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Traditional and Complementary Medicine Use in Knee Osteoarthritis and its Associated Factors Among Patients in Northeast Peninsular Malaysia

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ABSTRACT

Objectives: We sought to determine the prevalence of traditional and complementary medicine (TCM) use for knee osteoarthritis and its associated factors among patients attending a referral hospital in an eastern coastal state of Malaysia. ***Methods***: This cross-sectional study included 214 patients with knee osteoarthritis. A universal sampling method was applied to patients who attended the outpatient clinic in Hospital Universiti Sains Malaysia from May 2013 to October 2013. Participants were given a questionnaire to determine their sociodemographic information and a validated Bahasa Malaysia version of the Western Ontario and McMaster Universities Arthritis Index (WOMAC). This questionnaire was used to assess the severity of knee osteoarthritis (i.e., pain, stiffness, and disturbances in daily activity). ***Results:*** Over half (57.9%) of patients reported using TCM to treat knee osteoarthritis. Factors associated with TCM use were gender (odd ratio (OR) = 2.47; 95% confidence interval (CI): 1.28–4.77), duration of knee osteoarthritis (OR = 1.51; 95% CI: 1.03–2.23), and the severity of knee pain (OR = 2.56; 95% CI: 1.71–3.86). ***Conclusions:*** The prevalence of TCM use among eastern Malaysian patients with knee osteoarthritis was high. Physicians caring for these patients should be aware of these findings so that inquiries regarding TCM use can be made and patients can be appropriately counseled.

Osteoarthritis (OA) is the most common cause of arthritis worldwide, being almost a universal problem in people aged 65 years or older.[1] The World Health Organization (WHO) estimates that symptomatic OA affects 18% of women and 9.6% of men aged 60 years or older.[2] It is one of the most common musculoskeletal issues for which patients visit primary health care providers.[3]

Currently, the management of OA involves both pharmacological and non-pharmacological treatments. The goals of treatment include alleviating symptoms, minimizing the likelihood of patients, developing a physical disability, and improving patients' functional status and overall quality of life.[4] At this time, there is no preventive or curative drug treatment available for OA. In the absence of a definitive cure, patients with OA are often willing to try anything that they believe might provide relief from the pain or cure the illness. Because of the risks and limitations associated with the use of nonsteroidal anti-inflammatory drugs (NSAIDs), up to 90% of arthritis patients are dissatisfied with these medications and consider trying traditional and complementary medicine (TCM).[5] Arthritis is among the top six conditions for which TCMs are used. In the US, the majority of patients suffering from musculoskeletal conditions use one form of TCM or another.[6]

A recent survey conducted in the US showed that about one-third of all rheumatology patients used TCM during the previous year.[7] One study investigated 2679 participants with radiographically confirmed OA and found the prevalence of TCM use was 47%. Half of these patients utilized a combination of TCM and conventional medication.[8]

TCM approaches commonly used for OA include nutritional supplements (such as avocado-soybean unsaponifiables, green-lipped

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mussels, vitamins, dimethyl sulfoxide, and methylsulphonylmethane), herbal medicine (such as devil's claw, ginger, phytodolor, and willow bark), homeopathy, acupuncture, mind-body therapy, manipulative therapy, leech therapy, electromagnets, and movement therapy.[9,10] Although TCM therapies are often considered to be innocuous, some can be harmful. For example, the herbal remedy devil's claw, which some OA patients use to help alleviate pain and stiffness, has been found to have serious side effects, such as abnormal heart rhythms and bleeding (though these problems are uncommon). Drug interactions have been documented between devil's claw and anticoagulants, NSAIDs (e.g., ibuprofen), digoxin, and antihistamines (including famotidine). Other reported side effects include rashes, headaches, and gastrointestinal problems.[11,12] Another herb used in the treatment of OA is Duhuo Jisheng Wan, which is a traditional Chinese herbal medicine. It has been shown to cause side effects, such as raised blood pressure, dizziness, drowsiness, vomiting, and constipation.[12,13] Another problem is that reliance on TCM remedies for chronic illness may indirectly lead to a delay in obtaining appropriate treatments. Some patients return to conventional treatment after developing disease-related complications.

Previous studies have investigated the relationship between TCM use and several other factors, including gender, age, educational level, and the presence of comorbidities.[14–16] In addition, clinical features of the illness such as the severity level and duration have been correlated with TCM use.[7,8]

Despite the wealth of global data on OA, few studies have been conducted regarding the prevalence of knee OA and the factors associated with the condition in Asia. The objective of this study was to determine the prevalence of TCM approaches and the factors associated with their use in patients with knee OA in Malaysia. Understanding the frequency of TCM use in knee OA is imperative when searching for ways to educate patients and enhance the patient-doctor relationship. Improved comprehension of TCM use will help doctors be more understanding and patient-centered in their treatment approaches, particularly where counseling sessions regarding the proper use of TCM in the stream of conventional medicine are concerned.

METHODS

This cross-sectional study included 214 patients with knee OA and was conducted from May 2013 to October 2013 at Hospital Universiti Sains Malaysia.

A universal sampling method was applied, whereby patients with knee OA attending their regular primary care outpatient clinic follow-ups were screened for the study inclusion and exclusion criteria. If they met all the criteria, they were recruited into the study. The sample size was calculated using the single proportion formula, based on a study conducted in the US with a 47% prevalence of TCM use for knee OA patients.[8] Taking the precision of 0.07 with 95% confidence interval (CI), the minimum required sample size was 194. However, after considering a nonresponse rate of 10%, the required sample size was 214.

The inclusion criteria were a diagnosis of knee OA, based on the American College of Rheumatology's clinical diagnosis definition (pain in the knee on most days of the previous month, accompanied by at least three of the following: age of at least 50 years, morning stiffness for less than 30 minutes, crepitus on active movement, bony tenderness, bony enlargement, and a lack of palpable warmth). Patients who had undergone knee surgery previously or who may have other conditions (e.g., systemic lupus erythematosus, rheumatoid arthritis, gout/pseudogout, or septic arthritis) were excluded from the study.

After providing their written informed consent, the patients were asked to answer a questionnaire that consisted of four sections. The first section included items on sociodemographic characteristics such as age, gender, educational level, occupation, and monthly household income. The second section focused on relevant health factors including duration of knee OA, the possible presence of other chronic medical illnesses, and analgesics taken/prescribed for their knee pain within the month preceding the date of the interview. The third section centered on types of TCM used for knee OA during the previous year and the fourth section was on Western Ontario and McMaster Universities Arthritis Index (WOMAC). For reference, we listed 20 types of TCM remedies, as classified by the Traditional and Complementary Division, Ministry of Health, Malaysia.[17]

The WOMAC involves a set of questions, which are used to evaluate the clinical condition of patients with knee and hip OA including levels of

pain, stiffness, and physical function in the joints.[15] WOMAC has been validated linguistically and is widely used in the evaluation of knee and hip OA. More than 30 studies have examined the basic clinimetric properties of WOMAC, and the results are available in more than 100 different languages. In this study, we used the 100 mm Visual Analogue Rating Scale. In this approach, scores are given on three subscales: pain = 0 to 500, stiffness = 0 to 200, and physical function = 0 to 1700. A total WOMAC score is calculated by adding together the items for all three subscales, giving a maximum total mark of 2400. The total WOMAC score indicates the severity of disease; the higher total WOMAC score indicates worse pain, stiffness, and functional limitations.[18]

The study was approved for ethical clearance by the Human Research Ethics Committee of Universiti Sains Malaysia (USMKK/PPP/JEPeM/[261.4.92.20]).

All data were analyzed using SPSS Statistics (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.) The sociodemographic characteristics and clinical data were tabulated for descriptive statistics to determine the mean, standard deviation (SD), and percentage figures. Figures that were severely skewed or that indicated kurtosis (the duration of the OA, pain scores, functional scores, and total WOMAC scores) were transformed into natural logarithm (Ln).

Simple logistic regression was used to select variables for further analysis. All variables with *p*-values of < 0.250 in the univariable analysis and all clinically significant variables were included in the multiple logistic regression analysis. The adjusted odds ratio (OR) was estimated with a 95% CI. The final model was then presented with an adjusted OR, a 95% CI, Wald statistics, and *p*-values. The level of significance was set as a *p*-value < 0.050.

RESULTS

A total of 214 patients with knee OA participated in the study [Table 1]. The mean age was 60.8±9.2 years old. The sample consisted of 142 females (66.4%) and 72 males (33.6%). The majority of the patients were Malays (n = 184; 85.9%). Most of the respondents were married (n = 180; 84.1%), employed (n = 116; 54.2%), and had a household income of less than RM1000 (n = 96; 44.9%).

Table 1: Sociodemographic characteristic of respondents.

Variables	Mean ± SD	Respondents n = 214	Percentage, %
Age, years	60.8 ± 9.2		
Gender			
Male		72	33.6
Female		142	66.4
Education			
None		49	22.9
Primary		60	28.0
Secondary		79	36.9
Tertiary		26	12.1
Household income, Malaysian ringgit			
≤ 1000		96	44.9
1000–3000		90	42.1
> 3000		28	13.0
Occupation			
Employed		116	54.2
Housewife/ Unemployed		98	45.8

SD: standard deviation

Table 2 gives the clinical characteristics of the participants. The majority of the patients had a chronic medical illness (n = 172; 80.4%). The median duration of knee OA was 3.0±3.0 years. Most of the patients had used painkillers for knee pain in the past month (n = 159; 74.3%). The median figures for the total WOMAC score, the pain scale, and the physical function scale were 505±633, 91.50±110, and 365.5±479, respectively.

The proportion of patients in our sample who used TCM for knee OA was 57.9% (n = 124). Topical ointment was the most popular TCM modality (n = 96; 44.8%), followed by massage (n = 43; 20.0%), and oral herbs (n = 32; 14.9%).

In the logistic modeling, after controlling for confounders (including age, employment, family income, and education level) only gender, duration of knee OA, and the severity of the knee pain (total WOMAC score) were found to be significantly associated with TCM use for knee OA [Table 3].

The multiple logistic regression analysis [Table 3] indicated that men are 2.47-times more likely to use TCM for knee OA (95% CI: 1.28–4.77, *p*-value = 0.007) than women, after adjusting for the duration

Table 2: Clinical characteristics of respondents.

Variables	Median (IQR)	Respondents n = 214	Percentage, %
Chronic medical illness			
Yes		172	80.4
No		42	19.6
Type of medical illness			
Hypertension		146	68.2
Diabetes mellitus		83	38.7
Dyslipidemia		82	38.3
Coronary heart disease		7	3.2
Duration of knee OA, years	3.0 (3.0)		
Use of analgesics#			
Yes		159	74.3
No		55	25.7
WOMAC index			
Pain scale	91.5 (110)		
Stiffness scale			
Yes		175	81.8
No		39	18.2
Function scale	365.5 (479)		
Total score	505.0 (633)		

#Recent use of analgesics in the past one month.
OA: osteoarthritis; IQR: interquartile range; WOMAC: Western Ontario and McMaster Universities Arthritis Index.

and severity of the knee pain. In addition, a person with a 1-unit increase in the Ln pain score was 2.56-times more likely to use TCM for knee OA (95% CI: 1.71–3.86, *p*-value < 0.001) when adjusted for gender and duration of OA. In other words, a person with a pain score that increased by 10% has nearly 40-times greater odds of TCM use for knee OA (95% CI: 9.98–214.49, *p*-value < 0.001) when adjusted for gender and duration. A person with a 1-year increase in the duration of OA was 1.51-times more likely to use TCM (95% CI: 1.03–2.23, *p*-value = 0.035), after adjusting for gender and knee pain severity.

DISCUSSION

The proportion of TCM users for knee OA in this population was high (57.9%). The WHO estimates the prevalence of TCM use in developing countries to be as high as 60–80% compared to 65% in developed countries. Our result is consistent with the WHO's estimate.[19] In Malaysia, traditional forms of Malay, Chinese, and Indian medicine are widespread and are used extensively, even though conventional medicine is available.[18] Research into TCM use among patients with OA in other countries has shown that the prevalence rates range from 40% to 89%.[8,9,20,21] Specifically, the following prevalence rates have been determined in previous studies: 47% in the US,[8] 40% in Australia,[9] and 54.3% in the UK.[21] These rates are relatively low, but higher prevalence rates have been found in Canada (66%)[22] and the Netherlands (86%).[23]

The variation in prevalence may be attributable to a number of factors, including differences in study populations. Most of our respondents were elderly (mean age: 60.8 years), and the majority had comorbidities such as diabetes, hypertension,

Table 3: Multiple logistic regression final model of factors associated with traditional and complementary medicine (TCM) usage for knee osteoarthritis (OA) (n = 214).

Variables	Regression coefficient (b)	Adjusted OR (95% CI)	Wald statistic[a]	*p*-value [a]
Gender				
Female	0.00	1.00	7.28	0.007
Male	0.91	2.47 (1.28–4.77)		
Ln duration of knee OA*	0.42	1.51 (1.03–2.23)	4.46	0.035
Ln WOMAC pain scale*	0.94	2.56 (1.71–3.86)	20.59	< 0.001

[a]Forward and backward LR multiple logistic regression model applied.
**Ln transformed due to severe skewness and kurtosis.*
Classification table 66.8%.
ROC area under the curve 75.3% (p-value < 0.001)
Multicollinearity and interaction term were checked and not found.
OR: odds ratio; CI: confidence interval; WOMAC: Western Ontario and McMaster Universities Arthritis Index.

and heart disease (80.4%). Some participants utilized TCM because of local and cultural beliefs that TCM is more effective and less harmful than conventional medicine, as it is obtained from plants and thus contains natural materials. In addition, those with comorbidities may be attracted to TCM by persuasive sellers, some of whom claim their drugs have curative powers.

Differences in TCM definitions may explain the varied levels of TCM use across existing studies. We included a wider array of TCM approaches than some other researchers, including topical ointment, Islamic medical practices (*ruqyah*), traditional Malay therapies (e.g., cupping and massage), and energy therapies (e.g., *raoha* and color vibration therapy).[9,21] Differences in the cultural and religious acceptability of traditional and alternative treatments throughout the region may also play a role, as may the availability and affordability of TCM remedies.

Gender, the duration of knee OA, and the severity of knee pain were all significantly associated with the use of TCM for knee OA. Males had 2.47 higher odds of using TCM than females. This was surprising given that most previous studies found that females are more likely to use TCM.[20,21] One possible reason for this is that men have more buying power in Malay society and are able to make more buying decisions than women. The majority of female respondents in this study were housewives without a regular income. Hasan et al,[24] found a similar result in their study of patients with chronic medical illnesses, in which 54.1% of male patients used TCM (although correlation analysis showed that there was no significant association between gender and TCM use).

The duration of knee OA was significantly associated with TCM use in this study. Rao et al,[7] research into the prevalence of TCM in 232 patients attending six different rheumatology clinics in Indiana, US, found that the use of three or more different types of TCM was more common in patients with a longer disease duration (13.6 years vs. 9.1 years, p-value = 0.020). This finding is in line with the nature of OA, which is chronic, progressive, painful, incurable, and associated with deformity and morbidity in its later stages. These factors may trigger patients to seek alternative methods of pain control.

The finding that patients with more severe OA (as evidenced by pain scores) report higher levels of TCM use is consistent with several other studies.[7,8,25] Lapane et al,[8] in a survey of 2679 participants with radiographic knee OA found that the severity of the disease was associated with a greater likelihood of TCM use (OR= 0.92; 95% CI: 0.73–1.15). Yang et al,[25] concluded that worse WOMAC pain and stiffness symptoms are associated with higher TCM use. Rao et al,[7] also identified an association between the disease severity and TCM use, conducting multivariate analysis to show that severe pain was associated significantly with regular TCM use (OR = 2.5; 95% CI: 1.4–4.8). They also concluded that severe pain was associated significantly with the history, frequency, and magnitude of TCM use.These results may suggest that the disease pain management was not optimal, thus leading patients to supplement their pain medication with TCM remedies.[26,27] Problems related to suboptimal pain care have been recognized since 1973, when Marks and Sachar found that 73% of hospitalized medical patients had moderate-to-severe pain.[28]

We investigated a wide range of TCM methods of knee OA treatment, some of which have not been investigated in research of Western populations. However, certain limitations may have influenced the study findings. Firstly, the study population was small and might not reflect the exact makeup of the wider population of patients with knee OA in Malaysia. The use of universal or convenience sampling may have introduced bias since the source population did not have an equal chance of being chosen to participate. In addition, this study was conducted in a part of Malaysia where the majority of the population is Malay Muslim, and the pattern of TCM use may not reflect the use of TCM across the country.

CONCLUSION

The prevalence of TCM use was high in this study and in accordance with the estimates made by the WHO. Being male, a longer disease duration, and a higher pain score were associated with TCM use. The most commonly used TCM remedies were topical ointment, massage, and herbs. Clinicians ought to be acquainted with the common TCM approaches patients use, and further assessments should be made with regard to the specific factors that contribute to the use of TCM by knee OA patients. More studies should be performed to

investigate the adverse effects associated with TCM use as this information would be useful for patients when making decisions about treatment options.

Disclosure
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REFERENCES

1. McAlindon TE, Cooper C, Kirwan JR, Dieppe PA. Determinants of disability in osteoarthritis of the knee. Ann Rheum Dis 1993 Apr;52(4):258-262.
2. Murray CJ, Lopez AD, editors. The global burden of disease. A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Cambridge (MA): Harvard School of Public Health on behalf of the World Health Organization and The World Bank; 1996.
3. AL Saleh J, EL Sayed M, Monsef N, Darwish E. The prevalence and the determinants of musculoskeletal diseases in Emiratis attending primary health care clinics in Dubai. Oman Medical Journal 2016 Mar;31(2):117-123.
4. Ministry of Health Malaysia. Management of Osteoarthritis. 2nd ed. Kuala Lumpur: MoH; 2013.
5. Ahmed S, Anuntiyo J, Malemud CJ, Haqqi TM. Biological basis for the use of botanicals in osteoarthritis and rheumatoid arthritis: a review. Evid Based Complement Alternat Med 2005 Sep;2(3):301-308.
6. Ernst E. Usage of complementary therapies in rheumatology: a systematic review. Clin Rheumatol 1998;17(4):301-305.
7. Rao JK, Kroenke K, Mihaliak KA, Grambow SC, Weinberger M. Rheumatology patients' use of complementary therapies: results from a one-year longitudinal study. Arthritis Rheum 2003 Oct;49(5):619-625.
8. Lapane KL, Sands MR, Yang S, McAlindon TE, Eaton CB. Use of complementary and alternative medicine among patients with radiographic-confirmed knee osteoarthritis. Osteoarthritis Cartilage 2012 Jan;20(1):22-28.
9. Jordan KM, Sawyer S, Coakley P, Smith HE, Cooper C, Arden NK. The use of conventional and complementary treatments for knee osteoarthritis in the community. Rheumatology (Oxford) 2004 Mar;43(3):381-384.
10. Ernst E. Musculoskeletal conditions and complementary/alternative medicine. Best Pract Res Clin Rheumatol 2004 Aug;18(4):539-556.
11. Brien S, Lewith GT, McGregor G. Devil's Claw (Harpagophytum procumbens) as a treatment for osteoarthritis: a review of efficacy and safety. J Altern Complement Med 2006 Dec;12(10):981-993.
12. Complementary and alternative medicines report. Arthritis Research UK. 2012.
13. Teekachunhatean S, Kunanusorn P, Rojanasthien N, Sananpanich K, Pojchamarnwiputh S, Lhieochaiphunt S, et al. Chinese herbal recipe versus diclofenac in symptomatic treatment of osteoarthritis of the knee: a randomized controlled trial [ISRCTN70292892]. BMC Complement Altern Med 2004 Dec;4:19-27.
14. Bausell RB, Lee WL, Berman BM. Demographic and health-related correlates to visits to complementary and alternative medical providers. Med Care 2001 Feb;39(2):190-196.
15. Palinkas LA, Kabongo ML; San Diego Unified Practice Research in Family Medicine Network. The use of complementary and alternative medicine by primary care patients. A SURF*NET study. J Fam Pract 2000 Dec;49(12):1121-1130.
16. Al-Windi A. Determinants of complementary alternative medicine (CAM) use. Complement Ther Med 2004 Jun-Sep;12(2-3):99-111.
17. Ministry of Health Malaysia. A Handbook of traditional and complementary medicine program in Malaysia. 2011.
18. Ontario W, McMaster UO. Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). American College of Rheumatology. Update 2015.
19. World Health Organization Traditional Medicine Strategy: 2002- 2005. 2002.
20. Herman CJ, Allen P, Hunt WC, Prasad A, Brady TJ. Use of complementary therapies among primary care clinic patients with arthritis. Prev Chronic Dis 2004 Oct;1(4):A12.
21. Zochling J, March L, Lapsley H, Cross M, Tribe K, Brooks P. Use of complementary medicines for osteoarthritis–a prospective study. Ann Rheum Dis 2004 May;63(5):549-554.
22. National health program. Alternative medicine use by rheumatology patients in a universal health care setting. J Rheumatology 1994 Jan;21(1):148-152.
23. Jong MC, van de Vijver L, Busch M, Fritsma J, Seldenrijk R. Integration of complementary and alternative medicine in primary care: What do patients want? Article in press. Patient Educ Couns 2012;89(3):417-422.
24. Hasan SS, Ahmed SI, Bukhari NI, Loon WC. Use of complementary and alternative medicine among patients with chronic diseases at outpatient clinics. Complement Ther Clin Pract 2009 Aug;15(3):152-157.
25. Yang S, Dubé CE, Eaton CB, McAlindon TE, Lapane KL. Longitudinal use of complementary and alternative medicine among older adults with radiographic knee osteoarthritis. Clin Ther 2013 Nov;35(11):1690-1702.
26. Conaghan PG, Peloso PM, Everett SV, Rajagopalan S, Black CM, Mavros P, et al. Inadequate pain relief and large functional loss among patients with knee osteoarthritis: evidence from a prospective multinational longitudinal study of osteoarthritis real-world therapies. Rheumatology (Oxford) 2015 Feb;54(2):270-277.
27. Ganz DA, Chang JT, Roth CP, Guan M, Kamberg CJ, Niu F, et al. Quality of osteoarthritis care for community-dwelling older adults. Arthritis Rheum 2006 Apr;55(2):241-247.
28. Marks RM, Sachar EJ. Undertreatment of medical inpatients with narcotic analgesics. Ann Intern Med 1973 Feb;78(2):173-181.