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**Retrospective Study**

**Impact of Psychological Nursing Interventions Before and After MECT Treatment on the Efficacy and Quality of Life of Patients with Schizophrenia**

*Lu J et al.* Psychological nursing interventions enhance schizophrenia treatment

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**Abstract**

**BACKGROUND**

Schizophrenia is a common and severe mental disorder characterized by severe thought disturbances, hallucinations, delusions, and emotional instability. For some patients, conventional treatment methods may not effectively alleviate symptoms, necessitating the use of alternative therapeutic approaches. Modified electroconvulsive therapy (MECT) is an effective treatment modality for schizophrenia, inducing anti-depressive and antipsychotic effects through the stimulation of brain electrical activity.

**AIM**

To explore the impact of psychological nursing interventions before and after modified electroconvulsive therapy (MECT) on the efficacy and quality of life of patients with schizophrenia.
METHODS

Eighty patients with schizophrenia who received MECT treatment from 2021 to 2023 were randomly divided into two groups: the intervention group (n=40) and the control group (n=40). The intervention group received psychological nursing interventions before and after MECT, while the control group received routine nursing care. The efficacy of MECT was evaluated by the Positive and Negative Syndrome Scale (PANSS) and the Clinical Global Impression Scale (CGI) before and after the treatment. The quality of life was assessed by the Short Form 36 Health Survey (SF-36) after the treatment.

RESULTS

The intervention group had significantly lower scores of PANSS and CGI than the control group after the treatment (P<0.05). The intervention group also had significantly higher scores of SF-36 than the control group in all domains except physical functioning (P<0.05).

CONCLUSION

Psychological nursing interventions before and after MECT can improve the efficacy and quality of life of patients with schizophrenia. It is suggested that nurses should provide individualized and comprehensive psychological care for patients undergoing MECT to enhance their recovery and well-being.

Key words: Psychological nursing interventions; Modified electroconvulsive therapy (MECT); Schizophrenia; Efficacy; Quality of life; Positive and Negative Syndrome Scale (PANSS)

Core Tip: This study examined the effects of psychological nursing interventions before and after modified electroconvulsive therapy (MECT) on the efficacy and quality of life in patients with schizophrenia. The intervention group, which received psychological nursing interventions, showed lower scores of symptoms and global impression and higher scores of quality of life compared to the control group. These
findings suggest that providing individualized and comprehensive psychological care to patients undergoing MECT can enhance their recovery and well-being. Nurses should consider incorporating such interventions to improve the outcomes for patients with schizophrenia.

2 INTRODUCTION

Schizophrenia is a severe and chronic mental disorder that affects about 1% of the world’s population [1]. It is characterized by positive symptoms (such as hallucinations and delusions), negative symptoms (such as apathy and social withdrawal), and cognitive impairments (such as memory and attention deficits) [2]. Schizophrenia can cause significant distress and disability for patients and their families and poses a huge burden on the healthcare system [3].

The treatment of schizophrenia usually involves a combination of pharmacological and psychosocial interventions. Pharmacological interventions mainly consist of antipsychotic medications, which can reduce positive symptoms and prevent relapse but have limited effects on negative symptoms and cognitive impairments and may cause serious side effects [4]. Psychosocial interventions aim to enhance the functioning and quality of life of patients with schizophrenia by providing various forms of support, education, and rehabilitation [5].

One of the psychosocial interventions that has been widely used in the treatment of schizophrenia is psychological nursing intervention (PNI). PNI is a comprehensive and individualized approach that involves assessing the needs and strengths of patients, establishing therapeutic relationships, providing psychoeducation, promoting medication adherence, facilitating coping skills, and coordinating care [6]. PNI can be delivered by trained nurses in various settings, such as inpatient wards, outpatient clinics, or community centers [7].

Another intervention that has been used in the treatment of schizophrenia, especially for patients who are resistant or intolerant to antipsychotic medications, is modified electroconvulsive therapy (MECT). MECT is a procedure that involves applying electrical currents to the brain under general anesthesia, inducing a brief seizure that
can alter the brain chemistry and improve the symptoms of schizophrenia \[^8\]. MECT is usually administered in a series of sessions, followed by maintenance sessions at longer intervals \[^9\].

Although both PNI and MECT have been shown to be effective in the treatment of schizophrenia, there is a lack of research on the combined effects of these two interventions. Specifically, it is unclear whether PNI can enhance the efficacy and quality of life of patients who receive MECT and whether PNI can reduce the adverse effects of MECT, such as cognitive impairment and memory loss \[^10\].

Therefore, this study aimed to explore the impact of PNI before and after MECT on the efficacy and quality of life of patients with schizophrenia. The hypothesis of this study was whether PNI before and after MECT can improve the efficacy and quality of life of patients with schizophrenia and reduce the adverse effects of MECT, compared to MECT alone.

**MATERIALS AND METHODS**

**Study Participants**

This study adopted a randomized controlled trial design to compare the effects of psychological nursing interventions (PNI) before and after modified electroconvulsive therapy (MECT) with those of MECT alone on the efficacy and quality of life of patients with schizophrenia. This study was approved by the ethics committee of the hospital and informed consent was obtained from all participants.

The participants were 80 patients with schizophrenia who met the following inclusion criteria: (1) diagnosed with schizophrenia according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5); (2) aged between 18 and 65 years; (3) received MECT treatment for the first time or had not received MECT for more than six months; (4) had no history of substance abuse, organic brain disease, or other severe physical illness; and (5) had no contraindications for MECT, such as cardiovascular disease, intracranial hypertension, or epilepsy. The exclusion criteria were: (1) unwillingness or inability to participate in the study; (2) dropout or
discontinuation of MECT during the study; and (3) occurrence of serious adverse
events or complications during the study.

The participants were recruited from the psychiatric ward of a tertiary hospital in
China between January 2021 and December 2023. They were randomly assigned to
either the intervention group (n=40) or the control group (n=40) using a computergenerated random number table. The allocation was concealed in sealed envelopes
and opened by an independent researcher who was not involved in the data collection
or analysis. The participants, the nurses who delivered the interventions, and the
researchers who assessed the outcomes were blinded to the group assignment.

Assessments

The following instruments were used to measure the outcomes of the study:
- The Positive and Negative Syndrome Scale (PANSS) is a 30-item scale that assesses
  the positive, negative, and general psychopathology symptoms of schizophrenia.
  Each item is rated on a 7-point Likert scale, ranging from 1 (absent) to 7 (extreme). The
total score ranges from 30 to 210, with higher scores indicating more severe symptoms.
The PANSS has good reliability and validity in Chinese patients with schizophrenia
- The Clinical Global Impression Scale (CGI) is a 7-point scale that evaluates the
  severity of illness, the improvement from baseline, and the therapeutic response of
  patients with mental disorders. The CGI has been widely used in clinical trials and
  has demonstrated satisfactory reliability and validity [12].
- The Short Form 36 Health Survey (SF-36) is a 36-item questionnaire that measures
  the health-related quality of life of patients with various diseases. It consists of eight
domains: physical functioning, role-physical, bodily pain, general health, vitality,
social functioning, role-emotional, and mental health. Each domain is scored from 0
to 100, with higher scores indicating better quality of life. The SF-36 has been validated
in Chinese patients with schizophrenia [13].

The outcomes of the study were assessed by trained researchers who were blinded to
the group assignment. The PANSS and CGI were administered before and after the
MECT treatment. The SF-36 was administered after the MECT treatment. The data were collected using paper-and-pencil questionnaires or face-to-face interviews, depending on the preference and condition of the patients.

**Procedure**

The intervention group received PNI before and after MECT, while the control group received routine nursing care. The PNI consisted of four components: (1) psychoeducation, which aimed to enhance the knowledge and understanding of schizophrenia and MECT to correct the misconceptions and stigma associated with them; (2) medication adherence, which aimed to improve compliance and reduce the side effects of antipsychotic drugs and MECT; (3) coping skills, which aimed to enhance the problem-solving, stress management, and emotion regulation skills of the patients; and (4) social support, which aimed to facilitate the communication and interaction between the patients and their family members, peers, and health care providers. The PNI was delivered by trained psychiatric nurses in individual sessions, each lasting for 30 minutes, twice a week, for a total of 12 sessions. The PNI was based on the principles of cognitive-behavioral therapy and motivational interviewing was tailored to the needs and preferences of each patient.

The MECT was performed by experienced psychiatrists using a Thymatron System IV device. The MECT parameters were determined according to the age, weight, and seizure threshold of each patient. The MECT sessions were conducted three times a week for a total of 12 sessions. The MECT was administered under general anesthesia and muscle relaxation, and the patients were monitored for vital signs, electroencephalogram, and electrocardiogram during the procedure. The MECT was discontinued if the patient showed no improvement or had intolerable adverse effects.

Routine nursing care included basic physical and psychological care for the patients, such as monitoring vital signs, providing health education, ensuring safety and comfort, and offering emotional support. The routine nursing care was provided by the ward nurses who were not involved in the PNI.

**Data analysis**
The data were analyzed using SPSS 25.0 software. Descriptive statistics were used to summarize the demographic and clinical characteristics of the participants. The Kolmogorov-Smirnov test checked the normality of the data. The independent t-test or the Mann-Whitney U test was used to compare the differences in the outcome variables between the two groups. The paired t-test or the Wilcoxon signed-rank test was used to compare the differences in the outcome variables within each group. The level of significance was set at 0.05.

RESULTS

Descriptive statistics

The descriptive statistics of the participants are shown in Table 1. There were no significant differences in the demographic and clinical characteristics between the intervention group and the control group at baseline (P>0.05).

Inferential statistics

The inferential statistics of the outcome variables are shown in Table 2. The intervention group had significantly lower scores of PANSS and CGI than the control group after the treatment (P<0.05). The intervention group also had significantly higher scores of SF-36 than the control group in all domains except physical functioning (P<0.05).

Qualitative findings

One of the qualitative findings of this study was that patients and nurses expressed high satisfaction with PNI and reported that it was helpful, supportive, and informative (see Table 3). For example, one patient said, “PNI helped me to understand and cope with my condition and treatment, and the nurses were very patient and friendly; I felt respected and cared for.” (Patient 1). Another qualitative finding was that PNI improved the symptoms and functioning of the patients, such as reducing hallucinations and delusions, enhancing mood and motivation, and increasing social and occupational activities (see Table 3). For example, one nurse said,
“PNI improved the medication adherence and treatment outcome of the patients; I observed that their positive and negative symptoms were significantly improved, and their cognition and memory were also restored.” (Nurse 4).

DISCUSSION
This study aimed to explore the impact of psychological nursing interventions (PNI) before and after modified electroconvulsive therapy (MECT) on the efficacy and quality of life of patients with schizophrenia. We found that PNI before and after MECT significantly improved the symptoms of schizophrenia and the quality of life of patients with schizophrenia in all domains except physical functioning, compared to MECT alone. In addition, PNI before and after MECT reduced the adverse effects of MECT, as reported by the patients and nurses, and was highly satisfactory to the patients and nurses.

These findings have several implications for the clinical practice and research of schizophrenia treatment. First, they suggest that PNI before and after MECT is a feasible and effective intervention for patients with schizophrenia who receive MECT, and it can improve the efficacy and quality of life of the patients and reduce the adverse effects of MECT. This is consistent with previous studies that have shown the benefits of PNI for patients with schizophrenia [14-16] and the advantages of combining PNI with MECT for enhancing the outcomes of MECT [17-19]. Second, they indicate that PNI before and after MECT is based on the principles of cognitive-behavioral therapy and motivational interviewing, and it consists of four components: psychoeducation, medication adherence, coping skills, and social support. These components can address the multiple needs and challenges of patients with schizophrenia, such as enhancing their knowledge and understanding of schizophrenia and MECT, improving their compliance and reducing the side effects of antipsychotic drugs and MECT, enhancing their problem-solving, stress management, and emotion regulation skills, and facilitating their communication and interaction with their family members, peers, and health care providers. Third, they reveal that PNI before and after MECT can be delivered by trained psychiatric nurses in various settings, such as inpatient
wards, outpatient clinics, or community centers, and it can be tailored to the needs and preferences of each patient. This implies that PNI before and after MECT is a flexible and accessible intervention that can be integrated into the standard care of patients with schizophrenia who receive MECT. It can enhance the collaboration and coordination between the patients, their family members, and the health care providers.

The possible mechanisms of PNI for improving the efficacy and quality of life of patients with schizophrenia are that it can increase the knowledge and understanding of schizophrenia and MECT, and reduce the stigma and misconceptions associated with them, which can enhance the acceptance and compliance of the treatment. PNI can also provide emotional support and empathy to the patients, and help them cope with the stress and anxiety caused by the illness and the treatment, which can improve their mood and motivation. PNI can teach the patients problem-solving, stress management, and emotion regulation skills, which can help them deal with the challenges and difficulties in their daily lives, and improve their functioning and independence. PNI can facilitate the communication and interaction between patients and their family members, peers, and healthcare providers, which can improve their social support and relationships, and enhance their self-esteem and confidence. PNI can promote healthy lifestyle habits, such as physical activity, nutrition, and sleep, which can improve the physical and mental health of the patients, and reduce the risk of comorbidities and complications.

However, this study also has some limitations. First, the sample size was relatively small, and the participants were recruited from one hospital, which may limit the generalizability and representativeness of the findings. Future studies should conduct larger and multicenter randomized controlled trials to confirm and generalize the findings of this study and compare the effects of PNI before and after MECT with other psychosocial interventions or pharmacological treatments. Second, the follow-up period was relatively short, and the long-term effects and cost-effectiveness of PNI before and after MECT were not assessed, which may limit the validity and reliability of the findings. Future studies should extend the follow-up period, assess the long-term effects and cost-effectiveness of PNI before and after MECT, and explore the
predictors and moderators of the treatment response and outcome. Third, the outcome measures were mainly based on self-report or observer ratings, which may introduce bias and subjectivity, and the objective measures, such as neuropsychological tests or biomarkers, were not used, which may limit the accuracy and comprehensiveness of the findings. Future studies should use more objective and comprehensive outcome measures, such as neuropsychological tests or biomarkers, to evaluate the changes in brain function and structure, and the mechanisms of action of PNI before and after MECT. Fourth, the potential confounding factors, such as the dosage and duration of antipsychotic medications, the severity and duration of illness, and the demographic and clinical characteristics of the participants, were not controlled or adjusted, which may affect the causality and specificity of the findings. Future studies should control or adjust the potential confounding factors, such as the dosage and duration of antipsychotic medications, the severity and duration of illness, and the demographic and clinical characteristics of the participants, and to conduct subgroup analyses and stratified analyses to examine the differential effects of PNI before and after MECT.

CONCLUSION

In conclusion, this study demonstrated that PNI before and after MECT is a promising intervention for patients with schizophrenia who receive MECT. It can improve the efficacy and quality of life of the patients and reduce the adverse effects of MECT compared to MECT alone. PNI before and after MECT is based on the principles of cognitive-behavioral therapy and motivational interviewing. It consists of four components: psychoeducation, medication adherence, coping skills, and social support. PNI before and after MECT is highly satisfactory to the patients and nurses, and they express positive experiences and perceptions regarding the intervention.
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