

Correlation study of rehabilitation intention, self-efficacy and rehabilitation exercise management behavior in middle-aged stroke patients

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How to cite thi paper: Li, Y., Jing, X., Tuo, M., Shi, Y., Zhang, S., Fan, H., Li, W., Yang, F. (2019) Correlation study of rehabilitation intention, self-efficacy and rehabilitation exercise management behavior in middle-aged stroke patients. *International Journal of Clinical and Experimental Medicine Research*, 3(4), 119-126.

DOI: 10.26855/ijcemr.2019.10.002

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Abstract

Objective: To investigate the status of rehabilitation exercise management behavior in middle-aged stroke patients and explore factors inducing stroke.

Method: By convenience sampling, a general data questionnaire, a sports rehabilitation willingness questionnaire, a General Self-Efficacy Scale (GSES), and a stroke self-management behavior scale were used to investigate 175 middle-aged stroke patients hospitalized in a third-grade general hospital in Zibo. The effect of exercise rehabilitation willing-ness and self-efficacy on rehabilitation exercise of middle-aged stroke patients were investigated was analysed by one-way ANOVA, Pearson CorrelationCoefficient ,multiple linear regression, structural equation analysis.

Results: The average score of rehabilitation exercise management behavior of middle-aged stroke patients was 20.38 ± 2.884 . Multiple linear regression analysis showed that exercise rehabilitation intention, self-efficacy and monthly income influenced rehabilitation exercise management behavior, which account for the 31.0% variation of rehabilitation exercise management behavior level; the direct path coefficient of exercise rehabilitation will- ingness and self-efficacy to rehabilitation exercise management behavior were 0.194 and 0.177, respectively, the indirect effect of self-efficacy on rehabilitation exercise behavior was 0.098.

Conclusion: The rehabilitation exercise management of middle-aged stroke patients is on lower-middle level; rehabilitation intention, self-efficacy and monthly income are the influencing factors of rehabilitation and exercise management behavior. To promote patients' rehabilitation exercise management behavior and improve their quality of life. Nurses should adopt different ways according to patients conditons to improve exercise rehabilitation willingness and self-efficacy of patients.

Keywords

Stroke; middle-aged; rehabilitation willingness; self-efficacy; rehabilitation exercise management

According to Chinese Stroke Prevention and Control Report 2016 , stroke is the biggest reason of inducing disability in China. Up to 83 % of stroke patients have different degrees of dysfunction , and dysfunction has a severe impact on the quality of life of stroke patients. The most effective approach of correcting dysfunction is long-term regular rehabilitation exercise, which requires the establishment of self-management behavior. According to the investigation, the rehabilitation and exercise management of stroke patients in China(especially in middle-aged stroke patients) is at a low level, as the middle-aged patients bear the dual responsibility of the family and society. The dysfunction induced by the death of the brain increase the family and social economic pressure. Therefore, it is important to study the status quo of rehabilitation exercise management and related factors in middle-aged stroke patients. The theory of planned behavior(TPB) considers that: behavioral intention is the best predictive variable for behavior. Self-efficacy theory holds that self-efficacy is the judgment of people's ability to organize and execute the behavioral processes. They need to complete the established behavioral goals. Therefore, it is speculated that the patient's willingness to exercise rehabilitation and self-efficacy may be the relevant factors that influence the management behavior of rehabilitation exercise. At present, there are few researches on the relevant factors of rehabilitation exercise management behavior. To provide evidence and knowledge for individualized clinical rehabilitation nursing of middle-aged stroke patients, this paper investigated the status quo of rehabilitation exercise management in middle-aged stroke patients, and studied its relations between exercise rehabilitation willingness and self-efficacy.

1 objects and methods

1.1 Objects of study

From January 2019 to May 2019, 175 middle-aged stroke patients were first admitted to the neurology Department of a third-grade general hospital in Zibo. Inclusion criteria: ① age 45 to 59 years; ② conforms to the diagnostic criteria of the fourth session of cerebrovascular disease in 1995, and was diagnosed by CT and MRI, both of which were the first stroke; ③ After treatment, the consciousness is clear, the vital signs is stable, and there is independent reading and writing ability; ④ The vital signs is stable and is in recovery process; ⑤ Informed consent, voluntary participation in research. Exclusion criteria: ① Patients with organ failure(such as heart, liver, lungs, and kidneys) and malignant tumors; ② There is a history of mental illness or existing mental disorders; ③ There are obvious consciousness disorder and severe cognitive disabilities

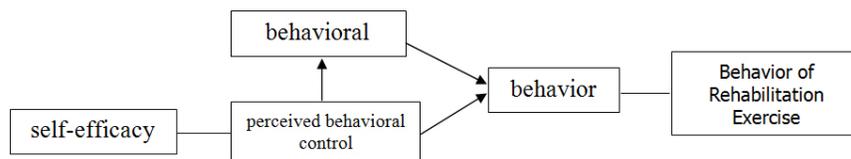


Figure1. the model of influence factor and behavior of Rehabilitation Exercise Management in middle-age patients

1.2 Methods

1.2.1 Theoretical framework

Planned Behavior Theory was proposed by the American social psychologists Fishbein and Ajzen. The theory supposes that behavior is mainly influenced by the behavioral intentions and Perceptual Behavior Control:(1) Behavioral intentions: the individual's willingness to perform a certain behavior; (2) Perceptual behavior control: the degree to which an individual perceives control or mastery of the taking of a certain behavior. Self-efficacy is the judgment of people's ability to organize and execute the behavior process they need to complete the specified goals. Therefore, exercise willingness and self-efficacy may be factors that affect the management behavior of patients' rehabilitation exercise(Figure 1).

1.2.2 Research tools

(1) General information questionnaire: including age, sex, education, occupation, monthly income, medical expenses, stroke type, smoking and so on.

(2) Questionnaire on the willingness of exercise rehabilitation: It was compiled by Yafang Liu and other researchers, which includes 12 items, using the Likert 5 scale scoring method, with a total score of 12 to 60, the higher the score, the

stronger the willingness to recover. 12 to 27 points is defined as low, 28 to 43 points is medium, and 44 to 60 points is high. The internal consistency of the questionnaire Cronbach's α coefficient is 0.79.

(3) General Self-Efficacy Scale (GSES): It was compiled by Schwarzer et al. and other researchers in 1997. Zhang et al. (1995) translated and introduced it into China, whose internal consistency coefficient Cronbach's α is 0.87. The higher the score, the higher the level of self-efficacy.

(4) Rehabilitation exercise management behavior: It was measured by the rehabilitation exercise management scale according to the self-management behavior scale for stroke patients (Wang *et al.*). The scale consisted of 7 items and used the Likert Level 5 scoring method, with a total score of 5 to 35 points, the higher the score, the better the patient's rehabilitation exercise management behavior. Cronbach's α coefficient is 0.835, its internal consistency reliability is more reliable, and the reliability of the rehabilitation exercise management dimension is 0.845.

1.2.3 Methods of investigation

By using face-to-face surveys, the researchers explained the purpose of the study and the principle of confidentiality to the patient and his family. After obtaining the consent from the patient as well as his family, explained to the patient the method of answering questionnaire and the precautions. The patient filled out the questionnaire independently. Those who could not complete it on their own were assisted by researchers. A total of 180 questionnaires were issued and 175 were recovered. The effective recovery rate was 96 %.

1.2.4 Statistical methods

All data were entered and verified by two people, and SPSS 17.0 was used for statistical processing of data. The counting data were described by the number of cases and the percentage; The measurement data were described by the mean \pm standard deviation, mainly using t-test, variance analysis, correlation analysis, multiple linear regression and so on. The Path of data were analysed by using Process plugin.

Table 1. Analysis of single factor of general data in management behavior of rehabilitation exercise in middle-aged stroke patients

(N = 175)

items	n	percentage (%)	Score of rehabilitation exercise management ($\bar{x} \pm s$, branch)	statistics (t/F value)	P
age (year)				0.607*	0.545
45 ~ 49	47	26.9	20.60 \pm 3.187		
50 ~ 59	128	73.1	20.30 \pm 2.773		
gender				1.674*	0.096
male	113	64.6	20.65 \pm 2.806		
female	62	35.4	19.89 \pm 2.981		
education				3.197	0.043
junior high school and below	63	36.0	19.73 \pm 3.033		
senior high school and technical secondary school	95	54.3	20.61 \pm 2.907		
above college level	17	9.7	21.47 \pm 1.375		
occupation				4.821	0.001
farmer	42	24.0	19.45 \pm 3.248		
worker	56	32.0	20.18 \pm 3.105		
officer	33	18.9	20.94 \pm 2.207		
individual business	25	14.2	22.24 \pm 1.165		
others	19	10.9	19.58 \pm 2.874		
Income/month (yuan)				7.870	0.001
< 1000	13	7.4	19.15 \pm 4.432		
1000 ~ 5000	109	62.3	19.93 \pm 3.002		

Table 1. cont.

items	<i>n</i>	percentage (%)	Score of rehabilitation exercise management ($\bar{x} \pm s$, branch)	statistics (<i>t</i> / <i>F</i> value)	<i>P</i>
> 5000	53	30.3	21.60 ± 1.498		
medical expenses				4.536	0.004
<u>free medical care</u>	1	0.6	20.00 ± 2.884		
<u>commercial medical ins</u>	126	72.0	20.72 ± 2.773		
<u>new rural cooperative medical system</u>	44	25.1	19.80 ± 2.969		
at patient's own expense	4	2.3	16.00 ± 2.540		
Type of stroke				-0.136*	0.893
<u>hemorrhagic</u>	12	6.9	20.33 ± 0.888		
<u>Ischemic</u>	163	93.1	20.38 ± 2.980		
smoking				0.474*	0.636
yes	34	19.4	20.59 ± 2.709		
no	141	80.6	20.33 ± 2.931		

*: *t* value

2. Result

2.1 Analysis of single factor of general data in management behavior of rehabilitation exercise in middle-aged stroke patients

In this study, the *t*-test or variance analysis was performed on all general data of the subjects, and the differences in the scores of rehabilitation and exercise management behaviors among patients with different levels of education, occupation, monthly income, and medical payment patterns were statistically significant ($P < 0.05$). There was no statistically significant difference in the scores of the other items ($P > 0.05$), as shown in table 1.

Table 2. Correlation analysis of rehabilitation exercise management behavior and various factors in middle-aged stroke patients

items	<i>R</i> value	<i>P</i> value
Willness of rehabilitation exercise	0.406	< 0.001
Self-Efficacy	0.408	< 0.001

2.2 Correlation analysis of rehabilitation exercise management behavior and various factors in middle-aged stroke patients

The management behavior score of middle-aged stroke patients was 20.38 ± 2.884 , the intention score of exercise rehabilitation was 43.95 ± 3.951 , and the self-efficacy score was 26.58 ± 4.570 . The patients' exercise rehabilitation intention, self-efficacy and rehabilitation exercise management behavior were positively correlated ($P < 0.05$), (Table 2).

Table 3. Independent variable assignment

independent variable	Assignment method
education	1 = junior high school and below, 2 = senior high school, 3 = college and above
occupation	1 = farmer, 2 = worker, 3 = officer, 4 = Self-employed person, 5 = others
Income/month (<i>yuan</i>)	1 ≤ 1000, 2 = 1000 ~ 5000, 3 ≥ 5000
intention of exercise rehabilitation	input
self-efficacy	input

Table 4. Multivariate linear regression analysis of factors on rehabilitation exercise management behavior in middle-aged stroke patients (N = 175)

variable	regression coefficient	Standard error	Standard partial regression coefficient	t value	P value
constant	7.995	2.364		3.381	0.001
intention score of exercise rehabilitation	0.135	0.055	0.185	2.472	0.014
self-efficacy	0.111	0.050	0.176	2.219	0.028
Income per month	1.804	0.382	0.375	4.725	< 0.001

* $F = 14.001$, $P < 0.001$, Coefficient of determination $R^2 = 0.333$, adjusted $R^2 = 0.310$

2.3 Factors on rehabilitation exercise management behavior in middle-aged stroke patients

Taking the management behavior of rehabilitation exercise as the dependent variable, the single factor analysis of meaningful general data, the intention of exercise rehabilitation and self-efficacy as independent variables were analysed by multivariate linear regression. The independent variable assignment is shown in Table 3, and the main factors affecting the management behavior of rehabilitation exercise in middle-aged stroke patients are shown in Table 4. The results showed that exercise rehabilitation willingness, self-efficacy and occupation were the factors of rehabilitation exercise management behavior in middle-aged stroke patients, which could account for the 30.1 % variation of rehabilitation exercise management behavior.

Table 5. Path Coefficient of Influencing Factors of Rehabilitation Exercise Management Behavior

independent variable	path	direct effect	intermediary effect	Total effect	T value	P value
intention of exercise rehabilitation	intention of exercise rehabilitation → Rehabilitation Exercise Management Behavior	0.194	—	0.194	2.431	0.018
Self efficacy	self efficacy → Rehabilitation Exercise Management Behavior	0.177	—	0.275	4.604	< 0.001
	self-efficacy → intention of exercise rehabilitation	—	0.098			

2.4 Management Behavior and Influencing Factors of Rehabilitation Exercise in Middle-aged Stroke Patients

To understand the effects of exercise rehabilitation intention and self-efficacy on the management behavior of middle-aged stroke patients, we used Process plug-in for path analysis with rehabilitation exercise management behavior as the dependent variable, exercise rehabilitation intention as the intermediary variable, and self-efficacy as the independent variable. The results of fitting path coefficients for intermediate variables are shown in Table 5. The results showed that the total effect of exercise rehabilitation intention on the management behavior of rehabilitation exercise was 0.194 ($T = 2.431$, $P < 0.05$) and the total effect of self-efficacy on the management behavior of rehabilitation exercise was 0.275 ($T = 4.604$, $P < 0.001$).

3. Discussion

3.1 Present situation of rehabilitation exercise Management in middle-aged stroke patients

Middle-aged people are Backbone in the family and society. Therefore, the active exercise of rehabilitation is crucial for middle-aged stroke patients. This study shows that the rehabilitation exercise management behavior of middle-aged stroke patients is at the lower level, which is the same as the study of Mu xin and Wang lingli. The reason is: Rehabilitation exercise is a long and arduous process. Rehabilitation exercise management behavior requires extraordinary perseverance and patience. The low score of rehabilitation exercise management behavior may be due to the lack of rehabilitation exercise management behavior. Someresearch shows that catharsis of adverse emotions and victory over abandonment behavior are the guarantees of rehabilitation. It suggests that medical personnel should make rational use of social support system and fully mobilize patients' self-adjustment ability to help patients reduce negative

emotions and better carry out rehabilitation exercise. In addition, it may be related to a strong professional rehabilitation exercise, and patients are only dependent on medical personnel. The research of Zou jieqiong and others shows that the guidance and encouragement of medical personnel play an indispensable role in promoting the formation of functional exercise in stroke patients, and suggests that doctors and nurses should strengthen the guidance and attention on the management behavior of patients' rehabilitation and exercise in their work. It can assist them to develop the habit of active rehabilitation exercise to prevent the recurrence of stroke.

3.2 The intention of exercise rehabilitation is a significant predictor of management behavior of rehabilitation exercise

Planned behavior theory believes that intention is the best predictive variable for behavior [20]. The willingness to exercise rehabilitation can predict the management behavior of rehabilitation exercise. This study shows that the intention of exercise rehabilitation is positively related to the management behavior of rehabilitation exercise. It is suggested that nurses should strengthen the education of the patient's willingness to exercise, strengthen the patient's willingness to carry out rehabilitation exercise, often encourage the patient, enhance the patient's self-confidence, in order to improve the patient's initiative and enthusiasm for rehabilitation exercise. The results of this study show that the intention score of exercise is (43.95 ± 3.951) , which is at a moderate level and is same as the study of Wangqiu Hua and others. Analyzing the reasons may be that rehabilitation exercise is a long-term process. In the process of rehabilitation exercise, it may appear that the effects are not obvious, pain, etc., and thus affect their willingness to exercise. In addition, the survey of patients' willingness to exercise rehabilitation found that patients are rarely willing to go to the community for rehabilitation, which also reduces the patient's willingness to exercise rehabilitation. The analysis may be due to the fact that there are fewer rehabilitation personnel and medical equipment in community hospitals, and the survey group is middle-aged patients. The idea of going to the community for rehabilitation exercise has not been popular. It is promising for nursing staff cooperate with the community staff to carry out the guidance of rehabilitation exercise for the patients, enhance the patient's trust in the community service, enable the patient to play a higher degree of subjective initiative, and promote the patient to actively carry out rehabilitation exercise. The intention of exercise reflects the motivation of the individual to perform rehabilitation exercise. The greater the motivation, the greater the likelihood of rehabilitation exercise. In this study, the direct path coefficient of the exercise intention to the rehabilitation exercise management behavior was 0.194, indicating that the exercise intention can directly affect the rehabilitation exercise management behavior of middle-aged stroke patients. It is suggested that the nursing staff should strengthen the cultivation of willingness for the patient's exercise and enhance the patient's willingness to carry out rehabilitation exercise. It's expected to improve the patient's rehabilitation exercise behavior, promote the recovery of the patient's physical function and improve the patient's quality of life.

3.3 Self-efficacy is a significant predictor of management behavior in rehabilitation exercise

Self-efficacy theory believes that self-efficacy is the belief that people successfully implement and complete a certain behavioral goal, which is conducive to behavioral change. That is, self-efficacy can promote patients to recover. The results of this study shows that the self-efficacy score is (26.58 ± 4.570) points, and it is at a medium upper level. Self-efficacy is positively related to the management behavior of rehabilitation exercise. The stronger the sense of self-efficacy, the better the management behavior of rehabilitation exercise. The results are similar to the related research. This study shows that self-efficacy can not only directly affect the patient's rehabilitation exercise behavior, but also indirectly affect the patient's rehabilitation exercise behavior through the willingness to exercise rehabilitation. The higher the patient's self-efficacy level, the stronger the rehabilitation will be, and the easier the rehabilitation exercise behavior is to carry out. It is similar to the research of Fengxia and others. It is suggested that the nursing staff should guide the patient to carry out rehabilitation exercise according to the characteristics of self-efficacy, and encourage the patient to complete the task to improve the patient's self-confidence, thus enhancing the patient's willingness to carry out rehabilitation exercise to maintain long-term rehabilitation exercise. For the more difficult movements during rehabilitation, the nurse should decompose the movements and allow the patient to carry out them step by step to enhance the patient's self-confidence.

3.4 Monthly income influences the management behavior level of middle-aged stroke patients' rehabilitation exercise

The multivariate linear regression shows that monthly income is an important predictor of rehabilitation exercise management behavior in middle-aged stroke patients. The monthly income is positively regressive with the level

of rehabilitation exercise management, that is, the higher the income, the higher the level of rehabilitation exercise management. This is consistent with related research. The high level of economic income can create better conditions for the establishment and implementation of rehabilitation exercise management behaviors, such as participating in rehabilitation exercise training and learning health education courses. This suggests that each nurse should pay more attention to the management behavior of rehabilitation exercise for patients with low monthly income and promote the establishment of their healthy behavior.

4. Conclusion

The management behavior of rehabilitation exercise in middle-aged stroke patients needs to be improved. The exercise willingness, self-efficacy and monthly income level are the factors that affect the rehabilitation exercise behavior of middle-aged stroke patients. This provides an entry point for improving the rehabilitation exercise and improving the quality of life of patients. When intervening in health education and nursing, we should pay more attention to the management behavior of rehabilitation and exercise for patients with low monthly per capita income, increase the willingness of patients to exercise and recover, and improve their self-efficacy, so as to mobilize the initiative and enthusiasm of patients for rehabilitation and exercise. It's expected to help patients better rehabilitation function exercise, promote their disease rehabilitation and improve the quality of life.

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