ISSN: 2472-3703 DOI: 10.6911/WSRJ.202606_12(6).0004

Self-Management Status and Influencing Factors Among Patients with Stroke

Ning Sun[1,*], Jingyi Yang[1], Xi Wang[2], Xin Gao[2]

[1]Department of Nursing, Shaanxi Provincial People's Hospital, 710068, Xi'an, Shaanxi, China

[2]First Department of Neurology, Shaanxi Provincial People's Hospital, 710068, Xi'an, Shaanxi, China

[*]Corresponding Author: 18702936063@163.com

Abstract

This study aimed to investigate the current status of self-management among patients with stroke in a tertiary hospital in Shaanxi Province and to explore the influencing factors of their self-management behaviours. This study included 104 stroke patients who were diagnosed and treated between April and October 2025. Data were collected using a general information questionnaire, the Stroke Self-Management Behaviour Scale, and the Stroke Self-Efficacy Scale, and statistical analyses were performed to identify the factors influencing self-management behaviours. The results showed that the overall level of self-management among the stroke patients was moderate to high, with a mean self-management score of 168.12 ± 18.56. Specifically, the scores of each dimension were as follows: disease management (40.86 ± 6.65), medication safety management (18.46 ± 1.90), diet management (23.64 ± 2.78), daily life management (27.90 ± 3.84), emotional management (17.64 ± 2.78), social function and interpersonal management (19.47 ± 3.17), and rehabilitation exercise management (20.13 ± 5.48). Univariate analysis revealed that age, education level, current employment status, recurrence risk classification, and self-efficacy had significant effects on self-management behaviours ($P < 0.05$). Further multiple linear regression analysis confirmed that these five factors (age, education level, current employment status, recurrence risk classification, and self-efficacy) were independent influencing factors of self-management behaviours among stroke patients. In conclusion, the self-management level of stroke patients in this study was moderate to relatively high; healthcare professionals should take the relevant influencing factors into consideration and implement individualized intervention strategies to improve the patients' self-management abilities and further enhance their quality of life.

Keywords

Stroke; Self-management; Self-efficacy; Influencing factors.

1. INTRODUCTION

Stroke, also referred to as cerebral apoplexy or cerebrovascular accident, is a syndrome characterized by focal or global neurological deficits resulting from acute disturbances in cerebral circulation. It is associated with high rates of incidence, mortality, disability, and recurrence, as well as numerous complications [1]. In China, stroke is the leading cause of years of life lost [2]. Studies have shown that over 70% of stroke survivors experienced sequelae such as hemiplegia following the onset of the condition [3].

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Additionally, for stroke patients, when they retur to society after medical stabilization, both patients and their families must continue to engage in health self-management to effectively prevent recurrence and promote recovery. Due to the specificity of symptom management and rehabilitation strategies for stroke, research on self-management behaviours and their influencing factors remains in the exploratory stage. Current studies have primarily focused on general demographic and socioeconomic factors, while research on medical and pension security, social support, environmental factors, and psychosocial characteristics remains limited. This study aims to anaylze the factors influencing self-management behaviours in stroke patients, with the goal of providing evidence for improving self-management practices and enhancing disease prognosis.

2. METHODS

2.1. Sample

A total of 108 stroke patients who attended a tertiary hospital in Shaanxi Province between April and October 2025 were selected as study participants.

Table 1. Inclusion and Exclusion cafeterias.

Inclusion criteria:	Exclusion criteria:
1. Patients diagnosed with ischemic stroke according to the Chinese Guidelines for Diagnosis and Treatment of Acute Ischemic Stroke (2018) [4] or hemorrhagic stroke according to the Chinese Guidelines for Diagnosis and Treatment of Intracerebral Hemorrhage (2019) [5]; Diagnosis confirmed by cranial CT or MRI; 2. Patients in the recovery stage with stable condition; 3. Conscious and able to communicate verbally or in writing; 4. Willing to participated in the study.	1. Patients with severe commodities, including severe hepatic or renal dysfunction, severe arrhythmia, frequent angina pectoris, heart failure, respiratory failure, or malignant tumors; 2. Those with a history of psychiatric disorders.

2.2. Research Tools

2.2.1 General Information Questionnaire

The questionnaire included age, gender, occupation, education level, marital status, monthly income, type of medical insurance, and other related elements.

2.2.2 Stroke Self-Management Behaviour Scale

Stroke Self-Management Behaviour Scale was used [6]. It consists of seven dimensions: disease management, medication safety management, diet management, daily life management, emotional management, social function and interpersonal management, and rehabilitation exercise management, comprising a total of 49 items. A 5-point Likert scale was adopted, with responses ranging from ‘never’ to ‘always’, scored from 1 to 5. Total scores of 49–146 indicate poor self-management, 147–196 indicate moderate level, and 197–245 indicate good level.

2.2.3 Stroke Self-Efficacy Scale

The Stroke Self-Efficacy Scale designed (Chinese version) was used [7]. The scale consists of 7 dimensions rated on a 10-point scale. Higher scores indicate higher levels of self-efficacy and greater confidence in managing disease-related tasks. The scale has been widely used in China and demonstrates good reliability and validity.

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2.3. Data Collection

Data were collected through face-to-face interviews. Researchers explained the purpose and significance of the study to patients and their family members and obtained informed consent. Participants were instructed on how to complete the questionnaire. For those unable to complete it independently, researchers conducted interviews and recorded responses according to the participants' answers.

2.4. Data Analysis

Data were analyzed using SPSS statistical software. Statistical methods included descriptive analysis (frequency, mean, standard deviation, and percentage), one-way analysis of variance, and multiple linear regression analysis. (1) Descriptive analysis: used to describe general demographic characteristics, self-efficacy scores, and self-management behaviour scores. (2) Analysis of variance: used to compare differences in self-management scores across different socio-demographic groups. (3) Multiple linear regression: self-management behaviour was used as the dependent variable, and socio-demographic characteristics and self-efficacy were used as independent variables. P value < 0.05 was considered statistically significant.

This study was approved by the Ethics Committee of Shaanxi Provincial People's Hospital, and written informed consent was obtained from all participants.

2.5. Quality Control

(1) Coordinated communication with hospital project leaders and participants to obtain support and cooperation. (2) Strictly selected participants according to inclusion criteria. (3) Provided detailed explanations to patients and their family members to ensure full understanding of questionnaire completion procedures and informed consent. (4) Questionnaires were collected immediately after completion and checked for completeness. Any missing or incorrect items were clarified and supplemented on site to ensure data integrity.

3. RESULTS

3.1. Socio-Demographic Characteristics of Participants

A total of 108 questionnaires were distributed, among which 104 valid questionnaires were returned, yielding an effective response rate of 96.30%. Among the 104 participants, 66 were male and 38 were female. The age of the participants ranged from 20 to 93 years, with a mean age of 60.88 ± 15.25 years. Most participants were urban residents and married. The majority had completed high school education and were living with their spouses. A large proportion of patients were classified as high risk for stroke recurrence. In addition, most participants reported no smoking or alcohol consumption.

3.2. Self-Efficacy Status of Stroke Patients

The mean self-efficacy score among the participants was 51.50 ± 15.42, with scores ranging from 13 to 69. The majority of participants were categorized as having a high level of self-efficacy, whereas a smaller proportion demonstrated moderate or low levels. Overall, the findings indicate that most patients reported relatively strong confidence in their ability to manage disease-related tasks. Table 3 is the Self-Efficacy Status of Stroke Patients for participants.

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Table 2. Socio-demographic characteristics of the participants (n=104)

		Number	Percentage
Gender			
	Male	66	63.5
	Female	38	36.5
Age			
	≤ 30	4	3.8
	30 - 50 years old	17	16.3
	50 - 70 years old	55	52.9
	＞70 years old	28	26.9
Living Arrangement			
	Rural area	42	40.4
	Urban area	62	59.6
Education Level			
	Primary school and below	21	20.2
	Junior high school	34	32.7
	High school or vocational school	24	23.1
	Diploma or Bachelor's degree	24	23.1
	Master's degree and above	1	1
Marriage Status			
	Single	6	5.8
	Married	92	88.5
	Divorced	2	1.9
	Widowed	4	3.8
Employment Status			
	Retired	49	47.1
	Unemployed	37	35.6
	Employed	18	17.3
Personal Monthly Income			
	≤ 2000 Yuan	47	45.2
	2000 - 4000 Yuan	46	44.23
	4001 - 8000 Yuan	4	3.8
	No Income	7	6.7
Living Conditions			
	Living alone	6	5.8
	Living with one's spouse	48	46.2
	Living with children	13	12.5
	Living with spouse and children	34	32.7
	Living with others	3	2.9
Primary Caregiver			
	Spouse		
	Parent		
	Children or grandchildren		
	Non-immediate family members		
Pay for medical expenses			
	Urban resident or employee medical insurance	49	47.1
	New Rural Cooperative Medical Care	44	42.3
	Full public funding	1	1.0
	Own expense	6	5.8
	Other social insurance	4	3.8
Recurrent stroke risk rating			
	Low risk	3	2.9
	Medium risk	33	31.7
	High-risk	68	65.4
Disease treatment and financial burden			
	Without burden	6	5.8
	Light burden	43	41.3
	Moderate burden	39	37.5
	Heavy burdens	16	15.4
Smoking status			
	No	60	57.7
	Yes	44	42.3
Drinking status			
	No	65	62.5
	Yes	39	37.5

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Table 3. Self-Efficacy Status of Stroke Patients for participants (n=104)

Self-Efficacy Status of Stroke Patients	Number	Percentage
High	73	70.19
Moderate	21	20.19
Low	10	9.62

3.3. Self-Management Behaviours of Stroke Patients

3.3.1 Self-Management Across Dimensions

The overall mean self-management score was 168.12 ± 18.56, indicating a moderate level of self-management. Among the seven dimensions, disease management and medication safety management demonstrated relatively higher mean scores, while rehabilitation exercise management and social function and interpersonal management showed comparatively lower scores. The scoring index was calculated using the formula: (actual score / maximum possible score) × 100%.

Table 4. Self-management behaviour scores of the study subjects (n=104)

	Minimum	Maximum	Mean	SD	Score Index* (%)
Disease Management	25	51	40.86	6.65	74.29
Medication Safety Management	14	23	18.46	1.90	73.84
Emotion Management	9	23	17.64	2.78	70.56
Daily Living Management	15	37	27.90	3.84	69.75
Diet Management	16	31	23.64	2.77	67.54
Social Function and Interpersonal Management	12	28	19.47	3.17	64.90
Rehabilitation Exercise Management	10	31	20.13	5.48	57.51
Total Self-management Score	131	214	168.12	18.56	68.62

3.3.2 Classification of Self-Management Levels

Based on the scoring criteria of the self-management scale, the overall score index was 68.62%, which corresponds to a moderate level. The majority of patients were classified within the moderate range of self-management. A smaller proportion demonstrated low levels of self-management, and only a very limited number of participants reached the high-level category. These findings suggest that although most patients exhibit an acceptable degree of self-management, there remains substantial room for improvement.

Table 5. Classification comparison of self-management behaviours(n=104)

	Low		Moderate		High	
	Number	Percentage	Number	Percentage	Number	Percentage
Disease Management	1	0.96	45	43.27	58	55.77
Medication Safety Management	0	0	69	66.35	35	33.65
Diet Management	3	2.89	93	89.42	8	7.69
Daily Living Management	1	0.96	76	73.08	27	25.96
Emotion Management	5	4.81	74	71.15	25	24.04
Social Function and Interpersonal Management	10	9.62	78	0.75	16	15.38
Rehabilitation Exercise Management	39	37.50	53	50.96	12	11.54
Total Self-management Score	19	18.27	83	78.90	2	1.93

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3.4. Univariate Analysis of Factors Influencing Self-Management behaviours

Univariate analysis indicated that age, education level, current employment status, recurrence risk classification, and self-efficacy were significantly associated with self-management behaviours ($P < 0.05$). No statistically significant differences were observed in relation to gender, residence, marital status, monthly income, living arrangement, medical payment method, economic burden of treatment, smoking status, or alcohol consumption.

Table 6. Univariate analysis of factors influencing self-management behaviours

Variable	t/F Value	P Value
Gender	0.354	0.724
Age	10.817	<0.05
Place of Residence	0.960	0.340
Educational Level	3.289	0.014
Marital Status	0.595	0.620
Current Employment Status	3.934	0.023
Personal Monthly Income	1.676	0.177
Living Situation	1.347	0.258
Medical Payment Method	1.789	0.137
Stroke Recurrence Risk Rating	1.918	<0.05
Perceived Economic Burden of Stroke Treatment	0.344	0.794
Smoking Status	-0.198	0.844
Alcohol Consumption	-1.907	0.059
Self-efficacy	42.227	<0.05

3.5. Multivariate Analysis of Factors Influencing Self-Management behaviours

Self-management behaviour was entered as the dependent variable in a multiple linear regression model. Variables that demonstrated statistical significance in the univariate analysis were included as independent variables. The results showed that self-efficacy, education level, current employment status, and recurrence risk classification remained statistically significant predictors of self-management behaviour ($P < 0.05$). The regression model was statistically significant ($F = 17.543$, $P < 0.001$) and explained 47.2% of the variance in self-management behaviours ($R^2 = 0.472$, adjusted $R^2 = 0.445$).

Table 7. Multivariate regression analysis of self-management behaviours

Independent Variable	Partial Regression Coefficient (B)	Standard Error	Standardized Coefficient (β)	t Value	P Value
(Constant)	123.638	12.423		9.953	0.000
Age	0.689	2.443	0.029	0.282	0.178
Education level	1.426	1.284	0.083	1.111	0.000
Employment status	0.336	1.449	0.020	0.232	0.017
Stroke Recurrence Risk Rating	4.675	3.133	0.137	1.492	0.000
Self-efficacy	17.061	2.576	0.607	6.624	0.000
$F = 17.543$, $P < 0.001$; Coefficient of determination $R^2 = 0.472$, Adjusted $R^2 = 0.445$.					

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4. DISCUSSION

This study conducted a cross-sectional investigation of self-management behaviours among patients with stroke. One-way analysis of variance indicated that age, educational level, current employment status, risk stratification for stroke recurrence, and self-efficacy were associated with self-management behaviours in patients with stroke. Further multivariate linear regression analysis demonstrated that self-efficacy, educational level, current employment status, and risk stratification for stroke recurrence had significant positive effects on self-management behaviours. These findings provide a new perspective for understanding self-management behaviours among patients with stroke.

4.1. Self-management behaviours among patients with stroke

Previous studies have reported that more than 70% of patients experience functional impairments such as hemiplegia after stroke onset [8]. Effective health self-management is therefore considered one of the key strategies for preventing recurrence and promoting recovery. In the present study, the overall self-management behaviour score of patients with stroke was 168.12 ± 18.56, which was higher than the score reported by Mu Xin et al. [9]. This difference might be related to the characteristics of the study population in their research, which included only patients experiencing their first stroke episode who might have had limited awareness of stroke self-management.

Further analysis of the different dimensions of self-management showed that patients scored highest in disease management, medication safety management, and emotional management, whereas lower scores were observed in rehabilitation exercise management and social functioning and interpersonal management. The patients included in this study were not experiencing their first stroke episode, and many had long-standing symptoms accompanied by pathophysiological changes. As a result, they might have developed a greater awareness of the importance of managing their health conditions. In addition, repeated medical consultations might have increased their understanding of medication effectiveness, enabling them to adhere more closely to prescribed treatment regimens. Consequently, the highest scores were observed in disease management and medication safety management. Emotional management ranked second, which might be associated with the relatively structured daily routines and stable emotional states during hospitalization. Rehabilitation exercise management showed the lowest scores, which is consistent with the literature [10]. This might be related to insufficient perseverance among patients with stroke as well as a lack of rehabilitation knowledge and energy required to engage in effective and regular rehabilitation exercises.

4.2. Self-efficacy among patients with stroke

Self-efficacy refers to an individual's confidence in their ability to successfully perform a specific behaviour or achieve a designated goal. It has been shown to improve both the motivation and persistence of patients with stroke in engaging in health-related activities [11]. Higher levels of self-efficacy are associated with greater confidence in adopting effective management behaviours, thereby contributing to better self-management practices among patients [12]. Enhancing patients' self-efficacy might therefore help improve self-management behaviours, regulate negative emotions, and alleviate symptoms.

Previous studies have demonstrated that self-efficacy among patients with stroke is closely associated with both physical and psychological health status and can serve as a predictor of quality of life in this population [13,14]. Self-efficacy is considered an important motivational factor that stimulates and maintains effective self-management behaviours in patients with stroke. In the present study, patients with low levels of self-efficacy had a self-management behaviour score of 139.00 ± 5.91, those with moderate self-efficacy had a score of 155.38 ± 13.72, and those with high self-efficacy had a score of 175.78 ± 14.55. These findings indicate a

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202606_12(6).0004

positive correlation between self-efficacy and self-management behaviours among patients with stroke, suggesting that higher levels of self-efficacy are associated with better self-management practices. Therefore, promoting self-efficacy among patients with stroke might effectively improve both physical and psychological outcomes by encouraging healthier behaviours and improving emotional regulation, ultimately enhancing patients' quality of life.

4.3. The influence of educational level on self-management behaviours in patients with stroke

The findings of this study showed that patients with primary school education or below had a self-management behaviour score of 157.38 ± 17.58, those with junior high school education scored 167.24 ± 18.36, patients with senior high school or technical secondary school education scored 170.50 ± 16.04, and those with a college diploma or bachelor's degree scored 176.17 ± 18.76. In this survey, only one patient had a master's degree, with a self-management behaviour score of 173.00 ± 0.00. These results suggest that higher educational attainment is associated with better health self-management behaviours among patients with stroke.

This association might be explained by the fact that individuals with higher educational levels often possess stronger learning and comprehension abilities. They might also have greater access to health-related information through books, news media, and other sources, enabling them to acquire more knowledge about disease management and self-care. Additionally, patients with higher educational levels might experience fewer communication barriers with healthcare professionals, making it easier for them to understand and accept treatment recommendations and rehabilitation plans. This might ultimately enhance their ability to engage in effective health self-management.

4.4. The influence of age on self-management behaviours in patients with stroke

The present study found that patients younger than 30 years had a self-management behaviour score of 181.50 ± 6.86, those aged 30–50 years scored 170.42 ± 18.34, patients aged 50–70 years scored 173.91 ± 16.16, and patients older than 70 years scored 153.43 ± 16.28. Overall, the findings suggest that younger age groups tend to demonstrate higher levels of self-management behaviours. However, this pattern differs slightly from another study [15], as patients aged 50–70 years in the present study demonstrated slightly higher self-management levels compared with those aged 30–50 years.

One possible explanation is that individuals aged 30–50 years often maintain active social engagements and demanding work schedules, leaving limited time and energy to devote to self-management activities. In contrast, individuals aged 50–70 years are more likely to be retired and therefore have more available time for regular exercise and health monitoring. They might also place greater emphasis on their health status and personal health management. In addition, the present survey included some patients with severe functional limitations caused by stroke complications, which might also have influenced the results. Future research should consider incorporating functional impairment as an additional factor in order to improve the representativeness of study findings.

4.5. The influence of employment status on self-management behaviours in patients with stroke

The results showed that retired patients had a self-management behaviour score of 165.29 ± 20.73, patients without stable employment scored 166.62 ± 17.21, and patients with stable employment had a score of 178.89 ± 9.76. Patients who had stable employment prior to hospitalization demonstrated higher levels of self-management behaviours compared with those who were unemployed or retired. This might be explained by the fact that individuals with stable employment often maintain more regular daily routines, including structured patterns of

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diet and sleep, and might also possess stronger self-care abilities. These factors might contribute to higher levels of self-management.

In contrast, individuals without employment or those who are retired might experience fewer time constraints in their daily lives, which might lead to irregular lifestyle patterns or excessive idle time. Such conditions might also increase negative emotions and psychological stress, potentially resulting in lower levels of engagement in self-management activities [16,17].

Additionally, a certain degree of association was observed between the risk stratification for stroke recurrence and self-management behaviours. In the present study, patients classified as high risk for stroke recurrence demonstrated higher self-management scores compared with those in the moderate- and low-risk groups. This finding might be related to the fact that many hospitalized patients with stroke are categorized as high risk and often have longer disease durations and multiple comorbid conditions. As a result, they might have a better understanding of their health conditions and greater exposure to disease-related information, which might increase their awareness of self-care and encourage more active engagement in self-management in order to reduce complications and improve quality of life.

5. CONCLUSION

In summary, this study examined the current status of self-management behaviours among patients with stroke and identified several factors associated with these behaviours. The results suggest that self-efficacy, age, employment status, risk stratification for stroke recurrence, and educational level are important factors influencing self-management behaviours among patients with stroke. Therefore, improving self-management behaviours in this population requires a comprehensive approach that considers these factors. Potential strategies include enhancing patients' self-efficacy, providing personalized guidance for patients with different age groups and employment statuses, developing intervention plans based on recurrence risk stratification, and offering health education resources tailored to diverse linguistic and cultural backgrounds.

ACKNOWLEDGEMENTS

This study was supported by the Shaanxi Natural Science Basic Research Program (2025JC-YBMS-1026).

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