Scientific Research Publishing

Journal of Biosciences and Medicines, 2025, 13(7), 404-415
https://www.scirp.org/journal/jbm
ISSN Online: 2327-509X
ISSN Print: 2327-5081

Factors Associated with Traditional Chinese Medicine Health Literacy among Knee Osteoarthritis Patients: A Cross-Sectional Study

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How to cite this paper: Zhang, J., Wen, C.J., Wang, J., Zhang, L., Li, J. and Luo, X. (2025) Factors Associated with Traditional Chinese Medicine Health Literacy among Knee Osteoarthritis Patients: A Cross-Sectional Study. *Journal of Biosciences and Medicines*, **13**, 404-415.
https://doi.org/10.4236/jbm.2025.137032

Received: April 11, 2025
Accepted: July 26, 2025
Published: July 29, 2025

Abstract

Objective: To investigate the status of exposure, reading, trust, and utilization of traditional Chinese medicine (TCM) health culture knowledge among patients with primary knee osteoarthritis (KOA), and to provide a scientific basis for formulating relevant policies, strategies, and measures for the popularization of TCM health culture knowledge. **Methods:** A convenient sample of patients with primary KOA was selected from the hip and knee surgery departments of one tertiary grade A general hospital in Panzhihua City from August 2024 to February 2025. Face-to-face surveys were conducted using a general information questionnaire, a numerical rating scale (NRS) of pain, and the Questionnaire on the Popularization of National TCM Health Culture Knowledge. Univariate and binary logistic regression analyses were performed using SPSS 27.0 software, and multivariate forest plots were drawn using GraphPad Prism 9.5.1 software. **Results:** A total of 228 patients with primary KOA were included, with the popularization rate, reading rate, trust rate, and action rate of TCM health culture knowledge being 93.42%, 84.21%, 71.93%, and 50.88%, respectively. Logistic regression showed that disease course and NRS score were influencing factors for the popularization rate, lesion involvement range, residence, ethnicity and age were influencing factors for the reading rate, education level and disease course were influencing factors for the trust rate, and ethnicity, age and education level were influencing factors for the action rate. **Conclusion:** TCM health culture knowledge's popularization rate and reading rate in patients with primary KOA were relatively high, but the action rate was low, showing a knowledge-action gap. Younger age, higher education level, longer disease course, and Han ethnicity were associated with better popularization of TCM health culture knowledge. It is recommended that behavioral intervention strategies be developed to improve the action rate,

strengthen targeted interventions for different regions and populations, and optimize the content and forms of cultural communication.

Keywords

Primary Knee Osteoarthritis, Traditional Chinese Medicine, Health Culture, Knowledge Dissemination, Influencing Factors

1. Introduction

Knee osteoarthritis (KOA) is one of the most common musculoskeletal disorders worldwide, primarily affecting the elderly, with a recent trend toward younger onset [1]. It is characterised by insidious onset, a long latent period, and difficulty in cure, which significantly burdens patients, families, and society [2]. The exact etiology and pathogenesis of KOA remain unclear, and symptomatic conservative therapy remains the primary treatment option [3]. Modern medicine primarily relies on pharmacological treatment regimens for KOA, but long-term use may lead to a series of adverse reactions, limiting its widespread application in clinical practice [4]. In recent years, traditional Chinese medicine (TCM) has demonstrated unique value in the prevention and treatment of KOA, with its principles of 'holistic regulation and individualised treatment' aligning closely with the chronic disease management needs of KOA. Multiple evidence-based medical studies have confirmed that TCM interventions (including herbal formulations, acupuncture, and massage) can significantly improve pain and joint function in KOA patients [5]-[7]. However, there is a significant gap between the current dissemination of TCM health culture knowledge and clinical practice needs [8]. Since the State Council listed 'promoting TCM culture and implementing the health literacy enhancement project' as a key task, numerous TCM-related studies have been conducted. However, existing research has primarily focused on evaluating the efficacy of TCM, while studies on the differences in TCM health culture knowledge acceptance among different patients and their influencing factors remain limited. Based on this, this study conducts a multi-dimensional assessment of the current status of TCM health culture knowledge dissemination among KOA patients, with a focus on analysing the mechanisms by which sociodemographic characteristics and disease characteristics influence knowledge acquisition, trust, and application. The aim is to provide evidence for the development of stratified, precise TCM health promotion strategies, achieving an effective transition from "knowledge dissemination" to "behavioural change".

2. Objects and Methods

2.1. Survey Subjects

This study is a cross-sectional study using convenience sampling to select patients with knee osteoarthritis from the orthopaedic department of a tertiary-level

general hospital in Panzhihua City between August 2024 and February 2025. Inclusion criteria: Patients had normal cognitive and communication abilities; met the diagnostic criteria for primary knee osteoarthritis (KOA) [9]; voluntarily agreed to participate in the study; and were aged ≥ 18 years. Exclusion criteria: Patients with hearing or cognitive impairments, or other conditions that limited lower limb sensation or motor function, such as rheumatoid arthritis or Parkinson's disease. According to the sample size estimation principle proposed by Kendall [10], the sample size should be 5 - 10 times the number of variables. This study had 16 variables, and considering a 20% dropout rate, the sample size was estimated to be 96 - 192 cases. Ultimately, 228 cases were included. This study has been approved by the hospital ethics committee (2024-07-005).

2.2. Survey Instruments

2.2.1. General Information Questionnaire

The study design was developed by the research team after reviewing previous literature. General demographic data included gender, age, ethnicity, place of residence, education level, and income; disease-related data included the extent of the lesion, the side of the surgery, disease duration, history of chronic diseases, K-L staging, and pain scores. Pain scores were assessed using the Numerical Rating Scale (NRS), with patients indicating their pain level based on their subjective experience. Scores of 0 indicate no pain, 1 - 3 indicate mild pain, 4 - 6 indicate moderate pain, and 7 - 10 indicate severe pain.

2.2.2. National Survey Questionnaire on the Popularisation of Traditional Chinese Medicine Health Culture Knowledge

The "National Survey Questionnaire on the Popularisation of Traditional Chinese Medicine Health Culture Knowledge" was compiled by the National Administration of Traditional Chinese Medicine. It includes four dimensions—popularisation rate, reading rate, trust rate, and action rate—and 17 items. If the respondent answers "yes" to a question, it is considered that the popularisation work of traditional Chinese medicine health culture knowledge has covered the survey subject. The calculation method refers to the reference [11] by Zhao Yuyang *et al.*

2.3. Data Collection Methods

This study collected data through face-to-face questionnaire surveys. Before the survey, researchers who had undergone uniform training explained the purpose, significance, and method of completing the questionnaire to each research subject in detail. After the research subjects fully understood the above information, they were required to sign a written informed consent form. The research subjects completed the questionnaire independently in an undisturbed environment, with researchers only providing explanations. For those unable to complete the questionnaire independently, researchers asked each question individually and recorded their responses truthfully. All questionnaires were checked for completeness on-site, and any missing items were immediately addressed through follow-up questions.

2.4. Statistical Methods

Data entry and organisation were performed using Excel, and statistical description and analysis were conducted using SPSS 27.0 software. Count data were described using case numbers and percentages. Intergroup comparisons were performed using the chi-square test or Fisher's exact probability test. Ordered categorical data were analysed using the Kruskal-Wallis H test. Continuous data following a normal distribution were described using mean ± standard deviation, and intergroup comparisons were performed using the independent samples t-test. For non-normally distributed continuous data, the median and interquartile range were used for description, and group comparisons were performed using the Mann-Whitney U test. Binary logistic regression was used to explore influencing factors, and the Hosmer-Lemeshow test (HL) was used to assess model fit. P value > 0.05 indicated good model fit, and the current model was considered acceptable. Use GraphPad Prism 9.5.1 software to draw a multi-factor forest plot. The significance level was set at $\alpha = 0.05$.

3. Results

3.1. Analysis of General Data

A total of 228 questionnaires were distributed on-site, with 228 valid questionnaires returned, resulting in a 100% response rate. The study revealed that the rates of awareness, reading, trust, and action regarding traditional Chinese medicine health culture knowledge among patients with knee osteoarthritis were 93.42%, 84.21%, 71.93%, and 50.88%, respectively. The general data of the survey participants are presented in **Table 1**.

3.2. Univariate Analysis of the National Survey Questionnaire on the Popularisation of Traditional Chinese Medicine Health Culture Knowledge

The results of this study indicate that disease duration and NRS scores are factors influencing the dissemination rate of traditional Chinese medicine health culture knowledge among patients with knee osteoarthritis; age, ethnicity, place of residence, education level, income, and extent of disease involvement are factors influencing reading rates; education level, disease duration, and history of chronic disease are factors influencing trust rates; and age, ethnicity, place of residence, education level, income, and activity NRS scores are factors influencing the action rate of traditional Chinese medicine health culture knowledge among patients with knee osteoarthritis. See **Table 1** for details.

3.3. Multivariate Analysis of the National Survey Questionnaire on the Popularisation of Traditional Chinese Medicine Health Culture Knowledge

The popularisation rate, reading rate, trust rate, and action rate from the survey questionnaire on the popularisation of traditional Chinese medicine health

Table 1. Demographic and clinical characteristics of the study participants.

Items	Total Cases (n = 228)	Popularity Rate (n = 213)	Reading Rate (n = 192)	Trust Rate (n = 164)	Action Rate (n = 116)
Age [years, M (P25, P75)]	67 (60, 72)	67 (60, 72)	66 (59, 71)	67 (60, 71.75)	62 (58, 70.75)
Z		−1.467	−3.522	−0.028	−4.191
P		0.142	<0.001	0.978	<0.001
Gender [cases (percentage, %)]					
Male	46 (20.2)	44 (95.7)	35 (76.1)	31 (67.4)	26 (56.5)
Female	182 (79.8)	169 (92.9)	157 (86.3)	133 (73.1)	90 (49.5)
χ^2		0.123	2.86	0.588	0.735
P		0.726	0.291	0.443	0.391
Ethnicity [cases (percentage, %)]					
Han	185 (81.1)	175 (94.6)	172 (93.0)	137 (74.1)	102 (55.1)
Other	43 (18.9)	38 (88.4)	20 (46.5)	27 (62.8)	14 (32.6)
χ^2		1.302	56.444	2.192	7.116
P		0.354	<0.001	0.139	0.008
Residence [cases (percentage, %)]					
Urban	84 (36.8)	80 (95.2)	82 (97.6)	62 (73.8)	52 (61.9)
Rural	144 (63.2)	133 (92.4)	110 (76.4)	102 (70.8)	64 (44.4)
χ^2		0.714	17.984	0.233	6.471
P		0.398	<0.001	0.629	0.011
Education [cases (percentage, %)]					
Primary school or below	160 (70.2)	147 (91.9)	124 (77.5)	109 (68.1)	59 (36.9)
Junior high/technical school	46 (20.2)	44 (93.6)	46 (100)	40 (87.0)	39 (84.8)
High school or above	22 (9.6)	22 (100)	22 (100)	15 (68.2)	18 (81.8)
H		2.533	18.089	6.416	41.953
P		0.282	<0.001	0.040	<0.001
Income [cases (percentage, %)]					
<3000	81 (35.5)	73 (90.1)	57 (70.4)	56 (69.1)	26 (32.1)
3000 - 5000	97 (42.5)	92 (94.8)	85 (87.6)	73 (75.3)	54 (55.7)
＞5000	50 (21.9)	48 (96.0)	50 (100)	35 (70.0)	36 (72.0)
H		2.284	21.8	0.933	21.153
P		0.319	<0.001	0.627	<0.001
Affected Area [cases (percentage, %)]					
Unilateral	52 (22.8)	47 (90.4)	49 (94.2)	34 (65.4)	28 (53.8)
Bilateral	176 (77.2)	166 (94.3)	143 (81.3)	130 (73.9)	88 (50.0)

Continued

χ^2		0.472	5.087	1.429	0.238
P		0.492	0.024	0.232	0.626
Surgical Side [cases (percentage, %)]					
Left	103 (45.2)	99 (96.1)	86 (83.5)	76 (73.8)	59 (57.3)
Right	125 (54.8)	114 (91.2)	106 (84.8)	88 (70.4)	57 (45.6)
χ^2		2.221	0.072	0.321	3.083
P		0.136	0.788	0.571	0.079
Disease Duration [years, M (P25, P75)]	9.5 (4, 10)	10 (4, 10)	8 (3.25, 10.00)	10 (8, 10)	8.5 (3.25, 10)
Z		−5.164	−0.492	−9.711	−0.042
P		<0.001	0.623	<0.001	0.966
Chronic Disease History [cases (percentage, %)]					
Yes	155 (68.0)	143 (92.3)	129 (83.2)	118 (76.1)	76 (49.0)
No	73 (32.0)	70 (95.9)	63 (86.3)	46 (63.0)	40 (54.8)
χ^2		0.556	0.353	4.228	0.659
P		0.456	0.552	0.040	0.417
K-L Stage [cases (percentage, %)]					
3	130 (57)	122 (93.8)	110 (84.6)	91 (70.0)	72 (55.4)
4	98 (43)	91 (92.9)	82 (83.7)	73 (74.5)	44 (44.9)
χ^2		0.089	0.037	0.558	2.459
P		0.722	0.847	0.445	0.117
NRS Score [points, M (P25, P75)]	6 (6, 7)	6 (6, 7)	6 (6, 7)	6 (6, 7)	6 (6, 6)
Z		−2.707	−1.311	−0.243	−2.956
P		0.007	0.190	0.808	0.003

culture knowledge were respectively set as dependent variables, with the following values: popularisation rate (yes = 1, no = 0), reading rate (yes = 1, no = 0), trust rate (yes = 1, no = 0), and action rate (yes = 1, no = 0). Variables with $P < 0.05$ in the univariate analysis were selected as independent variables, with the following values assigned: Education level: Primary school or below = (0, 0), Junior high school/vocational school = (1, 0), High school or above = (0, 1); Monthly household income: <3000 = (0, 0), 3000 - 5000 = (0, 1), >5000 = (1, 0); Ethnicity (Han = 0, others = 1); extent of lesion involvement (bilateral = 0, unilateral = 1); place of residence (urban = 0, rural = 1); history of chronic disease (yes = 0, no = 1). Age, disease duration, and NRS score are entered as raw values. The minimum value of the assigned values is used as the reference variable.

The results showed that NRS scores and disease duration were factors influencing the prevalence of traditional Chinese medicine health culture knowledge among patients with knee osteoarthritis (see **Table 2**); the extent of lesions, place

of residence, ethnicity, and age were factors influencing the reading rate of traditional Chinese medicine health culture knowledge among patients with knee osteoarthritis (see **Figure 1**); and educational attainment and disease duration were factors influencing the trust rate of traditional Chinese medicine health culture knowledge among patients with knee osteoarthritis (see **Table 3**); ethnicity, age, and educational attainment are factors influencing the action rate of TCM health culture knowledge among patients with knee osteoarthritis (see **Figure 2**).

Table 2. Multivariate logistic regression analysis of dissemination rates.

Variables	β	*SE*	*Wald* χ^2	*t*	*P*	*OR*	95%*CI*
NRS Score	−0.725	0.336	4.67	1	0.031	0.484	(0.251 - 0.934)
Disease duration	0.574	0.16	12.91	1	0.000	1.775	(1.298 - 2.428)
Constants	4.820	2.263	4.54	1	0.033	124.001	(1.469 - 10433.6)

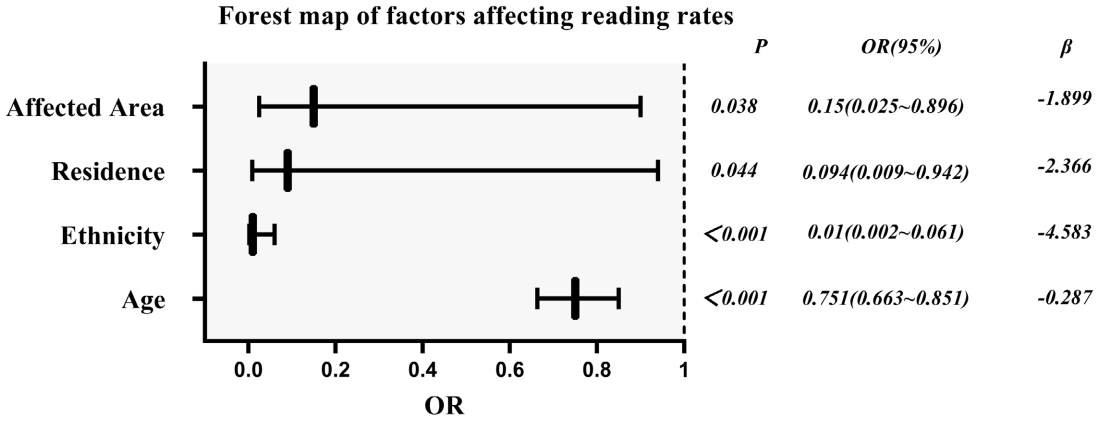

Figure 1. Forest plot of multivariate logistic regression analysis for reading rates.

Table 3. Multivariate logistic regression analysis of trust rates.

Variables	β	*SE*	*Wald* χ^2	*t*	*P*	*OR*	95%*CI*
Education level (Reference group = Primary school or below)			6.526	2	0.038		
Junior high/technical school	1.519	0.598	6.456	1	0.011	4.565	(1.415 - 14.730)
High school or above	0.099	0.678	0.021	1	0.884	1.104	(0.292 - 4.173)
Disease duration	0.518	0.071	53.626	1	0	1.679	(1.462 - 1.929)
Chronic disease history (Reference group = Yes)				1			
NO	−0.346	0.430	0.647	1	0.421	0.708	(0.305 - 1.643)
Constants	−2.351	0.481	23.917	1	0	0.095	(0.037 - 0.245)

4. Discussion

This study systematically analysed the current status of traditional Chinese medicine health culture knowledge dissemination among KOA patients, focusing on the differences in four dimensions—dissemination rate, reading rate, trust rate,

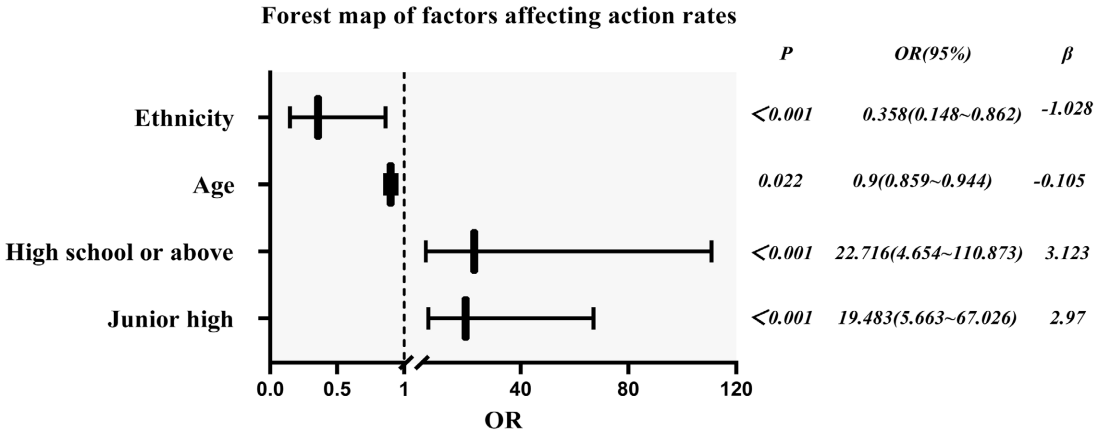

Figure 2. Forest plot of multivariate logistic regression analysis for action rates.

and action rate—and their influencing factors, providing an important basis for the formulation of precise traditional Chinese medicine health promotion strategies.

4.1. Popularisation Rate of Traditional Chinese Medicine Health Culture Knowledge among Patients with Knee Osteoarthritis

The study results show that disease duration and pain are factors influencing the popularisation rate of traditional Chinese medicine health culture knowledge among KOA patients. Patients with longer disease duration experience recurrent joint pain and functional limitations, and have a deeper understanding of the adverse reactions of conventional Western medicine treatment [12]. Currently, integrated traditional and Western medicine treatment models are widely applied in chronic disease management [13]-[15]. Patients with longer disease duration are more likely to be exposed to traditional Chinese medicine culture through follow-up visits and peer exchanges. However, patients with higher pain scores have lower knowledge dissemination rates, which may be attributed to acute pain narrowing their attention, focusing on rapid pain relief solutions, and reducing their interest in preventive or tonifying traditional Chinese medicine knowledge. Therefore, for KOA patients with longer disease duration, it is recommended to establish a "TCM Chronic Disease Management Clinic" at community health service centres, offering systematic health education activities that include TCM herbal steam therapy experiences, Ba Duan Jin exercises, and personalised medication guidance. Additionally, TCM techniques such as ear acupuncture and acupoint massage for immediate pain relief can be highlighted to patients through illustrated cards or short videos.

4.2. Reading Rate of Traditional Chinese Medicine Health Culture Knowledge Among Patients with Knee Osteoarthritis

The results of this study indicate that patients with knee osteoarthritis (KOA) who have widespread joint involvement, reside in urban areas, are of Han ethnicity, and are younger have a higher reading rate of traditional Chinese medicine health culture knowledge. First, patients with widespread joint involvement have more

pronounced symptoms, leading to a more urgent need for health information, which aligns with the 'perceived severity' component of the Health Belief Model that predicts health information seeking [16]. Second, patients residing in urban areas had a 21.2% higher reading rate than those in rural areas, which may be related to the uneven distribution of medical information resources between urban and rural areas [17]. Additionally, Han Chinese patients had a higher reading rate than ethnic minorities, possibly due to cultural background and reading advantages [18]. Finally, the dissemination of traditional Chinese medicine health culture follows a pattern of "traditional media with broad coverage + new media with deep penetration" [19] [20]. Younger groups, with higher digital literacy, are more likely to obtain knowledge through new media, which may be an important reason for their higher reading rates. Therefore, for patients with widespread joint lesions, TCM pain relief knowledge education should be integrated into the clinical diagnosis and treatment process, establishing a closed-loop process of "assessment-grading-pushing-guidance"; Addressing urban-rural disparities, on one hand, it is necessary to strengthen the infrastructure for TCM promotion in rural areas and train village doctors to serve as health promoters; on the other hand, it is essential to optimise the accessibility of TCM services in urban communities. For ethnic minority patients, it is important to develop bilingual health education materials and cultivate bilingual TCM promotion cadres. Additionally, a communication system should be established where traditional media ensures basic coverage and new media promotes precision, with content tailored to different populations. All measures should be implemented through a multi-departmental collaboration mechanism, with quantitative indicators set for effectiveness evaluation.

4.3. Trust in Traditional Chinese Medicine Health Culture Knowledge Among Patients with Knee Osteoarthritis

The study found that educational attainment and disease duration are important factors influencing trust rates. Patients with an educational attainment of primary school or below had significantly lower trust rates than those with an educational attainment of high school or above, consistent with the findings of Zhao Yuyang *et al.* [11]. This may be related to the fact that patients with higher educational attainment typically possess stronger information processing and analytical abilities, enabling them to evaluate the efficacy characteristics of traditional Chinese medicine more rationally. Patients with longer disease duration exhibit higher trust rates in TCM health culture knowledge, which may be related to the "experience-cognition" feedback mechanism [21]. As the disease progresses, patients accumulate rich medication experience through long-term treatment practices, enabling them to more intuitively assess the efficacy characteristics of TCM in alleviating joint pain and improving functional activities. This cognitive process, based on actual treatment experiences, helps patients establish a rational judgement of the efficacy of TCM, thereby forming a more stable attitude of trust. Therefore, developing concise and easy-to-understand illustrated materials

explaining the efficacy of TCM for patients with lower educational attainment, and writing stage-specific treatment experience records for patients with shorter disease durations, can reinforce cognition through intuitive efficacy comparisons, thereby enhancing trust in TCM. Additionally, future research could further explore the specific effects of different treatment methods on the establishment of trust.

4.4. Action Rate of Traditional Chinese Medicine Health Culture Knowledge Among Patients with Knee Osteoarthritis

The results of this study show that younger, Han Chinese, and highly educated KOA patients demonstrate a higher willingness to take action. Despite high dissemination and reading rates, the actual action rate is only 50.88%, and the overall conversion rate remains unsatisfactory, indicating a "disconnect between knowledge and action". This finding aligns with the core principles of the Theory of Planned Behaviour (TPB), which posits that knowledge levels do not solely determine the formation of individual health behaviours but are also influenced by three interrelated factors: attitudes, subjective norms, and perceived behavioural control [22]. Younger groups exhibit a more positive attitude toward traditional Chinese medicine, Han Chinese patients are more deeply influenced by cultural norms, and highly educated individuals possess stronger executive capabilities and access to resources. These three factors collectively facilitate the conversion of behavioural intent into actual action. Therefore, the 'knowledge-skill-motivation-environment' four-dimensional linkage approach can be employed to address the disconnect between knowledge and action.

5. Conclusion

This study systematically analysed the dissemination of traditional Chinese medicine (TCM) health culture knowledge among patients with primary knee osteoarthritis (KOA). The findings revealed that although the dissemination rate was high, the action rate lagged significantly behind, with younger and more educated groups performing better. The results of this study have three important implications: first, they confirm the widespread phenomenon of 'easier said than done' in the promotion of TCM culture; Second, it clarifies the significant influence of sociodemographic characteristics on the health behaviours of KOA patients; finally, it provides specific evidence of differences in the acceptance of TCM culture among different populations. These findings provide a scientific basis for developing precise intervention strategies, suggesting that future TCM health promotion should shift from 'knowledge dissemination' to 'behavioural empowerment,' combining new media tools, community networks, and policy support to overcome behavioural inertia. However, this study still has certain limitations: 1) The sample was drawn from two tertiary hospitals in Panzhihua City, and the results may be limited by geographical factors. It is recommended that future studies be conducted in a multi-centre, large-sample setting to validate the generalisability

of the results. 2) This study was cross-sectional in design and did not track the long-term dynamics of behavioural changes. Future studies could combine longitudinal data and mechanism exploration to further optimise intervention pathways.

Funding

Project of Panzhihua Science and Technology Department (2024ZD-S-8) And Scientific Research Project of Panzhihua Medical Research Center (PYYZ-2024-05).

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Guan, S., Zheng, J., Sam, N.B., Xu, S., Shuai, Z. and Pan, F. (2023) Global Burden and Risk Factors of Musculoskeletal Disorders among Adolescents and Young Adults in 204 Countries and Territories, 1990-2019. *Autoimmunity Reviews*, **22**, Article ID: 103361. https://doi.org/10.1016/j.autrev.2023.103361

[2] Liu, Z.H., Ma, J.X., Zhang, S., *et al.* (2020) Status and Treatment Progress of Knee Osteoarthritis. *Chinese Journal of Bone and Joint Surgery*, **13**, 688-693.

[3] China Association of Chinese Medicine (2023) Guidelines for INTEGRATED TCM WM Diagnosis and Treatment of Knee Osteoarthritis (2023 Edition). *The Journal of Traditional Chinese Orthopedics and Traumatology*, **35**, 1-10.

[4] Li, Z.S., Han, B.Y., Shen, K., *et al.* (2025) Research Progress on Traditional Chinese and Western Medicine Treatment of Knee Osteoarthritis. *Chinese and Foreign Medical Research*, **23**, 173-176.

[5] Zhu, B., Ba, H., Kong, L., Fu, Y., Ren, J., Zhu, Q., *et al.* (2024) The Effects of Manual Therapy in Pain and Safety of Patients with Knee Osteoarthritis: A Systematic Review and Meta-Analysis. *Systematic Reviews*, **13**, Article No. 91. https://doi.org/10.1186/s13643-024-02467-7

[6] Liang, Y., Xu, Y., Zhu, Y., Ye, H., Wang, Q. and Xu, G. (2022) Efficacy and Safety of Chinese Herbal Medicine for Knee Osteoarthritis: Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Phytomedicine*, **100**, Article ID: 154029. https://doi.org/10.1016/j.phymed.2022.154029

[7] Wang, Z., Wang, Y., Wang, C., Li, X., Zhou, Z., Zhang, L., *et al.* (2022) Systematic Review and Network Meta-Analysis of Acupuncture Combined with Massage in Treating Knee Osteoarthritis. *BioMed Research International*, **2022**, Article ID: 4048550. https://doi.org/10.1155/2022/4048550

[8] Wang, Y.N., Jia, X.R., Xu, Z.S., *et al.* (2020) Survey on the Status of Health Culture Knowledge on Traditional Chinese Medicine among Residents in Qingdao. *Chinese Journal of Health Education*, **36**, 521-525.

[9] Fan, Z.J., Wang, Z.J., Li, C., *et al.* (2022) Interpretation and Evaluation of Chinese Guideline for Diagnosis and Treatment of Osteoarthritis (2021 Edition). *Chinese Journal of Evidence-Based Medicine*, **22**, 621-627.

[10] Ni, P., Chen, J.L. and Liu, N. (2010) The Sample Size Estimation in Quantitative Nursing Research. *Chinese Journal of Nursing*, **45**, 378-380.

[11] Zhao, Y.Y., Tan, W., Qian, Y.S., *et al.* (2020) Analysis of Survey Data of Popularization

of Traditional Chinese Medicine Health Culture Knowledge in 2017. *China Journal of Chinese Materia Medica*, **45**, 1953-1959.

[12] Sun, B., Wang, Z.J., Cao, Y., *et al.* (2021) Network Meta-Analysis on Efficacy and Safety of Non-Steroidal Anti-Inflammatory Drugs for Osteoarthritis in Middle-Aged and Old People. *Journal of Pharmaceutical Practice and Service*, **39**, 259-266.

[13] Zhou, S.F., Zhang, G.Q., Ding, M.Z., *et al.* (2021) Study on the Application of Integrated Traditional Chinese and Western Medicine Combined Chronic Disease Management Model in Treating Patients with Ulcerative Colitis. *World Journal of Integrated Traditional and Western Medicine*, **16**, 2304-2307.

[14] Xu, Q., Zhang, Y. and Yan, T.B. (2023) Construction of Rehabilitation Model of Brain-Limb Integrated Therapy for Treating Encephalopathy Based on Integrated Traditional Chinese and Western Medicine. *China Journal of Traditional Chinese Medicine and Pharmacy*, **38**, 5357-5360.

[15] Yang, K. (2021) Clinical Effect of Integrated Traditional Chinese and Western Medicine Treatment on Knee Osteoarthritis. *Chinese and Foreign Medical Research*, **19**, 132-134.

[16] Rosenstock, I.M., Strecher, V.J. and Becker, M.H. (1988) Social Learning Theory and the Health Belief Model. *Health Education Quarterly*, **15**, 175-183. https://doi.org/10.1177/109019818801500203

[17] Cai, Y.L., Li, W.H., Chen, Z.N., *et al.* (2023) Spatial Allocation of the Equalization of Medical and Health Resources in China from the Perspective of Permanent Population. *Economic Geography*, **3**, 99-108.

[18] Niao, Z.Y. (2025) Research on the Global Dissemination Model of Traditional Chinese Medicine Culture from the Perspective of a Community with a Shared Future for Mankind. *Academics*, No. 3, 202-209.

[19] Xie, X.Z. and Zhang, J.Y. (2025) Research on the Dissemination of Traditional Chinese Medicine Culture in the Context of the Internet. *Media*, No. 3, 70-73.

[20] Li, J. and Jin, J. (2022) Research on Strategies for Popularising Traditional Chinese Medicine Culture. *Modern Chinese Medicine*, **42**, 141-144.

[21] Bandura, A. (2004) Health Promotion by Social Cognitive Means. *Health Education & Behavior*, **31**, 143-164. https://doi.org/10.1177/1090198104263660

[22] Ajzen, I. (1991) The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, **50**, 179-211. https://doi.org/10.1016/0749-5978(91)90020-t