Original Article

Effect of Continuous Nursing Model Based on WeChat Public Health Education on Self-Management Level and Treatment Compliance of Stroke Patients

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Abstract

Background: To analyze the effect of continuous nursing model based on WeChat public health education on self-management level and treatment compliance of stroke patients.

Methods: Overall, 98 stroke patients admitted to the Second Affiliated Hospital of Chongqing Medical University, ChongQing,400000,China from Feb 2018 to Feb 2019 were enrolled as the research objects. They were randomly and equally divided into experimental group and control group. The control group received routine nursing management model while the experimental group received continuous nursing model based on WeChat public health education to compare the self-management level, treatment compliance, life quality and other indexes between the two groups.

Results: The overall self-management level in the experimental group was significantly higher than that in the control group ($P<0.05$). The life quality scores in both groups after nursing intervention increased, and the scores in the experimental group after nursing intervention were significantly higher than those in the control group ($P<0.001$). The total treatment compliance rate in the experimental group was higher than that in the control group ($P=0.001$). After nursing intervention, the readmission rate and complication rate in the experimental group were significantly lower than those in the control group ($P<0.05$).

Conclusion: The implementation of continuous nursing model based on WeChat public health education for stroke patients can significantly enhance the self-management level, improve the cognitive level on stroke related-health knowledge, improve treatment compliance of patients in the nursing process, promote their physical and mental health, improve the life quality and effectively reduce the complication rate and readmission rate.

Keywords: WeChat official account; Popularization of health education; Continuous nursing model; Stroke patients

Introduction

Cerebral stroke (stroke), also known as cerebro-vascular accident (CVA), is an acute cerebrovascular disease caused by cerebral vascular occlusion or sudden rupture of blood vessels, resulting in the failure of blood to flow into the brain and causing brain tissue damage. It usually includes ischemic stroke (cerebral infarction) and hemorrhagic stroke (intraventricular hemorrhage, intraparenchymal hemorrhage and subarachnoid hemorrhage) (1-4). With high morbidity, high recurrence rate, high disability rate and high mortality, cerebral stroke ranks the first among the causes of death in Chinese residents.

The incidence of stroke has been increasing year by year since 1993 with a younger trend. The recurrence rate of acute stroke patients in China is as high as 17.7% in the first year, and the cumulative recurrence rate reaches more than 30 % in five yr (5-7). The acute phase of stroke should be treated with medication or surgery as soon as possible, and secondary prevention should be emphasized. Clinical practice has found that stroke patients generally have varying degrees of motor dysfunction and cognitive dysfunction during rehabilitation, and many discharged patients have poor treatment compliance and prognosis (8-11).

Continuous nursing model refers to that after the patients are discharged from the hospital, the nursing staff still assist the patients to survive the acute phase, which is the continuation of inpatient nursing. For stroke patients, treatment is one aspect, and recovery after treatment is a major difficulty in fighting the disease. With the wide application of electronic devices, WeChat has become a very convenient software in people's life.

We aimed to explore the effect of continuous nursing model based on WeChat public health education on self-management level and treatment compliance of stroke patients, summarized as follows.

Materials and Methods

General information

Overall, 98 stroke patients admitted to the Second Affiliated Hospital of Chongqing Medical University, ChongQing,400000,China from Feb 2018 to Feb 2019 were enrolled as the research objects of this study. They were randomly divided into experimental group and control group, with 49 patients in each group. The patients contained 56 males and 42 females, aged 41-82 yr old with an average age of (62.46±6.44) yr old. There was no statistical difference in the general data between the two groups of patients, which could be compared for study.

Inclusion criteria

It met the clinical diagnostic criteria of stroke in *Chinese guidelines for the primary prevention of cerebrovascular diseases (2015 Edition)*; The patients' clinical medical records were complete.

This study was approved by the ethics committee of The Second Affiliated Hospital of Chongqing Medical University (Approval No 20171246), and the patients were informed of the purpose and process of this study, accepted the nursing intervention plan, and signed the informed consent.

Exclusion criteria

1) The patients had other organ and tissue lesions including brain, heart, kidney and liver; 2) The patients had systemic coagulation disorders; 3) The patients had mental and other cognitive disorders, or refused to cooperate with the experiment; 4) Lactating or pregnant women.

Methods

Patients in the control group received the routine neurology nursing model through emphasizing clinostatism nursing care to reduce intracranial pressure as much as possible and instructing the patients to keep a reasonable diet and take medicine rationally according to doctors' advice. Before discharge, the patients were advised to keep

reasonable diet, regular work and rest, and proper exercise after discharge.

The patients in the experimental group received continuous nursing model based on WeChat public health education. A nursing group was established, including four primary nurses, a head nurse, three attending physicians and a chief physician. Before nursing, all the group members received systematic training on nursing skills and were able to skillfully operate the WeChat public health education platform (12-14). In the early stage of continuous nursing, the primary nurses collected and collated the basic information of all patients, mainly involving the patient's name, age, gender, hospital admission number, address, and WeChat contact details, etc. The nurses set up a separate WeChat group to provide continuous nursing service for each patient, let the patients or their families follow the WeChat official account, and informed them the role of WeChat groups and WeChat official accounts. In the continuous nursing stage after discharge, the purpose of WeChat official account was mainly to popularize stroke-related health knowledge to patients and their families to prevent patients from recurrence, mainly involving basic health knowledge related to stroke, daily diet and common misunderstandings which were sent regularly every day. In addition, there were medication reminders to prevent patients from forgetting to take medicine on time, which was beneficial for doctors and nurses to quickly understand the clinical medical records and medication of patients. For patients who did not take medicine on time, the nurses should understand the reasons in detail and inform them the necessity of taking medicine in time (15, 16).

Complications should be prevented, and adverse symptoms such as nausea, dizziness and vomiting needed timely medical treatment. According to the patients' condition changes, the nursing group adjusted the nursing plans from time to time to accelerate the recovery of the patients in an optimal manner. At least two nursing staff provided online question-answering service every day, collecting questions from the patients and their families through the WeChat platform and providing timely answers. In addition, the nurses should also pay attention to diet, exercise and the psychological state of patients after discharge. The nurses should provide patients with reasonable dietary advice, clearly inform them of diet taboos, instruct patients to take proper aerobic exercise such as walking and jogging, and timely obtain the mental and psychological state of patients from their families. Patients with adverse negative emotions should be timely communicated, and home visits could be carried out if necessary to help patients clear psychological haze and deal with the disease with a positive attitude.

Assessment of patients' self-management level

A self-management level assessment scale made in our hospital was used to assess the self-management level of all patients at half a year after the nursing intervention, including health knowledge mastering, completion of medical orders, adherence to daily diet and exercise, etc. The patients were assessed with the evaluation criteria of three levels (excellent, good and bad) with a total score of 100 points, and the higher the score was, the better the self-management level of patients was. Self-management level = (excellent + good) / total × 100%.

Assessment of patients' life quality

The life quality of all patients was evaluated before and half a year after nursing intervention, respectively. The life quality assessment scale was adapted from the MOS 36-item short form health survey (SF-36), with a total score of 100 points. The higher the score was, the higher the life quality of the patients was.

Treatment compliance of patients

The compliance questionnaire was modified from Morisky medication compliance questionnaire, including three dimensions, drug use (follow doctor's advice completely), life-style (reasonable diet, no smoking and drinking, proper exercise and no bad habits) and regular reexamination (regular visit to the outpatient department for reexamination).

Occurrence of complications and readmission rate of patients

The patients were followed up for half a year to record the complications during the continuous nursing period. The complication rate and readmission rate were calculated for statistical analysis.

Statistical analysis

The selected data processing software for this study was SPSS20.0 (IBM Corp., Armonk, NY, USA), and GraphPad Prism 7 (GraphPad Software, San Diego, USA) was used to draw pictures of the data. The data in this study included count data and measurement data, which were tested by x^2 test, t-test and normality test. The difference was statistically significant when $P < 0.05$.

Results

The overall self-management level of the patients in the experimental group was significantly higher than that in the control group ($P<0.05$), with a statistically significant difference between the two groups, as shown in Table 1.

Table 1: Comparison of self-management level between the two groups of patients (n=49, %)

Group	Bad	Good	Excellent	Overall self-management level
Experimental group	4(8.16)	14(28.57)	31(63.27)	45(91.84)
Control group	16(32.65)	18(36.73)	15(30.61)	33(67.35)
X²				9.0462
P				0.003

In Fig. 1, the scores of physiological function, physical activity, health index, social function, mental state and emotional role limitation in the experimental group were (44.31±12.96), (45.32±13.21), (41.71±11.84), (44.17±10.98), (48.31±10.44) and (49.31±14.26) before intervention, while those were (83.71±18.43), (85.42±20.15), (84.32±16.36), (89.15±19.32), (83.71±22.16) and (83.12±20.71) after intervention. Therefore, the life scores of patients in the experimental group after intervention were significantly better than those before intervention.

In Fig. 2, the scores of physiological function, physical activity, health index, social function, mental state and emotional role limitation in the control group were (43.12±11.78), (46.09±13.48), (40.89±11.75), (44.69±10.68), (47.85±10.71) and (48.33±14.85) before intervention, while those were (64.81±14.95), (66.25±15.71), (63.71±12.83), (61.95±12.58), (65.25±14.78) and (68.38±14.82) after intervention. Therefore, the life scores of patients in the control group after intervention were significantly better than those before intervention.

In Fig. 3, the scores of physiological function, physical activity, health index, social function, mental state and emotional role limitation after intervention were (83.71±18.43), (85.42±20.15), (84.32±16.36), (89.15±19.32), (83.71±22.16) and (83.12±20.71) in the experimental group, while those were (64.81±14.95), (66.25±15.71), (63.71±12.83), (61.95±12.58), (65.25±14.78) and (68.38±14.82) in the control group. Therefore, the life quality assessment of patients in the experimental group after nursing intervention was significantly better than that in the control group, with statistically significant differences.
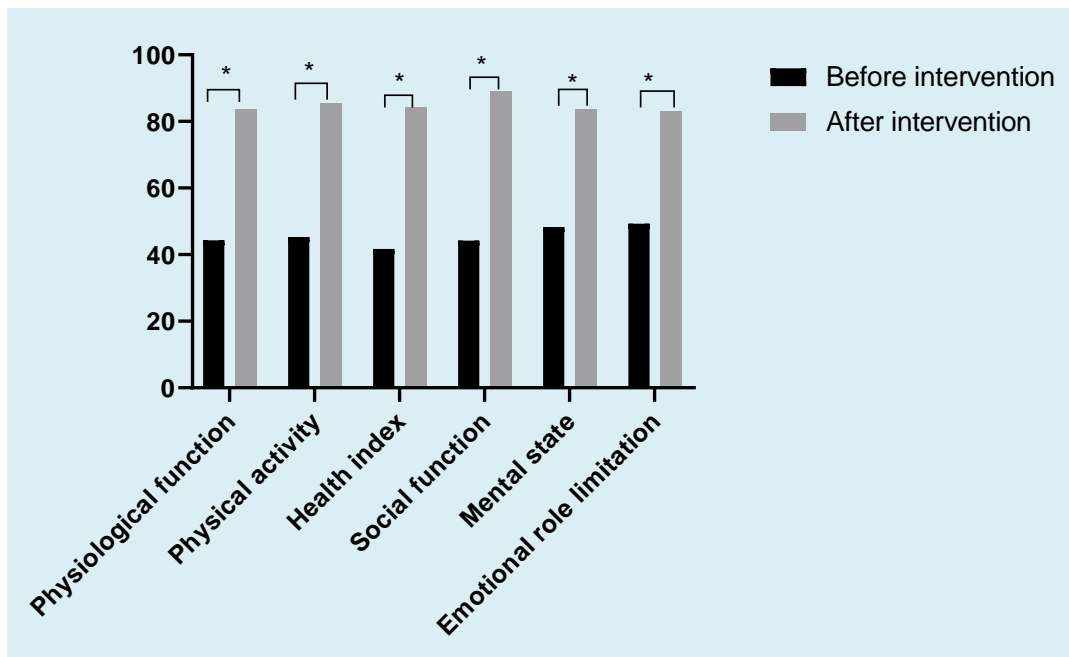
Fig. 1: Comparison of life quality scores in the experimental group before and after intervention (n=49)
* From left to right indicated significant differences in physiological function, physical activity, health index, social function, mental state and emotional role limitation scores of patients in the experimental group before and after intervention (t=12.2411, 11.6501, 14.7695, 14.1688, 10.1188, 9.4124; $P < 0.001$)
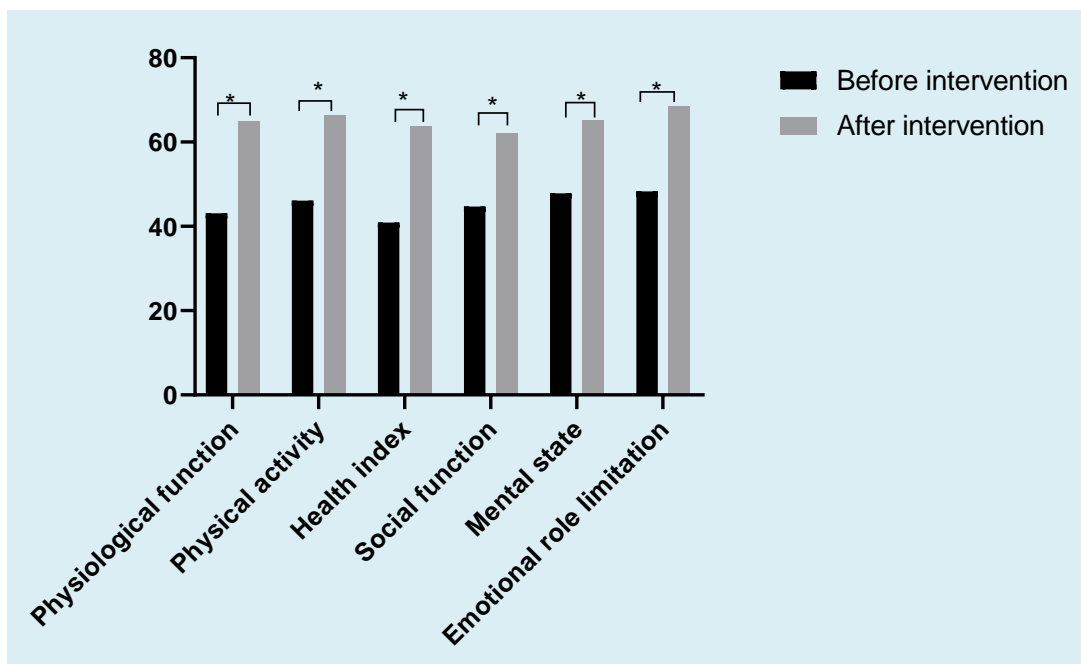

Fig. 2: Comparison of life quality scores in the control group before and after intervention (n=49)
* From left to right indicated significant differences in physiological function, physical activity, health index, social function, mental state and emotional role limitation scores of patients in the control group before and after intervention (t=7.9770, 6.8172, 9.1818, 7.3215, 6.6731, 6.6897; $P<0.001$)
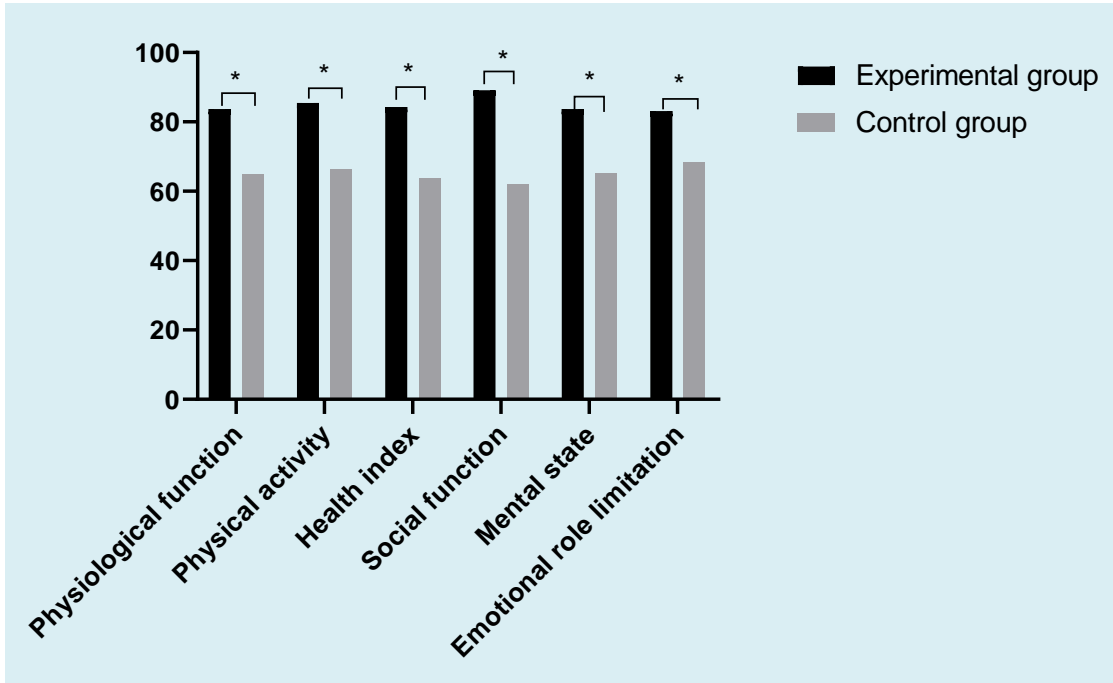
Fig. 3: Comparison of life quality scores after intervention between the two groups of patients (n=49)
* From left to right indicated significant differences in physiological function, physical activity, health index, social function, mental state and emotional role limitation scores between the two groups of patients (t=5.5750, 5.2520, 6.9391, 8.2586, 4.8512, 4.0516; P<0.001)

The total treatment compliance rate of patients in the experimental group was higher than that in the control group (P=0.001), with statistical significance, as shown in Table 2.

After nursing intervention, the readmission rate and complication rate of patients in the experimental group were significantly lower than those in the control group (P<0.05), with statistically significant differences, as shown in Table 3.

Table 2: Comparison of treatment compliance between the two groups of patients (n=49, %)

Group	Drug use	Life-style	Regular reexamination	Total treatment compliance rate
Experimental group	43(87.76)	45(91.84)	43(87.76)	43(87.76)
Control group	30(61.00)	29(51.18)	32(65.31)	29(59.18)
X^2				10.2607
P				0.001

Table 3: Comparison of complication rate and readmission rate between the two groups (n=49, %)

Group	Readmission rate	Complication rate
Experimental group	2(4.08)	6(12.24)
Control group	11(22.45)	16(32.65)
X^2	5.0178	5.8612
P	0.025	0.015

Discussion

Due to serious condition of stroke, its treatment process and prognosis are closely related to the patients' own behavior. According to relevant reports that the annual incidence of stroke in China reaches 2 million and the population of stoke has gradually become younger in recent years (17-19). Generally speaking, people with a history of bad habits such as smoking and drinking are 4-5 times more likely to have the disease than the ordinary people. With the advancement of society and improvement of medical standards, the treatment of stroke is not only to relieve the condition and maintain life, but also to improve the life quality after intervention through scientific prognostic management. As is known to all, rehabilitation treatment out of hospital is still undeveloped in the medical system of China, leading to poor rehabilitation effect of patients after discharge, while the rehabilitation after intervention is of great significance for the treatment of this disease (20-22).

This study showed that after the nursing intervention for half a year, the overall self-management level of the patients in the experimental group was significantly higher than that in the control group (*P*<0.05). The life quality scores of the patients in both groups after nursing intervention were higher than those before nursing intervention, and the scores in the experimental group after nursing intervention were significantly higher than those in the control group (*P*<0.001). The total treatment compliance rate of patients in the experimental group was higher than that in the control group (*P*=0.001). After nursing intervention, the readmission rate and complication rate of patients in the experimental group were significantly lower than those in the control group (*P*<0.05), with statistically significant differences. The combination of WeChat official accounts and WeChat groups not only effectively reminded patients to take medicine on time and visit the hospital for regular reexamination, and popularized stroke-related health knowledge to patients every day, which not only improved the self-management level of patients but also increased the treatment compliance of patients, and then enhanced the intervention effect of continuous nursing model. The results of this study were consistent with the findings of Yu Fang et al (23). In their study, in order to strengthen the theoretical knowledge and professional nursing skills of nursing staff, optimize the continuous nursing model based on WeChat, and track the return visit, eating balance, rehabilitation exercise, medical advice compliance and medication compliance of patients, the systemic training was carried out, including stroke-related health knowledge and specific implementation process of continuous nursing model based on WeChat. Their study showed that patients' enthusiasm for treatment significantly improved, with better prognosis.

This fully proves that continuous nursing model based on WeChat public health education is more conducive to the improvement of the self-management level and treatment compliance in stroke patients.

Conclusion

The implementation of continuous nursing model based on WeChat public health education for stroke patients can significantly enhance the self-management level, improve the cognitive level on stroke related-health knowledge, improve treatment compliance of patients in the nursing process, promote their physical and mental health, improve the life quality and effectively reduce the complication rate and readmission rate.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgements

Conflict of interest

The authors declare that there is no conflict of interest.

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