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LIVING WITH KNEE OSTEOARTHRITIS AMONG MALAY ADULTS IN MALAYSIA: ATTITUDES, PERCEPTIONS, AND SOCIOCULTURAL INFLUENCES FROM A MIXED-METHODS STUDY

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ABSTRACT

Knee osteoarthritis (KOA) is a common musculoskeletal disorder and a major cause of disability among aging populations. In Malaysia, the rising incidence of KOA underscores the need for culturally sensitive healthcare strategies. Yet, limited evidence exists on how Malay adults experience and manage KOA. Understanding these perspectives is critical for developing effective and culturally appropriate interventions. This study aimed to explore the attitudes, perceptions, and sociocultural influences on KOA experiences and management among Malay adults in Malaysia through a mixed-methods approach. Ten purposively sampled Malay adults aged 45-70 years with clinically diagnosed KOA were recruited from a tertiary hospital. Quantitative data were collected using the Knee Injury and Osteoarthritis Outcome Score (KOOS) and the 36-Item Short Form Health Survey (SF-36). Qualitative data were obtained through in-depth one-on-one semi-structured interviews and analyzed thematically. Findings revealed four major themes: (1) physical limitations and emotional burden affecting daily functioning, (2) mixed attitudes toward physiotherapy with selective use of conventional and traditional treatments, (3) sociocultural beliefs linking KOA to aging and divine will, shaped by family roles, and (4) religious adaptations and spiritual coping strategies that supported emotional resilience, with participants prioritizing independence over cure. Quantitative scores demonstrated wide variation in symptom severity, functional limitation, and quality of life, complementing qualitative insights. Overall, KOA substantially affects the physical, emotional, and sociocultural well-being of Malay adults. Interventions that integrate medical management with religious practices, family support, and culturally sensitive education are essential to enhance care and treatment adherence in this population.

Keywords: Knee osteoarthritis; Malay adults; Mixed-methods; Perceptions; Sociocultural influences

INTRODUCTION

Knee osteoarthritis (KOA) is one of the most prevalent musculoskeletal disorders worldwide and a leading cause of chronic pain, disability, and reduced quality of life in ageing populations (Courties et al., 2024). The global burden of KOA is expected to escalate due to demographic ageing, rising obesity rates, and lifestyle-related risk factors (Courties et al., 2024; Mündermann et al., 2024). In Malaysia, the transition towards an aged society by 2030 poses a pressing public health challenge, with KOA already contributing substantially to disability-adjusted life years and healthcare expenditure (Abdullah et al., 2024).

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Importantly, KOA prevalence and outcomes are not uniform across populations. Ethnic differences, sociocultural practices, and health-seeking behaviors significantly influence both disease burden and management (Callahan et al., 2021; Mat et al., 2019; Reyes & Katz, 2021). In Malaysia, which is multiethnic in composition, Malays consistently report the highest prevalence of KOA (44.6%) compared with Indians (31.9%) and Chinese (23.5%) (Mat et al., 2019). This disparity persists even after adjustment for comorbidities and socioeconomic factors, suggesting a potential interplay of cultural, lifestyle, and possibly genetic predispositions (Mat et al., 2019). Malay Muslim practices such as kneeling and floor-seating during prayer may exacerbate knee symptoms (Chokkhanchitchai et al., 2010), while the group's high prevalence of obesity further compounds risk (Chong et al., 2023).

Cultural and religious contexts strongly shape the lived experience of KOA among Asian populations. Studies show that many Asians attribute OA to ageing or divine will, rely heavily on traditional remedies, and delay formal care until symptoms become severe (Chokkhanchitchai et al., 2010; Sathiyamoorthy et al., 2018). Distrust of Western medicine, emphasis on family caregiving, and culturally specific daily activities such as squatting or kneeling contribute to unique illness perceptions and coping behaviors (Sathiyamoorthy et al., 2018). These influences may explain why uptake of evidence-based non-surgical interventions such as physiotherapy and exercise therapy remains low despite proven benefits (Wallis et al., 2020).

Functional disability in KOA is commonly assessed with patient-reported measures such as the Knee Injury and Osteoarthritis Outcome Score (KOOS), while broader psychosocial and health-related quality of life outcomes are captured using tools like the Short Form-36 (SF-36) (Musa et al., 2021; Zulkifli et al., 2017). Although these instruments are widely validated, most evidence originates from Western or non-Malay Asian cohorts (Callahan et al., 2021; Eberly et al., 2018). Very few studies have systematically examined KOA-related disability, health perceptions, and psychosocial well-being among Malay adults, despite their disproportionate disease burden (Chia et al., 2016; Mat et al., 2019). Addressing this gap, the present study focuses exclusively on Malay adults with KOA in Malaysia. By combining validated quantitative measures of function and quality of life with in-depth qualitative exploration of attitudes, perceptions, and sociocultural influences, this study aims to provide a culturally contextualized understanding of KOA.

METHODS

Study Design

This study employed an explanatory mixed methods design, with quantitative evaluations of function and quality of life complemented by semi-structured interviews that explored personal, emotional, and sociocultural perspectives of Malay adults with KOA. The qualitative component followed a descriptive phenomenological approach, selected to capture participants' lived experiences and the meanings they ascribed to living with KOA. This design was appropriate because the study aimed to explore shared perceptions and coping behaviours within a sociocultural context rather than develop theory or focus on individual cases, allowing a deeper understanding of attitudes, beliefs, and daily challenges faced by Malay adults.

The qualitative inquiry was underpinned by Husserl's phenomenological framework, which emphasizes describing participants' lived experiences as they are perceived, free from researcher assumptions. This framework aligns with the study's goal to understand the essence of participants' experiences of pain, limitation, and adaptation in their sociocultural and religious context, thereby enhancing methodological rigour and interpretive clarity.

The study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist to ensure transparency, rigour, and comprehensive reporting (Tong et al., 2007). The interviews were conducted by two trained research assistants, AI. and OT; neither had any clinical relationship with participants, which helped minimize social desirability bias.

Ethical Approval

Ethical approval for the study was obtained from the Universiti Kebangsaan Malaysia Research Ethics Committee (EP-2024-541). Written informed consent was obtained from all participants prior to data collection. For participants who were interviewed online, electronic consent was securely obtained. All procedures followed ethical principles related to confidentiality, voluntary participation, and data protection.

Participant Selection

Adults aged 40 to 70 years with a clinical diagnosis of mild to moderate KOA, confirmed through clinical examination and radiographic evidence in accordance with the American College of Rheumatology criteria (Damen et al., 2019), were eligible for inclusion. Participants were recruited from outpatient physiotherapy referrals and orthopedic clinics at HCTM. Eligibility criteria included symptomatic knee pain with a minimum score of 3 on the Visual Analogue Scale, preserved ambulatory ability without assistive devices, and absence of previous knee surgery or intra-articular injections within the past six months. Exclusion criteria comprised inflammatory joint diseases, neurological impairments, cognitive dysfunction, or concurrent lower limb musculoskeletal conditions that could confound assessment of outcomes.

Study Setting and Sampling Method

Participants were recruited from the Hospital Canselor Tuanku Muhriz (HCTM), a tertiary teaching hospital affiliated with Universiti Kebangsaan Malaysia. One-on-one semi-structured interviews were conducted either in a private consultation room at the physiotherapy department or, for those unable to attend in person, via Google Meet in a quiet home setting. All interviews were conducted privately without third-party presence. Purposive sampling was employed to ensure participants met the inclusion criteria and could provide rich, detailed information on the lived experience of KOA. Recruitment was facilitated by clinical staff, and eligible individuals were contacted by phone and provided with a study information sheet. Sampling continued until thematic saturation was reached, allowing for depth without sacrificing analytical manageability (Hennink & Kaiser, 2022).

Sample Size

Fifteen eligible individuals were approached through referrals from physiotherapists and medical officers at HCTM. Twelve responded with interest, and ten participants completed both the questionnaires and interviews. No repeat interviews were conducted. Data saturation was considered achieved when no new codes or insights emerged during the final two interviews, consistent with saturation principles in qualitative research (Hennink & Kaiser, 2022).

Data Collection

Each participant completed a sociodemographic form, the Knee Injury and Osteoarthritis Outcome Score (KOOS), and the 36-Item Short Form Health Survey (SF-36). These validated tools captured pain, physical function, symptom severity (Zulkifli et al., 2017), and health-related quality of life (Zulkifli et al., 2017). Following this, one-to-one interviews were conducted between January and June 2025, either in person or virtually. A semi-structured

interview guide was developed based on the KOOS domains (Roos & Lohmander, 2003; Zulkifli et al., 2017) and adapted to the study objectives. Questions focused on five key areas: (1) pain, (2) symptoms, (3) activities of daily living (ADL), (4) sport and recreational limitations, and (5) knee-related quality of life. In addition, prompts explored treatment choices, attitudes toward physiotherapy, traditional therapies, family involvement, and religious adaptations. Sample questions included: (i) "How does KOA affect your daily activities?" (ii) "What are your thoughts about physiotherapy for KOA?" (iii) "How do you feel about using alternative or traditional methods to manage your knee pain?" and (iv) "How does KOA influence your daily prayer routine?". The guide was pilot-tested with two patients who were excluded from the main study. Open-ended prompts such as "Can you explain further?" or "Can you give an example?" were used to encourage rich narratives. Interviews were conducted in the participant's preferred language (Malay or English) by AI., while OT. took field notes. Each session lasted approximately 20 to 30 minutes and was audio-recorded with permission. Field notes documented tone of voice, emotional expression, body language, and environment, supporting contextual understanding during analysis.

Data Analysis

Quantitative data from KOOS and SF-36 were analysed descriptively to provide context for individual symptom severity, function, and quality of life. Audio files were transcribed verbatim by AI in the original language of the interview and reviewed by OT and MAA for accuracy. A deductive thematic analysis was conducted using Braun and Clarke's six-phase framework (Ahmed et al., 2025). All researchers familiarized themselves with the transcripts, independently coded each transcript, and grouped codes into higher-order themes that reflected attitudes, perceptions, and sociocultural influences regarding KOA.

Thematic analysis considered both surface (semantic) and deeper (latent) meanings (Ahmed et al., 2025). Special attention was given to culturally embedded expressions relating to religion, family roles, and emotional responses. Manual coding was chosen to allow deeper immersion in the dataset. Quotations selected for reporting were translated into English by AI and reviewed by OT and MAA to ensure conceptual accuracy. Although transcript review by participants (member checking) was not conducted due to logistical limitations, the trustworthiness of findings was enhanced through peer debriefing, field note triangulation, and the maintenance of a detailed audit trail documenting analytical decisions (Ahmed et al., 2025). Qualitative findings were integrated with quantitative results to offer a comprehensive understanding of the lived experience of KOA among Malay adults.

RESULTS

Participant Profile

Ten Malay participants (6 females and 4 males) aged 45-70 years (mean = 62.0 years) completed the study. Body mass index ranged from 23.5 to 31.3 kg/m² (mean = 28.5 kg/m²), with seven participants classified as overweight or obese. The majority were retirees (n = 7), followed by housewives (n = 2), and one was employed as a nurse. Most participants reported sedentary lifestyles (n = 8), while two described themselves as physically active. Six participants had unilateral KOA, and the duration of symptoms ranged from 8 to 120 months (mean = 42.5 months). Pain during movement, measured by the Visual Analog Scale, ranged from 5 to 9. Half of the participants used walking aids, including canes (n = 3) and walkers (n = 2) (Table 1).

Table 1. Sociodemographic and clinical characteristics of participants with knee osteoarthritis.

ID	Gender (M/F); Age (years); BMI (kg/m^2)	Occupation	Physical activity level	Affected side of KOA	Duration of symptoms (months)	Pain intensity, VAS (movement)	Use of walking aid
P1	F; 45; 26.1	Nurse	Sedentary	Unilateral	8	6	None
P2	F; 62; 23.5	Retired	Sedentary	Bilateral	9	7	None
P3	M; 61; 29.9	Retired	Active	Unilateral	36	5	None
P4	M; 67; 29.8	Retired	Sedentary	Bilateral	24	6	None
P5	F; 57; 26.9	Housewife	Sedentary	Unilateral	36	9	None
P6	F; 69; 31.2	Housewife	Sedentary	Bilateral	36	7	Walker
P7	F; 60; 25.5	Retired	Sedentary	Unilateral	36	5	Cane
P8	F; 70; 31.3	Retired	Sedentary	Bilateral	120	5	Walker
P9	M; 65; 28.1	Retired	Sedentary	Unilateral	48	7	Cane
P10	M; 64; 29.3	Retired	Active	Unilateral	72	8	Cane

Note: BMI: Body mass index; F: female; KOA: knee osteoarthritis; M: male; VAS: Visual Analog Scale.

The KOOS demonstrated considerable heterogeneity across domains (Table 2). Symptom scores ranged from 10.7% to 67.9%, with more than half of participants reporting moderate symptom severity. Pain scores varied between 8.3% and 83.3%, highlighting diverse pain perceptions. Activities of daily living (ADL) scores ranged from complete limitation (0%) to minimal difficulty (94.1%). Scores in the sport and recreation domain were consistently low, with six participants scoring below 25.0% and three reporting total incapacity (0%). Knee-related quality of life (KRQOL) was generally poor, with five participants scoring below 30.0% and two reporting complete impairment (0%).

Health-Related Quality of Life Outcomes from SF-36

Findings from the SF-36 further underscored functional and psychosocial challenges (Table 3). Physical functioning scores ranged from 52.5% to 97.5%, while role limitations due to physical health ranged from 25.0% to 100%. Emotional role functioning was severely affected, with three participants reporting complete limitations (0%). Energy/fatigue scores ranged from 16.7% to 68.8%, reflecting variable vitality levels. Emotional well-being was highly heterogeneous (10.0% to 90.0%), and social functioning was generally low, with four participants scoring 50.0% or less. Pain scores varied markedly (10.0% to 90.0%), while general health perception ranged from 20.0% to 75.0%.

Table 2. Knee Injury and Osteoarthritis Outcome Score by domains among Malay adults with knee osteoarthritis.

ID	Knee Injury and Osteoarthritis Outcome Score Domain				
	Symptoms (%)	Pain (%)	Activities of daily living (%)	Sport and recreation function (%)	Knee-related quality of life (%)
P1	57.14	52.78	75.00	45.00	56.25
P2	57.14	83.33	94.12	75.00	68.75
P3	21.43	55.56	91.18	45.00	68.75
P4	39.29	44.44	50.00	25.00	25.00
P5	67.86	25.00	32.35	0.00	18.75
P6	10.71	11.11	11.76	0.00	0.00
P7	50.00	33.33	44.12	15.00	31.25
P8	28.57	8.33	0.00	0.00	0.00
P9	35.71	33.33	42.65	5.00	25.00
P10	35.71	16.67	39.71	0.00	25.00

Table 3. 36-Item Short Form Health Survey domain scores of participants with knee osteoarthritis.

ID	36-Item Short Form Health Survey Domain							
	Physical Functioning (%)	Role functioning/ physical (%)	Role functioning/ emotional (%)	Energy/ fatigue (%)	Emotional well-being (%)	Social functioning (%)	Pain (%)	General Health (%)
P1	70.00	50.00	66.67	58.33	41.67	25.00	60.00	50.00
P2	57.50	25.00	0.00	50.00	25.00	0.00	60.00	75.00
P3	52.50	25.00	100.00	16.67	31.25	50.00	80.00	20.00
P4	90.00	100.00	100.00	56.25	50.00	37.50	10.00	40.00
P5	82.50	75.00	0.00	50.00	40.00	62.50	60.00	55.00
P6	90.00	25.00	66.67	18.75	10.00	25.00	80.00	30.00
P7	82.50	100.00	0.00	62.50	68.75	50.00	50.00	55.00
P8	97.50	100.00	0.00	62.50	70.00	50.00	10.00	50.00
P9	82.50	100.00	66.67	50.00	75.00	75.00	90.00	60.00
P10	87.50	100.00	66.67	68.75	90.00	50.00	90.00	50.00

Thematic Insights into KOA Experiences

Thematic analysis revealed four interrelated themes that complemented the quantitative findings (Figure 1). These themes captured how Malay adults experience and cope with KOA in daily life : (1) general impact of KOA on daily life, (2) attitudes toward KOA management and treatment, (3) sociocultural influences, and (4) expectations and religious perspectives.

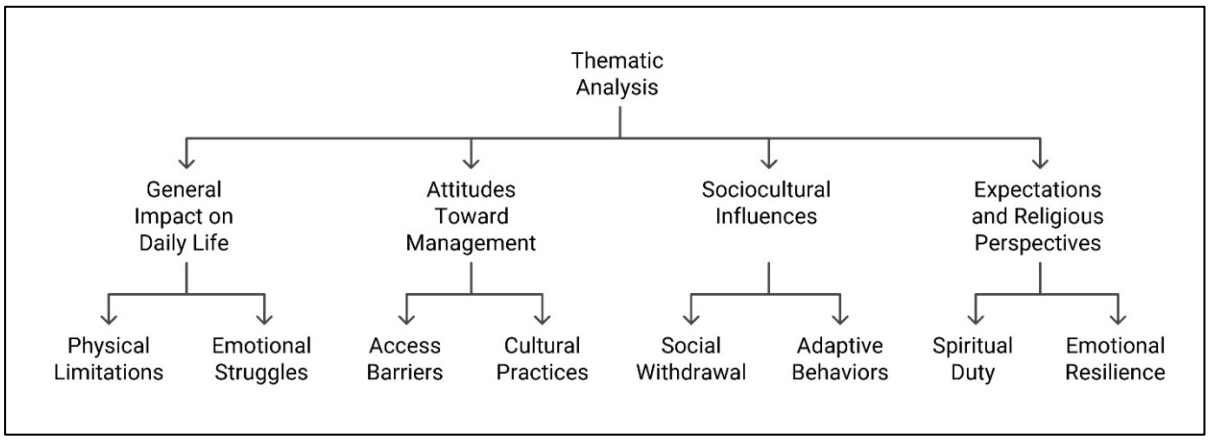

Figure 1. Thematic map of key themes and subthemes on the experiences of Malay adults living with knee osteoarthritis.

Theme 1: General Impact of KOA on Daily Life

This theme highlights the profound impact of KOA on daily functioning and emotional well-being. Most participants reported significant limitations in performing routine tasks such as walking, bathing, and housework, often requiring assistive tools and facing concerns about safety and falls. The physical decline was closely tied to emotional struggles, including feelings of sadness, helplessness, and loss of independence. Despite these challenges, a few participants maintained functional independence through physical activity.

"So usually, when getting up from sitting, there will be pain. I have to go slow or hunch a bit first, only then get up." (P1)

"I used to go up and down easily, but now I've stopped. Even walking to the kitchen, I need to hold onto the wall." (P10)

"Outside, the uneven ground and long walking distances make it more tiring and riskier." (P9)

"I used to be strong and could handle everything myself. Now I feel like I'm burdening my children." (P9)

"I've gotten used to it, although it still disturbs me greatly." (P8)

"Yeah, sometimes I feel really sad... I feel… like I'm a bit distant from others. That's how I feel." (P4)

Theme 2: Attitudes Toward KOA Management and Treatment

Theme 2 underscores the varied and often fragmented attitudes among Malay adults toward managing KOA, revealing disparities in access, belief, and adherence. While some participants acknowledged the benefits of physiotherapy, logistical barriers such as distance and transportation limited sustained engagement. Others continued with self-directed home exercises, though often inconsistently due to pain, uncertainty, or lack of motivation. Pain management was approached conservatively, with many relying on analgesics only when necessary and supplementing with culturally familiar traditional remedies. However, one participant rejected non-conventional treatments altogether, reflecting differing levels of trust in biomedical versus traditional approaches.

"They showed me exercises and gave advice... but the centre is far from my house, so I stopped going." (P10)

"I stopped physiotherapy because it didn't help and the doctor only recommended surgery… which I refused." (P7)
"After undergoing physiotherapy and taking medications, I could pray normally." (P5)
"I never considered going to physiotherapy because it is difficult to visit the hospital." (P8)
"I only take medicine when the pain is severe, which is usually before going out or at night." (P9)
"My wife makes oil with lemongrass, ginger, and garlic. It gives temporary relief." (P10)
"I use massage oil. My friend gave it to me. Helps a bit." (P2)
"No massage, no cupping, no herbal drink. Just medicine and exercise." (P3)
"Sometimes I forget or feel unsure if I'm doing it correctly." (P9)
"I try to do the exercises such as leg raises and stretches, but not consistently." (P10)

Theme 3: Sociocultural Influences

Theme 3 highlights the deep influence of sociocultural values on how Malay adults interpret and manage KOA. Many participants viewed KOA as a natural consequence of ageing or a divine test, which shaped passive acceptance and limited pursuit of active interventions. However, one participant linked the condition to occupational and lifestyle factors, showing variability in causal beliefs. Social withdrawal was commonly reported, particularly due to the difficulty of engaging in community activities requiring floor seating, reflecting cultural expectations and physical constraints. Despite initial resistance to walking aids due to perceived stigma, most participants eventually accepted them as part of daily living.

"I believe this pain is caused by my weight and my age, and I feel it is a test from God." (P8)
"Maybe it's also a test from God… age is catching up." (P9)
"For this OA, I don't think so. Because it's more about our work style. Our lifestyle." (P4)
"I seldom hear from my children, except the one who lives with me." (P8)
"I always find a chair at events. If it's sitting on the floor, I try not to attend." (P9)
"When I go out far, I bring a folded chair." (P7)
"At first, yes. I felt very self-conscious. But when I saw many others use sticks, I stopped caring." (P10)

Theme 4: Expectations and Religious Perspectives

Theme 4 highlights the central role of faith and spirituality in shaping participants' expectations and coping strategies in living with KOA. Despite physical limitations, all participants remained committed to performing religious rituals by adapting their prayer postures to minimize discomfort, reflecting a deep sense of spiritual duty. Religious teachings and practices such as dhikr and supplication were commonly used as sources of comfort and emotional resilience, reinforcing a belief in divine wisdom and acceptance of their condition. Rather than seeking full recovery, participants expressed modest, realistic hopes focused on maintaining independence and functional mobility in daily life.

"I usually ask to sit on a chair. I no longer sit on the floor. I pray while sitting too." (P7)
"I do not fully prostrate... I kneel or use a chair." (P8)
"In the morning, I will rub my knees while reciting dhikr." (P6)
"The imam said not to skip prayers and to do what I can. That brought me peace of mind." (P10)
"I don't expect a full recovery. I just want to manage the pain and help with small tasks." (P9)
"I have no expectations or hopes that my condition will change. If possible, I just want to be able to get up and move independently around the house." (P8)
"Every illness has a cure. Don't give up too fast." (P5)

DISCUSSION

This study provides novel insights into how Malay adults in Malaysia experience and manage KOA, underscoring the influence of sociocultural and religious contexts in shaping attitudes, perceptions, and treatment behaviors. The findings from both the KOOS and the SF-36 revealed substantial physical limitations and impaired quality of life, consistent with evidence

that KOA is a leading cause of functional disability among older adults worldwide (Courties et al., 2024; Cui et al., 2020). What distinguishes this study is the focus on the Malay Muslim population, revealing how functional impairment interacts with deeply embedded cultural practices and religious duties. These quantitative results were reinforced by qualitative narratives, which highlighted emotional responses, sociocultural beliefs, and religious practices that influenced daily functioning and healthcare decisions.

KOOS scores showed marked impairments in the domains of sport and recreation, symptoms, and ADL, while SF-36 outcomes mirrored these findings, particularly in physical functioning, bodily pain, and role limitations. Similar to earlier Malaysian (Ahmad et al., 2018; Chong et al., 2023; Mat et al., 2019) and regional studies (Ferrari et al., 2024; Li et al., 2024), participants reported mobility restrictions and challenges in maintaining independence. However, a unique dimension observed among Malay participants was the difficulty in performing obligatory Islamic prayer rituals such as kneeling (*sujud*) and prostration (*rukuk*), which intensified knee pain and generated spiritual distress. This illustrates not only the physical burden of KOA but also the psychological and spiritual conflict arising from the inability to fully engage in acts of worship central to Malay Muslim identity (Chokkhanchitchai et al., 2010; Sathiyamoorthy et al., 2018).

Despite these limitations, participants often expressed a degree of emotional acceptance, attributing their condition to ageing or divine will. This reflects a broader Islamic worldview where illness is frequently perceived as a test from God, encouraging patience and spiritual resilience (Baetz & Bowen, 2008; Sathiyamoorthy et al., 2018). While such perspectives may buffer psychological distress, they were also associated with more passive health behaviors (Baetz & Bowen, 2008; Sathiyamoorthy et al., 2018). Participants who perceived KOA as inevitable were less inclined to pursue physiotherapy or lifestyle changes. These findings echo evidence that fatalistic attitudes, although emotionally adaptive, may reduce treatment adherence and delay effective management (Alahmed et al., 2023).

Coping strategies identified included rest, pacing of activities, reliance on home remedies, and informal family support. While these strategies provided short-term relief, they were not sufficient to promote long-term functional recovery and, in some cases, reinforced inactivity and deconditioning (Courties et al., 2024). Avoidance of painful movements, though protective, risked exacerbating stiffness and muscle weakness (Ahmad et al., 2018). Uncertainty about exercise safety and limited confidence in physiotherapy further contributed to inconsistent engagement (Ahmad et al., 2018), reflecting knowledge gaps observed in previous Malaysian populations with KOA (Ganasegeran et al., 2014). The reliance on traditional remedies such as massage oils and herbal medicine reflects not only accessibility but also cultural continuity, where trust in traditional practices often outweighs biomedical advice (Sathiyamoorthy et al., 2018; Wallis et al., 2020).

Religious practices emerged as a dual force (Baetz & Bowen, 2008; Sathiyamoorthy et al., 2018): they provided emotional comfort through prayer and dhikr, but also represented a physical challenge due to the postural demands of Islamic rituals. Many participants adapted by praying in a seated position, highlighting resilience and flexibility in maintaining religious obligations despite disability (Chokkhanchitchai et al., 2010). However, the distress caused by not being able to perform rituals in the "ideal" manner underscores the cultural and spiritual weight of KOA in the Malay Muslim context. These findings emphasize that culturally sensitive rehabilitation strategies should acknowledge religious duties, providing alternatives and guidance that reduce physical strain while affirming spiritual identity.

Gender roles further shaped the impact of KOA (Contartese et al., 2020). Female participants often reported difficulty fulfilling domestic responsibilities such as cooking, cleaning, and caregiving, while male participants expressed concerns about reduced independence and productivity (Contartese et al., 2020). These findings parallel prior evidence

that women with KOA face greater functional and psychosocial burden due to their caregiving roles and domestic responsibilities (Allen, 2010; Cui et al., 2020). Within Malay Muslim households, these gendered expectations are often amplified by cultural norms of filial duty and caregiving, making women particularly vulnerable to the cumulative burden of KOA. Addressing such gendered dimensions in clinical care may therefore improve rehabilitation outcomes.

Knowledge gaps remained a recurring theme. Several participants misunderstood the causes and progression of KOA, attributing it exclusively to ageing or overuse, while others were unfamiliar with the role of physiotherapy and assumed medication or rest were the only options. Such misconceptions may delay care seeking and reduce adherence to evidence-based interventions (Ahmad et al., 2018; Wallis et al., 2020). Embedding education within culturally familiar platforms such as mosque-based health talks, community religious gatherings, or family-centered health programs may enhance acceptance and bridge gaps in knowledge (Sathiyamoorthy et al., 2018), as religious leaders and family members hold strong influence in Malay Muslim communities.

Structural barriers compounded these individual challenges. Participants described limited access to physiotherapy services, long waiting times, and insufficient provider communication, which reinforced feelings of resignation or uncertainty regarding treatment benefits. These structural constraints, coupled with cultural beliefs and fatalistic attitudes, create a complex web of barriers that can hinder early and sustained engagement with effective care (Wallis et al., 2020). Improving provider–patient communication, ensuring continuity of care, and integrating culturally sensitive education are critical to addressing these gaps (Wallis et al., 2020).

A major strength of this study was its mixed-methods design, which integrated validated quantitative tools (KOOS and SF-36) with in-depth qualitative narratives. This allowed for a comprehensive understanding of both functional outcomes and sociocultural influences, providing insights not captured by quantitative measures alone. The qualitative findings added depth to the interpretation of physical and psychosocial impairments, particularly around cultural, gendered, and religious dimensions of living with KOA. However, several limitations must be acknowledged. The focus on a single ethnic group from an urban setting may limit the transferability of findings to rural or multiethnic populations. Although the sample size was sufficient for thematic saturation (Hennink & Kaiser, 2022), it may not fully capture the diversity of experiences among the wider Malay community. Future research should expand to include larger and more heterogeneous samples to enhance generalizability.

CONCLUSION

This study highlights that KOA among Malay adults in Malaysia is shaped not only by pain and functional decline but also by cultural beliefs, family roles, and religious practices that influence coping and treatment choices. Quantitative findings from KOOS and SF-36 revealed significant physical and psychosocial impairments, while qualitative insights emphasized acceptance, spiritual adaptation, and reliance on both conventional and traditional remedies. These results underscore the need for culturally responsive rehabilitation approaches that integrate medical care with religious and family support, while addressing knowledge gaps and access barriers. By aligning interventions with the lived realities of Malay adults, healthcare providers can improve adherence, enhance quality of life, and support independence in managing KOA.

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