

Original Article

The effect of Omaha System-based continuous nursing care on the psychological status, self-esteem, and quality of life in epileptic children

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Received November 4, 2020; Accepted January 7, 2021; Epub April 15, 2021; Published April 30, 2021

Abstract: Objectives: This study explored and analyzed the effect of Omaha System-based continual nursing care on the psychological status, self-esteem and quality of life in epileptic children. Methods: 127 epileptic children hospitalized from March 2018 to September 2019 were recruited as the study cohort and stochastically divided into an observation group (n=65) and a control group (n=62). The control group children were given regular out-of-hospital guidance after discharge, and the observation-group were treated with Omaha System-based continuous nursing intervention in addition to the routine out-of-hospital guidance the control group underwent. The two groups' psychological statuses, self-esteem, sense of defect, and quality of life were compared both pre- and post-intervention. Results: The SAS and SDS scores in the two groups after the intervention were significantly lower than their pre-intervention scores ($P<0.05$), and the scores in the observation group after the intervention were evidently lower than the scores in the control group ($P<0.05$). The two groups' post-intervention SES and FIS scores were significantly higher than their pre-intervention scores ($P<0.05$), and the scores in the observation group were notably lower than the scores in the control group ($P<0.05$). The post-intervention quality of life scores in the two groups were dramatically higher than the pre-intervention scores ($P<0.05$), and the quality of life scores in the observation group were notably higher than the quality of life scores in the control group ($P<0.05$). Conclusion: The Omaha System-based continual nursing care can efficaciously elevate the psychological status of children with epilepsy, improve their self-esteem, reduce their sense of self-defect, and contribute to the improvement of their quality of life, so it is worthy of clinical promotion and application.

Keywords: Omaha system, continual care, epilepsy, psychological status, self-esteem, quality of life

Introduction

Epilepsy is a nervous system disease that frequently occurs in children. If a child's condition is not controlled, it can lead to worsening, incurable, and recurring attacks. Therefore, children must strictly follow their physicians' advice regarding long-term medication. However, due to the long treatment duration, the treatment compliance of most children is poor, which results in epileptogenic relapse [1, 2]. The lack of standardized intervention during treatment is the main cause of the poor treatment compliance of epileptic children. Studies have indicat-

ed that 70% to 80% of children with epilepsy have privately reduced or stopped taking their medicine due to the lack of standardized interventions [3, 4]. Scholars have reported that certain nursing interventions given to children with epilepsy can effectively improve their treatment compliance and intensify their treatment efficacy, thereby improving their quality of life [5]. Continuous nursing care is the extension of inpatient care during a patient's hospitalization. Studies indicate that continuous care can extend qualified nursing services from hospitals to families, so it has a positive significance at improving patients' disease status and reduc-

ing their rehospitalization rates [6, 7]. As a crucial theoretical system in advanced nursing practice, the Omaha System includes three parts, namely, categorization of issues, intervention, and nursing assessment, and it has received extensive attention in the fields of nursing research and education [8]. This study explored and analyzed the impact of Omaha System-based continual nursing intervention on the psychological status, self-esteem and quality of life of epileptic children. The report is as follows.

Materials and methods

Clinical data

127 epileptic children hospitalized from March 2018 to September 2019 were recruited as the study cohort and stochastically divided into the observation group (n=65) and the control group (n=62). This study was approved by the ethics committee of our hospital.

Inclusion and exclusion criteria

Inclusion criteria: (1) The children enrolled were all clinically diagnosed with epilepsy; (2) The children were between 3 and 12 years old; (3) The caregivers were familiar with the children's basic situations, and the children had no major trauma or any serious organic or mental diseases in the previous 2 years; (4) The children included were receiving anti-epileptic treatment for the first time; and (5) Informed consent forms were signed voluntarily by the children's families.

Exclusion criteria: (1) Children with secondary epilepsy after a brain injury, tumor, or surgery; (2) Children with central coordination disturbances or inborn errors of metabolism; and (3) Children with an insufficiency of their vital organs.

Methods

The control-group underwent conventional out-of-hospital guidance after discharge with specific measures as follows: the researchers formed the follow-up files when the children were discharged, conducted telephone follow-ups once a week to record the medication guidance, and promptly replied to the problems the children encountered in their rehabilitation pro-

cesses. Monthly visits were conducted to observe the children's medication statuses and progress, and to deal with medication-related problems in a timely manner.

The observation group children were treated with Omaha System-based continual nursing intervention in addition to the treatment the control group underwent. The specific procedures were as follows: (1) Categorization of the issues. The nursing team, composed of experienced clinicians and nursing staff, was trained in theoretical and nursing knowledge and in the related operating skills of the Omaha System. After the training, the team members completed an assessment and then entered into the implementation phase. Electronic files were established before the children were discharged from the hospital, the corresponding post-discharge plans according to the children's own conditions were formulated, and the families were shown how to make full use of the community health resources. The sub-systems of the Omaha System categorization contained a total of 42 problems that affect health, such as environmental, psychosocial, social, physiological, and health-related behaviors. The subsystem of disposal intervention provided four types of intervention programs, including health education, guidance, and consultation (Class I), processing and operating procedures (Class II), case management (Class III), and supervision/evaluation (IV). (2) Nursing intervention. The nursing team communicated with the children's family members every week for 15-45 min by phone. A WeChat group was established to reply to the families' questions at regular intervals every day, and epilepsy-related knowledge was shared daily. Home visits were conducted once a month; the children were asked to come to the hospital for psychological and nutritional status assessments every three months, and their intervention strategies were provided by professional psychologists and nutritionists. The medication, psychological conditions, and state of disease were explained to the children. In addition, the nursing staff would guide the children to take their medicine, instructed their families to strictly follow the physician's advice, and informed them of any possible adverse reactions and corresponding countermeasures during the treatment. The family members were also informed to pay attention to the interventions at home in order to prevent acci-

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Table 1. A comparison of the clinical data between the two groups

Group	Case	Gender		Age (Years, $\bar{x} \pm s$)	Course of disease (d, $\bar{x} \pm s$)	Type		
		Male	Female			Generalized seizures	Partial seizures	Status epilepticus
Observation group	65	47	18	7.98±1.56	8.91±2.11	17	38	10
Control group	62	43	19	8.15±1.73	8.64±2.06	13	40	9
t/ χ^2	-	0.134		0.582	0.729	0.420		
P	-	0.714		0.562	0.467	0.675		

dents. When a seizure occurred, gauze can be put into a child's mouth to avoid biting the tongue. However, the child's mouth should not be forced open if his teeth are tightly closed. The vomit in a child's mouth should be cleaned up promptly to avoid aspiration. If the child suffered from irritability, anxiety, or other adverse feelings, the family members were advised to comfort the child patiently, such as playing songs or telling stories to divert the child's attention. Lectures on epilepsy were organized once a month for the children's families. After each lecture, activities such as singing and dancing were organized for the children. (3) Nursing assessment. The children's behavior, cognition, and disease conditions were regularly assessed to evaluate the caring effectiveness, and any deficiencies found during the nursing process were promptly addressed. The intervention lasted for 3 months.

Index observation

(1) Taking the time of discharge as the pre-intervention time and three months post-discharge as the post-intervention time, the psychological statuses of the two groups of children were assessed using the self-rating anxiety scale (SAS) and the self-rating depression scale (SDS) [9] 20 items in each of the two scales were assessed on a 1-4 point scale, and the standard score was calculated by multiplying the total score $\times 1.25$. Based on the domestic norm scoring standard, a SAS ≤ 49 was classified as non-anxiety, a SAS score 50-59 was classified as mild anxiety, 60-69 points was classified as moderate anxiety, and a score ≥ 70 was classified as severe anxiety. An SDS score ≤ 52 indicated no depression, 53-62 points indicated mild depression, 63-72 points indicated moderate depression, and ≥ 73 points indicated severe depression.

(2) The self-esteem scale (SES) and the Feeling of Inadequacy Scale (FIS) were administered at both pre- and post-intervention [10, 11]. The

self-esteem was evaluated using a 1-4 points rating method, with a higher total score indicating that the children had a higher self-esteem. The FIS scale contained a total of 36 items in five dimensions: self-esteem, learning ability, appearance, physical ability, and social performance. A 0-6 scoring scale was used, and a higher score indicated a lower feeling of inadequacy.

(3) The assessment was conducted using *The Quality of life Scale for Children with Epilepsy* compiled by Professor Mark Sabaz from Australia [12] both at pre- and post-intervention. The scale contained five dimensions including emotional state, physical status, behavioral problems, cognitive function, and social function. Each dimension had a total score of 100, and a higher score represented a better quality of life.

Statistical analysis

The data processing and analysis were conducted using SPSS 25.0. The measurement data were expressed as $\bar{x} \pm s$ and compared using *t*-tests. The enumeration data were expressed as percentages and compared using χ^2 tests. $P < 0.05$ was considered a statistically significant difference.

Results

Comparison of the clinical data

The clinical data of the two groups of children showed no significant differences ($P > 0.05$), as shown in **Table 1**.

The comparison of the two groups of children's psychological statuses before and after the intervention

The SAS and SDS scores in the two groups at post-intervention had decreased dramatically compared to their pre-intervention scores ($P < 0.05$), and the scores in the observation group were significantly lower than they were in

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Table 2. A comparison of the psychological statuses in the two groups before and after the intervention (points, $\bar{x} \pm s$)

Group	Time	SAS	SDS
Observation group (n=65)	Before intervention	53.27±7.28	56.03±6.32
	After intervention	45.02±4.31*	47.21±4.20*
	t	7.862	9.371
	P	0.000	0.000
Control group (n=62)	Before intervention	53.97±6.21	56.74±6.91
	After intervention	48.75±3.02	49.07±3.79
	t	5.952	7.663
	P	0.000	0.000

Note: compared with the control group in the same period, * $P < 0.05$.

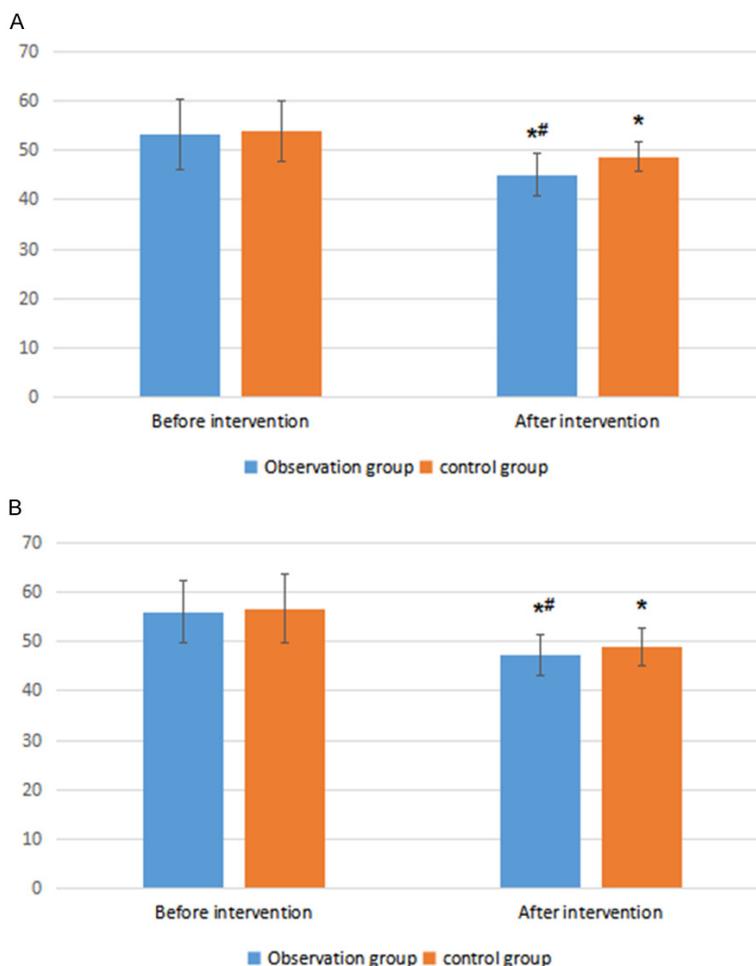


Figure 1. Comparison of the SAS and SDS scores between the two groups before and after intervention. Note: compared with the same group before the treatment, * $P < 0.05$; compared with the control group at the same period, # $P < 0.05$. A: SAS scores; B: SDS scores.

the control group ($P < 0.05$), as shown in **Table 2** and **Figure 1**.

group after the intervention ($P < 0.05$), as shown in **Table 5**.

A comparison of the self-esteem in the two groups of children before and after the intervention

SES score in the two groups of children after the intervention increased significantly compared to their pre-intervention levels ($P < 0.05$), and the scores in the observation group were significantly lower than they were in the control group after the intervention ($P < 0.05$), as illustrated in **Table 3** and **Figure 2A**.

A comparison of the feeling of inadequacy in the two groups before and after the intervention

The FIS scores in the two groups of children after the intervention increased dramatically compared to their pre-intervention levels ($P < 0.05$), and the scores in the observation group were critically lower than they were in the control group after the intervention ($P < 0.05$), as shown in **Table 4** and **Figure 2B**.

A comparison of the quality of life in the two groups of children before and after the intervention

The scores of each dimension of quality of life in the two groups of children after the intervention were notably increased compared to their pre-intervention levels ($P < 0.05$), and the quality of life scores in the observation group were critically higher than they were in the control

Table 3. A comparison of the two groups' SES scores before and after the intervention (points, $\bar{x} \pm s$)

Group	Case	Before intervention	After intervention	t	P
Observation group	65	19.07±3.74	27.85±4.73	11.739	0.000
Control group	62	18.75±4.02	24.52±4.17	7.844	0.000
t	-	0.465	4.201	-	-
P	-	0.643	0.000	-	-

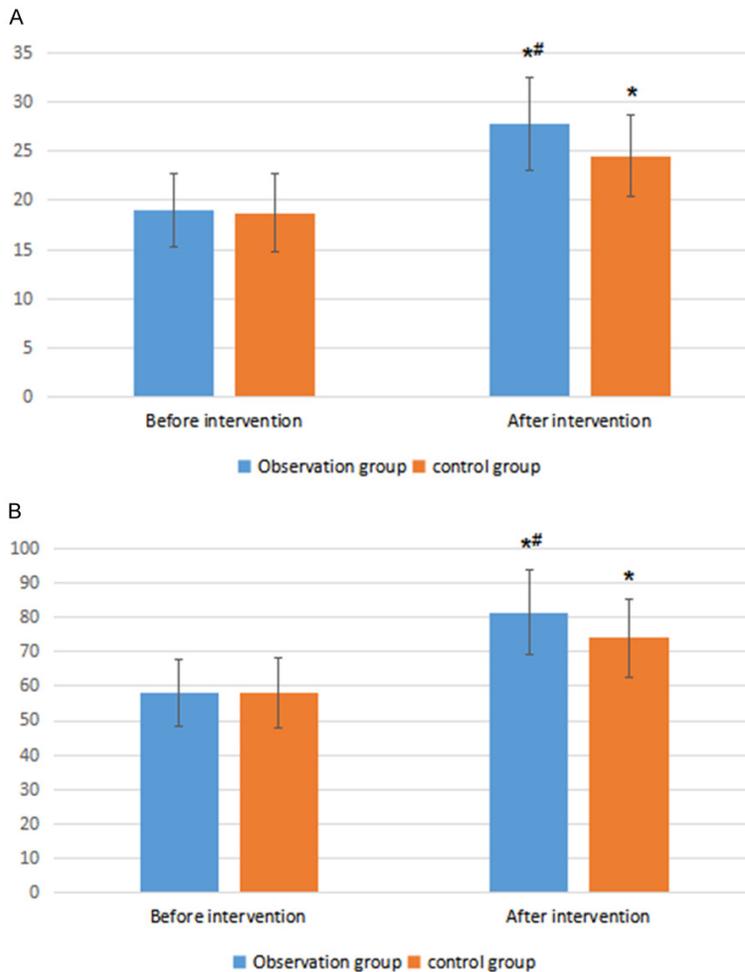


Figure 2. Comparison of the SES scores and FIS scores between the two groups before and after the intervention. Note: compared with the same group before the treatment, $*P < 0.05$; compared with the control group at the same period, $\#P < 0.05$. A: SES scores; B: FIS scores.

Discussion

Epilepsy is a common childhood neurological disease. It is a recurrent transient neurological dysfunction caused by the abnormal discharge of neurons in the brain [13]. According to the different locations of the abnormal radio-

waves, children may have dysfunctions in the corresponding areas of sensation, movement, consciousness, behavior, and autonomic nerves alone or in combination. Epilepsy is characterized by a long course and repeated attacks, which brings a heavy burden to children's families and society [14, 15]. Children with epilepsy need to rely on long-term medicine to control their clinical symptoms and prevent the worsening of the disease. However, as children need to take long-term medication outside the hospital during the treatment process, it is often difficult for them to regularly and strictly take the medicine in line with the physician's prescription, which is detrimental to the control of the disease. What's worse, a sudden drug withdrawal or a reduction can lead to a decrease in the drug's plasma concentrations, causing epileptic seizures, and even causing them to further develop severe refractory epilepsy [16, 17]. Therefore, providing efficacious nursing care and improving children's compliance in the process of medication treatment can improve the clinical effect of the epilepsy treatment, control the occurrence, thus promoting the children's prognosis [18].

Originating from community nursing practices abroad, the Omaha System is based on a patient-centered holistic nursing model. Domestic scholars

hold that the nursing guidance under the Omaha System can effectively provide nursing staff with a comprehensive evaluation of patients, and accurately assess their health problems, so it is a targeted and effective nursing tool [19, 20]. The Omaha System can provide a comprehensive nursing intervention, and

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Table 4. A comparison of the two groups' FIS scores before and after the intervention (points, $\bar{x} \pm s$)

Group	Case	Before intervention	After intervention	t	P
Observation group	65	57.94±9.71	81.52±12.38	12.083	0.000
Control group	62	58.17±10.22	74.02±11.46	8.128	0.000
t	-	0.129	3.538	-	-
P	-	0.898	0.001	-	-

Table 5. A comparison of the two groups' quality of life before and after the intervention (points, $\bar{x} \pm s$)

Group	Case	Emotional state	Physical condition	Behavioral problems	Cognitive function	Social function
Observation group (n=65)	Before intervention	61.78±5.92	48.20±7.38	55.68±7.93	59.67±5.26	64.27±6.49
	After intervention	76.38±5.11*	68.74±5.97*	66.37±6.91*	74.21±6.89*	76.38±7.36*
	t	15.052	17.445	8.194	13.523	9.950
	P	0.000	0.000	0.000	0.000	0.000
Control group (n=62)	Before intervention	62.07±6.12	47.96±6.30	56.02±7.42	60.73±5.28	65.08±7.22
	After intervention	71.25±5.79	60.21±6.42	61.30±8.20	68.95±6.36	70.82±5.97
	t	8.580	10.724	3.759	7.830	4.824
	P	0.000	0.000	0.000	0.000	0.000

Note: compared with the control group in the same period, *P<0.05.

can ensure that the nursing staff develops personalized nursing care based on the patients' problems, thus providing professional nursing services for patients [21, 22]. This study analyzed and discussed the effect of the Omaha System-based continuous nursing care on the psychological status, self-esteem and quality of life of epileptic children.

The results of this study indicate that the SAS and SDS scores in the two groups at post-intervention decreased dramatically compared to their pre-intervention levels, and the scores in the observation group were significantly lower than they were in the control group. The FIS scores of the two groups of children after the intervention increased dramatically compared to their pre-intervention levels, and the score in the observation group were critically lower than they were in the control group after the intervention. These results, which are similar to those in related research reports by other scholars [23, 24], indicate that the application of Omaha System-based continual nursing intervention can effectively improve the poor psychological statuses of children with epilepsy, increase their self-esteem, and reduce their sense of self-deficiency. The Omaha System can directly and completely reflect the dynamic process of children's health problems,

describe most of their clinical problems, symptoms and signs, and can provide intervention measures for children with epilepsy. The parents can effectively intervene in most of the nursing problems of the children that occur during the period outside the hospital, enable them to follow the rules of out-of-hospital nursing care, and promote their confidence in disease control [25, 26]. In addition to improving the family care for the children, the Omaha System is beneficial to disease control. Good disease control and a good atmosphere at home care can promote the children's confidence in conquering diseases and form a benign treatment environment that is conducive to improving the children's self-esteem, reducing their sense of self-deficiency, and better integrating them into their schools and life [27]. In addition, the scores for each dimension of quality of life in the two groups of children after the intervention increased notably compared to their pre-intervention levels, and the quality of life scores in the observation group were critically higher than they were in the control group after the intervention, indicating that the effective intervention measures can critically improve the quality of life in epileptic children. It is considered that effective out-of-hospital care promotes the improvement of children's medication compliance, which in turn

contribute to disease control, reduce epileptic seizures, and improve their confidence in overcoming the disease.

However, due to the limited time of the study and the small sample size, it is necessary to further expand the sample size and prolong the observation time to better guide clinical nursing care and improve the prognosis of children.

In summary, Omaha System-based continual nursing care can effectively improve the psychological status of children with epilepsy, improve their self-esteem, reduce their self-deficiency, and help improve their quality of life, so it is worthy of clinical application.

Disclosure of conflict of interest

None.

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