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THE RELATIONSHIP BETWEEN HEALTH LOCUS OF CONTROL, SELF-EFFICACY, FUNCTIONAL CAPACITY, AND QUALITY OF LIFE IN PATIENTS WITH KNEE OSTEOARTHRITIS

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ABSTRACT

Objective: *This study investigates the impact of self-efficacy and health locus of control on functional capacity and quality of life in individuals with knee osteoarthritis (OA). It explores how these psychological factors influence pain management, mobility, and overall quality of life.*

Material and Method: *This cross-sectional study included 110 knee OA patients aged 55–76 years. Data were collected using validated tools, including the Arthritis Self-Efficacy Scale (ASES), Multidimensional Health Locus of Control Scale (MHLC), Western Ontario and McMaster Universities Arthritis Index (WOMAC), and Short Form-36 (SF-36). Relationships among self-efficacy, health locus of control, functional capacity, and quality of life were analyzed using Pearson correlation.*

Results: *Higher self-efficacy was significantly associated with reduced pain, better physical and mental health, and enhanced functional capacity. An internal health locus of control correlated positively with improved outcomes, while external control and chance-fatalistic beliefs were linked to poorer functionality and reduced quality of life. These results highlight the significant influence of psychosocial factors on OA management.*

Conclusion: *Self-efficacy and internal locus of control are key determinants of improved functional capacity and quality of life in knee OA patients. Interventions to enhance self-efficacy and a sense of control over health could significantly improve outcomes and reduce disease burden. These findings underline the importance of psychosocial strategies in strengthening patients' control perceptions and enhancing their quality of life.*

Keywords: *Osteoarthritis, self-efficacy, health locus of control, pain management, quality of life, functional status.*

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DİZ OSTEOARTRİTİ OLAN HASTALARDA SAĞLIK KONTROL ODAĞI, ÖZ YETERLİLİK, FONKSİYONEL KAPASİTE VE YAŞAM KALİTESİ ARASINDAKI İLİŞKİ

ÖZET

Amaç: Bu çalışma, diz osteoartriti (OA) tanısı almış bireylerde öz yeterlilik düzeyi ve sağlık kontrol odağının fonksiyonel kapasite ile yaşam kalitesi üzerindeki etkilerini incelemeyi amaçlamaktadır. Psikolojik faktörlerin ağrı, fonksiyonel kapasite ve genel yaşam kalitesi üzerindeki rolü değerlendirilmektedir.

Materyal ve Metot: Kesitsel tasarıma sahip bu çalışmaya, 55–76 yaş aralığında, diz OA tanısı konmuş toplam 110 birey dahil edilmiştir. Veriler, Artrit Öz Yeterlilik Ölçeği (ASES), Çok Boyutlu Sağlık Kontrol Odağı Ölçeği (MHLC), Western Ontario ve McMaster Üniversiteleri Artrit İndeksi (WOMAC) ile Kısa Form-36 (SF-36) yaşam kalitesi ölçeği kullanılarak toplanmıştır. Öz yeterlilik, sağlık kontrol odağı, fonksiyonel kapasite ve yaşam kalitesi arasındaki ilişkiler Pearson korelasyon analizi ile değerlendirilmiştir.

Bulgular: Yüksek öz yeterlilik düzeyinin, azalmış ağrı, daha iyi fiziksel ve ruhsal sağlık durumu ile artmış fonksiyonel kapasiteyle anlamlı biçimde ilişkili olduğu saptanmıştır. İçsel sağlık kontrol odağının olumlu klinik sonuçlarla pozitif korelasyon gösterdiği; buna karşın dışsal kontrol ve şans-kaderci inançların düşük fonksiyonel kapasite ve yaşam kalitesi ile negatif yönde ilişkili olduğu belirlenmiştir. Bu bulgular, diz OA yönetiminde psikososyal faktörlerin belirleyici rolünü ortaya koymaktadır.

Sonuç: Öz yeterlilik ve içsel sağlık kontrol odağı, diz osteoartriti olan bireylerde fonksiyonel kapasite ve yaşam kalitesinin artırılmasında temel psikolojik belirleyicilerdir. Bu doğrultuda, öz yeterliliği geliştiren ve bireyin sağlık üzerindeki kontrol algısını güçlendiren müdahaleler, tedavi sürecine olumlu katkı sağlayarak hastalık yükünü azaltabilir. Çalışmanın bulguları, diz OA yönetiminde psikososyal yaklaşımların bütüncül tedavi stratejilerine entegre edilmesinin önemini vurgulamaktadır.

Anahtar kelimeler: Osteoartrit, öz yeterlilik, sağlık kontrol odağı, ağrı yönetimi, yaşam kalitesi, fonksiyonel durum.

INTRODUCTION

Osteoarthritis (OA) is one of the most prevalent age-related joint diseases, affecting approximately 528 million individuals globally, with a prevalence exceeding 73% among those over 55 years of age.[1] The knee joint is the most frequently affected site, impacting 365 million people worldwide.[2] OA is characterized by pain, swelling, muscle weakness, joint stiffness, instability, and limited range of motion. These symptoms contribute to balanced impairments, proprioceptive deficits, reduced functional capacity, and diminished quality of life.[3] Aging exacerbates these symptoms due to decreased physical activity and musculoskeletal function, reducing mobility and independence.[4] As a result, individuals with osteoarthritis often experience severe and persistent pain, which tends to increase with age. Notably, this pain is influenced by physiological factors and various psychological variables, highlighting its multifactorial nature.[5] In addition to physical symptoms, psychosocial factors significantly influence the perception and management of OA. Addressing psychological, social, and educational needs is critical for effective OA management and improving patient outcomes.[6] OA encompasses treatment costs, support services, and productivity losses, positioning it as a significant public health challenge with profound social and economic implications.[7]

Knee OA is a leading cause of disability worldwide, with prevalence increasing due to population growth, aging, and the lack of curative treatments.[1,8] This trend has led to a growing global demand for healthcare services, including joint replacement surgeries for advanced OA stages. To mitigate this burden, more significant efforts are required to prevent the progression of OA to advanced stages.[8] Exercise and supportive therapies are pivotal for alleviating symptoms and slowing disease progression by improving muscle strength, balance, and mobility.[3] However, health beliefs and behaviors significantly influence the benefits derived from these interventions, affecting pain perception, treatment adherence, and functional outcomes.[9]

Health behaviors are behaviors that individuals adopt to protect their health and themselves from diseases.[10] In OA patients, self-efficacy and health locus of control are essential to health behaviors.[11] Self-efficacy, the belief in one's ability to achieve health-related goals, enables individuals to evaluate their health potential and act using existing resources.[12] Higher self-efficacy has been associated with improved health behaviors, better pain management, and increased participation in physical activity.[13] In individuals with arthritis, participation in physical activity despite pain has been reported to be directly related to self-efficacy.[14]

Similarly, the health locus of control shapes beliefs about health outcomes and intervention success. Individuals with an internal locus of control believe they can influence their health by reporting lower pain levels and greater satisfaction with treatment.[15] In contrast, external locus of control, emphasizing factors like luck or fate, has been linked to poorer outcomes and reduced engagement in health behaviors.[16]

Health locus of control shapes the individual's beliefs about health behaviors, health outcomes, and interest in health, affecting the success of health interventions.[16] Internal health control is the belief that individuals can influence their health, while external control attributes health outcomes to external factors like family and physicians. The luck effect reflects the perceived role of luck or fate in health outcomes.[17] Individuals with an internal locus of control report lower pain levels and greater satisfaction with treatment.[15]

Knee OA imposes significant social and economic costs while severely impacting mobility and quality of life.[7] Alongside medical interventions, psychological factors such as self-efficacy and health locus of control play a crucial role in managing OA, influencing pain management, physical activity participation, and treatment adherence. Therefore, a biopsychosocial approach is strongly recommended when designing exercise programs.[18] However, their effects on functional capacity and quality of life in knee OA patients still need to be explored.

Although the importance of psychosocial factors in managing knee OA is well recognized, evidence regarding the impact of self-efficacy and health locus of control on functional capacity and quality of life remains limited. This study investigates how psychosocial health behaviors, such as self-efficacy and health locus of control, influence functional capacity and quality of life in individuals with knee OA. The findings are expected to support the development of targeted and personalized interventions designed to enhance functional outcomes, improve quality of life, and optimize OA management strategies.

Hypothesis 1: High self-efficacy is associated with higher functional capacity and quality of life in individuals with knee OA.

Hypothesis 2: Patients with knee OA with an internal locus of control have lower pain levels and better functional capacity.

Hypothesis 3: Extrinsic health locus of control (belief in luck or fate) and low self-efficacy are associated with lower quality of life and increased physical limitation in individuals with knee OA.

MATERIAL AND METHOD

Participants and Procedures

The present study included 110 volunteers aged between 55 and 76 years who had been diagnosed with knee OA according to the criteria of the American Rheumatology Diagnosis and Treatment Committee.[19] Participants with other neurological diseases, prior lower extremity surgery, or systemic conditions affecting functionality were excluded. The stages of OA were determined by doctors through clinical evaluation, ensuring that all stages of OA were adequately represented in the study sample. Although these stage-related data were collected, they were not analyzed separately, as the study focused on overall correlations rather than stage-specific differences. The sample size was calculated as 97 participants based on an effect size of r=0.3 for the correlation between self-efficacy (ASES total score) and functional capacity (WOMAC total score), a significance level of α=0.05, and 90% power, using G*Power software. The effect size of r=0.3 was chosen as a "moderate" correlation according to Evans's classification, in which correlation coefficients between ±0.10 and ±0.39 indicate a low correlation, ±0.40 to ±0.69 indicate a moderate correlation, and ±0.70 or above indicate a strong correlation.[20] This classification was consistent with prior studies on self-efficacy and functional outcomes in OA.[11] The study was completed with 110 participants to account for potential dropouts.

Measurements

Data was collected using questionnaires in a face-to-face interview. The following variables were assessed: age, sex, body mass index, marital status, occupation, place of residence, education level, and economic status.

Functional capacity assessment was conducted using the Western Ontario and McMaster Universities Arthritis Index (WOMAC). The WOMAC is a multidisciplinary measure comprising three sub-dimensions and 24 items. Of these, five questions assess pain, two assess joint stiffness, and 17 assess physical function. In the WOMAC evaluation, sub-dimensions are evaluated separately. The pain score ranges from 0 to 20 points, the stiffness score from 0 to 8 points, and the physical function score ranges from 0 to 68. High WOMAC scores indicate increased pain intensity, stiffness, and decreased physical function.[21]

A Quality-of-Life Assessment was conducted using the Short Form-36 (SF-36) health survey questionnaire. It comprises eight sub-scales and 36 items that assess physical and mental health. The SF-36 contains eight scales: physical functioning (PF), role physical (RP),

Table 1. Correlations between self-efficacy level and functional capacity

	ASES pain	Function (lower extremity)	Function (upper extremity)	Other symptoms	ASES total
WOMAC Pain	r=-0.200** p=0.038*	r=-0.463*** p=0.000*	r=- 0.145 p=0.130	r=-0.289** p=0.002*	r=-0.401*** p=0.000*
WOMAC Stiffness	r=-0.257** p=0.007*	r=-0.228** p=0.016*	r=-0.228** p=0.016*	r=-0.270** p=0.004*	r=-0.348** p=0.000*
WOMAC Physical Function	r=-0.314** p=0.001*	r=-0.421*** p=0.000*	r=-0.209** p=0.028*	r=-0.365** p=0.000*	r=-0.464*** p=0.000*
WOMAC Total	r=-0.323** p=0.001*	r=-0.455*** p=0.000*	r=-0.226** p=0.017*	r=-0.374** p=0.000*	r=-0.491*** p=0.000*

*p< 0.05, ** r=-0.10 to -0.39 Low negative correlation, *** r=-0.40 to -0.69 Moderate negative correlation
ASES: The Arthritis Self-Efficacy Scale, **WOMAC:** Western Ontario and McMaster Universities Arthritis Index

Table 2. Correlations between self-efficacy level and quality of life

	ASES pain	Function (lower extremity)	Function (upper extremity)	ASES other symptoms	ASES total
Physical function	r=0.190** p=0.048*	r=0.282** p=0.003*	r=0.072 p=0.452	r=0.208** p=0.029*	r=0.234** p=0.014*
Physical role	r=-0.012 p=0.903	r=0.206** p=0.031*	r=0.120 p=0.210	r=0.044 p=0.651	r=0.159 p=0.098
Body pain	r=0.014 p=0.883	r=0.238** p=0.012*	r=0.018 p=0.848	r=0.069 p=0.475	r=0.118 p=0.218
General health	r=0.026 p=0.787	r=0.243** p=0.011*	r=0.099 p=0.302	r=0.206** p=0.031*	r=0.210** p=0.027*
Vitality	r=0.023 p=0.815	r=0.319** p=0.001*	r=0.135 p=0.160	r=0.055 p=0.569	r=0.216** p=0.023*
Social function	r=0.021 p=0.825	r=0.054 p=0.570	r=0.009 p=0.925	r=0.063 p=0.510	r=0.048 p=0.615
Emotional role	r=0.042 p=0.666	r=0.242** p=0.011	r=0.035 p=0.720	r=0.013 p=0.892	r=0.118 p=0.219
Mental health	r=0.018 p=0.848	r=0.231** p=0.015*	r=0.104 p=0.277	r=0.180 p=0.060	r=0.200** p=0.036*
Total physical health	r=0.199** p=0.045*	r=0.355** p=0.000*	r=0.60** p=0.006*	r=0.392** p=0.000*	r=0.422*** p=0.000*
Total mental health	r=0.032 p=0.744	r=0.245** p=0.010*	r=0.191** p=0.046*	r=0.332** p=0.000*	r=0.284** p=0.003*

*p< 0.05, ** r=0.10 to0 0.39 Low positive correlation *** r=0.40 to 0.69 Moderate negative correlation
ASES: The Arthritis Self-Efficacy Scale

bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional (RE), and mental health (MH). Scores range from 0 to 100, with 100 points representing the best health status and 0 points representing the worst.[22]

Self-efficacy evaluation was conducted using the Arthritis Self-Efficacy Scale (ASES). According to the scale, pain self-efficacy identifies situations that include the perception of pain-reducing ability and the ability to keep pain low. Function self-efficacy refers to how hand and foot joints affected by arthritis can function. Their self-efficacy determines the ability of patients with arthritis to cope with their current symptoms and other symptoms. The scale comprises 20 statements, with the response options ranging from "Not sure at all" (score=1) to "I'm very sure" (score=10). The scale is evaluated on a visual scale with ten digits. The lowest score on the scale is 20, while the highest score is 200. A high score on the scale indicates a higher level of self-efficacy, while a low score indicates a lower level of self-efficacy.[23]

The Multidimensional Health Locus of Control (MHLC) scale was utilized to evaluate individuals' health locus of control and validity. The scale measures the individual's cognitive perception of their health, affecting their health status. The scale comprises 18 items, which are grouped into three scales: internal control, external control, and control by chance. The response options range from 1 (completely disagree) to 6 (completely agree). It can be observed that as the scores increase, the perception of control also increases.[24]

Statistical Analysis

The data were subjected to statistical analysis using the Statistical Package for Social Sciences (SPSS) program, version 22.0 for Windows. The parametric variables' mean and standard deviation values were employed to describe the characteristics of the patients. Pearson correlation analysis was performed to examine the relationships between the data obtained from the patients. The statistical analyses were interpreted according to a significance level of 0.05 (p<0.05).

Ethical Considerations

The study followed the latest version of the Declaration of Helsinki and received approval from the ethics committee. (Ethics Committee Number 72867572/050/2150). Participation was voluntary, and participants could have withdrawn from the study at any time. All participants provided written informed consent.

Ethics Approval

This study was approved by the Süleyman Demirel University Noninvasive Clinical Research Ethics Committee (Approval Number: 72867572/050/2150).

RESULTS

This study examined the relationship between health locus of control, self-efficacy, functional capacity, and quality of life in individuals with knee OA. A total of 110 patients (13 males, 97 females) with knee OA between the ages of 55 and 76 years (mean age 65.5±8.34 years) were included in the study. According to BMI, 18 (16.4%) patients were normal weight, 39 (35.5%) patients were overweight, and 53 (48.2%) patients were obese. 91 (82.7%) patients reported being married, and 80 (72.7%) reported being housewives. 24 (21.8%) patients stated that they live in the village, 16 (14.5%) in the town, 68 (62.7%) patients live in the city. 87 (79.1%) of the patients were primary school graduates, 11 (10%) were high school graduates, and 12 (10.9%) were university graduates. In addition, 6 (5.5%) patients defined their economic status as alarming, 68 (61.8%) patients as moderate, and 36 (32.7%) patients as good.

When the relationship between self-efficacy level and functional capacity was analyzed, no significant relationship was found between self-efficacy in the pain parameter evaluated by WOMAC and upper extremity functions evaluated by ASES ($p>0.05$). However, a negative significant relationship was found between all parameters except these parameters ($p<0.05$) (Table 1).

A positive correlation was observed between self-efficacy level and quality of life, with significant correlations ($p<0.05$) evident between:

- ASES pain and SF-36 physical function and physical health total.
- ASES lower extremity functions and SF-36 parameters (except social function).
- ASES upper extremity functions and SF-36 physical and mental health total.
- ASES other symptoms and SF-36 physical function, general health, physical and mental health total.
- ASES total and SF-36 physical function, general health, vitality, mental health, physical and mental health total (Table 2).

When the relationship between health locus of control and functional capacity was examined, a negative correlation was found between internal locus of control and pain, stiffness, physical function, and total scores assessed by WOMAC, and a positive correlation was found between external locus of control and chance-fatalism locus of control with pain, stiffness, physical function, and total scores assessed by WOMAC ($p<0.05$) (Table 3).

Table 3. Correlations between functional capacity and health locus of control

	Internal locus of control	External locus of control	Chance locus of control
WOMAC Pain	r=- 0.308** p=0.001*	r=0.394** p=0.00*	r=0.350** p=0.000*
WOMAC Stiffness	r=- 0.191** p=0.046*	r=0.332** p=0.000*	r=0.276** p=0.004*
WOMAC Physical Function	r=- 0.310** p=0.001*	r=0.309** p=0.001*	r=0.365** p=0.000*
WOMAC Total	r=-0.327** p=0.000*	r=0.370** p=0.000*	r=0.391** p=0.000*

*$p<0.05$, ** r=0.10 to 0.39 (-0.10 to -0.39) Low positive (negative) correlation
***r=40 to 0.69 Moderate positive correlation
WOMAC: Western Ontario and McMaster Universities Arthritis Index

When the relationship between the health locus of control and quality of life was examined, the following points were noted:

(i) A positive significant correlation was found between internal locus of control and physical function, social function, physical role, emotional role, general health, mental health, total physical health, and total mental health ($p<0.05$).

(ii) A significant negative correlation was found between external locus of control and physical function, body pain, general health, social function, emotional role, total physical health, and total mental health ($p<0.05$).

(iii) A significant negative correlation was found between the chance-fatalism locus of control and physical function, physical role, body pain, general health, emotional role, total physical health, and total mental health ($p<0.05$) (Table 4).

DISCUSSION

Health behaviors in older adults with chronic illnesses, such as pain control and disease management, are critical. However, there remains limited evidence on the impact of these behaviors on functional capacity and quality of life in individuals with OA. This study explored the relationships between health locus of control, self-efficacy, functional capacity, and quality of life in OA patients. Results revealed a positive correlation between high self-efficacy and internal health locus of control with functional capacity and quality of life scores. In contrast, a negative correlation was noted with low self-efficacy, external locus of control, and chance-fatalism locus of control.

Self-efficacy beliefs are clinically significant as they are associated with the confidence of individuals to engage in physical activity despite physical

Table 4. Correlations between health locus of control and quality of life

	Internal locus of control	External locus of control	Chance locus of control
Physical function	r=0.330** p=0.000*	r=-0.277** p=0.003*	r=-0.275** p=0.004*
Physical role	r=0.194** p=0.042*	r=0.144 p=0.133	r=-0.265** p=0.005*
Body pain	r=0.145 p=0.131	r=-0.215** p=0.024*	r=-0.332** p=0.000*
General health	r=0.311** p=0.004*	r=-0.276** p=0.004*	r=-0.357** p=0.000*
Vitality	r=0.152 p=0.114	r=0.135 p=0.159	r=0.115 p=0.230
Social function	r=0.210** p=0.028*	r=-0.231** p=0.015*	r=0.099 p=0.306
Emotional role	r=0.196** p=0.040*	r=-0.303** p=0.001*	r=-0.218** p=0.022*
Mental health	r=0.293** p=0.002*	r=0.173 p=0.072	r=0.114 p=0.237
Total physical health	r=0.387** p=0.000*	r=-0.341** p=0.000*	r=-0.460*** p=0.000*
Total mental health	r=0.396** p=0.000*	r=-0.287** p=0.002*	r=-0.312** p=0.001*

*$p<0.05$, ** r=0.10 to 0.39 (-0.10 to -0.39) Low positive (negative) correlation
***r=40 to 0.69 (–0.40 to –0.69) Moderate positive (negative) correlation

limitations and barriers such as time and fatigue and with a greater likelihood of success with healthy behaviors. Studies have demonstrated that patients with low self-efficacy are more likely to avoid physical activity in their daily routines.[25] For instance, Barlow *et al.* reported that lower scores on the ASES in rheumatoid arthritis patients were associated with reduced physical performance, increased pain and fatigue, depressive and anxious moods, and a decline in positive mood.[26] Conversely, Marszalek *et al.* found a significant relationship between self-efficacy and depression in OA patients but no correlation between WOMAC scores and self-efficacy.[27] Further, research by López-Bravo *et al.* identified self-efficacy as a predictor of pain and physical function, both components of the WOMAC scale, in individuals with hip and knee OA.[28] Gaines *et al.* observed a moderate association between self-efficacy and daily activities such as walking, stair climbing, and transfers in knee OA patients.[29] Meta-analyses have consistently linked self-efficacy with reduced physical impairment in chronic pain conditions, including arthritis, while studies have also shown that analgesic use decreases as self-efficacy increases.[30,31]

Similarly, this study's findings demonstrated that as self-efficacy increased in OA patients, pain, stiffness, and physical limitations decreased. These results underscore the positive impact of self-efficacy on pain management, enabling patients to cope better with pain and mitigate functional deficiencies.

Managing chronic conditions like OA requires long-term lifestyle changes and adaptive behaviors. The systematic review and meta-analysis by Wu *et al.* demonstrated that self-management interventions for knee OA reduce pain, improve knee function and self-efficacy, and enhance mental health and quality of life.[32] Newsom *et al.* showed that high self-efficacy improves the quality of life in OA patients and enhances health outcomes in chronic diseases.[33] A study by Van Liew *et al.* on 363 OA patients reported a significant correlation between high self-efficacy and quality of life, highlighting that robust self-efficacy may be linked to improved health, functionality, and social adjustment.[34]

This study demonstrates that individuals with high self-efficacy generally exhibit a better quality of life. The findings suggest that a strong sense of self-efficacy is likely associated with improved health outcomes, enhanced performance, and satisfactory social integration. Therefore, it can be concluded that self-efficacy positively influences quality of life.

Individuals with OA commonly perceive joint pain as an unavoidable aspect of aging, often believing it to be untreatable. This perception can result in decreased muscle strength and joint stability and increased stiffness due to avoiding physical activity. Addressing these perceptions is crucial for effective pain management and can be supported by fostering positive experiences.[9] Research indicates that individuals with a high internal health locus of control are more likely to engage in voluntary pain management behaviors. Conversely, those with an external locus of control tend to depend on physician-led approaches, highlighting the importance of a strong doctor-patient relationship.[35] Among older adults, an internal locus of control has been associated with better pain outcomes, including reduced pain intensity, improved functional abilities, and decreased reliance on chronic opioid use.[36]

In contrast, individuals attributing health issues to chance are more likely to experience chronic pain, functional limitations, depressive moods, and a lower quality of life.[37] Cross *et al.* found a negative correlation between the WOMAC functionality subscale and internal locus of control, while external locus of control and chance-fatalism were positively

correlated with functional limitations.[11] In alignment with these findings, the present study identified a negative association between WOMAC subscale scores and internal locus of control and a positive association with external and chance-fatalism locus of control. These findings suggest that individuals who attribute their health status to external factors are more likely to experience pain and functional limitations. Therefore, addressing and enhancing the internal locus of control in OA management could improve patient outcomes.

The primary goal in OA treatment is to reduce pain and enhance functionality, but multiple factors, including locus of control, influence patient adherence to treatment strategies. Locus of control reflects individuals' beliefs about the sources of their health outcomes and relates closely to their preferred treatment approaches.[38] Patients with a strong internal locus of control and sense of self-efficacy often adopt healthier lifestyles, experience better physical and mental health, and engage more actively in treatment.[39] A study showed a positive association between internal locus of control and physical and mental health, while luck-fatalism locus was negatively associated with these health domains.[11] Similarly, Denys *et al.* reported a significant link between an internal sense of control, disease acceptance, and quality of life in OA patients.[40]

This study's findings reinforce that individuals with a high internal locus of control have a higher quality of life. They take greater responsibility for their health and treatment, which enhances engagement and adherence. Conversely, those with an external locus of control may rely more on others for treatment decisions. In contrast, those with a chance-fatalism locus exhibit more depressive tendencies and lower treatment involvement, adversely impacting their quality of life.

Despite the promising findings, the study's limited sample size constrains the generalizability of the results. Moreover, the predominance of female participants although consistent with the higher prevalence of knee osteoarthritis (OA) in women may limit the applicability of the findings across genders. Future research should aim to validate these results in larger and more diverse populations, with balanced gender representation to enhance external validity. Additionally, investigating the influence of cultural and social factors may provide deeper insights into the observed relationships.

CONCLUSION

This study investigates the influence of self-efficacy and health locus of control on patients with knee OA's functional capacity and quality of life. The results indicate that individuals with high self-efficacy and an internal health locus of control can better manage pain and participate in physical activities, ultimately contributing to an improved quality of life. These findings support the need for interventions to empower OA patients with strategies to foster self-efficacy and a sense of control over their health.

Integrating these insights into clinical practice could enable healthcare providers to develop personalized interventions, enhance patient adherence to physical activity, and improve overall outcomes. Addressing these psychosocial factors offers a valuable pathway to reducing the burden of knee OA and optimizing treatment strategies.

Clinical Recommendations

1. Education and Support Programs: Training to strengthen self-efficacy and internal health locus of control can improve quality of life through pain management, safe physical activity, and disease control skills. These interventions may contribute to public health by reducing the burden of OA.
2. Psychosocial Support: Psychosocial support for patients with external and fatalistic locus of control can increase participation and adherence to treatment and enable individuals to take a more active role in health management.
3. Individualized Treatment Plans: Exercise and care plans appropriate to self-efficacy and locus of control may increase treatment efficacy and lead to more efficient public health results.
4. Long-Term Follow-Up: Regular assessment and age-appropriate interventions can sustainably improve OA patients' quality of life and physical activity levels.

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Author Contributions

F.B. conceived the research idea. R.E. and Z.B. carried out the study design, data collection, data analysis, and data interpretation. R.E. drafted the manuscript and Z.B. critically revised it for important intellectual content. R.E., Z.B., and F.B. gave final approval of the version for publication.

*The authors declare that there are no conflicts of interest.

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