Effects of nursing support workers participation on negative emotions, quality of life and life satisfaction of patients with cerebral hemorrhage:A cross-sectional survey

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Research Article

Keywords:

Posted Date: May 26th, 2022

DOI: https://doi.org/10.21203/rs.3.rs-1660535/v1

Abstract

Background: Due to the high nursing pressure of patients with Cerebral hemorrhage and the general shortage of clinical nurses, nursing support workers often participate in clinical nursing work, but the influence of nursing support workers' participation on the negative emotion, quality of life and life satisfaction of patients with intracerebral hemorrhage is unknown.

Methods: A total of 107 ICH patients admitted to our hospital from January 2022 to March 2022 were enrolled, including 60 patients receiving conventional care (CG control group) and 47 patients receiving nursing support worker participation (RG research group). All patients were recorded with self-perceived Burden Scale (SPBS), Hamilton Depression Scale (HAMD), Quality of Life Scale (SF-36), Somatic Self rating Scale (SSS), Patient self-care ability assessment scale Barthel and Satisfaction with life scale (SWLS) scores.

Results: Patients with high negative emotion were more willing to participate in clinical nursing work (*P<0.05*). Nursing support workers involved in cerebral hemorrhage patients can alleviate negative emotions, improve life quality, improve nursing satisfaction (*P<0.05*).

Conclusion: The participation of nursing support workers can alleviate the negative emotions of ICH patients, enhance their self-management ability, and improve their life quality.

1. Background

Intracerebral hemorrhage (ICH) has the highest mortality of all stroke diseases, accounting for about 28% of all stroke patients[1–4]. In recent years, the incidence of intracerebral hemorrhage tends to be younger, and the incidence of the young and middle-aged people around 40 years old shows an increasing trend[3, 5]. Cerebral hemorrhage has a rapid onset and development. While causing limb dysfunction, negative emotions are also accompanied by disease and exist for a long time[1, 4, 6]. However, due to the heavy burden of clinical nursing work and shortage of staff, this dangerous complication is often overlooked. So the correct nursing and timely intervention during hospitalization is very important.

The increase in the incidence of diseases such as cerebral hemorrhage over the past decade has led to an increase in international demand for nurses, often without a corresponding increase in supply [7]. This, coupled with persistent retention problems, has led to challenges in staffing hospitals in the right numbers and mix of staff [8, 9]. The emergence of care support workers in the face of increased nursing workloads and projected labor shortages has helped alleviate some of these problems[8]. Studies have found that adding nursing support staff increases patient contact (providing more hours of care) and improves the quality of care relative to a control unit with a matched workload classification, but the results are inconclusive[10, 11]. However, the influence of the participation of nursing support personnel on the negative emotions and quality of life of patients with cerebral hemorrhage is still unknown, which is worthy of further study.

2. Methods

2.1 Aims

The study included semi-structured interviews with patients and self-reported questionnaires for caregivers and patients. Objective to study the effect of general clinical nursing and nursing support worker participation on negative emotion and quality of life of patients with cerebral hemorrhage.

2.2 Participants

We recruited patients treated with cerebral hemorrhage in the neurosurgery department of Affiliated Hospital of Southwest Medical University (grade III hospital of Sichuan Province) from January 2022 to March 2022. Prior to obtaining written consent, participants were fully informed of the purpose of the study. Ethical Message:REDACTED.

2.3 Inclusion and Exclusion Criteria

Inclusion criteria were: patients diagnosed with intracerebral hemorrhage based on medical history and imaging results, conscious, voluntary acceptance of the investigation, complete clinical data, and informed consent signed by patients and their families.

Exclusion criteria were: patients with infectious diseases or severe organ dysfunction, patients with poor compliance during treatment, patients who were transferred to hospitals or dropped out of the study, patients with physical disabilities or complicated malignant tumors.

2.4 Nursing methods

Control group: From admission to discharge, the following nursing work shall be attended by qualified nursing personnel.

1. The patient's condition was monitored, and any abnormality was reported to the doctor in time, and the attending doctor intervened. 2. Strengthen patient management, prevent falls, bedsores and other unexpected risk events. 3. Guide patients on psychological diet and living habits, and communicate with them.

Research group: Qualified nursing staff and nursing support staff participate in the following routine nursing work between admission and discharge.

1. In addition to nursing staff, nursing workers shall monitor the patient's condition together and report any abnormality to doctors in time. 2. Nursing workers participate in patient management, such as prevention of falls, bedsores, etc. 3. Nursing workers participate in the guidance of psychological diet and living habits of patients and communicate with them.

2.5. Scoring criteria

The following scales were collected within 24 hours of admission and one month after discharge.

2.5.1 Self-perceived burden scale (SPBS)

Self-perceived burden scale (SPBS) was used to evaluate the degree of self-perceived burden of college students. The scale measures the burden of patients from three dimensions: physical burden (3 items), economic burden (2 items) and mental burden (5 items), with a total of 10 items. Each item is graded on a 5-point scale. The higher the score, the greater the perceived burden.

2.5.2 Hamilton Depression Scale (HAMD)

Depression was assessed with the 24-item Hamilton Depression Rating Scale (HAMD). The scale was used to assess depressive symptoms in adults in the past week, with a score of less than 8 indicating no depression, 8 indicating mild depression, 20 indicating moderate depression and more than 35 indicating major depression [12].

2.5.3 Hamilton Anxiety Rating Scale (HAMA)

The anxiety of the patients was assessed by the Hamilton Anxiety Scale (HAMA)[13], which is a 14-item questionnaire evaluating anxiety symptoms in the past week. It has two main components, physical anxiety and psychological anxiety. An overall score greater than 29 was considered severe anxiety; Scores of 21–29 indicated significant anxiety; A score of 14–21 indicates anxiety; A score of 7 to 14 indicates possible anxiety. A score below 7 indicates no anxiety symptoms. In general, HAMA scores higher than 14 indicate clinically significant anxiety symptoms.

2.5.4 Quality of Life Scale (SF-36)

The SF-36 scale, developed by the American Medical Research Institute, is widely recognized and used in the world. The scale has 8 dimensions to evaluate health-related quality of life (HRQOL), which belong to two categories of physical health and mental health, namely physical function, physical function, physical pain, overall health, vitality, social function, emotional function and mental health.

2.5.5 Somatic Self rating Scale (SSS)

The SSS score scale was used to evaluate the physical symptoms of the patients at admission and one month after discharge. There were 20 questions in this table, with a total score of 80 points, with a total score of less than 30 being basically normal, 30–39 being mild, 40–59 being moderate, and more than 59 being severe.

2.5.6 Patient self-care ability assessment scale(Barthel)

Barthel Index rating scale was used to evaluate patients' self-care ability. There were 10 questions with a total score of 100. A score of more than 60 indicates a mild disability, but a basic self-care life; A score of 40 to 60 indicates moderate disability, requiring assistance; A score of 20 to 40 means severely disabled and in need of a lot of help. A score below 20 indicates total disability and dependency.

2.5.7 Satisfaction with life scale (SWLS)

SWLS scale was used to evaluate patients' life satisfaction. There were 5 questions, with a total score of 35, with a score greater than 30 indicating very satisfaction, 26–30 indicating satisfaction, 21–25 indicating a little satisfaction, 20 indicating neutral, 15–19 indicating a little dissatisfaction, 10–14 indicating dissatisfaction, and less than 10 indicating very dissatisfaction.

2.6 Statistical analysis

Statistical analysis of the collected data was performed using SPSS 20.0 (IBM Corp, Armonk, NY, USA) and visualization was performed using GraphPad 7. The KS test was used to analyze the distribution of measured data. Measurements that follow a normal distribution are expressed as mean ± standard deviation (mean ± standard deviation). The independent sample T-test was used to analyze inter-group comparisons and the paired T-test was used to analyze intra-group comparisons. Count data were expressed as ratios (%) and analyzed using chi-square test, expressed as $\chi 2$. $P < 0.05$ indicated that the difference was statistically significant.

2.7 Ethical considerations

Agency approval was obtained. All potential interviewees are competent adults. Researchers have no authority in hospitals. Support the principles of the Declaration of Helsinki, in particular the confidentiality and anonymity of information.

3. Results

3.1 Basic patient data

We continuous recruited 107 ICH patients admitted to our hospital from January 2022 to March 2022. They were divided into control group and research group according to whether the patients were required to join the nursing workers on the basis of routine care since admission. The basic information of these patients is shown in Table 1. Among them, 60 patients receiving routine care were assigned to control group (CG). There were 35 males and 25 females, ranging from 55 to 75 years old, with an average of 65.4 ± 10.4 years old. The remaining 47 patients receiving comprehensive care were assigned to research group (RG), including 35 males and 12females, aged 49–74 years, with a mean of 61.1 ± 12.3 years. There were no statistically significant differences between the control group and the research group in gender, age, blood glucose, BMI, education level, place of residence, operation or not, exercise habit, history of hypertension, etc ($P > 0.05$, Table 1).

Table 1
Basic clinical data [n (%)]

	level	Control.Group	*Research.Group*	*p*
n		60	47	
Gender (%)	Female	25 (41.7)	12 (25.5)	0.124
	Male	35 (58.3)	35 (74.5)	
Age (mean (SD))		65.38 (10.41)	61.15 (12.35)	0.057
Blood.sugar (mean (SD))		8.54 (8.54)	8.11 (3.87)	0.750
BMI (mean (SD))		24.88 (2.64)	25.33 (4.04)	0.484
History.of.hypertension (%)	No	20 (33.3)	13 (27.7)	0.675
	Yes	40 (66.7)	34 (72.3)	
operation (%)	No	52 (86.7)	34 (72.3)	0.108
	Yes	8 (13.3)	13 (27.7)	
Degree.of.education (%)	Above primary school	18 (30.0)	19 (40.4)	0.357
	Primary school	42 (70.0)	28 (59.6)	
Place.of.residence (%)	Rural	36 (60.0)	23 (48.9)	0.344
	Urban	24 (40.0)	24 (51.1)	
Exercise.habits (%)	NO	44 (73.3)	39 (83.0)	0.340
	Yes	16 (26.7)	8 (17.0)	

Note: SD stands for standard deviation. P value was used for comparison between the control group and the research group. Chi-square test or T test was used, $p > 0.05$ indicated no statistical significance.

3.2 Patients with high negative emotions at admission were more likely to invite nursing support workers to participate in their care

After admission, the self-perceived burden of the research group was higher than that of the control group ($P = 0.0079$). The anxiety degree of the research group was higher than that of the control group ($P = 0.0159$). Similarly, the degree of depression in the research group was higher than that in the control group ($P = 0.0016$) (Fig. 1). The results suggest that patients with intracerebral hemorrhage with high negative emotion after admission need more nursing support workers to participate in clinical nursing workers.

3.3 Nursing support workers participation is beneficial to improve the negative emotions of patients with cerebral hemorrhage, improve life quality and life satisfaction.

The one-month discharge score was subtracted from the admission score (D1-A), with a score less than 0 representing a negative effect and a score greater than 0 representing a positive effect.

3.4 The participation of nursing support workers can improve the negative emotions of patients with intracerebral hemorrhage

We found that the difference of SPBS in the study group was smaller than that in the control group (*P = 0.0049*). The differences in HAMA and HAMD were the same (*P = 0.0442* and *P = 0.0043*) (Fig. 2). These results indicate that the participation of nursing support workers in clinical nursing work is more beneficial to reduce the negative emotions of patients with cerebral hemorrhage.

3.5 The participation of nursing support workers is beneficial to improve the quality of life and life satisfaction of patients with cerebral hemorrhage

Similarly, the score after one month minus the score at admission was used to observe the improvement of the quality of life and life satisfaction of patients. We found that SF-36 in the study group was higher than that in the control group (*P = 0.0298*). The Barthel score was higher than that of the control group (*P = 0.0077*). SSS score and SWLS score were the same (*P = 0.0320* and *P = 0.0006*) (Fig. 3)

4. Discussion

Cerebral hemorrhage is the second leading cause of death and disability in the world [14, 15]. In recent decades, with the development of medical and health care, the mortality and complications of intracerebral hemorrhage have made some progress [16]. However, nursing is still facing great pressure, pressure sores, sputum aspiration, dietary guidance and psychological counseling are still in great demand[17–19]. Therefore, it is particularly important to find a new nursing mode for patients with cerebral hemorrhage. The presence of nursing support workers can alleviate this pressure to some extent, and some studies have found that increasing nursing support personnel in ward staffing can increase patient contact (provide more nursing time), thus improving the quality of care compared to control wards with matched workload classification, but the results are inconclusive[20]. Therefore, it is a positive

attempt to add nursing support personnel into the nursing of patients with cerebral hemorrhage in neurosurgery.

In this study, we divided admission patients with intracerebral hemorrhage into control group and experimental group according to whether nursing support workers were required to participate in clinical care. When patients were admitted to hospital, we used SPBA, HAMA and HAMD scales to evaluate the negative emotions of patients admitted to hospital. We found that the score of negative emotions in the experimental group was higher ($P < 0.05$), indicating that patients with higher negative emotions were more willing to join nursing support workers in clinical nursing work.

One month after the patients were discharged from hospital, we followed up the patients who participated in the experiment, and evaluated the negative emotions of the patients using SPBA, HAMA and HAMD scales. The change values of the negative emotions scale of the two groups were compared, and we found that the negative emotions improved after the participation of nursing support workers. These results suggest that the participation of nursing workers can improve the negative emotions of patients with intracerebral hemorrhage. SF-36, SSS, Barthel and SWLS scales were used to evaluate the quality of life of patients. We found that the quality of life score of the experimental group was higher than that of the control group. These results suggest that the participation of nursing support workers can improve the quality of life of patients with cerebral hemorrhage.

This study preliminarily revealed that patients with high negative emotions in hospital prefer nursing support workers to participate in clinical nursing work, and the participation of nursing support workers can alleviate the negative emotions of ICH patients, enhance their self-management ability, promote their daily living activities, and improve their life satisfaction. At present, there is a general shortage of clinical nurses, so that the clinical requirements and needs of patients with cerebral hemorrhage unable be fully met, and the emergence of nursing support workers is conducive to improve this situation[21]. Therefore, we believe that the participation of nursing support workers enables patients with cerebral hemorrhage to receive better clinical care, meet psychological and physical needs, and improve patients' negative emotions, quality of life, and life satisfaction. However, the study was subject to certain limitations. For example, nursing support workers' training level, proficiency level and other reasons make this study not comprehensive. We will include more types of care support workers in future studies to complement our results and make them more comprehensive.

5. Conclusions

In conclusion, nursing support workers' participation in nursing can relieve ICH patients' negative emotions, enhance their self-management ability, promote their activities of daily living, reduce the risk of complications, and improve sleep quality.

Declarations

Acknowledgements

NO

Authors' contributions

QL and XL: Conceptualization, Software, Writing - original draft. CX,LH and QW: data collection. MZ and HT: Methodology, Software. HH, WX and HZ: Conceptualization, Methodology, revision. JW and JZ: Supervision, Writing - review & editing. All authors issued final approval for the version to be submitted.

Funding

This research was supported by Joint project of Hejiang County and Southwest Medical University (Grant No. 2020-HJXNYD-6), and Science and Technology Projects of Sichuan Province (Grant No. 2018JY0403).

Availability of data and materials

The data is not publicly available but could be requested from corresponding author after ethical approval to take part of the dataset.

Declarations

Ethical approval and consent to participate

This study was approved by the Research Ethics Committee at Southwest Medical University of China (NO.KY2022131). All methods were conducted in accordance with the code of ethics outlined in the Declaration of Helsinki. Participants received written information about the purpose of the study, patients and their families signed informed consents, participation was voluntary and participants had the right to withdraw at any time.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Figures

Figure 1

At admission, RG group had higher negative mood score than CG group. A.The SPBS score of RG group was higher than that of CG group, B.HAMA score in RG group was higher than that in CG group , C.The HAMD score of RG group was higher than that of CG group.* P<0.05,** P<0.01,*** P<0.001

Figure 2

One month after discharge, RG group had better negative mood improvement than CG group. A.SPBS score improvement one month after discharge, the lower the score, the better the improvementB-C: HAMA and HAMD scores of the two groups were compared, and the lower the score, the better the improvement degree.* P<0.05, ** P<0.01, *** P<0.001)

Figure 3

One month after discharge, the improvement of quality of life and life satisfaction in RG group was better than that in CG group. A.Comparison of SF-36 score changes one month after discharge, B.Barthel scores were compared between the two groups one month after discharge, C.Comparison of SSS scores between the two groups one month after discharge, D.SWLS scores of the two groups were compared one month after discharge.* P<0.05,** P<0.01,*** P<0.001

Supplementary Files

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- Rawdata.11.xlsx