



Research Article

# Hope for a New Knee: A Qualitative Research Examined the Decision-Making Process of Older Taiwanese Women who Underwent Total Knee Replacement

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## Abstract

**Purpose:** With the global population rapidly aging, the prevalence of degenerative joint diseases is on the rise. Total Knee Replacement (TKR) is an effective surgical intervention for alleviating knee Osteoarthritis (OA). While many women undergo TKR, research on their decision-making process remains limited. This study aimed to examine the decision-making process in older women who opted for TKR.

**Methods:** A qualitative research design was adopted. Through purposive sampling, 20 women over 60 with knee OA who underwent TKR were recruited from a medical center in Northern Taiwan. Data were collected through in-depth interviews, observations, and field notes at two-time points: 3-5 days and 6-8 weeks post-surgery. A constant comparative analysis approach was employed for data interpretation.

**Results:** "Hope for a new knee," the core theme for TKR-related decision-making, comprised three stage theme and six sub-themes: before decision (impacts of pain and seeking nonsurgical methods), decision (intrinsic and extrinsic motivation), and after decision (assessing physical function and achieving the golden phase of rehabilitation).

**Conclusion:** Women who underwent TKR anticipated a renewed quality of life. Pain and concerns about becoming a burden on their families were critical determinants in their decision-making process. These women demonstrated resilience in overcoming post-TKR rehabilitation challenges after surgery. The findings underscore the need for individualized educational programs and psychological support tailored to women considering TKR. Understanding women's values and preferences can inform the development of decision-support interventions and promote shared decision-making in clinical practice.

**Keywords:** Decision-making; Osteoarthritis; Qualitative research; Total knee replacement

## Introduction

Degenerative joint disease has been increasingly prevalent in the rapidly aging global population [1,2]. Osteoarthritis (OA) is the most common form of degenerative arthritis and is a leading cause of disability and a significant source of societal costs among older adults [2-4]. OA is primarily characterized by chronic pain and restricted joint movement [4,5]. The knee is the most frequently affected site of OA, followed by the hand and hip. Knee OA has been recognized as a severe and debilitating disease [4-6]. The knee joint, one of the main weight-bearing joints, is crucial to daily activities, and its impairment can significantly affect the patient's quality of life [1,5,6]. The pathogenesis of knee OA involves various pathological changes within the joint, including cartilage wear, osteophyte formation, and synovial inflammation, all contributing to pain, stiffness, swelling, and loss of normal joint function [2,5,7]. Given the typically gradual progression of knee OA, treatment strategies are often staged, focusing on reducing joint pain and stiffness, maintaining and improving joint mobility, minimizing limb disability, and ultimately enhancing the overall quality of life [3,5].

Total Knee Replacement (TKR) is recognized as the most cost-effective treatment for patients with advanced joint diseases, as it significantly alleviates joint pain and disability, thereby enhancing patients' quality of life [4,8]. Elderly patients with OA often opt for TKR surgery due to the severe limitations it imposes on their mobility and daily activities [9]. Postoperative satisfaction, largely dependent on functional recovery and pain relief, ranges between 80% and 100% [10]. A systematic review identified several factors influencing patient satisfaction after TKR, with a history of mental health issues being the most frequently cited factor associated with lower satisfaction [11]. Other influential factors include the use of a mobile bearing insert, patellar resurfacing, severe preoperative radiological degenerative changes, absence of low back pain, standard Body Mass Index (BMI), minimal postoperative pain, good physical function postoperatively, improvement in range of motion, and the degree to which preoperative expectations were met [11]. Another review highlighted that postoperative functional outcomes were the strongest predictors of satisfaction, while preoperative anxiety and depression were the most significant predictors of dissatisfaction [10]. The decision to undergo TKR is a complex process, and maintaining motivation and confidence during the challenging and often lengthy postoperative rehabilitation phase is crucial for ensuring adherence to rehabilitation protocols [12,13].

As of 2020, 16% of Taiwan's population was 65 and older, with projections indicating this figure will rise to 20% by 2025 and 37%

by 2050, positioning Taiwan as one of the fastest-aging countries globally [14]. TKR is a widely utilized and cost-effective treatment in Taiwan, particularly among older women suffering from advanced joint diseases such as OA. In 2020, approximately 3.1 million individuals, accounting for 13% of the population, were diagnosed with knee OA [15], and approximately 30,000 people received TKR annually, the majority of whom were female (73%) and elderly (56%) [16]. Taiwan's National Health Insurance (NHI) covers most of the costs associated with TKR, making it financially accessible to a broad segment of the population [17,18]. Despite the increasing prevalence of TKR, there remains a significant gap in understanding the decision-making processes that lead patients, particularly older women, to elect this surgical intervention. Existing research has predominantly focused on clinical outcomes and surgical techniques [10,19-23], with limited attention given to the psychosocial factors and patient experiences that influence the decision to undergo the procedure, especially among older Taiwanese women who may encounter unique cultural and familial considerations [24-29]. This study aimed to examine the decision-making process in older Taiwanese women who opted for TKR.

## Methods

### Study Design

A qualitative descriptive design was adopted. From the interpretive and constructivist perspectives, qualitative methods help researchers understand phenomena rooted in individuals' or groups' subjective and contextualized experiences [30]. Through a qualitative approach, we sought insight into the experience of the decision-making processes among older women who underwent TKR within Taiwan's sociocultural context.

### Setting and Participants

Participants were recruited using purposive sampling from the orthopedic ward of a medical center in Northern Taiwan. In 2018, 338 individuals underwent TKR at this hospital, of whom 76% were women. Among these women, 67% were elderly (60 years and above), a distribution consistent with the 2020 statistics from the Statistics Department of the Ministry of Health and Welfare of Taiwan [15]. Eligible participants for this study included women who met the following criteria: (1) aged over 60 years, (2) had undergone primary TKR, and (3) were able to communicate in Chinese; women who (1) received a diagnosis of a mental disorder, (2) had dementia, (3) received bilateral TKR, and (4) received TKR revision were excluded.

### Data Collection

The first author conducted data collection. Data collection involved in-depth interviews, observations, and field notes from September 2020 to May 2021. Participants underwent two one-on-one, face-

to-face interview sessions to gather comprehensive insights into their experiences of decision-making processes. The interviews were digitally recorded, and following each session, a summary and reflection were documented. Data collection continued until saturation was achieved; at this point, no new themes or information emerged, and further interviews were discontinued. The interviews were transcribed verbatim in Chinese shortly after each session.

### Data Collection Procedures

Before data collection, the attending physician and head nurse of the orthopedic ward and outpatient department were informed. Eligible patients were identified, and the researcher provided detailed explanations of the study's purpose and procedures, obtaining written informed consent in the orthopedics outpatient

department. Due to the heightened anxiety among older women regarding surgery, the initial interview was conducted 3-5 days post-TKR rather than before the procedure. To ensure patient comfort, interviews were scheduled at either 10 AM or 2 PM, following the administration of pain relief. These face-to-face interviews, were conducted in a quiet ward setting using a semi-structured interview guide, with questions designed to elicit open responses, beginning with prompts "Can you share your experience with your illness before the surgery?" Each interview lasted approximately 60 min. The second interview was conducted in a quiet corner of the Outpatient Department of Orthopedics 6-8 weeks after TKR. The interview questions were "How has your knee condition progressed since returning home?" Each interview lasted approximately 30 min (Table 1).

<b>I. Three to five days after surgery</b>
1. Can you share your experience with your illness before the surgery?
2. Please describe your process leading up to the surgery.
3. What factors influenced your decision to undergo surgery?
4. How have you been feeling since the surgery?
5. Can you describe your experience at the hospital after the surgery?
6. After being discharged, what concerns or challenges did you face at home?
<b>II. Six to eight weeks after surgery</b>
1. How has your knee condition progressed since returning home?
2. Can you describe your rehabilitation process at home?
3. Is there anything else you would like to share about your recovery journey?

**Table 1:** Interview Guide.

### Data Analysis

The data were analyzed using the constant comparative method of Grounded Theory, which involved the sequential processes of open, axial, and selective coding [31,32]. The data were fragmented into discrete parts during open coding to identify similarities and differences. These fragments were reassembled in the axial coding phase by establishing relationships between categories and subcategories. Finally, selective coding was used to identify core categories and integrate them into a coherent narrative that captured the central themes of the participants' experiences of decision-making processes.

### Study Rigor

The study's rigor was assessed using Lincoln and Guba's four criteria [33]. Credibility was ensured through data triangulation, incorporating interviews, observations, and field recordings,

and further strengthened by peer reviews from two PhD-level professors, SWC and MHL. The first author, CHH, a master's-level nurse with 18 years of orthopedic experience, played a key role in fostering participant openness. Dependability and confirmability were maintained through systematic documentation, verification, and cross-referencing of data by CHH and SWC, minimizing bias and enhancing reliability. Transferability was supported by detailed descriptions of the study's methods and findings, ensuring applicability in other contexts."

### Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of Taiwan University Hospital (No.: 202009031RINA). The participants had to provide informed consent before the study's commencement. For anonymization of the interview data, each participant was identified by alphabetical codes (A, B, C, etc.). The data, encrypted for 6 years, are stored in the author's computer.

## Results

### Core Theme: Hope for A New Knee

In total, 20 women participated in the study (Table 2). “Hope for a new knee” was the core theme of the journey of older Taiwanese women who underwent TKR (Table 3). The core theme was formed based on three stages(theme), each including two sub-themes: before decision (impacts of pain and seeking nonsurgical methods), decision (intrinsic and extrinsic motivation), and after decision (assessing physical function and achieving the golden phase of rehabilitation); these sub-themes contained 17 categories (Table 3).

Characteristics	n %
Age (M±SD 69.95±7.71)	
Education	
none	4 (20.0)
primary school	8 (40.0)
junior high school	2 (10.0)
senior high school	6 (30.0)
Occupation	
employed	3 (15.0)
unemployed	17 (85.0)
Marital status	
married	8 (40.0)
widow	10 (50.0)
single	2 (10.0)
Religion	
Buddhism	5 (25.0)
Taoism	15 (75.0)
Surgery side	
right	14 (70.0)
left	6 (30.0)
History of pain	
< 1 years	2 (10.0)
1-5 years	8 (40.0)
6-10 years	8 (40.0)
> 10 years	2 (10.0)

**Table 2:** Women’s Demographic Characteristics (n = 20).

Core theme	Theme	Sub-Theme	Categories
Hope for a new knee	Before decision	Impact of pain	Limited mobility
			Inability to handle work demands
			Interruption in daily social activities
			Sleep disturbances
		Seeking nonsurgical methods	Compliance with conservative therapy
			Trying alternatives
	Decision	Intrinsic motivation	Weighing TKR's advantages
			Concern about becoming a burden on the family
			Worry about body image change
		Extrinsic motivation	Physician's advice
			Encouragement from relatives and friends
			Influence of other patients
	After decision	Assessing physical function	Heaviness in legs
			Difficulty in increasing range of. motion over knee
		Achieving the golden phase of rehabilitation	Exercising according to the rehabilitation plan
			Striving toward the benchmark
Developing a home rehabilitation plan			

**Table 3:** Categories, Theme, Sub-Theme Synthesized to Core Theme.

### Theme One: Before Decision

After being diagnosed as having knee OA, the included women decided to undergo TKR from 7 months to 12 years. During this period, women were affected by pain and sought nonsurgical methods.

#### Impacts of Pain

In the included women, knee OA caused stiffness, swelling, deformation, and pain in the knee joint, affecting their knee function, resulting in limited mobility, inability to handle work demands, interruption in daily social activities, and sleep disturbances. These discomforts led to exhaustion.

**Limited Mobility:** All the women reported mobility limitations due to knee OA pain; they included limping, weakness, inability to walk long distances, difficulty moving up and down stairs, difficulty using squat toilets, immobility of feet due to temporarily locked knee joints, and even the possibility of falling.

- **H-66:** Before surgery, the pain was very intense when I lied down on my side. Sometimes when I walked around, I seemed to get stuck, and I couldn't walk. It was very strange. I was most afraid of crossing the long main roads, even those with traffic lights. I was very afraid of walking in the middle of the road. I am afraid of getting stuck in the middle of the road because my knees get stuck, and I can't walk.

- **I-15:** (My left foot) was numb and weak. I remembered that when I was about to get on the bus, I forgot that (the left foot) should be the first to go up, and I couldn't get (on the bus). When I fell, everyone was startled, and the driver was also startled.

**Inability to Handle Work Demands:** Some women endured knee OA pain during work, which affected the quality of their work, and as a result, they became gradually overwhelmed with the workload.

- **A-26:** I plant some garlic, and I'd ask the workers to plant more. My feet couldn't do anything, and most of the planting was done by others.

• **F-32:** I'd get off work (working as the owner of a breakfast shop) very early. Because of the pain in my feet, I couldn't stand for a long time.

**Interruption in Daily Social Activities:** The pain also considerably affected women's daily social activities. The women were less likely to socialize daily because of the pain.

• **G-19:** When I didn't have any pain in my feet, I'd go to the park near my house to do gymnastics every morning at six o'clock. Now, because of the pain, I haven't been there for a long time. One day I went to the park, and a man in his 80s who also did gymnastics asked me, "Why I didn't come?" I said, "My feet were hurting."

• **L-32:** The people in the community. I'd go out with the people in the community. But after my feet started hurting. I didn't want to go. Because I didn't want to go, it was better to stay at home.

**Sleep Disturbances:** The pain occurred during the day and the night. When pain occurred at night, the women's sleep quality was affected, resulting in insomnia, sleep disruption, and poor night sleep.

• **A-12:** When I sleep at night, I felt sore. I often couldn't fall asleep. If I was sore, I'd move a little and then a little more, and it became less sore. My feet became more and more sore. If I couldn't fall asleep, I moved, lifted, and turned my feet.

• **O-02:** Well, the pain became worse (before the operation), and I couldn't sleep.

### Seeking Nonsurgical Methods

The women sought various nonsurgical, conservative treatments or alternative treatments to relieve pain and improve their quality of life instead of undergoing surgery.

**Compliance with Conservative Therapy:** When the women sought treatment, they visited various locations to seek care, ranging from primary clinics to medical centers. They followed their medical practitioner's advice to receive conservative treatment, including oral anti-inflammatory pain relievers, rehabilitation, intraarticular steroid or hyaluronic acid injection, autologous platelet proliferative therapy (PRP), high-concentration glucose injection, and joint hyarthrosis fluid extraction.

• **A-08:** Since last year, I have visited many doctors. I accepted the doctors' recommendations for injecting steroids and hyaluronic acid and taking painkillers and anti-inflammatory drugs.

• **L-05:** I also went to visit a lot of doctors. I couldn't get a hyaluronic acid treatment, so I went to pump water (draining fluid from the joint cavity). But the more (fluid) they drew out, the

more uncomfortable it became. I got that procedure done more than a dozen times. I used to get it done every week. Then (one day) I couldn't draw (anymore), and I felt that this was not the way to go.

**Trying Alternatives:** In most cases, medical professionals do not recommend total knee replacement (TKR) immediately after diagnosing knee osteoarthritis (OA), considering factors such as the patient's fear of surgery or other concerns. When the knee pain was unbearable, most women thought of undergoing alternative treatments first, such as Chinese herbal medicine, osteopathy, massage (Tui na), acupuncture, consumption of healthy foods (e.g., turmeric and collagen), over-the-counter medicines, and pain-relief patches.

• **A-07:** Some people say that taking herbal medicines can effectively treat bone spurs. I tried it, but it was no good.

• **B-10:** I didn't see any orthopedic surgeon after the orthopedic surgeon suggested TKR. If the pain was a little bit painful in the early days, I quickly went to visit Kung Fu Clinic and applied the herbal medicine on it.

• **F-02:** I first sought acupuncture and then I saw (that) Chinese medicine. takes a while [referring to each treatment] if you want to continue getting good treatment effects.

### Theme Two: Decision

The women's decision to undergo TKR was determined by two factors: intrinsic motivation and extrinsic motivation.

#### Intrinsic Motivation

Intrinsic motivation refers to the inner thinking processes that influence a woman's decision to undergo TKR, including weighing the advantages of TKR, concerns about becoming a burden to the family, and worry about body image changes.

**Weighing TKR's Advantages:** Eventually, the women felt that the nonsurgical, conservative treatments were ineffective, and they could no longer tolerate the pain and disability caused by them. The women began considering the benefits of undergoing TKR, such as improved knee function, discontinuation of ongoing medication, and planning for post-TKR living arrangements.

• **M-70:** I think the surgery should be done once and for all. Don't make the left foot bad because the right foot is bad: I found that my left foot had started deforming because I thought I was using it to compensate (for my right foot's disability). So, I think my knee is needed to be perform surgery (Improve knee function)

• **G-06:** I would take painkillers, but I was afraid that the painkillers would damage my kidneys if I took them for a long time. I didn't take the painkillers all the time ... and I couldn't bear the pain. So, I thought it'd be better to have surgery because



I had been taking the painkillers all the time. Painkillers, taking too much will damage the kidneys. (Stop continuous medication)

- **F-42:** Because I feel that my responsibilities have been fulfilled, and I don't need children in my life. Why do I work so hard? I want to live my own life leisurely. I can't spend it every day like this, anyway. After (TKR) and retiring, you can play everywhere. (Planning for postsurgical living arrangements)

**Concern About Becoming A Burden on the Family:** The women were independent, and most were family caregivers. However, the challenges posed by OA led them to led the women to worry that without undergoing TKR, they might become a burden on their families.

- **C-15:** Look at (that 80-year-old patient with limited mobility) who can't walk ... I just think who is going to help me? Who's going to pull me away? If you don't get the surgery, you can't go at home. Today's society is independent. It's not like before.

- **D-84:** I don't want to trouble others. I don't want to bother others at home. My husband died very early, and I took care of all three children by myself. It's very hard. I just take care of myself and want to get better as soon as possible. Now, I don't want to bother anyone else.

**Worry About Body Image Change:** Women were very concerned about the affected limb's deformed appearance and the gait limping caused by knee OA. The women wanted to have normal appearance and limb function after TKR; therefore, they decided to undergo TKR.

- **B-16:** My foot was crooked, but I hadn't had surgery yet. Usually, the older the children are, the better they walk. We old people are getting worse and worse! It's mainly because my foot was crooked that I took the initiative to have the surgery. Although others said, "It's fine if you can walk; so why do you need the surgery?" I still want to have the surgery; my feet are crooked when I walk, and if I wear shorter pants, I feel that the crookedness is obvious, it doesn't look good. it's ugly."

- **R-15:** Before walking with my husband, I usually walked ahead of him, and I just walked. (meaning walked very fast). Before surgery, when I walked. I lagged. My husband walks very slowly, and (still) I lagged. The feeling of walking was very uncomfortable. I kind of walked dragging my legs, a girl staggers while walking. At that time, I felt. I am a person who loves beauty very much, and that feeling is so. That my feet are deformed is really undignified.

### Extrinsic Motivation

The external factors that influenced the women's decision to

undergo TKR included physician advice, encouragement from relatives and friends, and the influence of other patients.

**Physician's Advice:** Physicians play an important role in women's surgery decisions. In case, an orthopedic physician asked their patient to obtain an X-ray of the affected knee, explained the severity of her knee's degeneration and indicated that TKR was the only treatment available.

- **D-60:** The doctor said, "If you have surgery, you will be able to climb mountains ... you can't walk until your knee is worn to the end." When I came to (the doctor with) the X-rays that day, the doctor said, "You need to have (TKR)."

- **J-06:** I saw two or three doctors who said that I need surgery, so I decided to have surgery. I just need surgery, and there is no way I couldn't get it.

**Encouragement from Relatives and Friends:** Some women did not realize that they required TKR or were unwilling to undergo TKR; nevertheless, encouragement from relatives and friends drove them to decide to undergo TKR.

- **H-11:** A neighbor also said, "The older you get and the more you delay, the slower your recovery will be. Don't delay it any longer." He said, "You should just go for the surgery."

- **N-19:** At first, I agreed to get the surgery; then, my daughter-in-law, daughter and son said, "Mom, you have to get the surgery; otherwise, you won't be able to stand it."

**Influence of other Patients:** Women inquired about the experience of patients who had undergone TKR. Most of these patients were relatives, friends, and neighbors the women knew well; these patients played a significant role in the women's decision to undergo TKR.

- **O-11:** (The other patients) said that the surgery was good, and they had already advised me to have the surgery. The patient next door to me said that the surgery would be fine. But I didn't dare. I was worried about the surgery. It seemed to be very painful. He said, "It will be fine for 2 days. You don't dare to go for surgery?"

- **R-14:** My mother was on bedrest for a long time. At that time, she had atrophy of her feet. She couldn't get up and had to lie in the bed. That situation would. give me a vigilance. Maybe one day, I will be like this, so what should I do? No way, I must have the surgery.

### Theme Three: After-Decision

After TKR, the women assessed their knee function and achieved the golden phase of post-TKR rehabilitation to ensure that the operated knee could return to normal function.

### Assessing Physical Function

The acute adverse effects in the early post-TKR stages included knee joint pain, swelling, and stiffness; this increased discomfort and distress among the women and affected their activities.

**Heaviness in the Legs:** The women described how the affected limb felt in the early postoperative period; some stated that their leg felt as if it was heavy, rock-like, wooden, or even dead.

- **G-30:** After the operation, my body felt as if life was worse than death. It was very painful. I kept pressing on (referring patient controlled intravenous analgesia) but it was still very painful. I couldn't straighten my feet or lift them up; it was just pain. At that time, I felt my whole foot, It was very heavy, too heavy."

- **N-34:** It was very heavy at the beginning, at the time of surgery, and during the period of anesthesia [from the start of use after the operation (referring patient controlled epidural analgesia) to the time of removal]. The foot was very uncomfortable, like a stone, from this side to the lower body side (left side), buttocks to the bottom of the left foot; the toes were numb, and the rest, I don't know. I didn't feel the flesh."

**Difficulty in Increasing Range of Motion of the Knee:** The women performed post-TKR joint mobility exercises, including knee flexion and extension movements and straight leg raises. However, postoperative pain, swelling, and stiffness made it more difficult for the women to move their joints.

- **E-42:** On the first day after the surgery, I thought I could lift it very high, but now, I can't even lift it. Didn't you tell me to do this exercise? [referring to the right foot that has not been operated] It was almost the same. It was not ok on the third day, and it was the hardest to lift the foot.

- **N-33:** Using continuous passive motion (CPM), it was very uncomfortable to do 90°. I don't want to do this. I think 80° was fine, not 90°. It was very tight at the beginning (after surgery), very painful, very painful.

### Achieving the Golden Phase of Rehabilitation

Through the guidance of the medical staff, reminders from relatives and friends, and reflection on the negative experiences of patients who underwent TKR, the women realized that if they did not undergo rehabilitation as soon as possible, they might not be able to restore their normal functions in the future. Therefore, the women actively practiced knee flexion, extension, straight leg raises and walking out of bed when tolerable.

**Exercising According to the Rehabilitation Plan:** Independent or with the assistance of others, the women performed post-TKR rehabilitation step by step to achieve the maximum rehabilitation effect.

- **C-69:** My daughter took pictures of the six exercises that my (physiotherapist) taught me. When I'm not sure, I'll look at it myself. And my daughter will help me set the time for the exercise. For example, I must do 6 times a day, and I need 10 reps for 1 exercise. I practice according to the rehabilitation chart. For example, if the mobile phone prompts me to change to the next exercise, I will follow the prompt on the mobile phone.

- **J-26:** Whatever my daughter asks me to do, I just do it. My daughter even showed me the information on how to rehabilitate, and my daughter guides me when I do it.

**Striving Toward The Benchmark:** Women are expected to have improved knee function after receiving TKR and then return to daily life or work. They, therefore, set various goals to achieve restored knee joint function.

- **M-65:** Because of my current workplace, I only took 3 months off. So, I need to become functional enough to go back to work as soon as possible. At least I try something. that would help me recover as soon as possible. (Benchmark: Return to the workplace)

- **N-40:** I have to get well [referring to sitting and walking] before I can go back home as soon as possible. I was not used to living (at the hospital). It doesn't matter if I don't (bend my knees) 90°. I'm 84 years old. What am I afraid of? I can walk, I can sit, I can. (Benchmark: Sit and walk).

**Developing A Home Rehabilitation Plan:** Before leaving the hospital, the women considered the problems and difficulties encountered in their rehabilitation, and they received reminders from the medical staff and family members after they left the hospital. The women created a plan to facilitate rehabilitation at home after discharge.

- **M-41:** Because I still did not get (90° of knee flexion) and Dr. X asked me to get discharged. I rented this (CPM) and went home. It could help me bend the knee every day; it made it easier to bend. I couldn't bend at an angle like that (myself).

- **T-25:** I went back and worried about my feet, so I'll just rehabilitate like this. My husband would tell me to walk a little harder at (home).

### Discussion

This qualitative study utilized multiple data collection methods, including in-depth interviews, observations, and field notes, to examine the decision-making processes of older Taiwanese women who underwent TKR. The Theory of Planned Behavior (TPB) was employed to clarify the psychological and social influences on these decisions, focusing on attitudes toward behavior, subjective norms, and Perceived Behavioral Control (PBC) [34].



In the before-decision stage, persistent pain and its associated limitations—such as restricted mobility, inability to meet work demands, and disruptions to daily activities and sleep—compelled women to seek professional medical assistance. The study revealed that participants initially pursued conservative management strategies and explored alternative therapies to alleviate their condition, reflecting the influence of subjective norms that prioritize delaying or avoiding surgical intervention. This finding aligns with previous studies that indicate a significant reliance on CAM among Chinese women and its growing popularity in Western societies [35]. Compared to Western women, who often combine alternative and conventional therapies, the women in this study preferred alternative therapies as their first line of treatment, considering surgery only after these options proved ineffective [36-39].

In the decision stage concerning TKR, intrinsic and extrinsic motivations are critical in influencing an individual's choice. A systematic review identified four domains that affected the patients' decision to undergo TKR: personal factors, external factors, information sources and preferences towards outcome prediction [40]. Intrinsic motivations involve the individual's internal assessment of the potential benefits of the surgery, which play a significant role in shaping the individual's PBC to undergo TKR in the current study. This motivation includes carefully considering the anticipated improvements in quality of life, weighed against personal concerns such as the fear of becoming a burden on family members and anxiety about changes in body image. Notably, the primary intrinsic motivation for older women opting for TKR in the current study was the concern of becoming a burden on their family members. These older women had been independent, many even serving as family caregivers. Women were concerned that if they did not undergo surgery, they may become a burden on their families in the future. These findings were consistent with those reported previously: women's desire to have an independent life and fulfil their caregiver responsibilities were the key factors in their decision to undergo surgery [41-43].

Extrinsic motivations are shaped by subjective norms, encompassing external influences such as physician recommendations, encouragement from relatives and friends, and the experiences of other patients. In the current study, the influence of other patients emerged as a significant extrinsic motivation. Women frequently sought advice from patients who had undergone TKR, with positive experiences among these peers boosting their motivation and confidence to proceed with surgery. This trend is consistent with earlier studies, indicating that positive patient evaluations can enhance motivation. However, this sometimes leads to an optimistic bias, where adverse outcomes are dismissed as personal failures rather than indicative of potential risks [40,44,45]. However, the current study's findings diverge from previous research in that the

women tended to overlook negative experiences, attributing them to individual factors rather than considering them as a general risk of the surgery [46].

In the after-decision stage, PBC is a key determinant of recovery outcomes. After surgery, patients assess their physical function, noting issues like leg heaviness or restricted range of motion, which shape their sense of control over recovery. This perception is reinforced during rehabilitation, where adherence to protocols and achieving benchmarks are crucial. A strong belief in their capacity to engage in these activities correlates with better outcomes, emphasizing PBC's importance in postoperative recovery. The Taiwanese women in this study demonstrated determination in following their rehabilitation plans. This determination aligns with findings that emphasize the role of self-efficacy in rehabilitation, where belief in one's ability to recover is vital [12,47-53]. The varied rehabilitation goals reflect the broader understanding that functional outcomes and pain relief are crucial determinants of patient satisfaction after TKR [10].

#### **Limitations and Recommendation**

Due to time constraints, 20 participants from one medical center in Northern Taiwan were included in this study. Therefore, the current results may not apply to all women in Taiwan. The long-term results could not be inferred because all our data were collected 6-8 weeks after TKR. Thus, future studies with follow-up durations of 3 or 6 months or up to 1 year are required. Moreover, the study population of the present study comprised only women; therefore, further research on the experiences of male patients who underwent TKR in Taiwan should be considered. Despite these limitations, the results of the present study, which were obtained through one-on-one in-depth interviews, can aid clinicians in understanding the experiences of older women who underwent TKR. The findings about the women's values and preferences about TKR help develop an interventional decision support framework for shared decision-making.

#### **Conclusions**

Older Taiwanese women undergoing TKR are driven by the hope of a life free from knee OA pain and limitations, with their decision-making shaped by the need to manage pain, avoid burdening their families, and improve physical function. These findings underscore the importance of addressing care's physical and psychological aspects through shared decision-making support. Healthcare providers should engage in open, empathetic discussions that explore patient values and preferences, ensuring patients are fully informed about treatment options. Offering individualized education and psychological support and encouraging self-management strategies tailored to personal rehabilitation goals are crucial for supporting recovery, reinforcing autonomy, and achieving better outcomes.

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