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Original Article

A systematic study on the application of Orem selfself-care theory-supporting education system in care of patients with schizophrenia

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Abstract: Objective: To investigate the feasibility and effectiveness of Orem self-care theory-supporting education system for patients with schizophrenia. Methods: 98 patients with schizophrenia treated in our hospital were divided into the study group and the control group (n=49 in each) by the table of random numbers. The patients in the control group received routine care whilst those in the study group received nursing intervention of Orem self-care theory-supporting education system in addition to routine care as in the control group. Scores of Schizophrenia Quality of Life Scale (SQLS), self-esteem scale (SES), general well-being scale (GWB) and compliance with medication before and after the intervention were compared between the two groups. Furthermore, 12-month follow-up visits were performed to find the scores of the Social Disability Screening Scale (SDSS) 3 months, 6 months and 12 months after treatment. Results: Little differences were found between the two groups in terms of scores for SQLS, SES, GWB or compliance with medication before the intervention. 3 months after that, however, any of these scores ($P < 0.001$, $P < 0.001$, $P < 0.001$) and the compliance with medication ($P < 0.001$, $P=0.002$, $P=0.101$) in the study group were superior to those in the control group. Besides, at 3 months, 6 months and 12 months after treatment, respectively, the SDSS scores in the study group were lower compared with those in the control group ($P < 0.001$, $P < 0.001$, $P < 0.001$). Conclusion: The application of Orem self-care theory-supporting education system in care for patients with schizophrenia may significantly improve the patients' compliance with medication, quality of life and general well-being, and functioning of social roles.

Keywords: Schizophrenia, Orem self-care theory, supporting education system, systematic research

Introduction

Schizophrenia has not been certified in pathogenesis but is considered to be the "holergasia most difficult to describe or completely defined". It is common in adolescents and early adulthood with manifestations including mainly discordance of mental activities with the reality accompanied by disorders in thinking, emotion, behavior, and sensation, etc. repeatedly occurred and hard to cure [1-3]. Clinically these symptoms of schizophrenia are split into positive and negative symptoms and cognitive dysfunction. Positive symptoms mainly refer to that patients are prone to hallucinations, delusions, unrestrained thinking, etc., negative symptoms refer to that patients are prone to depression, low, hypobulia, apathy, etc., while cognitive dysfunction means that patients are prone to disorders of memory, emotional attitude, instruction execution or other symptoms [4-6]. In recent years, research data has shown increasing prevalence of schizophrenia year by year due to the increasing population and aging of it. Studies indicated that schizophrenia may affect one's lifetime and be seriously disabling, which makes it a global public health event [7, 8].

Although the pathogenesis and etiology of schizophrenia are still not clarified, studies have pointed out some factors such as genetics, environment, and neurodevelopmental disorders showing impact on the occurrence of the disease and there are many ways of treatment including drug therapy, psychotherapy,

and modified electroconvulsive therapy, of which drug therapy serves as the core. Clinical practice demonstrated that the key to cure the patients with schizophrenia lies in improving cognitive function, living ability, and social ability in order to help them return to normal social roles as soon as possible [9, 10]. Originally proposed and established by Orem, a famous nursing scientist in the United States who believes that self-care should be purposeful activities taken by individuals to meet their own physical and psychological needs, Orem self-care theory aims to clarify what self-care is and what self-care needs exist in individuals. Supportive education system derived from the Orem self-care theory is to help patients in improving self-care ability so as to meet their needs in daily life or work [11]. Compared with traditional nursing, Orem self-care theory-supporting education system is more likely to stimulate the self-care potential of patients, laying a good foundation for the subsequent rehabilitation. This study is to investigate the feasibility of application of Orem self-care theory-supporting education system in care for patients with schizophrenia in hopes of providing new ideas for the treatment of patients with schizophrenia.

Material and methods

Material

98 patients with schizophrenia admitted to Jining Psychiatric Hospital from January 2018 to January 2019 were divided into the study group and the control group (n=49 in each group) by the table of random numbers.

Inclusion criteria: The subjects (1) were clinically diagnosed with schizophrenia and showed related symptoms [12]; (2) submitted complete medical records; (3) aged between 18 and 60 years old; (4) were approved by the ethics committee of the hospital; and (5) submitted the signed informed consent.

Exclusion criteria: Patient who was (1) < 18 years old; or (2) combined with mental retardation or dementia; (3) combined with any other organic diseases of the brain or the body; (4) dependent on alcohol or drugs; (5) in allergic condition; (6) combined with systemic chronic infection or immune system diseases; (7) without family members in accompany; (8) with severe liver and kidney dysfunction; (9) with malignant tumors; (10) death during the investigation; (11) or family members and the subject requested to withdraw midway.

Methods

Patients in the control group were given routine care including health education, psychological intervention, safe nursing, etc. On the basis of routine care, patients in the study group were given nursing of the Orem self-care theory-supporting education system as follows: (1) Evaluation of self-care ability, social ability, and psychological status, etc. was made by the nursing staff to determine each patient's conditions and awareness of disease for the purpose of successful interventions; (2) Nursing procedures of the Orem self-care theory-supporting education system were prepared and integrated with the results of evaluation and the physician's suggestions so as to clear the specific intervention measures, purposes and keys to the intervention; (3) Compensated nursing: (i) Fully compensated nursing interventions, which take measures according to the specific conditions of the patient, such as restrictive treatment, enhanced basic nursing or daily patrol, paying close attention to medication, and psychological counseling especially for depression patients, to prevent patients from accidents and ensure the smooth going of subsequent activities; (ii) Partial compensated nursing interventions, which aim to develop the patients with an understanding of self-care theory and help them to participate in nursing actively through health education of self-care theory and abreaction followed by living skill training, e.g. guidance, demonstration, give a lecture or contact with patients to teach them how to wash face and rinse mouth, make the bed, or take a bath, etc., while encouraging them to actively participate in the process of nursing including cleaning or laboring in rehabilitation workshop. In partial compensated nursing, the nursing staff paid attention to the use of encouragement to make such communications with patients that their confidence in treatment was established; (4) Supporting education was carried out considering the fact that schizophrenia might be migrated or difficult to be cured so that long-term nursing interventions are quite necessary. The patients and their families realized the important role of the fami-

Table 1. General data of the two groups of patients ($\bar{x}$ ± sd)/[n (%)]

Items		Study (n=49)	Control (n=49)	t/X^2	*P*
Sex	M	26	27	0.041	0.839
	F	23	22		
Average age (yr)		41.29±3.22	41.43±3.10	0.219	0.812
Educated	Illiteracy	5	6	3.950	0.139
	Primary school	12	11		
	Junior high school	20	19		
	Senior high school or above	12	13		
Marital status	Married	40	39	0.065	0.798
	Unmarried	9	10		
Average course of disease (yr)		2.01±1.27	1.98±1.41	0.111	0.912

ly in rehabilitation and participate in out-of-hospital care. Supporting education expressed the importance of medication, offered health education by a variety of ways, e.g. WeChat propelling, telephone follow-up, brochure, etc., encouraged patients to take more life skills training and improve self-awareness, and finally in the hospital carried out regularly fellowship activities to develop confidence in treatment.

Outcome measures

SQLS scores in the two groups of patients before and after intervention: Quality of life of the two groups of patients before treatment and after 3 months of treatment was assessed by SQLS which is designed for the assessment of quality of life of patients with schizophrenia in terms of 30 items in total, which can be divided into three dimensions: Psycho-Social, motivation/energy, and symptoms/side effects. The high the score is, the better the quality of life could be [13].

SES and GWB scores in the two groups of patients before and after intervention: SES and GWB were used to assess the self-esteem and general well-being of the two groups of patients before and 3 months after the treatment. SES is currently the most used self-esteem measuring tool in the psychological community in China. It sets 5 forward and reverse scores, separately. By summing each score of 1 to 4, one gets a total of 10-40. The high the score, the better the self-esteem [14]. GWB is used to assess self-worth and self-acceptance. With 33 items, the individual scores summed to mirror the general well-being. A higher total score indicates superior subjective well-being.

Compliance with medication of the two groups of patients before and after intervention: Morisky scale was used to evaluate the compliance with medication of patients in the two groups before and after treatment. It offers 8 items, with a total score of 8. A score < 6 means poor compliance, 6-8 means moderate compliance, and 8 suggests good compliance [15].

SDSS scores of the two groups of patients after intervention: At the 3rd, 6th and 12th month of treatment, SDSS was used for the evaluation of the two groups of patients in terms of social roles by 10 items of which each may be scored 0-2. 0 indicates mild or normal, 1 indicates the presence of partial functional defects, and a score of 2 suggests severe functional deficits.

Statistics

Using SPSS 22.0 statistical software, measurement data were expressed in [n (%)] and differences between groups were subjected to chi-square test. Enumeration data were expressed in mean ± standard deviation ($\bar{x}$ ± sd) and differences between groups were subjected to t test. Intra-group comparisons were analyzed by ANVOA, F test. P < 0.05 was considered statistically significant.

Results

General data of the two groups of patients

Little differences were found between the two groups with respect to gender, age, education, marital status, or course of disease (P=0.893, 0.812, 0.139, 0.798, 0.912) (**Table 1**).

Table 2. SQLS scores of the two groups of patients before and after intervention ($\bar{x}$ ± sd)

Group	n	Psycho-Social		Motivation/energy		Symptoms/side effects	
		Before intervention	3 months of intervention	Before intervention	3 months of intervention	Before intervention	3 months of intervention
Study	49	23.28±4.33	41.28±4.33	36.38±3.44	45.18±5.41	15.18±3.44	23.98±3.28
Control	49	22.98±4.56	36.19±3.49	36.71±3.02	40.28±4.49	15.21±3.41	20.29±3.01
t	-	0.739	6.407	0.505	4.879	0.043	5.802
P	-	0.334	< 0.001	0.121	< 0.001	0.541	< 0.001

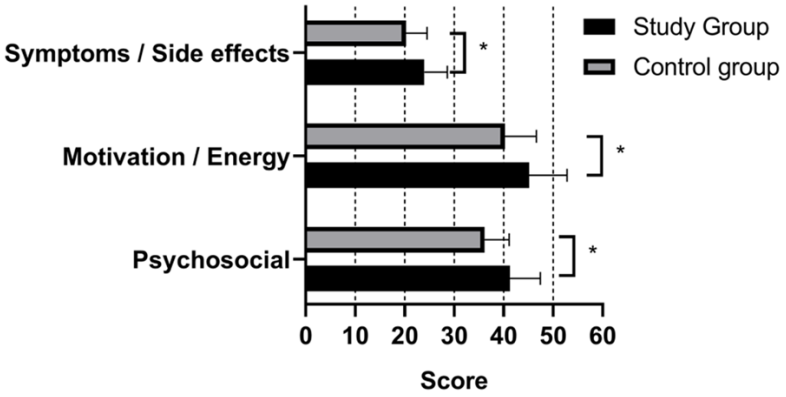

Figure 1. Comparison of SQLS scores between the two groups after 3 months of intervention. It showed that the scores of psychosocial, motivation/energy, and symptoms/side effects in the study group were significantly higher than those in the control group after intervention, with significant differences (P < 0.05). * indicated statistical significance in differences between the two groups with respect to the specific indicator.

SQLS scores of the two groups before and after intervention

Although there was little difference in SQLS scores between the two groups before treatment (P=0.334, 0.121, 0.541), SQLS scores 3 months after treatment in the two groups increased with significant difference, and scores in the study group were higher than those in the control group (P < 0.001, P < 0.001, P < 0.001) (**Table 2**; **Figure 1**).

SES & GWB scores of the two groups before and after intervention

Little differences were reported in SES or GWB scores between the two groups before treatment (P=0.314, 0.172). However, both increased in the two groups 3 months after treatment with significant difference, and scores in the study group were higher than those in the control group (P < 0.001, P < 0.001) (**Table 3**; **Figure 2**).

Compliance with medication of the two groups of patients before and after intervention

Compared with the little differences before treatment (P=0.400, 0.043, 0.209), after treatment for 3 months the proportion of good compliance in study group (69.39%, or 34/49) was superior to that in control group (22.45%, or 11/49), and the difference was significant (P < 0.001) (**Table 4**; **Figure 3**).

SDSS scores of the two groups of patients after intervention

In follow-up, it was found that there was no significant difference in SDSS scores between the two groups before intervention (P=0.341). At 3 months, 6 months and 12 months of intervention, the SDSS scores of the study group were significantly lower than those of the control group (P < 0.001, P < 0.001, P < 0.001) (**Table 5**; **Figure 4**).

Discussion

Despite the unknown etiology, schizophrenia is common in young adults with manifestations of perception, thinking, emotional and behavioral disorders that are characterized by uncoordinated mental activities with the environment. Patients usually show clear consciousness and intelligence. The conditions develop and migrate and become worse if reappear. Clinical studies pointed out patients with schizophrenia meet the epidemiological characteristics of "three highs and three lows", i.e. low detection

Table 3. SES and GWB scores of the two groups of patients before and after intervention ($\bar{x} \pm sd$)

Group	n	SES		GWB	
		Before intervention	3 months of intervention	Before intervention	3 months of intervention
Study	49	19.28±3.22	28.38±5.41	67.82±4.33	83.18±3.22
Control	49	19.31±3.41	23.18±4.98	68.01±3.87	76.18±3.11
t	-	0.045	4.951	0.241	10.946
P	-	0.314	< 0.001	0.172	< 0.001

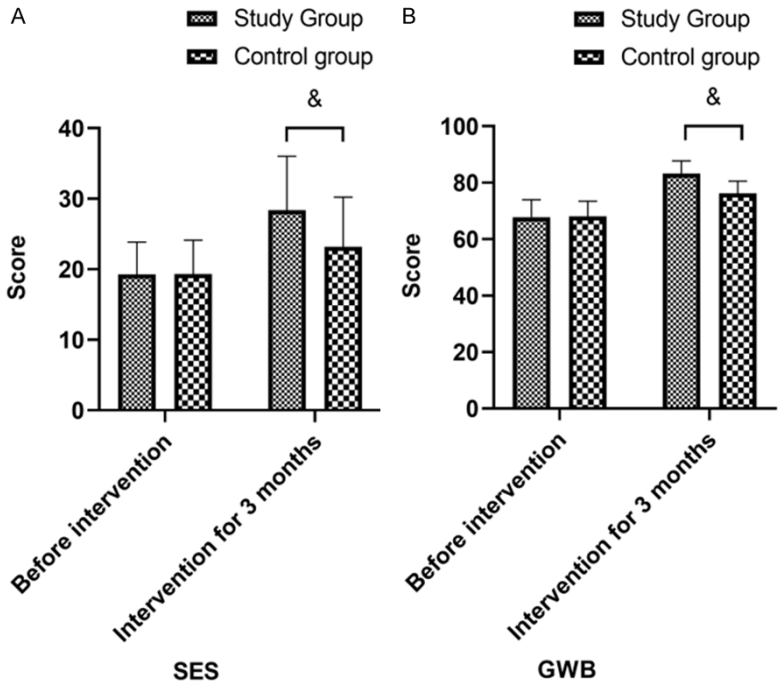

Figure 2. Comparison of SES and GWB scores between the two groups before and after intervention. Despite the little differences in SES scores between the two groups before intervention (P > 0.05), SES scores in the study group were significantly higher than those in the control group after intervention (P < 0.05) (A). The same was true for GWB scores (P < 0.05) (B). & indicated statistical significance in differences between the two groups with respect to the specific indicator.

rate, low visit rate, low compliance, high recurrence, high disability rate and high burden of disease. Epidemiological studies have shown increasing number of patients with schizophrenia in recent years worldwide from 13 million in 1990 to 20 million by 2016. The global point prevalence of schizophrenia was about 0.28%, while the weighted lifetime prevalence in China reached about 0.6% [16]. The results of a study on the outcomes of 50 patients with schizophrenia showed that brain tissue injury and mental deterioration were the most important causes of disability in patients with schizophrenia, accounting for about 83.18% of all cases [17]. At present, the etiology and pathogenesis of schizophrenia are still not clear. Drug therapy is primarily used in clinical practices. Some surveys also indicated that psychological intervention plays an important role in the treatment of schizophrenia and has a significant effect in improving functional disorders, quality of life and recurrence. Drug therapy combined with psychotherapy is now common in clinical interventions [18].

Orem self-care theory refers to the psychological intervention model proposed and established by American Orem who believes that self-care ability serves as an important indicator for activity of daily living, and that normally individuals have the ability to meet their own needs, that is, the individual self-care ability is intact, while patients with schizophrenia show significant decline in self-care ability due to cognitive dysfunction, which not only affects the individual's living ability, but also spoils the individual's self-cognition and therefore goes against the treatment and recovery, in other words, recovery of self-care ability is feasible to patients with schizophrenia [19]. A survey of 104 patients with schizophrenia showed that the application of Orem self-care theory could significantly reduce the symptoms and severity of illness in patients with schizophrenia, especially the anxiety and positive symptoms, as well as lowering the recurrence [20]. Studies suggested that the combi-

Table 4. Compliance with medication of the two groups of patients before and after intervention [n (%)]

Group	n	Before intervention			3 months of intervention		
		Good	Moderate	Poor	Good	Moderate	Poor
Study	49	9 (10.20)	30 (61.22)	14 (28.57)	34 (69.39)	10 (20.41)	5 (10.20)
Control	49	6 (12.24)	31 (63.27)	12 (24.49)	11 (22.45)	25 (62.50)	11 (22.45)
X^2	-	0.708	0.835	0.647	21.055	10	2.689
P	-	0.400	0.043	0.209	< 0.001	0.002	0.101

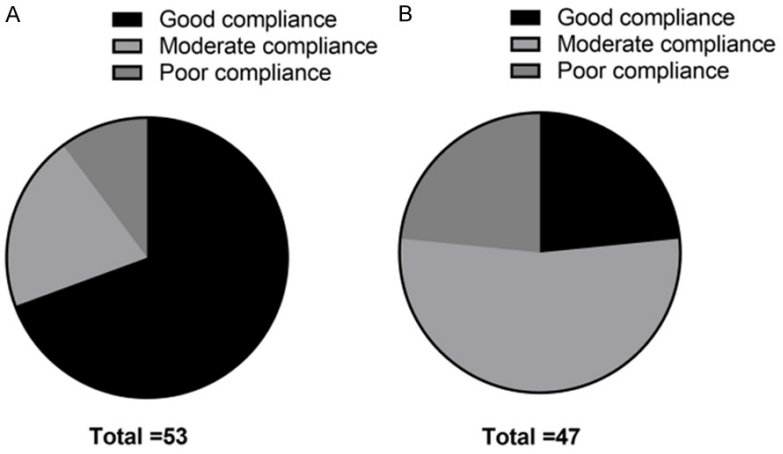

Figure 3. Comparison of compliance with medication between the two groups after intervention. The number of cases with good, moderate, and poor compliance after intervention was 34 (69.39%), 10 (20.41%), and 5 (10.20%), respectively, in the study group (A), and 11 (22.45%), 25 (62.50%), and 11 (22.45%), respectively, in the control group (B). The study group showed higher proportion of good compliance than the control group ($P < 0.05$).

Table 5. SDSS scores of the two groups of patients after intervention ($\overline{x} \pm sd$)

Group	n	Before intervention	3 months of intervention	6 months of intervention	12 months of intervention
Study	49	16.27±2.43	11.27±1.43	7.28±0.43	4.18±0.32
Control	49	16.31±2.55	13.18±2.01	9.27±0.51	5.98±0.23
t	-	0.079	5.420	20.882	31.973
P	-	0.341	< 0.001	< 0.001	< 0.001

nation of Orem self-care theory with social function training improves negative symptoms of patients with schizophrenia, and elevates the self-consciousness as well as social function [21]. Many investigations on supporting education system in care showed that it aims to develop abilities of self-care and long-term care. Schizophrenia, with high recurrence rate, requires more than in-hospital treatment, which means that the focus of nursing should be on home nursing and self-care. Supporting education system acts as continuous nursing which reduces the costs and helps in training the patients' and their families' self-care ability [22].

In this study, SQLS scores in the study group increased as compared with those in the control group, with the psycho-social score increased from 23.28±4.33 to 41.28±4.33, motivation/energy from 36.38±3.44 to 45.18±5.41, and symptoms/side effects from 15.18±3.44 to 23.98±3.28, suggesting that the interventions improve the patients' psychosocial function, energy and clinical symptoms. Some studies showed that patients with schizophrenia had decreased self-care ability and self-consciousness, leading to a significant decrease in activity of daily living. Drug treatment may relieve clinical symptoms but not the quality of life. Orem self-care theory aims to remodel the self-care of patients through health education and life skills training. These are positively significant to the quality of life [23]. Orem self-care theory elevated the SQLS scores of patients with schizophrenia from 79.18±4.59 to 93.28±3.44, as reported in studies. This was supported by this paper [24]. The results of this study also showed superior SES (19.28±3.22 vs 28.38±5.41) and GWB (67.82±4.33 vs 83.18±3.22) scores of patients with schizophrenia after intervention. The results showed that patients with schizophrenia had significantly lower self-esteem and gen-

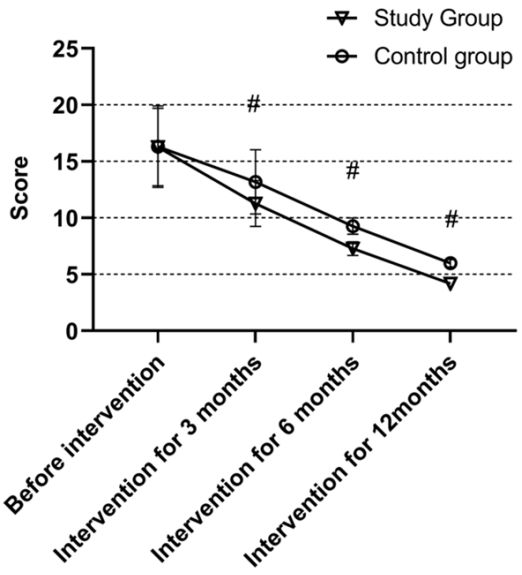

Figure 4. Comparison of SDSS scores between the two groups after intervention. Little differences were reported in SDSS scores between the two groups before intervention ($P > 0.05$). At 3, 6 and 12 months after intervention, the SDSS scores in study group were higher than those in control group ($P < 0.05$). # indicated statistically significant difference in the specified indicator.

eral well-being due to cognitive decline. In this paper, the authors believe that Orem self-care theory corrects patients' awareness, reduces negative emotions, and offers healthy self-appraisal and well-being by health education.

Compliance with medication is also an important index affecting the therapeutic effect of patients with schizophrenia. In this study, it can be found that before intervention, the patients in the two groups had poor compliance with medication, with good compliance accounting for 10.20% and 12.24%, respectively, while after intervention, the patients with good compliance in the study group accounted for 69.39%, much higher than the 22.45% in the control group. Some studies have pointed out that supporting education system in care is an important way to influence patients' compliance with medication. This theory attaches importance to continuous nursing and puts forward strict requirements for out-of-hospital nursing of patients. It can also improve patients' compliance with medication through family supervision and medical follow-up, thus ensuring the effectiveness of treatment effect [25]. In the end, the evaluation of quality of life after treatment confirmed the effect of Orem self-care theory-supporting education system in care in improving the prognosis of patients with schizophrenia. The follow-up showed that SDSS scores of the study group were significantly higher than those of the control group, indicating that the interventions in the former groups were superior.

In summary, Orem self-care theory-supporting education system in care for patients with schizophrenia may remarkably improve compliance with medication, quality of life and general well-being, as well as social functioning. However, the (1) small sample size produced the results with bias and loss of generalization, and (2) the absence of long-term follow-up decided the short of subsequent visit rate or recurrence. In view of this, studies of large sample size and with long-term follow-up were warranted to provide detailed theoretical basis for the treatment of patients with schizophrenia.

Disclosure of conflict of interest

None.

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