwait,[44] Sweden,[45,46] Taiwan,[47,48] Turkey,[49] the United Kingdom[50,51] and the United States.[52-59] A total of 19 779 patients (minimum 12, maximum 3542) were included in the studies. The median age of the patients was between 35 and 93 years. Ten studies used a qualitative study design,[16,45-52,60] five studies used a prospective

Table 2. Key Concepts and Search Terms.

Framework aspects	Search terms
Population	(Older adults OR elderly OR older individuals OR older persons OR seniors OR geriatric) AND (knee osteoarthritis OR knee pain OR osteoarthritis)
Concept	(Determinants OR factors OR reasons) AND (decisions OR decision making OR willingness)
Context	(Total knee replacement OR TKR OR total knee arthroplasty OR TKA) NOT (physiotherapy OR rehabilitation OR physical therapy)

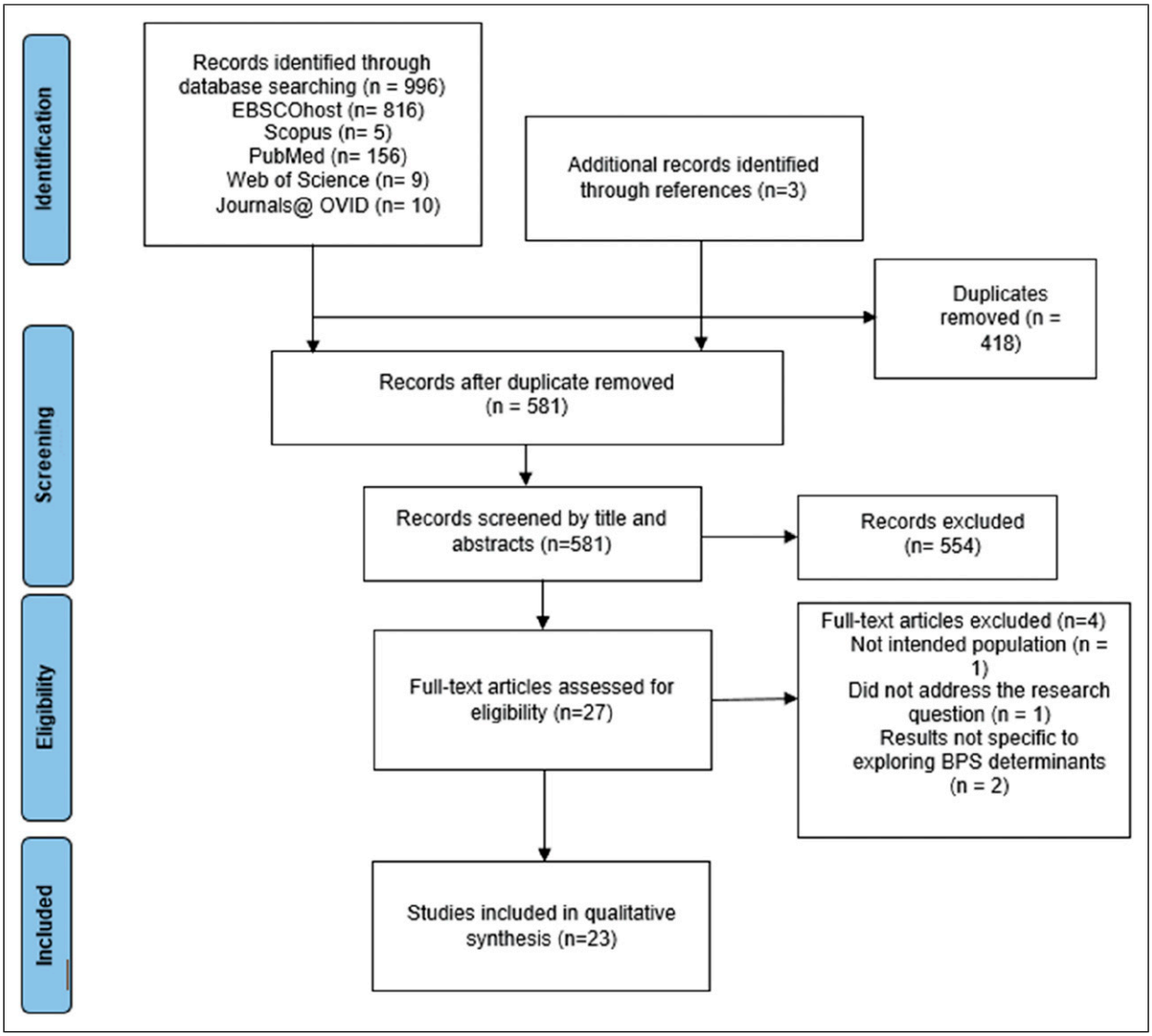

Figure 1. PRISMA Flow Chart of Study Selection.

longitudinal cohort design,[39,40,43,55,57] one study used a prospective populational study design,[38] five studies used cross-sectional design,[41,42,54,58,61] one study used mixed methods design[59] and one study used discrete choice experiment (DCE) design.[56]

Almost all studies used primary data collection or administrative databases. Five studies used purposive sampling techniques,[16,45,49-51] one used stratified sampling technique,[42] two studies used convenience sampling techniques[47,48] and fifteen studies did not describe the sampling method used.[38-41,43,46,52,54-61]

Sample sizes in the studies using qualitative methodologies ranged from 12[46] to 79[47] and the response rate varied from 12%[51] to 100%[46,52] and was not reported for three studies.[49,50,60] The sample sizes for quantitative methodologies ranged from 150[56] to 3542[57] and the response rate varied from 24.6%[42] to 89.6%[43] and was not reported for five studies.[38,54,57,58,61]

For eleven studies the participants were reported had symptomatic KOA with no surgical recommendations,[39-43,45,54,55,57,58,61] while seven studies reported the participants to be in symptomatic KOA condition and were recommended or in waiting list for TKR.[16,46-48,50,52,60] Two studies reported participants with other complaints or conditions affecting decision towards TKR[38,56] and two studies investigated the decision for TKR among post-TKR surgery participants.[49,51] The mixed methods study involved both ranges of participants varied from symptomatic KOA to post-TKR surgery.[59]

All the included studies mainly focused on the factors related to the decision towards TKR surgery while three studies among all included studies involved examined the

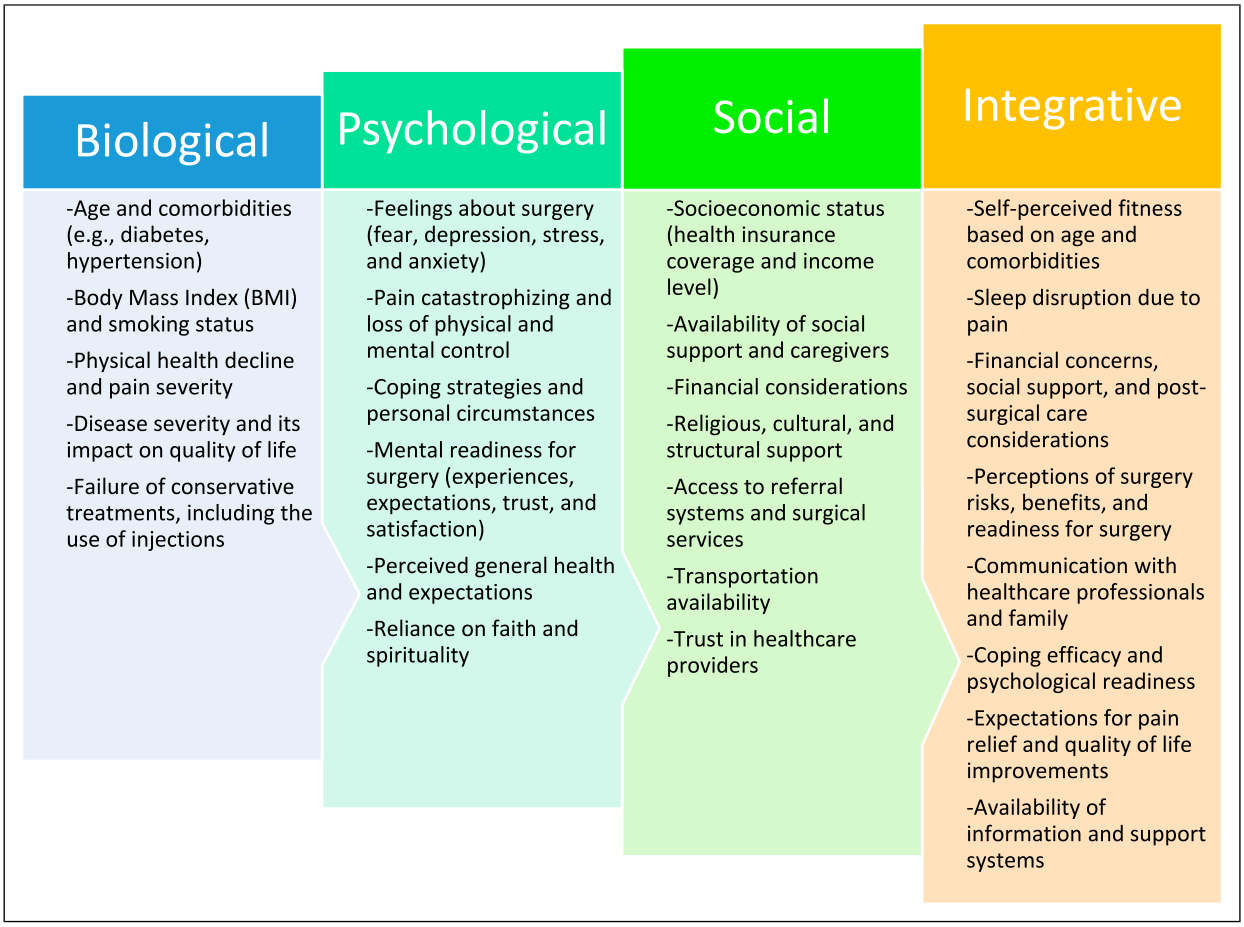

Figure 2. Summary of the Identified BPS Determinants for TKR Decisions Among Older Adults With Chronic KOA Based on the Review of the Quantitative and Qualitative Studies.

decision pathway taken,[51] prediction for future TKR[38] and investigated the indecision factor for TKR surgery.[48]

Synthesis of Results

The biopsychosocial determinants associated with TKR decisions among older adults with chronic KOA are described in this review using descriptive and thematic analysis. Themes were developed and categorised according to the components of BPS model: biological, psychological and social components. Integrative factors were added to enhance the further understandings of the interplay between the components. The themes that emerged from the analysis were presented in Table 3 (Appendix C). The summary of these factors is as depicted in Figure 2.

Biological Components

An individual's biological condition significantly influences healthcare decision-making, particularly in the context of TKR decisions among older adults with chronic KOA. Notably, obesity and elevated BMI which are prevalent conditions in this demographic, exacerbate mechanical joint stress, leading to increased pain and functional limitations that may more urgently prompt patients to consider surgical intervention.[38] Patients often opt for TKR when pain is severe, especially if it limits physical function, mobility, and quality of life.[46,55,62] The prolonged experience of pain, exacerbated by activity or rest, is a key motivator for surgery, although there is no consistent link between OA severity and surgery decisions.[43,46,54,55,57] Other biological considerations include age and comorbidities, such as diabetes and hypertension, which may prompt delays in surgery due to perceived risks in older adults.[48,52,55] Additionally, smoking status is associated with increased surgical risks, influencing the decision-making process.[41] Patients who experience physical health decline and fail to achieve relief from conservative treatments, including injections, are more likely to opt for TKR as a last resort.[48,55]

Psychological Components

Psychological factors also significantly impact decision-making. The experience of chronic pain is inherently subjective, frequently intensified by psychological distress, which can significantly modulate patients' perceptions of their condition and potential treatment approaches.[16] Fear, anxiety, depression, and stress associated with surgery can either delay or expedite the decision for TKR, depending on individual perceptions.[16,50,51] Catastrophizing pain and the perceived loss of physical and mental control, such as fear of walking or loss of confidence in knee functionality, often push patients toward surgery.[16,46,60] On the other hand, concerns about anaesthesia, post-surgical pain, and uncertainty about the success of surgery can deter patients.[16,40,45,49,51] Spirituality and faith also play a role, with some patients turning to religion as a coping mechanism, believing their suffering will be rewarded or even hoping for divine intervention in their decision-making process.[44,52]

Social Components

Social factors may complicate the decision to undergo TKR, particularly through the complex interplay of family dynamics, community influences, and healthcare provider interactions. The environmental context surrounding patients, especially older adults with chronic KOA, can profoundly shape their treatment preferences and ultimate healthcare decisions.[46] Older adults often weigh the availability of caregivers, transportation issues, and the financial burden of surgery before making their decision.[16,42,46-48,51,52] Higher income levels and comprehensive health insurance positively influence the decision to proceed with TKR, while those with financial limitations or inadequate coverage are less likely to opt for surgery.[16,50,55] Delays due to long waiting times and logistical challenges also discourage patients, leading them to explore conservative treatments or alternative coping strategies.[16,50,54] Support from healthcare providers, trust in the system, and prior experiences also shape perceptions of surgery's risks and benefits.[16,42,46-48,51,58] Optimistic expectations and clear understanding of surgical outcomes tend to favour decisions to undergo TKR.[39,52,59]

The Integrative Model

The integrative model, incorporating both individual and systemic factors, highlights the complexity of decision-making for TKR. The biopsychosocial model emphasizes the need to consider the interplay of biological, psychological, and social influences. For instance, the perception of aging, health risks, and post-surgical recovery all play a role in assessing the feasibility of surgery.[52,57] Although some patients are deterred by potential surgical risks, others are motivated by the expectation of improved mobility, reduced pain, and the ability to resume activities.[48,49] The decision is further shaped by perceptions of healthcare systems, with distrust, limited access, and misinformation about the benefits of TKR influencing the outcomes.[16,58] A key consideration in the decision for TKR is the degree to which socioeconomic barriers, such as healthcare accessibility and affordability affect patient willingness to undergo surgery. Prolonged waiting times and inadequate financial resources often lead to the postponement of surgery in favour of conservative treatments.[16,45] Addressing these barriers is essential for improving access to TKR and optimizing outcomes for patients with chronic KOA.

Discussion

The purpose of this review was to explore the current body of literature on BPS determinants influencing the decision to undergo TKR among older adults with chronic KOA. As TKR is the most commonly recommended intervention for older adults with chronic KOA when conservative management fails, this review aimed to identify these determinants to enhance informational support for the intended population in the future. In this review, we identified a complex interplay of modifiable and non-modifiable factors spanning biological, psychological, and social domains, highlighting the multidimensional nature of healthcare decision-making processes.

Non-modifiable biological factors, including advanced age, elevated BMI, and radiographic severity of osteoarthritis, were significantly associated with increased surgical intention. Conversely, modifiable biological factors, such as compromised physical function, reduced mobility, disease severity and elevated pain levels, substantially contributed to patients' greater willingness to consider joint replacement. These findings align with a Norwegian study that identified a higher risk of chronic KOA and TKR in later life.[63] Similarly, in a qualitative study, it was found that pain and functional limitations are primary considerations for undergoing TKR.[64] Patients with chronic KOA experience pain in highly individualized ways. This variability in pain presentation makes it difficult for patients to determine precisely when surgical intervention becomes appropriate.[65] Other studies suggest that conditions like carpal tunnel syndrome often influence patients' intentions toward surgical intervention, particularly when conservative treatments fail to provide relief.[66] This aligns with the broader trend observed in TKR decision-making, where unmet treatment expectations and persistent symptoms drive individuals to consider surgery as a viable solution. Additionally, some studies revealed a weak correlation between smoking and arthroplasty revision or

mortality rates, though no significant association was found between smoking and KOA progression.[67-69]

Psychological determinants critically shape patients' intentions toward TKR. Non-modifiable factors, including baseline mental health status and dispositional optimism, significantly influenced surgical intention. Conversely, modifiable psychological factors encompassed health beliefs, perceived surgical benefits, self-efficacy, and patient-specific fears surrounding the procedural intervention and anticipated recovery process. Anxiety, depression, and perceived stress, which are associated with increased pain and disability, have been shown to influence patients' intentions to proceed with surgery, as seen in those awaiting total hip replacement.[70] Fear of compromised outcomes due to delays has also been a significant driver of surgical intentions, as observed in patients with carpal tunnel syndrome.[66] According to recent findings, long-standing psychological issues can amplify the burden of physical pain, thereby complicating the decision-making process regarding TKR surgery.[71] Pre-existing anxiety and depression may impact decision-making, as patients may struggle to objectively weigh the benefits and risks of TKR.[71]

Social determinants significantly influence TKR decisions, though they remain less thoroughly researched than other factors. Non-modifiable elements such as race, ethnicity, and socioeconomic status shape both surgical perceptions and healthcare access, while modifiable factors include social support networks, coping mechanisms, and patient-provider relationships.[72] Spirituality and religious beliefs emerge as crucial influences in surgical decision-making, with diverse impacts. Some older adults view joint deterioration as part of a divine plan and resist intervention, while others find that spiritual beliefs reduce surgical anxiety.[73-75] Concurrently, some interpret TKR as a divinely provided opportunity for functional restoration.[52] Cultural perspectives on ageing as a natural process may increase surgical hesitancy, while for many older patients, spiritual convictions guide complex medical decisions that significantly affect quality of life.[76] Cultural contextualization significantly influences perceptions of TKR surgery, as many cultures maintain stigmas about surgical interventions or hold diverse beliefs regarding ageing and disability that impact patient decision-making.[77] Social support systems within specific cultural frameworks can either facilitate or discourage individuals from pursuing surgery based on collective healthcare beliefs, highlighting the importance of considering cultural perspectives when evaluating motivations for TKR among diverse older adult populations.[77,78]

Patients with prior surgical experiences often reported higher satisfaction, which influenced others' intentions to consider surgery.[79] Conversely, some studies revealed that inadequate information about medical conditions and treatment options led to confusion and frustration, negatively impacting patients' intentions to proceed with TKR.[80,81] Strong social support has been shown to help individuals manage adversity, build resilience, and foster positive surgical intentions.[76] However, financial barriers, such as healthcare costs, indirect expenses, and transportation challenges, significantly hinder intentions to pursue surgery.[82,83] Moreover, the availability of resources, effective communication, and coordination among healthcare facilities also play a crucial role in influencing patient intentions and preferences for TKR.[84] Research indicates that while biomedical factors like pain and functional limitations drive TKR decisions, treatment expectations represent a crucial psychological determinant that significantly influences both surgical decision-making and post-operative satisfaction.[85] Additionally, preoperative psychological states such as anxiety and kinesiophobia can negatively impact recovery outcomes following TKR, further emphasizing the importance of categorizing and addressing treatment expectations within the psychological domain of surgical decision-making factors.[86]

The decision to pursue TKR emerges from a complex interplay of biopsychosocial factors unique to each patient's circumstances. While KOA severity, pain levels, and functional limitations are primary considerations, the decision extends beyond medical parameters to encompass self-perceived fitness, age, comorbidities, cultural beliefs, and family dynamics.[52] Older adults often prioritize maintaining familial roles and responsibilities over personal comfort, demonstrating how social expectations profoundly influence surgical decision-making.[87] The prospect of surgery typically initiates deep personal reflection where patients examine their values, priorities, and spiritual beliefs, with many seeking strengths through prayer or religious practices while weighing surgical risks against potential benefits.[88]

Decision-making for TKR also involves practical considerations including financial resources, communication strategies, and coping mechanisms.[88] Effective communication with healthcare providers and family members is crucial for gathering information, with many patients seeking additional guidance from spiritual leaders or community members.[89] Belief systems shape surgical expectations, with some viewing mobility restoration as a divine blessing, while others focus primarily on pain reduction and quality of life improvements.[78] Patient education, support groups, and rehabilitation resources enhance self-efficacy among older adults, requiring healthcare providers to understand and respect each patient's unique sociocultural context.[90,91] This process transcends medical intervention, representing a personal journey of meaning-making that integrates biological, psychological, and social factors into a holistic framework

that empowers patients to approach surgical decisions with enhanced readiness.[88]

Moreover, the integration of both BPS and social determinants of health (SDOH) models provides a nuanced understanding of TKR intention.[92] The BPS model supports comprehensive evaluation of physical, mental, and social factors to identify barriers to care.[18] While, the integrative model emphasizes patient perceptions of health status.[93] Research shows subjective factors drive decision-making, but TKR success depends on multiple factors including rehabilitation adherence.[94] Additionally, patient-reported outcomes offer crucial assessment metrics and shared decision-making models improve satisfaction by aligning treatments with individual preferences.[88,95]

Despite employing comprehensive search strategies and adhering to PRISMA guidelines, this review may have overlooked some relevant studies. Methodological shortcomings in the included studies such as small sample sizes, lack of validated measurement tools, and reliance on subjective perspectives were noted. These issues highlight a need for robust, high-quality research using larger, representative samples to explore the interplay among biological, psychological, and social factors influencing TKR decision-making.

Conclusion

Using the BPS model as a framework, this review concludes that the decision to undergo TKR among older adults with chronic KOA is shaped by a range of interconnected factors. Pain reduction and the desire to restore physical function and work ability emerge as primary motivators. Additionally, psychological elements such as coping strategies, expectations, and spirituality, alongside social determinants like transportation availability and financial support, play significant roles in influencing decision-making. These findings highlight the need for a multifaceted strategy that addresses these biopsychosocial determinants. Such an approach should include legislative support, allocation of dedicated healthcare resources, patient education, and the implementation of integrated models of care. By addressing these factors comprehensively, healthcare systems can better support informed decision-making for TKR, ultimately leading to improved long-term outcomes for older adults with chronic KOA. This review provides critical implications for optimizing healthcare structures, refining clinical practices, and enhancing patient outcomes in both preoperative and postoperative settings.

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Author Contributions

DKAS, SK, MAA, DH, NM and CVL all contributed to the conception and design of the review. CVL and DKAS contributed to the first draft of the manuscript and subsequently revised critically with reviews from all the co-authors. All authors gave their approval of the final manuscript and are accountable for all aspects of the final review.

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Declaration of conflicting interests

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Data Availability Statement

The original contributions presented in the study are included in the article/Supplementary Material; further inquiries can be directed to the corresponding author.

Supplemental Material

Supplemental material for this article is available online.

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