Original article

Arthritis self-efficacy and its association with pain, stiffness, and physical function in patients with knee osteoarthritis at Hue University of Medicine and Pharmacy Hospital

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Abstract

Background: Arthritis self-efficacy is an important component of knee osteoarthritis management. However, evidence regarding the associations of arthritis self-efficacy with pain, stiffness, and physical function among patients with knee osteoarthritis in Vietnam remains limited.

Materials and Methods: An analytical cross-sectional study was conducted among 120 patients with knee osteoarthritis at Hue University of Medicine and Pharmacy Hospital. Arthritis self-efficacy was assessed using the 8-item Arthritis Self-Efficacy Scale (ASES-8); pain, stiffness, and physical function were assessed using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Associations were examined using Spearman's rank correlation and multivariable linear regression. Multivariable models were adjusted for age, sex, body mass index, education, living arrangement, osteoarthritis duration, knee involvement, and chronic comorbidity.

Results: The mean ASES-8 score was 6.37 ± 0.73. Median (Q1–Q3) WOMAC Pain, Stiffness, and Physical Function scores were 10.00 (7.00 – 12.75), 2.00 (0.00 – 5.00), and 39.00 (27.50 – 50.00), respectively. ASES-8 scores were negatively correlated with WOMAC Pain (r_s = −0.758; p < 0.001), Stiffness (r_s = −0.224; p = 0.014), and Physical Function (r_s = −0.641; p < 0.001). After adjustment, higher ASES-8 scores remained associated with lower Pain (B = −3.917; 95% CI: −4.642 to −3.192; p < 0.001) and Physical Function scores (B = −10.972; 95% CI: −13.660 to −8.284; p < 0.001), whereas the association with Stiffness was no longer statistically significant (B = −0.587; 95% CI: −1.214 to 0.040; p = 0.066).

Conclusion: Higher arthritis self-efficacy was associated with lower pain and better physical function among patients with knee osteoarthritis after adjustment for sociodemographic and clinical factors, whereas no significant adjusted association was observed with stiffness.

Keywords: *knee osteoarthritis; arthritis self-efficacy; ASES-8; WOMAC; pain; physical function.*

1. INTRODUCTION

Knee osteoarthritis (OA) is a common chronic musculoskeletal disorder, particularly among middle-aged and older adults. Its major manifestations include pain, stiffness, and impaired physical function, which can substantially restrict mobility and activities of daily living [1]. Because knee OA is chronic and progressive, successful management requires not only clinical management but also sustained patient participation in day-to-day disease management [2].

Arthritis self-efficacy refers to patients' confidence in their ability to control pain, other symptoms, and the consequences of arthritis in daily life. It is considered an important component of self-management in patients with knee OA [2]. Although closely related, self-efficacy and self-management are distinct constructs: self-efficacy reflects perceived confidence in managing arthritis-related symptoms and activities, whereas self-management encompasses the broader behaviors and strategies used to manage the condition. Self-management programs have been evaluated for several outcomes, including pain, stiffness, physical function, and arthritis self-efficacy. A systematic review and meta-analysis of randomized controlled trials showed that self-management interventions may improve several of these outcomes, although the strength of evidence varies across outcomes [3]. Observational evidence has also demonstrated an inverse association between self-efficacy and pain in patients with osteoarthritis [4], while programs combining self-management and exercise may improve self-efficacy [5]. Evidence examining arthritis self-efficacy

in relation to the specific WOMAC domains of pain, stiffness, and physical function among Vietnamese patients with knee OA remains limited. Examining these domains separately may help clarify whether arthritis self-efficacy is similarly related to different aspects of the symptom and functional burden of knee OA.

This study therefore aimed to: (1) assess arthritis self-efficacy and pain, stiffness, and physical function using the ASES-8 and WOMAC; and (2) examine the associations between arthritis self-efficacy and these WOMAC outcomes in patients with knee OA.

2. MATERIALS AND METHODS

2.1. Study participants

An analytical cross-sectional study was conducted from May 2026 to September 2026 at Hue University of Medicine and Pharmacy Hospital, including the Department of General Internal Medicine–Endocrinology–Rheumatology, Department of Cardiology, and Internal Medicine Outpatient Clinic.

Participants were patients with unilateral or bilateral knee osteoarthritis, with both the diagnosis and knee involvement documented by the treating physician in the medical record and supported by clinical assessment and relevant investigations consistent with the American College of Rheumatology (ACR) clinical and radiographic [6]. These criteria include knee pain, radiographic osteophytes, and at least one of the following: age ≥ 50 years, morning stiffness lasting ≤ 30 minutes, or crepitus on active knee motion. At recruitment, the research team reviewed the relevant clinical and radiographic findings documented in the electronic medical records (HSoft) to verify the existing diagnosis. Eligible patients were able to communicate, complete the study questionnaires, and provide informed consent. Patients with severe acute illness or cognitive or communication impairment preventing completion of the ASES-8 and WOMAC, and those with insufficient data for calculating the study scores, were excluded.

2.2. Study methods

The sample size was calculated for multiple linear regression using an a priori power analysis [7]. Assuming a medium effect size ($f^2 = 0.15$), a significance level of 0.05, 80% power, and nine predictors in the multivariable model, the minimum required sample size was 114 participants. A total of 120 participants were included in the study. During the study period, convenience sampling was used, with eligible patients who agreed to participate recruited until the required sample size was reached.

Sociodemographic variables included age, sex, education, occupation, and living arrangement. Clinical variables included body mass index (BMI), OA duration, unilateral or bilateral knee involvement, comorbidities, and current management, including analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), physical therapy/rehabilitation, and guided exercise. OA duration was defined as the time since the patient was first diagnosed with knee OA. Chronic comorbidity was defined as the presence of at least one physician-diagnosed chronic condition other than knee OA, documented in the patient's medical record or outpatient medical book; common conditions included hypertension, diabetes mellitus, heart failure, chronic kidney disease, asthma, and chronic obstructive pulmonary disease. Guided exercise referred to exercise performed according to instructions provided by healthcare professionals. For regression analyses, education was dichotomized as lower secondary or below versus upper secondary or above because of the small number of participants in some educational categories, particularly the college/university group (n = 3).

Arthritis self-efficacy was assessed using the 8-item Arthritis Self-Efficacy Scale (ASES-8). The ASES was developed by Lorig et al. [8], and the 8-item version has demonstrated good reliability [9]. A Vietnamese version of the ASES-8, previously used among Vietnamese patients with arthritis, was used in the present study [10]. Each item is scored from 1 to 10; the overall score is the mean of the eight items, with higher scores indicating greater arthritis self-efficacy. The ASES-8 demonstrated excellent internal consistency in the present study (Cronbach's $\alpha = 0.930$).

Pain, stiffness, and physical function were assessed using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) [11,12]. For use in the present study, the WOMAC was translated into Vietnamese using forward translation, expert review, back-translation, and reconciliation [13]. Content validity was assessed by five postgraduate nursing experts using a four-point relevance scale. The item-level content validity index (I-CVI) ranged from 0.80 to 1.00, and the scale-level content validity index (S-CVI/Ave) was 0.95. The WOMAC comprised 24 items across three domains: Pain (5 items), Stiffness (2 items), and Physical Function (17 items). Each item was scored from 0 (none) to 4 (extreme), yielding possible scores of 0–20 for Pain, 0–8 for Stiffness, 0–68 for Physical

Function, and 0–96 for the total WOMAC score. Higher scores indicated greater pain, stiffness, or physical functional limitation. Internal consistency in the present sample was good to excellent, with Cronbach's α values of 0.831, 0.894, and 0.921 for Pain, Stiffness, and Physical Function, respectively, and 0.935 for the total WOMAC scale.

Eligible participants were interviewed using a structured questionnaire. Sociodemographic information was obtained by interview, while clinical information, including diagnosis, knee involvement, OA duration, comorbidities, and current treatment, was obtained from participants and verified against available medical records or prescriptions. ASES-8 and WOMAC were administered using a standardized procedure, and completed questionnaires were checked for completeness before data entry.

2.3. Statistical analysis

Data were analyzed using IBM SPSS Statistics version 20.0. Categorical variables were presented as frequencies and percentages. Continuous variables were summarized using mean ± standard deviation (SD) or median and interquartile range (IQR), as appropriate. Normality was assessed using the Shapiro-Wilk test, skewness and kurtosis, histograms, and Q–Q plots. Spearman's rank correlation (r_s) was used to examine the relationships between ASES-8 and WOMAC Pain, Stiffness, and Physical Function scores because some WOMAC domains showed non-normal distributions.

Univariable linear regression analyses were performed separately for the three WOMAC domains. Predictors included ASES-8, age, sex, BMI, education, living arrangement, OA duration, knee involvement, and chronic comorbidity. Three multivariable linear regression models were then constructed with Pain, Stiffness, and Physical Function as separate dependent variables. ASES-8 was the primary independent variable, and each model was adjusted for the same eight covariates. Covariates were prespecified based on clinical relevance and previous evidence rather than selected solely by univariable p values.

Results were reported as unstandardized regression coefficients (B), 95% confidence intervals (CI), and p values. R^2 and adjusted R^2 were reported for the multivariable models. Model assumptions and multicollinearity were assessed using residual diagnostics, P–P plots, variance inflation factors, and Cook's distance. Bootstrap estimates with 5,000 resamples were obtained as a sensitivity analysis. Statistical significance was set at $p < 0.05$.

2.4. Ethical considerations

The study was approved by the Biomedical Research Ethics Committee of Hue University of Medicine and Pharmacy, Hue University (Approval No. H2026/141, dated April 14, 2026). Participation was voluntary, and participants were informed of the study objectives and procedures before enrollment. Refusal to participate or withdrawal from the study did not affect their medical care. All collected information was kept confidential and used solely for research purposes.

3. RESULTS

3.1. Characteristics of the study participants

Table 1. Sociodemographic and clinical characteristics of participants (n = 120)

Characteristics	Category	n (%) / Summary statistic
Age (years), mean ± SD [min–max]		68.42 ± 10.19 [49 – 90]
BMI (kg/m²), median (Q1–Q3) [min–max]		22.06 (19.57 – 24.74) [12.76 – 35.70]
Recruitment setting	Outpatient clinic	23 (19.2)
	General Internal Medicine–Endocrinology–Rheumatology	72 (60.0)
	Cardiology	25 (20.8)
Sex	Male	25 (20.8)
	Female	95 (79.2)
Education	No formal education	18 (15.0)
	Primary school	38 (31.7)
	Lower secondary school	37 (30.8)
	Upper secondary school	24 (20.0)
	College/university	3 (2.5)

Occupation	Officer/employee	6 (5.0)
	Farmer	54 (45.0)
	Retired	27 (22.5)
	Homemaker	33 (27.5)
Living arrangement	Living alone	8 (6.7)
	Living with family	112 (93.3)
OA duration (years), median (Q1–Q3) [min–max]		2.00 (1.00 – 5.00) [1 – 13]
Knee involvement	Unilateral	94 (78.3)
	Bilateral	26 (21.7)
Chronic comorbidity	No	25 (20.8)
	Yes	95 (79.2)
Analgesic use	No	44 (36.7)
	Yes	76 (63.3)
NSAID use	No	56 (46.7)
	Yes	64 (53.3)
Physical therapy/ rehabilitation	No	60 (50.0)
	Yes	60 (50.0)
Guided exercise	No	47 (39.2)
	Yes	73 (60.8)

Data are presented as n (%), mean ± SD [min–max], or median (Q1–Q3) [min–max], as appropriate. SD, standard deviation; Q1, first quartile; Q3, third quartile; BMI, body mass index; OA, osteoarthritis; NSAID, non-steroidal anti-inflammatory drug.

The participants were predominantly older adults and female. Most were recruited from the General Internal Medicine–Endocrinology–Rheumatology ward, lived with family, and had unilateral knee involvement. Chronic comorbidities were common.

3.2. Arthritis self-efficacy and WOMAC outcomes

Table 2. Descriptive statistics of ASES-8 and WOMAC scores (n = 120)

Scale/domain	Mean ± SD / Median (Q1–Q3)	Min–Max
ASES-8	6.37 ± 0.73	4.00 – 8.25
WOMAC Pain	10.00 (7.00 – 12.75)	2.00 – 20.00
WOMAC Stiffness	2.00 (0.00 – 5.00)	0.00 – 8.00
WOMAC Physical Function	39.00 (27.50 – 50.00)	8.00 – 68.00
WOMAC Total	51.00 (36.00 – 65.00)	12.00 – 96.00

Data are presented as mean ± SD or median (Q1–Q3), as appropriate. SD, standard deviation; Q1, first quartile; Q3, third quartile; ASES-8, Arthritis Self-Efficacy Scale-8;

The mean ASES-8 score was 6.37 ± 0.73. WOMAC scores showed considerable variability across participants, particularly for Pain and Physical Function, whereas Stiffness scores were generally lower.

3.3. Associations between arthritis self-efficacy and WOMAC outcomes

Table 3. Correlations between ASES-8 and WOMAC domain scores (n = 120)

WOMAC outcome	r_s	p
WOMAC Pain	−0.758	< 0.001
WOMAC Stiffness	−0.224	0.014
WOMAC Physical Function	−0.641	< 0.001

r_s: Spearman's rank correlation coefficient.

ASES-8 was inversely correlated with all three WOMAC domains. The strongest correlation was observed

with Pain (r_s = −0.758), followed by Physical Function, whereas the correlation with Stiffness was weak. All correlations were statistically significant.

Table 4. Univariable linear regression analyses of factors associated with WOMAC outcomes (n = 120)

Predictor	B (SE)	β	95% CI	p
WOMAC Pain				
ASES-8	−3.977 (0.346)	−0.727	−4.662 to −3.292	<0.001
Age, *years*	0.068 (0.035)	0.175	−0.002 to 0.139	0.056
Female vs male	0.006 (0.900)	0.001	−1.775 to 1.788	0.994
BMI, *kg/m²*	−0.002 (0.095)	−0.002	−0.191 to 0.187	0.986
Upper secondary or above vs lower secondary or below	1.454 (0.865)	0.153	−0.258 to 3.166	0.095
Living with family vs alone	−0.830 (1.463)	−0.052	−3.727 to 2.066	0.571
OA duration, *years*	0.343 (0.137)	0.224	0.071 to 0.615	0.014
Bilateral vs unilateral OA	1.873 (0.870)	0.194	0.151 to 3.596	0.033
Comorbidity, yes vs no	2.533 (0.869)	0.259	0.812 to 4.253	0.004
WOMAC Stiffness				
ASES-8	−0.718 (0.300)	−0.215	−1.312 to −0.125	0.018
Age, *years*	0.007 (0.022)	0.028	−0.037 to 0.050	0.760
Female vs male	−0.305 (0.547)	−0.051	−1.389 to 0.779	0.578
BMI, *kg/m²*	0.029 (0.058)	0.046	−0.086 to 0.144	0.615
Upper secondary or above vs lower secondary or below	0.044 (0.533)	0.008	−1.011 to 1.100	0.934
Living with family vs alone	0.330 (0.892)	0.034	−1.436 to 2.096	0.712
OA duration, *years*	0.200 (0.084)	0.215	0.034 to 0.366	0.019
Bilateral vs unilateral OA	−0.173 (0.540)	−0.029	−1.242 to 0.897	0.750
Comorbidity, yes vs no	0.251 (0.548)	0.042	−0.834 to 1.335	0.648
WOMAC Physical Function				
ASES-8	−11.302 (1.266)	−0.635	−13.809 to −8.795	<0.001
Age, *years*	0.258 (0.115)	0.203	0.031 to 0.485	0.027
Female vs male	1.276 (2.924)	0.040	−4.515 to 7.066	0.663
BMI, *kg/m²*	−0.066 (0.311)	−0.020	−0.681 to 0.548	0.831
Upper secondary or above vs lower secondary or below	0.088 (2.846)	0.003	−5.547 to 5.724	0.975
Living with family vs alone	2.223 (4.760)	0.043	−7.203 to 11.649	0.641
OA duration, years	1.446 (0.439)	0.290	0.577 to 2.315	0.001
Bilateral vs unilateral OA	7.674 (2.797)	0.245	2.136 to 13.213	0.007
Comorbidity, yes vs no	6.076 (2.872)	0.191	0.388 to 11.764	0.037

B, unstandardized regression coefficient; SE, standard error; β, standardized regression coefficient; CI, confidence interval; OA, osteoarthritis; Reference categories: male, lower secondary education or below, living alone, unilateral knee involvement, and no chronic comorbidity.

In univariable analyses, higher ASES-8 scores were associated with lower scores across all three WOMAC domains. Longer OA duration was associated with higher scores in all three domains. Bilateral knee involvement and chronic comorbidity were associated with higher scores for Pain, Physical Function, or both, while age was associated only with Physical Function.

Table 5. Multivariable linear regression of the association between ASES-8 and WOMAC outcomes (n = 120)

Outcome / Predictor	B	SE	β	95% CI for B	p	VIF
WOMAC Pain						
ASES-8	−3.917	0.366	−0.716	−4.642 to −3.192	< 0.001	1.146
Age, *years*	−0.020	0.038	−0.050	−0.096 to 0.057	0.612	2.471
Female vs male	−0.807	0.633	−0.083	−2.061 to 0.446	0.205	1.075
BMI, *kg/m²*	0.037	0.068	0.036	−0.098 to 0.172	0.589	1.105
Upper secondary or above vs lower secondary or below	0.413	0.623	0.043	−0.822 to 1.649	0.509	1.103
Living with family vs alone	−2.113	1.046	−0.133	−4.185 to −0.041	0.046	1.108
OA duration, years	−0.027	0.142	−0.017	−0.309 to 0.255	0.851	2.218
Bilateral vs unilateral OA	1.037	0.802	0.108	−0.552 to 2.626	0.199	1.777
Comorbidity, yes vs no	1.094	0.722	0.112	−0.336 to 2.525	0.132	1.399
WOMAC Stiffness						
ASES-8	−0.587	0.317	−0.176	−1.214 to 0.040	0.066	1.146
Age, *years*	−0.034	0.033	−0.142	−0.100 to 0.032	0.310	2.471
Female vs male	−0.292	0.547	−0.049	−1.377 to 0.793	0.595	1.075
BMI, *kg/m²*	0.069	0.059	0.109	−0.048 to 0.186	0.244	1.105
Upper secondary or above vs lower secondary or below	−0.431	0.539	−0.074	−1.500 to 0.638	0.426	1.103
Living with family vs alone	−0.526	0.905	−0.054	−2.319 to 1.268	0.562	1.108
OA duration, years	0.386	0.123	0.414	0.142 to 0.630	0.002	2.218
Bilateral vs unilateral OA	−1.214	0.694	−0.207	−2.589 to 0.161	0.083	1.777
Comorbidity, yes vs no	0.128	0.625	0.022	−1.110 to 1.366	0.838	1.399
WOMAC Physical Function						
ASES-8	−10.972	1.356	−0.616	−13.660 to −8.284	< 0.001	1.146
Age, *years*	−0.083	0.142	−0.065	−0.365 to 0.199	0.562	2.471
Female vs male	−0.825	2.346	−0.026	−5.473 to 3.824	0.726	1.075
BMI, *kg/m²*	0.019	0.252	0.006	−0.481 to 0.520	0.939	1.105
Upper secondary or above vs lower secondary or below	−3.473	2.311	−0.112	−8.054 to 1.107	0.136	1.103
Living with family vs alone	−1.038	3.877	−0.020	−8.721 to 6.645	0.789	1.108
OA duration, years	0.483	0.528	0.097	−0.563 to 1.529	0.362	2.218
Bilateral vs unilateral OA	3.941	2.973	0.126	−1.951 to 9.833	0.188	1.777
Comorbidity, yes vs no	1.333	2.676	0.042	−3.970 to 6.636	0.619	1.399

Model statistics: Pain: $R^2 = 0.571$, adjusted $R^2 = 0.536$, $F = 16.280$, $p < 0.001$. Stiffness: $R^2 = 0.135$, adjusted $R^2 = 0.064$, $F = 1.905$, $p = 0.058$. Physical Function: $R^2 = 0.443$, adjusted $R^2 = 0.397$, $F = 9.715$, $p < 0.001$.

B: unstandardized regression coefficient; SE: standard error; β: standardized regression coefficient; CI: confidence interval; VIF: variance inflation factor. Reference categories: male, lower secondary education or below, living alone, unilateral OA, and no comorbidity.

After adjustment for the prespecified covariates, higher ASES-8 scores remained significantly associated with lower WOMAC Pain and Physical Function scores, whereas the association with Stiffness was no longer statistically significant. Longer OA duration was associated with higher Stiffness scores, while living with family

was associated with lower Pain scores. The Pain and Physical Function models explained substantially more variance than the Stiffness model, which was not statistically significant overall.

4. DISCUSSION

4.1. Arthritis self-efficacy, pain, stiffness, and physical function in patients with knee osteoarthritis

The mean ASES-8 score in this study was 6.37 ± 0.73 on a 1 – 10 scale. The ASES-8 reflects patients' confidence in their ability to manage the effects of arthritis, with higher scores indicating greater arthritis self-efficacy [8,9]. Because no established cut-off values are available for classifying ASES-8 scores as low, moderate, or high, the score was interpreted as a continuous measure. The scale demonstrated excellent internal consistency in the present study (Cronbach's α = 0.930). This finding is comparable with that of Uritani et al., who reported a Cronbach's α of 0.94 for the short-form ASES in 179 Japanese patients with knee osteoarthritis [14]. Together, these findings support the internal consistency of the ASES-8 in patients with knee osteoarthritis.

The WOMAC domain scores showed substantial variation among participants. WOMAC is a well-established patient-reported instrument that captures distinct but complementary dimensions of pain, stiffness, and physical function [11, 12]. The observed variability across these domains highlights the heterogeneous symptom and functional burden among patients with knee osteoarthritis and underscores the value of examining individual WOMAC domains.

4.2. Associations between arthritis self-efficacy and WOMAC outcomes

The principal finding of this study was that higher arthritis self-efficacy was associated with lower pain and better physical function. In the correlation analysis, ASES-8 was inversely correlated with WOMAC Pain, Stiffness, and Physical Function, with the strongest correlations observed for Pain and Physical Function. However, the strength of these relationships differed substantially across WOMAC domains. After adjustment for sociodemographic and clinical characteristics, ASES-8 remained associated with Pain and Physical Function, whereas its association with Stiffness was no longer statistically significant. These findings suggest that the relationship between arthritis self-efficacy and knee osteoarthritis burden may be domain-specific rather than uniform across pain, stiffness, and physical function.

The strongest association was observed between ASES-8 and WOMAC Pain. This inverse relationship is consistent with the findings of Doğan et al., who reported that greater arthritis self-efficacy was associated with lower pain among individuals with osteoarthritis [4]. In the present multivariable model, each one-point increase in ASES-8 score was associated with a 3.92-point lower WOMAC Pain score after adjustment for sociodemographic and clinical covariates. This finding is also supported by longitudinal evidence. Degerstedt et al. found that higher baseline self-efficacy for pain management was associated with lower pain at 3- and 12-month follow-up among patients with hip or knee osteoarthritis [15]. However, differences in study design, populations, and outcome measures should be considered when comparing these findings.

The strong correlation observed between ASES-8 and WOMAC Pain should be interpreted with appropriate caution. Both ASES-8 and WOMAC Pain are patient-reported measures, and some ASES items specifically assess confidence in managing arthritis-related pain. Therefore, conceptual proximity between pain self-efficacy and perceived pain severity, together with common-method measurement, may partly contribute to the strength of the observed association. Nevertheless, the persistence of the association after multivariable adjustment indicates that the relationship remained after accounting for the included sociodemographic and clinical covariates.

The relationship between arthritis self-efficacy and stiffness was substantially weaker. ASES-8 showed a weak inverse correlation with WOMAC Stiffness, but this association was attenuated and was no longer statistically significant after multivariable adjustment. These findings suggest that perceived stiffness may be less closely related to arthritis self-efficacy than pain or functional limitation. This interpretation should be cautious because the overall multivariable model for Stiffness was not statistically significant. The systematic review and meta-analysis by Wu et al. found that self-management interventions may affect pain, stiffness, physical function, and arthritis self-efficacy differently, supporting the view that these outcomes should not necessarily be expected to change in parallel [3].

ASES-8 was also strongly and inversely associated with WOMAC Physical Function. Patients with greater confidence in managing their arthritis tended

to report fewer limitations in daily physical activities. After adjustment, higher ASES-8 scores remained significantly associated with lower WOMAC Physical Function scores.

This finding is consistent with previous evidence showing that self-efficacy is related to physical and mobility outcomes in knee osteoarthritis. Longitudinal data have shown that lower self-efficacy may predict deterioration in walking and stair performance [16].

However, the relationship between self-efficacy and physical function may be bidirectional. Greater self-efficacy could facilitate activity and disease-management behaviors, whereas better physical function could itself enhance patients' confidence in managing their condition. Because the present study was cross-sectional, the temporal direction of this association cannot be determined.

From a clinical and nursing perspective, these findings suggest that arthritis self-efficacy may provide information complementary to conventional assessment of pain and physical function in patients with knee OA. ASES-8 is brief and may help identify patients with lower confidence in managing arthritis-related symptoms and daily activities. Such patients could be considered for more individualized support, including education, goal setting, exercise support, pain-coping strategies, and reinforcement of active participation in disease management. However, the present findings should not be interpreted to mean that increasing self-efficacy alone will necessarily reduce pain or improve function. Intervention studies are required to establish whether strategies specifically targeting arthritis self-efficacy produce clinically meaningful improvements in these outcomes. Recent evidence suggests that arthritis self-efficacy may be modifiable through educational and self-management interventions [2, 17].

Limitations

This study has several limitations. First, its cross-sectional design precludes causal inference. Second, convenience sampling at a single hospital may limit the generalizability of the findings. Third, both ASES-8 and WOMAC are self-reported measures, which may contribute to common-method correlation. Fourth, some participant subgroups were small, which may have reduced the precision of estimates for these characteristics. Finally, multiple statistical tests were conducted across the WOMAC domains, including correlation and regression analyses, without formal adjustment for multiple comparisons. This may have increased the risk of type I error, particularly for secondary findings with p values close to the conventional significance threshold. These findings should therefore be interpreted cautiously and require confirmation in future studies.

Despite these limitations, the study provides locally relevant evidence that arthritis self-efficacy is associated with pain and physical function among Vietnamese patients with knee osteoarthritis.

5. CONCLUSION

Patients with knee osteoarthritis had a mean ASES-8 score of 6.37 ± 0.73. Median (Q1–Q3) WOMAC scores were 10.00 (7.00 – 12.75) for Pain, 2.00 (0.00 – 5.00) for Stiffness, and 39.00 (27.50 – 50.00) for Physical Function.

Higher arthritis self-efficacy was associated with lower pain and better physical function after adjustment for sociodemographic and clinical characteristics. In contrast, the association between arthritis self-efficacy and stiffness was no longer statistically significant after adjustment. Given the cross-sectional design, these associations should not be interpreted as causal.

Conflict of Interest Statement

The authors declare that they have no conflicts of interest.

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