ORIGINAL ARTICLES

Traditional medication adherence and its related factors among patients with lumbar spine pain at Thua Thien Hue province

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ABSTRACT

Objectives: This study evaluated adherence to traditional medication and examined its associated factors among patients experiencing lumbar spine pain at Thua Thien Hue province.

Methods: A cross-sectional study was carried out involving 234 lumbar spine pain patients aged 18 and above receiving traditional medicine treatment by using convenience sampling method. The General Medication Adherence Scale (GMAS) was used to assess medication adherence. Multiple logistic regression model was used to identify factors related to non-adherence to traditional medication among these patients.

Results: Out of the 234 patients included in the study, 51.7% adhered to traditional medicine. Medication non-adherence among inpatients was associated with living in poverty or near-poverty households (AOR: 4.27, 95% CI: 1.62–11.22), a treatment duration exceeding five years (AOR: 10.53, 95% CI: 3.47–31.95), and awareness of medication side effects (AOR: 3.67, 95% CI: 1.54–8.74). For day inpatients/outpatients, being aged 60 or older (AOR: 4.66, 95% CI: 1.17–18.46) and taking medication only once or twice per day (AOR: 9.39, 95% CI: 2.57–34.28) were significant factors. Additionally, in both models, not using the decoction form of traditional medicine was linked to higher non-adherence, with AOR values of 6.81 (95% CI: 2.05–22.58) for inpatients and 6.09 (95% CI: 1.34–27.70) for day inpatients/outpatients.

Conclusion: These findings support developing targeted interventions to improve adherence to traditional medicine in lumbar spine pain patients, aiming to enhance treatment outcomes and patient quality of life.

Keywords: *traditional medicine, adherence, GMAS, lumbar spine pain.*

INTRODUCTION

Even with the growth of modern medicine and its overall quality improvement, traditional medicine remains widely practiced in many regions around the world. Data from the World Health Organization in 2018 indicates that 88% of the 194 member

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countries utilize traditional, complementary, and alternative medicine (1). In Vietnam, traditional medicine is an essential part of the national healthcare system, providing about 30% of care (2). Chronic diseases are the primary contributors to global disease burden and mortality. By 2030, the projected global cost of chronic diseases is expected to reach $47 trillion (3). In particular, lumbar spine pain is a chronic condition with a high morbidity rate and contributes significantly to the number of daily visits to medical centers, leading to substantial economic impacts due to healthcare resource consumption and sick leave. Globally, it has consistently ranked among the top three diseases in terms of disability-adjusted life years since 1990 (4). According to Vietnamese traditional medicine, lumbar spine pain corresponds to lumbago due to cold symptoms (5).

Medication adherence can be defined as the extent to which a patient's behavior corresponds to the prescribed medication regimen, including the time, dose, and duration of medication administration (6). Low adherence significantly increases morbidity, mortality, and healthcare costs. In the United States, 33% to 69% of hospital admissions are due to poor medication adherence, costing around $100 billion annually (7). Various treatment adherence questionnaires have been translated and adapted for various languages and socio-economic contexts. However, no single questionnaire is universally optimal. Common criteria for evaluating these questionnaires include reliability, validity, sensitivity, specificity, popularity, and intended use (8). The General Medication Adherence Scale (GMAS) covers various aspects of medication adherence, including intentional and unintentional behaviors and considerations for patients with comorbidities, particularly the cost aspect (9). It is widely used for assessing adherence in many chronic diseases and has been translated, adapted, and validated in Vietnamese (10). However, few studies have examined adherence to traditional medication. Notably, research by Sun K et al. (2020) found a positive association between high adherence and its use (11).

Alongside electroacupuncture, traditional medicine is widely practiced for treating lumbar spine pain at treatment facilities in Thua Thien Hue province (5). In this region, traditional medicine treatment is accessible at all levels of healthcare, from provincial facilities to primary care centers. However, most studies on medication adherence focus primarily on modern medical treatments, resulting in limited information on adherence to traditional medicine, which is widely practiced in medical facilities and communities. Therefore, we conducted this study aimed at determining traditional medication adherence and its associated factors among patients with lumbar spine pain.

METHODS

Study design: We employed a cross - sectional study to access the patient's medication adherence.

Study site and time: The study was conducted at the traditional medicine departments of district-level hospitals in 6 out of 9 districts/cities of Thua Thien Hue province, representing all socioeconomic regions of the province from August 2023 to July 2024.

Study subjects: Patients with lumbar spine pain aged 18 years and older who were being treated with traditional medicine at least 1 course at various medical facilities at the time of information collection agreed to participate in the study. We excluded patients who were unable to understand and respond to the interview.

Sample size and sampling methods

Sample size: The formula for estimating a proportion, used to calculate the minimum sample size for a study, is as follows:

$$n = Z^2_{(1 - \alpha/2)} \frac{p(1-p)}{d^2}$$

Where n was the sample size. The medication adherence rate (p) was set at 0.576, based on a 2023 study by Dang Duy Khanh et al (12). The margin of error (d) was 0.07 to limit deviation from the actual rate to 7%. With a 95% confidence level =1.96, the minimum sample size calculated was 192 patients, and the actual sample size was 234 patients.

Sampling methods: Convenience sampling was used, and patients meeting the inclusion and exclusion criteria were included in the study. Study sites were sampled simultaneously until the required sample size was reached.

Study variables and qualitative research topics: Independent variables included general characteristics of patients (age, gender, education, marital status, and household economic status) and traditional medicine treatment for lumbar spine pain. Dependent variable: the GMAS assessment of medication adherence, developed by Naqvi et al. in 2018, includes 11 questions divided into 3 categories: patient behavior (5 questions), comorbidities and medication burden (4 questions), and treatment costs (2 questions). Each question has 4 response options: always, mostly, sometimes, and never, scored from 0 to 3 points. The total GMAS score ranges from 0 to 33 points, with scores categorized into two groups: non-adherence (0-26 points) and adherence (27 points or higher) (9, 12).

Tools and methods of data collection: Interviewers were medical staff currently working in the traditional medicine departments of district-level hospitals. They were trained to use the questionnaire for face-to-face interviews at the treatment facility.

Processing and analyzing data: Data entry was performed using Epidata 3.1 software. Statistical analysis was conducted with SPSS version 27.0. Charts were created using Microsoft Excel 365. Multiple logistic regression model, using adjusted odds ratio (AOR), 95% confidence interval (CI), and p-value, was employed to identify factors associated with non-adherence to traditional medication among patients. The analysis was divided into separate models based on whether patients were inpatients or day inpatients/outpatients, thereby controlling for potential confounding effects of this factor.

Research ethics: The study received approval from Hue University of Medicine and Pharmacy, Hue University, under code 94/23, issued on July 25, 2023. Patients with lumbar spine pain were informed about the purpose of the study and participated voluntarily.

RESULTS

Table 1. General characteristics of patients (n=234)

General characteristics		n	%
Age	< 60	109	46.6
	≥ 60	125	53.4
	Mean ± SD	60.00 ± 14.64	
	Minimum – Maximum	19 – 91	
Gender	Male	89	38.0
	Female	145	62.0

General characteristics		n	%
Highest attended education	Elementary school and lower	127	54.3
	Secondary school and higher	107	45.7
Marital status	Married	192	82.1
	Single/divorced/separated/widowed	42	17.9
Household economic status	Poverty/near-poverty	41	17.5
	Non-poverty	193	82.5

Table 1 outlines the characteristics of 234 patients with lumbar spine pain. The average age was 60.00 ± 14.64 years, with nearly two-thirds being female. Over half of the patients had only primary school education and lower. Additionally, more than 80% were married and did not come from poverty/near-poverty households.

Table 2. Characteristics of traditional medicine treatment for lumbar spine pain (n=234)

Treatment characteristics		n	%
Treatment methods	Traditional medicine	75	32.1
	Combination of modern and traditional medicine	159	67.9
Type of patient care	Inpatient	149	63.7
	Day inpatient/outpatient	85	36.3
Number of current treatment courses	< 5 courses	163	69.7
	≥ 5 courses	71	30.3
Total treatment duration	≤ 5 years	199	85.0
	> 5 years	35	15.0
Daily medication frequency	1-2 times	166	70.9
	3 times	68	29.1
Form of traditional medicine	Decoction	188	80.3
	Globular	143	61.1
	Pills	52	22.2
	Powder	2	0.9
	Paste	22	9.4
Able to move independently to medical facilities	Yes	136	58.1
	No	98	41.9
Having knowledge about lumbar spine pain	Yes	192	82.1
	No	42	17.9
Understanding the side effects of the medication	Yes	103	44.0
	No	131	56.0

Table 2 presents the characteristics of lumbar spine pain treatment using traditional medicine. Two-thirds of patients opted for combination of modern and traditional medicine. Most patients were inpatients, had fewer than five treatment courses, had been treated for five years or less, and took medication once or twice per day. The primary forms of traditional medicine were decoction (80.3%) and globular (61.1%). Nearly 60% of patients could move independently to medical facilities. While 82.1% had good knowledge of lumbar spine pain, only 44.0% understood the side effects of their medication.

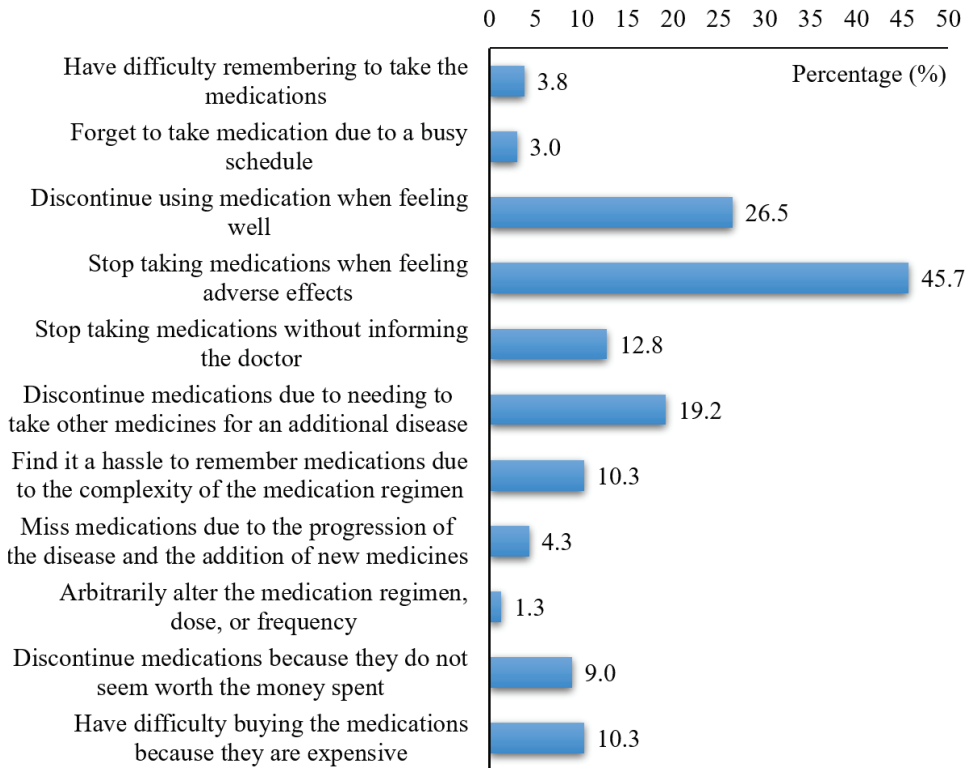

Figure 1. Distribution of 'always' and 'mostly' responses across 11 items on the GMAS scale (n=234)

Among the 11 items on the GMAS scale, the two questions that patients most frequently answered with 'always' and 'mostly' were stopping medications when experiencing adverse effects (45.7%) and discontinuing medication when feeling well (26.5%). Both of these questions fall under the patient behavior category (Figure 1).

Table 3. Patient adherence to traditional medicine (n=234)

Medication adherence		n	%
Medication adherence score	Mean ± SD	26.09 ± 5.31	
	Minimum – Maximum	12 – 33	
Medication adherence	Adherence	121	51.7
	Non-adherence	113	48.3
	Total	234	100.0

The mean GMAS score calculated for 234 patients was 26.09 ± 5.31. More than half of the patients adhered to their medication according to the classification of the scale (Table 3).

Table 4. Factors associated to patients' medication non-adherence*

Independent variables	AOR	95% CI		p-value
Model 1: Inpatient (n=149)				
Living in poverty/near-poverty household	4.27	1.62	11.22	**0.003**
Total treatment duration more than 5 years	10.53	3.47	31.95	**<0.001**
Not using the decoction form of traditional medicine	6.81	2.05	22.58	**0.002**
Understanding the side effects of the medication	3.67	1.54	8.74	**0.003**
Model 2: Day inpatient/outpatient (n=85)				
Aged 60 and above	4.66	1.17	18.46	**0.029**
Took medication once or twice per day	9.39	2.57	34.28	**0.001**
Not using the decoction form of traditional medicine	6.09	1.34	27.70	**0.019**

*Note: AOR: adjusted odds ratio, CI: confidence interval, *Multiple binary logistic regression.*

Table 4 presented the results of multiple binary logistic regression analysis examining factors associated with patients' medication non-adherence. The analysis was split into two models based on patient type was inpatient or day inpatient/outpatient. For inpatients, factors related to medication non-adherence included living in poverty or near-poverty households (AOR: 4.27, 95% CI: 1.62–11.22), having a treatment duration of over five years (AOR: 10.53, 95% CI: 3.47–31.95), and understanding medication side effects (AOR: 3.67, 95% CI: 1.54–8.74). In contrast, among day inpatients/outpatients, those aged 60 and older (AOR: 4.66, 95% CI: 1.17–18.46) and those who took their medication only once or twice per day (AOR: 9.39, 95% CI: 2.57–34.28) were more likely to be non-adherent. Additionally, not using the decoction form of traditional medicine was a common factor in both groups, with AOR values of 6.81 (95% CI: 2.05–22.58) for inpatients and 6.09 (95% CI: 1.34–27.70) for day inpatients/outpatients.

DISCUSSION

Patients with lumbar spine pain were elderly individuals aged 60 years and older, accounting for 53.4%, with an average age of 60.00 ± 14.64 years. This condition is a prevalent health issue among older adults, leading to significant pain and disability. The 1-year prevalence of the condition in community-dwelling seniors varies from 13% to 50% globally (13). Additionally, the proportion of female patients participating in the study was 62.0%, higher than that of male patients at 38.0%. According to the Global Burden of Disease, Injuries, and Risk Factors Study in 2017, the incidence of lumbar spine pain was higher in women (8.01%) than in men (6.94%). The higher incidence in women may be related to past pregnancies (14). In terms of the treatment process, around two-thirds of patients opt for a combination of modern and traditional medicine, undergo inpatient care, and receive fewer than five treatment courses. Inpatient care may allow medical staff to more effectively manage a patient's medication regimen.

Regarding the responses of the GMAS, 45.7% of patients reported that they always or mostly stop their medications when they experience adverse

side effects, and 26.5% of patients tend to stop taking their medications once they feel better, even if the treatment is not fully completed. These behaviors highlight how patients manage their treatment based on personal experiences and perceptions, rather than adhering strictly to medical advice. Patient behavior is an important factor influencing medication adherence, alongside disease burden and treatment costs, especially in older adults with chronic diseases (15). When evaluating patient medication adherence, the average GMAS score for 234 patients was 26.09 ± 5.31. According to GMAS classification, nearly half of the patients were found to medication non-adherence. The results of this study align with the World Health Organization's report, which indicates that approximately 50% of patients do not adhere to their prescribed medication advices (16).

Multiple logistic regression models identified several factors influencing medication non-adherence in patients with lumbar spine pain. Among inpatients, economic status and treatment duration were key factors affecting adherence. Patients from low-income or near-poverty households often encounter financial challenges that hinder access to long-term traditional medicine treatments. Non-adherence is particularly prevalent among individuals with chronic conditions in lower socioeconomic groups, underscoring the significant impact of financial constraints (17). Expanding universal health insurance coverage is essential to reducing these financial barriers and improving adherence to traditional medicine treatments. Additionally, prolonged treatment duration can further decrease adherence due to high costs and the inconvenience of frequent travel to healthcare facilities. Extended traditional treatment also increases the risk of adverse events (18). Furthermore, inpatients who are aware of medication side effects are more likely to be non-adherent due to concerns about the negative impact on their health. Therefore, strengthening reminders and monitoring for these patient groups is essential to ensure medication adherence, ultimately enhancing treatment effectiveness and overall health outcomes.

In contrast, among day inpatient and outpatient groups, older age and lower daily medication frequency were associated with non-adherence to traditional medicine. Elderly patients may experience cognitive impairment, which can lead to forgetting to take their medications at home if they are treated as outpatients. Recent research also identified cognitive impairment as an independent factor contributing to medication non-adherence in the elderly patients (19). Additionally, patients who take medication more frequently throughout the day were more likely to retain their treatment regimen compared to those with lower dosing frequency. This could be attributed to the fact that repetitive high-frequency tasks are generally easier to recall. Finally, the preparation process for the decoction form of traditional medicine was more complex compared to other medication forms, which contributes to higher rates of non-adherence among both inpatient and day inpatient or outpatient groups.

Our study has certain limitations. As a cross-sectional study, it assessed medication adherence only for recent treatment courses, which may not capture the full scope of the treatment process for patients with lumbar spine pain. Additionally, sampling at public hospitals might have excluded many patients who receive traditional medicine at private clinics, a common choice for those with lumbar spine pain. Finally, variations in interviewing skills among medical staff may have led to biases in the collected information.

CONCLUSION

Medication non-adherence presents a significant challenge in the treatment of chronic diseases with traditional medicine, particularly among patients with lumbar spine pain. The study data revealed a non-adherence rate of 48.3% in this patient population. Through multiple regression

analysis, six factors associated with medication non-adherence were identified. These findings support the development of targeted interventions to improve adherence to traditional medicine in patients with lumbar spine pain, with the goal of enhancing treatment outcomes and improving patient health and quality of life.

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