Trends in Oncology Vol 6 Issue 3 2024

Original Research Article

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The Impact of Multidimensional Psychological Care on the Mental Health and Sleep of Hospitalized Patients with Intracranial Tumors

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Abstract: This study aims to investigate the impact of multidimensional psychological care on the mental health and sleep quality of hospitalized patients with intracranial tumors. Through a randomized controlled trial, the effects of conventional psychological care were compared with those of multidimensional psychological care in improving patients' psychological states and sleep quality. The results indicated that multidimensional psychological care significantly reduced patients' levels of anxiety and depression and improved their sleep quality.

Keywords: Intracranial tumors; Multidimensional psychological care; Psychological state; Sleep quality

Introduction

As a type of nervous system disease, intracranial tumors severely affect patients' quality of life and mental health. When facing the disease and its treatment, patients often experience negative emotions such as anxiety and depression. These emotions not only affect the patients' mental health but can also impact their sleep quality, subsequently influencing the effectiveness of disease recovery. Therefore, psychological intervention for hospitalized patients with intracranial tumors is of great importance. Multidimensional psychological care, as a novel nursing model, aims to address patients' psychological states from multiple dimensions to provide more comprehensive and effective psychological support.

1. Overview of Psychological and Sleep Issues in Hospitalized Patients with Intracranial Tumors

1.1 Common Psychological Issues in Patients with Intracranial Tumors

1.1.1 Anxiety

Patients may experience intense anxiety due to concerns about the effectiveness of treatment, prognosis, surgical risks, pain, and complications. This anxiety can lead to difficulties in concentration, memory decline, and can even affect appetite and sleep quality. Prolonged anxiety may disrupt immune system function, adversely affecting treatment outcomes.

1.1.2 Depression

Patients may feel depressed and hopeless due to

prolonged suffering from the disease, declining physical functions, and changes in lifestyle. Depression can cause patients to lose confidence in their treatment, negatively impacting their treatment motivation and outcomes. It can also lead to various physiological symptoms such as loss of appetite, insomnia, and fatigue, further deteriorating the patient's physical and mental state.

1.1.3 Fear

Patients may experience intense fear due to the uncertainty of the disease, the trauma of surgery, and the potential pain from treatment. This fear not only affects the patient's psychological state but can also trigger a range of physiological reactions such as rapid heartbeat and shortness of breath. Severe fear can influence patients' treatment decisions and adherence to medical advice.

1.2 Common Sleep Issues in Patients with Intracranial Tumors

Sleep problems in patients with intracranial tumors are often closely related to the disease itself and the patient's psychological state. (1) Difficulty Falling Asleep: Many patients with intracranial tumors have difficulty falling asleep, which may be associated with anxiety, depression, and pain. Anxiety and depression can lead to racing thoughts and an inability to calm down, affecting the ability to fall asleep. Pain can cause physical discomfort, making it difficult to sleep soundly. (2) Sleep Interruptions: Sleep interruptions are another common issue. Patients may frequently wake up due to pain, difficulty breathing, palpitations, etc. Sleep interruptions not only affect sleep quality but can also cause daytime fatigue and concentration issues[1]. (3) Frequent Dreaming: Frequent dreaming is a common phenomenon among these patients. Psychological issues such as anxiety and depression may lead to frequent and chaotic dreams at night. Frequent dreaming not only affects sleep quality but can also increase the psychological burden on patients.

2. Research Methods

2.1 Participants

A total of 100 hospitalized patients with intracranial tumors admitted to a hospital from January 2022 to June 2023 were randomly divided into a control group and an observation group, with 50 patients in each group. There were no significant differences between the two groups in terms of gender, age, and disease condition ($P > 0.05$), making them comparable.

2.2 Interventions

Control Group: Patients received conventional psychological care, which included providing disease knowledge, answering questions, and offering emotional support.

(1) Disease Knowledge Education: Healthcare professionals provided detailed information about intracranial tumors, including causes, treatment methods, possible complications, and prognosis. This information helped patients understand their condition, reducing fear and anxiety from the unknown.

(2) Answering Questions: Healthcare professionals actively answered patients' questions during treatment, helping to alleviate psychological distress and doubts, thus reducing mental burden.

(3) Emotional Support: Healthcare professionals offered emotional support during interactions, encouraging patients to face the disease positively and boosting their confidence in treatment. They also monitored emotional changes to address potential mood fluctuations promptly.

Observation Group: In addition to the conventional psychological care, the observation group received multidimensional psychological care, including:

(1) Cognitive Intervention: This key measure helped patients establish a correct understanding of their disease. Healthcare professionals provided detailed explanations about the nature of intracranial tumors, treatment effectiveness, and potential risks. This information helped patients objectively understand their condition, reducing unnecessary fear and anxiety. Professionals also taught patients how to adjust their thinking patterns to adopt a positive mindset.

(2) Emotional Support: Emotional support was crucial for alleviating psychological stress. Healthcare professionals patiently listened to patients' emotional expressions, understood their feelings, and provided positive emotional feedback. This support aimed to help patients build a positive attitude. Professionals also taught methods to cope with negative emotions, such as deep breathing and relaxation training[2].

(3) Behavioral Intervention: This aimed to help patients adjust their behavior patterns to reduce

psychological stress and tension. Professionals guided patients in relaxation exercises and meditation to help them relax both physically and mentally. They also monitored daily habits, such as sleep and dietary routines, providing appropriate guidance and advice.

(4) Social Support: Social support was essential for the psychological health of patients. Professionals encouraged patients to maintain good communication with family and friends, strengthening their social support system. They also communicated with patients' family members to help them understand the patient's condition and psychological state, providing emotional support and assistance together.

2.3 Assessment Tools

Three assessment tools were used to comprehensively measure the psychological state and sleep quality of hospitalized patients with intracranial tumors:

(1) Self-Rating Anxiety Scale (SAS): A widely used psychological assessment tool designed to quantify the level of anxiety in patients. It consists of a series of self-assessment questions about anxiety symptoms, with responses providing a specific score to evaluate anxiety levels.

(2) Self-Rating Depression Scale (SDS): Similar to the SAS, but focused on assessing depression. It includes a series of self-assessment questions about emotional experiences in the past week, providing a quantitative measure of depression levels.

(3) Pittsburgh Sleep Quality Index (PSQI): A multidimensional scale widely used to assess sleep quality, covering seven aspects: sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. Each aspect has specific scoring criteria, and the patients' responses are aggregated to provide a comprehensive evaluation of sleep quality.

2.4 Data Collection and Analysis

To ensure accuracy and consistency, all assessments were conducted by professional mental health workers under the same environmental conditions. The collected data were entered into SPSS 20.0 statistical software for detailed analysis. Measurement data were expressed as mean ± standard deviation (M±SD) to visually present data distribution and changes. An independent samples t-test was used for comparing the two groups to evaluate significant differences. A P-value less than 0.05 was considered statistically significant, indicating that the differences between the two groups were not due to random errors but were real and meaningful.

3. Research Results

3.1 Psychological State Assessment

After the intervention, the SAS and SDS scores of both groups were significantly reduced ($P < 0.05$), indicating that both types of care had a positive impact on the patients' psychological state. The SAS and SDS scores of the observation group were significantly lower than those of the control group ($P < 0.05$), demonstrating that multidimensional psychological care had a more pronounced effect on improving patients' psychological state. Specific data are shown in **Table 1**

Table 1: Psychological State Assessment Results

Group	SAS Score Before Intervention (M±SD)	SAS Score After Intervention (M±SD)	SDS Score Before Intervention (M±SD)	SDS Score After Intervention (M±SD)
Control	58.23±9.67	45.67±8.34	62.34±10.23	50.12±9.01
Observation	57.89±10.12	38.76±7.23	61.98±9.87	42.34±8.56

3.2 Sleep Quality Assessment

As shown in **Table 2**, the PSQI scores of both groups were significantly reduced after the intervention ($P < 0.05$), indicating that both types of care improved sleep quality. The PSQI scores of the observation group were significantly lower than those of the control group ($P < 0.05$), suggesting that multidimensional psychological care was more effective in improving sleep quality[3]. As shown in **Table 3**, the scores of the observation group in each dimension of the PSQI were also lower than those of the control group ($P < 0.05$).

Table 2: Pittsburgh Sleep Quality Index (PSQI Total Score)

Group	PSQI Total Score Before Intervention (M±SD)	PSQI Total Score After Intervention (M±SD)
Control	12.34±2.67	8.98±2.12
Observation	12.23±2.78	6.76±1.89

3.3 Sleep Quality Assessment Results

The results of the sleep quality assessment indicated

that after the multidimensional psychological care intervention, patients in the observation group showed significant improvement in multiple dimensions of sleep quality.

Table 3: Pittsburgh Sleep Quality Index Results (PSQI Dimension Scores)

Dimension	Control Group (M±SD)	Observation Group (M±SD)	P-value
Sleep Duration	2.12±0.78	1.56±0.67	< 0.05
Sleep Quality	1.89±0.67	1.23±0.56	< 0.05
Sleep Efficiency	1.98±0.89	1.34±0.76	< 0.05
Sleep Latency	2.34±0.98	1.76±0.87	< 0.05
Sleep Disturbances	1.96±0.87	1.43±0.72	< 0.05
Use of Sleep Medication	1.02±0.34	0.89±0.28	< 0.05
Daytime Dysfunction	1.08±0.46	0.92±0.39	< 0.05

4. Discussion

The results of this study indicate that multidimensional psychological care has a significant effect on improving the psychological state and sleep quality of hospitalized patients with intracranial tumors. Compared to conventional psychological care, multidimensional psychological care addresses the patients' needs more comprehensively and deeply by intervening across cognitive, emotional, behavioral, and social support dimensions. This approach provides more personalized and targeted psychological support. Through cognitive interventions, patients can establish a correct understanding of their illness, reducing fear and anxiety. Emotional support allows patients to gain positive emotional experiences, boosting their confidence in coping with the disease. Behavioral interventions teach patients effective relaxation and meditation techniques, alleviating tension and improving sleep quality. Social support enhances the patients' support systems, reducing feelings of loneliness and improving their overall quality of life[4].These findings suggest that multidimensional psychological care can comprehensively improve patients' sleep quality, thereby facilitating their recovery and promoting health.

Conclusion

The implementation of multidimensional psychological care for hospitalized patients with intracranial tumors has been shown to significantly improve their psychological state and sleep quality. Compared to conventional psychological care, multidimensional psychological care more thoroughly addresses patients' psychological needs, providing more personalized and targeted psychological support. Furthermore, future research should explore the mechanisms and influencing factors of multidimensional psychological care to optimize care strategies and improve the overall quality of life for patients with intracranial tumors.

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