

Nursing Care of a Patient After Burn According to Orem's Self-Care Theory: A Case Report

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ABSTRACT

OBJECTIVES: Burn injuries result in lifelong physical and psychological scars, cause pain, and affect mental health, quality of life, ability to return to work, and death. Although the medical point of view is important for the burn nurse to contribute to patient care, theoretical nursing care should be encouraged. In this case report, we describe a patient with severe burns who received nursing care according to Orem's Self-Care Insufficiency Theory.

MATERIALS AND METHODS: The 18-year-old male patient received second-degree and third-degree burns of 75% of total body surface area while using thinner to light a heater at work. Burn injuries covered his legs, arms, front body, back body, and certain parts of the face. The patient was transferred to Ankara Baskent University Hospital Burn Intensive Care Unit where he was hospitalized for 85 days. During this period, the patient underwent many surgical treatments, including escharotomy, debridement, and graft surgeries.

RESULTS: Thirteen nursing diagnoses were made during his hospital stay. These diagnoses were risk of infection, fear, self-care deficit, risk of bleeding, acute pain, anxiety, impaired physical mobility, disturbed body image, deficient knowledge, impaired skin integrity, sleep pattern disturbance, deficient fluid volume, and imbalanced nutrition of less than body requirements. Contractures developed in the patient's legs, preventing him from walking upright. The patient was discharged with continuation of physical

therapy, which included pain control during training, maintenance of movement and exercise, giving information about outpatient follow-up, skin care, protection from sun, and nutrition.

CONCLUSIONS: With the nursing care applied and in accordance with Orem's Self-Care Insufficiency Theory, apart from the surgical treatments, the patient's lack of knowledge was eliminated, his anxiety level was reduced, his fear was eliminated, his diet was adjusted, and his self-confidence was increased. At discharge, the patient was confident of his care.

KEY WORDS: Case report, Chemical burn, Nursing theory

INTRODUCTION

Burn injuries are acute injuries that include a high proportion of health care-related trauma worldwide.¹ The World Health Organization defines burns as injury to the skin or other organic tissues, mainly caused by contact with heat or radiation, radioactivity, electricity, friction, or chemicals.² Burn injuries are among the important causes of mortality and morbidity in Turkey and around the world.^{3,4} Burn injuries can develop due to different etiological reasons and can cause psychosocial problems such as depression, deterioration in body image, itching, posttraumatic stress disorder, delirium, and problems in sexual life.⁵⁻⁸ For these patients, it is important for a multidisciplinary team to cooperate and work in harmony in the care and treatment of the burn patient, allowing holistic care.^{5,8} Orem's Theory of Self-Care Disability is the most relevant to burn care and can provide a starting point for theoretical use in burn nursing care.⁹ In this study, we describe a patient with burn injuries who received nursing care according to Orem's Self-Care Insufficiency Theory.

OREM'S THEORY OF SELF-CARE DISABILITY

Self-care is described as "the ability of individuals, families, and communities to promote health, prevent disease,

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maintain health, and cope with illness and disability with or without the help of a healthcare provider.”¹⁰ Self-care theory explains why self-care is necessary for the continuity of life. According to Orem, people have the power to plan for themselves and others’ needs and to take care of themselves. Perceptual, cognitive, interpersonal, and psychomotor features are required for an effective self-care power.^{11,12} Orem’s concept of health is a guide in describing the important effects of the holistic approach on the health and healing process of individuals.¹³ Orem’s theory consists of 3 interrelated parts.¹⁴ (1) The self-care theory explains why self-care is essential for the continuity of life.^{11,12} Self-care behaviors are physical activity, compliance with nutritional therapy, participation in care, compliance with drug treatments, and regular dressings. (2) The self-care deficiency theory is about why and when nursing is needed and the person who cannot meet their self-care needs because of limitations.¹⁵ (3) According to the theory of the nursing system, the nurse helps individuals who cannot do self-care and teaches their family and friends how to help them.¹⁵

The theory also explains 6 subconcepts (self-care, therapeutic self-care needs, self-care power, lack of self-care, nursing power, and nursing system) and an environmental concept.¹¹

MATERIALS AND METHODS

In February 2021, an 18-year-old patient who received burn injuries from thinner that he used while trying to light a stove was admitted to our department. The patient had second-degree and third-degree flame burns of 75%

of total body surface area. The patient was agitated and described a lot of pain.

Table 1 shows the vital signs and physical and neurological examination results of the patient during admission to the intensive care unit.¹⁶ Laboratory findings are shown in Table 2.

Data were collected after verbal consent and written consent were obtained from the patient, and the study was conducted with permission from the Başkent University Ankara Hospital Non-Invasive Clinical Research Ethics Committee.

RESULTS

Patient’s level of remembering event

The patient extinguished himself after burning and then extinguished the fire in the workplace. He was the one who informed everyone.

Patient’s understanding of the situation

When the patient first presented to our department, he was worried because of the burns on his face. He stated that he was afraid because he thought that he would not recover. He stated that if there is a mark on his face, he may be excluded by others and will not have a welcoming environment. When his face became the fastest healing place, his belief in himself and that he would get better increased. With this motivation, he tried to eat better and participate in our mobilized treatment. He stated that the long treatment period was tiring and that he had lost hope because he thought that he was making slow progress, and he experienced stress.

TABLE 1. Vital Sign Findings and Physical and Neurological Evaluation of Patient

Life Signs	Physical Examination*	Neurological Examination
Blood pressure: 114/59 mm Hg		Glasgow coma score: 15 points
Heart rate: 112 beats/min		Eye opening: spontaneous
Body temperature: 35.6 °C		Verbal response: fully oriented to place, person, time
Respiration: 19 breaths/min		Motor response: obeys commands
Saturation: 98%		

*Rule of Nines was performed according to Lund and Browder formula.¹⁶

The family's perception of the situation

His father would visit the unit as much as possible, get information about his son from the doctors, and meet with his son and talk about what they will do when he is discharged. He never stopped communicating.

Nutrition

The patient, who was fed with diets high in protein, consumed all meals with our help. In addition to his meals, he consumed snacks and fruits brought by his family.

Pain

Morphine via intravenous patient-controlled analgesia was infused at 0.3 mg/hour due to the increase in pain levels after dressing and surgical interventions.

Communication

The patient's perceptual ability was high, and he liked talking.

Universal self-care requirements

A person's daily life needs should focus on the normal maintenance of needs.¹⁵ The universal self-care requirements of this patient with flame burn were as follows. For air needs, the patient had no inhalation injury; his respiratory rate was 19 breaths/minute and his oxygen saturation level was 98% without oxygen. For water needs, daily fluid intake was calculated as oral plus intravenous intake of 3500 to 4000 cm³. With regard to excretion and defecation, color and amount of urine appeared at normal levels in the patient who had a urinary catheter during his stay in the intensive care unit. There was stool output of at least 1 per day. With regard to activity and rest, because surgical procedures that required immobility were not performed, regular mobilization was provided twice per day. Respiratory cough exercise was provided, and exercises recommended by the physiotherapists were applied. For sleep, the patient, who had irregularities in sleep cycles, had difficulty falling asleep. With regard to risk of danger,

the patient had an Itaki Fall Risk Scale score of 12. With regard to social activity, the patient did not like watching television.

Developmental self-care requirements

Growth and development are a part of the life process of an individual. In the patient, these focused on supporting life.¹⁵

The patient started working at an early age to help his family. The patient seemed worried and anxious due to his experiences and exhibited timid behaviors as a result of his burns. He was trying to participate in his care with support from his nurses and was striving to be better; however, he exhibited anxiety because of what he had experienced. An attempt was made to strengthen the psychological resilience of the patient. He constantly asked questions about his current situation and wanted to get information. We aimed to have the nurses approach the patient in a professional manner and provide the information he wanted. Considering the young age of our patient, he was able to cope with his situation. He never gave up.

Self-care requirements in health deviation

Orem defines health deviations as personal care needs that manifest themselves in the presence of problems, diseases, and treatment in front of individual recovery. Current complaints can be evaluated within this subgroup.¹⁵

Our patients required dressing changes, and plans for risk of infection due to open wounds and risk of contraction in the extremities were made. The privacy of the patient was important during dressing changes and care. The patient was started on pharmacological treatment to prevent pain-induced mobilization and improve quality of life. The patient was able to accept the changes in his lifestyle and fulfill his self-care needs under the nurse's guidance. For this reason, it was required for the nurse to follow the patient closely, monitor for signs of infection, and make the patient move in bed. The patient stated that, at first, he had

TABLE 2. Patient's Laboratory Findings

Test Name	Result (Normal Range)	Test Name	Result (Normal Range)
Hemoglobin	16.1 g/dL (13.5-18 g/dL)	Creatine kinase	788 U/L (30-200 U/L)
Hematocrit	46.7% (36%-50%)	Procalcitonin	0.12 ng/mL (<1.2 ng/mL)
White blood cells	39.2 × 10 ³ /μL (4.5-11 × 10 ³ /μL)	BUN	12 mg/dL (6-26 mg/dL)
Thrombocytes	271 × 10 ³ /μL (150-400 × 10 ³ /μL)	Creatine	0.6 mg/dL (0.7-1.3 mg/dL)
Calcium	7.0 mg/dL (8.5-10.2 mg/dL)	Albumin	1.4 g/dL (3.4-4.8 g/dL)
Potassium	4.4 (3.5-5.2 mmol/L)	CRP	7.8 mg/dL (0-5 mg/dL)
Magnesium	1.83 (1.6-2.6 mg/dL)	CK-MB	5.8 U/L (0-7.2 U/L)
Phosphorus	3.5 mg/dL (2.3-4.7 mg/dL)		

Abbreviations: BUN, blood urea nitrogen; CK-MB, creatine kinase-myocardial band; CRP, C-reactive protein

distrust of the hospital employees, but this distrust became trust over time.

A total of 13 nursing diagnoses were made during our patient's stay in our hospital (Table 3).¹⁷

TABLE 3. Nursing Care Plan According to the Orem's Self-Care Theory

Nursing Diagnosis	Aim	Nursing Interventions	Evaluation
Risk of infection secondary to a burn due to having a site (entry site) for organisms to enter and spread through the body	Absence of signs and symptoms of infection	<ul style="list-style-type: none"> - Follow aseptic rules in applications made for patient - Perform patient dressings regularly, with sterilization given importance during the dressing application - Take wound culture samples every week - Make visitor restrictions - Evaluate daily central catheter insertion site and incision site in terms of redness, temperature, swelling, and pain - Make requirements for dressing in a way that the patient can understand; explain that, if there is no dressing, infection will develop in his wounds, current condition will worsen, and he may be admitted to the intensive care unit again 	Gram-negative growths were observed in the wounds of our patient.
Acute pain secondary to burn, due to tissue trauma and reflex muscle spasms	Less than 3 pain experiences on a 0 to 10 pain scale and verbally and nonverbally expressing that his pain has passed	<ul style="list-style-type: none"> - Evaluate level of pain using the pain scale - Use ordered analgesics; reevaluate patient pain after use - Relieve patient pain and provide comfort so that the patient's physical therapy could be applied without any problems 	After administration of the ordered analgesics, patient evaluated his pain as 3 at the highest.
Anxiety that is related to the threat perception of the self-concept, secondary to the thought of not being accepted by others	Ensure that patient has a maximum of 2 anxiety at levels from 1 to 5	<ul style="list-style-type: none"> - Evaluate patient's anxiety level - Maintain calm and reassuring approach toward patient - Listen to patient with attention and interest - Work to understand how patient perceives a stressful situation 	Our patient evaluated his anxiety level as 2 (which was the highest).
Impairment of physical mobility secondary to burn due to decreased stamina and strength	Ensure that mobilization of patient (who had burns to feet and legs) is prevented at a minimum level	<ul style="list-style-type: none"> - Teach patient how to use the splint - Encourage splint use and mobilization - Ensure elevation in bed - Gradually increase activities as possible; do not follow these steps in haste but ensure that patient increased activities voluntarily, allowing him to see self-confidence and competence 	Contractures occurred in our patient's legs that prevented him from walking.
Disturbance in self-esteem due to changes in appearance secondary to burns	Ensure patient's self-confidence so that he can adapt to the external environment	<ul style="list-style-type: none"> - Establish a trusting relationship between patient and nurses - Encouraged patient to act - Encourage patient to ask questions about the course of his treatment - Allow patient to communicate with other patients 	Patient was able to talk comfortably with other patients and expressed his feelings easily.
Lack of knowledge in progress of treatment	Eliminate patient's lack of knowledge	<ul style="list-style-type: none"> - Provide information on procedures and treatments - Prepare patient for discharge - Provide information on how to participate in his care - Encourage patient to ask questions 	Our patient was informed about the treatment process and discharge.
Fear due to uncertainty of surgical results	Eliminate fear in the patient	<ul style="list-style-type: none"> - Work to speak slowly and calmly with patient - Orient to the environment by making simple explanations - Use simple and direct expressions 	Patient talked about fears and gave correct information.
Lack of self-care due to dysfunction of extremities secondary to burn	Ensure maximum participation of the patient in self-care	<ul style="list-style-type: none"> - Ensure patient participation in care - Enable patient to make decisions regarding care 	Patient has reached most of the self-care levels.
Bleeding risk due to surgical procedures and anticoagulant therapy	Prevent possibility of bleeding that may develop after patient's surgeries and anticoagulant treatments	<ul style="list-style-type: none"> - Closely follow vital signs - Protect patient from traumas and provide safety measures for falling - Monitor blood gas levels 	Bleeding did not occur in our patient.

TABLE 3. (Continued) Nursing Care Plan According to the Orem's Self-Care Theory

Deterioration in skin integrity secondary to edema, secondary within decreased tissue nutrition and blood supply	Ensure that patient is discharged with least scarring possible; apply nursing interventions for deterioration of skin integrity	- Regularly perform dressing changes - Provide balanced, protein-rich and regular nutrition	Our patient was discharged with obvious scars.
Fluid volume deficiency due to increased evaporation loss and capillary permeability in the burn wounds	Ensure adequate fluid intake of patient	- Follow patient's intake and output - Evaluate liked and disliked liquids and foods and progress diet in this direction - Provide intravenous hydration - Monitor blood values	Our patient's skin moisture and skin turgor were at normal levels.
Secondary to burn; it is difficult to get enough calories despite increased calorie requirements; nutritional imbalance: less than necessity	Ensure adequate and balanced nutrition	- Calculate daily calories - Provide diet high in protein - Add favorite foods to his diet - Add enteral products with high nutritional value to diet	Adequate nutritional intake of our patient was provided.
Pain-related sleep pattern disturbances	Ensure that patient received enough sleep and rest	- Reduce noise/sounds - Limit daytime sleep - Arrange procedures so these will not be performed during sleep period - Reduce light of the sleeping environment	Our patient slept at least 6 hours a day and felt rested when he woke up.

CONCLUSIONS

Our patient stayed in our clinic for a total of 85 days, and he underwent numerous dressing and surgical procedures. Dressings of our patient were changed every day, and these procedures were performed under anesthesia. Within the scope of this case report, in which we included Orem's Theory of Self-Care Insufficiency for nursing care, we made a total of 13 nursing diagnoses for our patient. With the nursing care applied, other than with regard to surgical procedures and treatments, our patient's pain, lack of knowledge, and fear were relieved; his anxiety level was reduced; his nutrition and fluid intake were regulated with adjustments to his diet; and his participation in care and treatment increased, which helped his self-confidence. Contractures developed in our patient's legs that prevented him from walking upright. Our patient was discharged but with continued physical therapy, which included pain control during training, maintenance of movement and exercise, giving information about outpatient follow-up, skin care, protection from sun rays, and nutrition.

REFERENCES

- Kaddoura I, Abu-Sittah G, Ibrahim A, Karamanoukian R, Papazian N. Burn injury: review of pathophysiology and therapeutic modalities in major burns. *Ann Burns Fire Disasters.* 2017;30(2):95-102.
- World Health Organization. Burns fact sheet; 2018. Accessed May 15, 2021. <https://www.who.int/news-room/fact-sheets/detail/burns>
- Yasa MK, Sivrikaya SK. Infection control and care management in burnt patients in intensive care. *Arch Source Rev J.* 2021;30(2):68-75.
- Hashemi F, Rahimi Dolatabad F, Yektatalab S, Ayaz M, Zare N, Mansouri P. Effect of Orem Self-Care Program on the life quality of burn patients referred to Ghotb-al-Din-e-Shirazi Burn Center, Shiraz, Iran: a randomized controlled trial. *Int J Community Based Nurs Midwifery.* 2014;2(1):40-50.
- Sarigöl Ordin Y, Sütsünbuloğlu E. Burn wounds and nursing care. *Türkiye Klinikleri Surg Nurs Special Topics.* 2017;3(3):216-23
- El Khatib A, Jeschke MG. Contemporary aspects of burn care. *Medicina (Kaunas).* 2021;57(4):386. doi:10.3390/medicina57040386
- Akarsu S, Durmuş M, Yapıcı AK, Öznur T, Öztürk S. Yanık Hastalarının Psikiyatrik Yönden Değerlendirilmesi ve Rehabilitasyonu. *Türk J Plast Surg.* 2017;25(1):20-27.
- Elshebiny OE, Salem MA, El-Sabbagh AH, Elhadidy MR, Eldeen SM. Quality of life of adult patients with severe burns. *Burns.* 2011;37(5):776-89. doi:10.1016/j.burns.2010.12.017
- Wilson J, Gramling L. The application of Orem's Self-Care Model to burn care. *J Burn Care Res.* 2009;30(5):852-858. doi:10.1097/BCR.0b013e3181b48a2d
- World Health Organization. What do we mean by self-care? Accessed May 17, 2021. <https://www.who.int/reproductivehealth/self-care-interventions/definitions/en/>
- Başoğlu C, Buldukoğlu K. Psikiyatrik Bakımda Orem'in "Öz Bakım Eksikliği Kuramı" nın Kullanımı: Olgu Sunumu. *ACU Sağlık Bil Derg.* 2020;11(4):729-737. doi:10.31067/0.2020.325
- Parissopoulos S, Kotzabassaki S. Orem's Self-Care Theory, transactional analysis and the management of elderly rehabilitation. *ICUS Nurs Web J.* 2004;17:1-11.
- Çelik YM. Orem'in öz bakım eksikliği kuramı ve bu kurama göre sağ ayak bileği ve pelvis kırığı olan hastanın hemşirelik bakımı. *Sağlık Toplum.* 2019;29(3):99-104.

14. Nursing Theory. *Orem's Self-Care Deficit Nursing Theory*. Accessed May 17, 2021. <https://nursing-theory.org/theories-and-models/orem-self-care-deficit-theory.php>
15. Akbaş D, Aykar FŞ, Yıldırım Y, Fadiloğlu, ZÇ. Orem'in Öz Bakım Yetersizlik Kuramına Göre Yanık Hastasında Olgu Sunumu. *Bandırma Onyedü Eylül Üniversitesi Sağlık Bilimleri ve Araştırmaları Dergisi*. 2020;2(1):54-63.
16. Lund CC, Browder NC. The estimation of areas of burns. *Surg Gynecol Obstet*. 1944;79:352-358.
17. Carpenito-Moyet LJ, Erdemir F, trans-ed. *Manual of Nursing Diagnoses*. 3rd ed. Nobel; 2012.