Journal of Clinical and Nursing Research, 2025, Volume 9, Issue 12
http://ojs.bbwpublisher.com/index.php/JCNR
Online ISSN: 2208-3693
Print ISSN: 2208-3685

To Analyze the Influence of Psychological Counseling Combined with Operating Room Nursing Intervention Based on Maslow's Hierarchy of Needs Theory on the Sleep Quality of Burn Patients

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Abstract: *Objective*: To explore the combined effects of psychological counseling and operating room nursing intervention based on Maslow's hierarchy of needs on sleep quality, psychological state, and social adaptability in burn patients. *Methods*: Eighty burn patients were selected as the study subjects and randomly divided into the intervention group and the control group using the random number table method, with 40 cases in each group. The control group received routine care, including wound care, pain management and health guidance, etc. In addition to routine care, the intervention group received systematic psychological counseling and an operating room nursing intervention based on Maslow's hierarchy of needs for a period of 4 weeks. The Chinese version of the Burn-specific Health Scale (BSHS-C), Pittsburgh Sleep Quality Index (PSQI), Self-Rating Anxiety Scale (SAS), and Self-rating Depression Scale (SDS) were used to assess sleep quality and mental state before and after the intervention. *Results*: After the intervention, the total PSQI score of the intervention group (8.3 ± 1.4) was significantly lower than that of the control group (10.7 ± 1.6), and the difference was statistically significant ($t = 7.43$, $p < 0.01$). The SAS score (41.8 ± 4.1) and SDS score (40.2 ± 3.9) in the intervention group were significantly lower than those in the control group (SAS: 50.5 ± 4.6; SDS: 49.4 ± 4.2), and the differences were statistically significant ($p < 0.01$). In terms of social adaptability, the scores of psychological function (25.6 ± 2.5), social relationship (23.9 ± 2.2), health status (22.7 ± 2.4), and physical function (24.2 ± 2.6) in the BSHS-C scale of the intervention group were significantly better than those of the control group, and the differences were statistically significant ($p < 0.01$). *Conclusion*: Psychological counseling combined with operating room nursing intervention based on Maslow's hierarchy of needs can improve the sleep quality of burn patients, reduce anxiety and depression, and enhance their social adaptability. It is an effective comprehensive nursing model worthy of clinical promotion and application in the rehabilitation nursing of burn patients.

Keywords: Burns; Psychological counseling; Maslow's hierarchy of needs; Sleep quality; Nursing intervention

Online publication: Dec 31, 2025

1. Introduction

Burns are common traumatic diseases, often accompanied by severe pain, tissue damage, and metabolic disorders, which can have a significant impact on the physical and mental health of patients. Thanks to the advancement of modern medical technology, the success rate of treating burn patients has improved, but complications such as psychological disorders, anxiety, and insomnia have gradually emerged, having a significant impact on the recovery process and the quality of life of patients. In clinical practice, many burn patients experience severe anxiety and fear during surgery due to the risks of the operation, wound pain and the uncertainty of postoperative recovery. These negative emotions often result in poor sleep, weakened immunity and slow wound healing, thus creating a vicious cycle. The operating room is an important place for treating burn patients. The quality of nursing in the operating room is related not only to whether the surgery can proceed smoothly, but also affects the postoperative recovery and psychological state of the patients.

In the traditional care model, nursing staff focus more on the physical symptoms of patients and the prevention of postoperative complications, while ignoring the psychological feelings and personal needs of patients. In fact, burn patients encounter many psychological needs during treatment, including the need for physical safety as well as the need for emotional support and mental comfort. American psychologist Maslow proposed the hierarchy of needs, which provides systematic guidance for nursing work. The hierarchy of needs holds that human needs develop gradually from low to high, namely physiological needs, safety needs, needs for belonging and love, esteem needs, and self-actualization needs. If caregivers meet patients' needs in different ways according to this theory, it can effectively increase patients' sense of security and trust, and improve positive psychological responses and treatment compliance.

Psychological counseling is an important part of nursing intervention. Through means such as communication, support, suggestion, and cognitive adjustment, it prompts patients to have a correct understanding of the disease and treatment, reduces anxiety and depression, and shapes positive psychological defense mechanisms. When psychological counseling is combined with Maslow's hierarchy of needs, a multi-dimensional, personalized nursing model is formed, elevating nursing work from a single technical service to a humanized service that takes into account both the body and mind [1].

Based on this, this study takes burn patients as the research subjects to explore the impact of psychological counseling combined with operating room nursing intervention based on Maslow's hierarchy of needs on the sleep quality of patients, aiming to provide references and evidence for optimizing the perioperative nursing model of burn patients, improving their psychological state and enhancing the quality of nursing services.

2. Data and methods

2.1. General information

Eighty burn patients who were hospitalized in our hospital from January 2022 to December 2023 were selected.

2.1.1. Inclusion criteria

(1) Aged between 18 and 65 years
(2) Burn area of 10% to 50%
(3) Conscious and able to cooperate with the investigation
(4) Sign the informed consent form

2.1.2. Exclusion criteria

(1) Comorbid with severe heart, liver or kidney disease
(2) History of mental illness
(3) Pregnant or lactating women.

2.1.3. Sample size

Patients were randomly divided into the intervention group and the control group using a random number table, with 40 cases in each group. There were 22 males and 18 females in the intervention group, with an age of (42.5 ± 10.3) years and a burn area of (28.4 ± 8.7) %; In the control group, there were 24 males and 16 females, with an age of (41.8 ± 9.6) years and a burn area of (27.9 ± 9.1) %. There was no statistically significant difference in the general data between the two groups ($p > 0.05$), and they were comparable [2].

2.2 Methods

2.2.1. Control group

Patients in the control group received a routine care plan, basic medical needs were met, standardized wound debridement and dressing changes were carried out, analgesia was administered according to pain assessment results, individualized nutritional support plans ensured adequate energy and protein intake, routine health education guidance, basic psychological comfort and support were provided. These are the routine care in the burn ward at present.

2.2.2. Intervention group

In addition to routine care, the intervention group also received psychological counseling combined with Maslow's hierarchy of needs operating room nursing intervention. Nursing staff received uniform training before the intervention to understand the main contents of Maslow's hierarchy of needs and the methods of psychological counseling to ensure consistency in the nursing process. The interventions are as follows:

(1) Physiological needs level

Provide the patient with a quiet, clean, temperature-appropriate (22–25 ℃), and moderately humid surgical environment before the operation, and reduce external noise stimulation; Before the operation, assess the degree of pain and physical discomfort and assist the patient in adopting a comfortable position; After the operation, multimodal analgesia was performed based on the pain score, with attention paid to sleeping position and comfort of turning over; For those with poor appetite and sleep, provide targeted nursing guidance to ensure basic physiological needs.

(2) Postoperative monitoring and care

In terms of safety needs, nursing staff explain the surgical procedures, anesthesia methods, and postoperative precautions to patients in simple and understandable language, enabling patients to have a correct understanding of the surgical process and reducing their fear of unknown risks. Strengthen aseptic awareness and safety check systems during the operation to reduce errors and infections. Postoperative monitoring should be strengthened, and patients' discomfort should be dealt with promptly to ensure a sense of security both physically and psychologically.

(3) The need for belonging and love

Nursing staff should maintain a friendly tone and gentle attitude during communication, actively listen to

patients' emotional expressions, give sincere responses, and establish a good nurse-patient relationship; Encourage family members to participate in the nursing process, provide emotional support during preoperative visits or postoperative companionship, and make the patient feel cared for by the family and society; By participating in care decisions together, enhance patients' sense of belonging and trust.

(4) Respecting patient needs and dignity in surgical care

On the level of respecting needs, caregivers respect personality, respect emotional equality, respect patients' privacy, and protect patients' dignity in care. Encourage patients to express their true feelings in preoperative communication and respect their opinions and choices regarding treatment options; Use positive and affirmative language to boost the patient's confidence and make the patient feel respected and valued.

(5) At the level of self-actualization needs

Set rehabilitation goals based on individual differences and encourage patients to actively participate in self-care and functional exercises to improve their ability to take care of themselves. By presenting successful cases and creating role models, patients are encouraged to form positive self-expectations, promoting their psychological development and rehabilitation motivation, thus shifting from passive treatment to active rehabilitation.

(6) Comprehensive psychological and emotional support in surgical care

Add systematic psychological counseling techniques on top of the various levels of intervention mentioned above. Cognitive behavioral intervention is used to help patients re-recognize surgical risks and disease prognosis, correct irrational thinking, use progressive muscle relaxation training, deep breathing, meditation and other methods to relieve tension, play light music before surgery to create a relaxing atmosphere, and use positive suggestion and positive guidance to reduce anxiety, fear and depression. Nurses conduct regular psychological assessments before and after the operation, and adjust the counseling methods in a timely manner according to the changes in the patient's psychological state to keep the patient emotionally stable and mentally positive [3].

2.3. Observation indicators

(1) The social adaptability of the two groups of patients before and after nursing intervention was analyzed using the Chinese version of the Burn Specific Health Scale-Chinese (BSHS-C) The analysis was conducted in three aspects: psychological function (score 0–120), social relationship (score 0–60), health status (score 0–60), and physical function (score 0–80).

(2) Sleep Quality is assessed using the Pittsburgh Sleep Quality Index (PSQI). The scale has seven aspects including time to fall asleep, sleep duration, sleep difficulty, daytime functional difficulty, etc., with a total score of 0 to 21. The higher the score, the poorer the sleep quality. It was evaluated by uniformly trained nurses before the intervention and within one week after the intervention.

(3) Psychological states were evaluated using the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS). Both scales were filled out by the patients themselves. A standardized SAS score of ≥ 50 was considered anxiety, and a standardized SDS score of ≥ 53 was considered depression. The evaluation time was the same as that of PSQI, used to observe the impact of the intervention on psychological status. The combined evaluation of these indicators can reflect the effects of psychological counseling combined with Maslow's hierarchy of care intervention on sleep, psychology and other aspects

of burn patients, providing data support for the next result analysis [4].

2.4. Statistical processing

Data analysis was performed using SPSS 22.0 software. Measurement data were expressed as mean ± standard deviation ($\overline{x} \pm s$), and the *t*-test was used for comparison between groups; Count data were expressed as rates (%), and the χ^2 test was used for comparison between groups. A difference was considered statistically significant when $p < 0.05$.

3. Results

3.1. Comparison of SAS and SDS scores before and after intervention between the two groups of patients

The comparison between the groups after the intervention showed that the SAS and SDS scores of the intervention group were significantly lower than those of the control group, and the difference was highly statistically significant ($p < 0.01$). Specific data are shown in **Table 1**.

Table 1. Comparison of SAS and SDS scores ($\overline{x} \pm s$, points) between the two groups of patients before and after intervention

Groups	Number of cases	Point in time	SAS score	SDS score
Intervention group	40	Before intervention	58.3 ± 5.2	57.1 ± 4.8
		After intervention	41.8 ± 4.1*	40.2 ± 3.9*
Control group	40	Before intervention	57.8 ± 5.0	56.9 ± 5.1
		After intervention	50.5 ± 4.6*	49.4 ± 4.2*

3.2. Comparison of social adaptability between the two groups of patients

The comparison between the groups after the intervention showed that the scores of the intervention group in the four dimensions of psychological function, social relationship, health status and physical function were significantly higher than those of the control group, and the differences were statistically significant ($p < 0.05$ or $p < 0.01$). Specific data are shown in **Table 2**.

Table 2. Comparison of social adaptability between the two groups ($\overline{x} \pm s$, points)

Groups	Time point	Psychological function	Social relationships	Health status	Physical function
Intervention group (n = 40)	Before intervention	18.2 ± 3.1	16.5 ± 2.8	15.8 ± 2.9	17.1 ± 3.3
	After intervention	25.6 ± 2.5*	23.9 ± 2.2*	22.7 ± 2.4*	24.2 ± 2.6*
Control group (n = 40)	Before intervention	18.0 ± 3.0	16.7 ± 2.6	15.9 ± 3.0	16.9 ± 3.1
	After intervention	21.8 ± 2.7*	20.1 ± 2.5*	19.5 ± 2.8*	21.0 ± 2.9*
t values (comparison between groups, after intervention)	-	6.52	7.18	5.29	5.15
p value (comparison between groups, after intervention)	-	< 0.01	< 0.01	< 0.01	< 0.01

3.3. Comparison of PSQI scores before and after intervention between the two groups of patients

The PSQI score of the intervention group was significantly lower than that of the control group ($p < 0.05$). Specific data are shown in **Table 3**.

Table 3. Comparison of PSQI scores of the two groups of patients before and after intervention ($\overline{x} \pm s$, points)

Groups	Number of cases	1 day after surgery	3 days after surgery	5 days after surgery	7 days after surgery
Intervention group	40	15.3 ± 2.0	12.1 ± 1.8*	9.8 ± 1.5*	8.2 ± 1.4*
Control group	40	15.1 ± 2.2	13.5 ± 1.9*	11.9 ± 1.7*	10.7 ± 1.6*
t values (comparison between groups)	-	0.42	3.45	6.02	7.43
p value (comparison between groups)	-	0.675	< 0.01	< 0.01	< 0.01

4. Discussion and conclusion

This article combines systematic psychological counseling with Maslow's hierarchy of needs theory and applies it to the perioperative care of burn patients. The results showed that the comprehensive intervention model could significantly improve patients' negative emotions, sleep quality and social adaptability, proving that it was an effective nursing model.

The results of this study show that the anxiety (SAS) and depression (SDS) scores of the intervention group were lower than those of the control group after the intervention. The results were achieved because stratified and structured psychological interventions were carried out. Cognitive behavioral therapy enabled patients to identify and correct disastrous thinking about trauma, appearance, and prognosis, fundamentally reducing psychological stressor, and relaxation training provided patients with practical skills to deal with acute anxiety and pain, effectively reducing physiological arousal levels. The key point is that the nursing intervention based on Maslow's theory meets patients' multi-level needs for physiology, safety, love and belonging, respect and self-actualization in a systematic way, creating an atmosphere of being understood, respected and supported. This comprehensive support system, together with simple psychological counseling, forms a powerful synergy to transform the physical and mental state of the patient [5].

The PSQI score of the intervention group was better than that of the control group on the third day after the operation, and the improvement degree remained better than that of the control group over time. The quality of sleep is closely related to the state of mind. The relief of anxiety and depression directly reduces the core factors of difficulty falling asleep and waking up at night. At the same time, a focus on satisfying "physiological needs" in nursing interventions, active pain management, and a comfortable environment directly eliminated the physiological discomfort that affected sleep. The satisfaction of the "safety need", namely the detailed process explanation before the operation, significantly reduced the preoperative stress caused by the fear of the unknown in patients, laying a psychological foundation for stable sleep. Dynamic PSQI scores demonstrated that the combined intervention model was both effective and fast-acting in improving sleep problems in burn patients.

In addition, patients in the intervention group scored better than those in the control group in terms of social adaptability in psychological function, social relationship, health status and physical function. The benefits of

this intervention model have extended beyond the hospital to the broader field of rehabilitation. It meets patients' higher-level needs for "love and belonging" and "self-actualization", giving them confidence and inner motivation to reintegrate into society. The improvement of psychological function enables patients to better cope with challenges, and the recovery of physical function lays the foundation for participation in social activities. The three form a virtuous cycle among the psychological, physiological and social aspects, thereby enhancing the quality of rehabilitation of patients.

In summary, the surgical nursing intervention that combines psychological counseling with Maslow's hierarchy of needs aims to comprehensively improve the physical and mental condition of burn patients by starting from multiple targets and levels. This study also has the shortcomings of a relatively short intervention period and the inability to conduct long-term follow-up. In the future, the intervention period could be extended to study the differences in the effects of this model among patients with different degrees of burns, thereby improving the level of clinical care.

Disclosure statement

The author declares no conflict of interest.

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