

## Nurses' knowledge in nursing care and treatment of burns

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### Suggested Citation:

Qtait, M. (2022). Nurses' knowledge in nursing care and treatment of burns. *International Journal of Emerging Trends in Health Sciences*. 6(2), 63-71. <https://doi.org/10.18844/ijeths.v6i2.8414>

Received from April 15, 2022; revised from June 12, 2022; accepted from August 26, 2022.

Selection and peer review under the responsibility of Prof. Dr. Nilgun Sarp, Uskudar University, İstanbul.

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### Abstract

Burn is one of the most painful and costly injuries to get. Burn patients need the nurse's help more than anyone else to improve. This study aims to determine how much hospital nurses know about burns, burn treatments, nursing care for burns, and their effects. The study had a quantitative descriptive design, conducted at government and non-government hospitals in the south of the West Bank, with 223 nurses. The results revealed that most nurses have inadequate knowledge of burn care, moderate knowledge of burn nurse treatment knowledge for complications, adequate knowledge of renal failure, sepsis, and shock, and adequate knowledge of deep vein thrombosis and pulmonary edema. The nurses' expertise in burn treatment and nursing was average, and their understanding of burn therapy and related hospital-based problems was also intermediate.

**Keywords:** Burn; burn treatment; care; nurse knowledge.

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## 1. Introduction

Injuries are a substantial global public health issue because they affect an increasing number of individuals every year in every part of the world (Leaver et al., 2021). Compared to other types of injuries, burns have traditionally been viewed as among the worst since they result in death and have far-reaching socioeconomic consequences and persistent physical aftereffects (Forjuoh, 2006). A burn is damage to the skin brought about by high temperatures, fluid, electricity, chemicals, friction, or radiation.

Nurses play a vital role in the treatment of burn victims (Tetteh et al., 2021). They must be burned victims with the protocols at their disposition to deal rationally with any situation. In addition to medical care, the management method entails psychological testing of the affected person and their loved ones (Dooley-Hash, 2011; Bijani & Mohammadi, 2021). Due to most of the nurses' lack of knowledge, poor practice, and unfavorable attitudes toward burn patients, the current study recommends that continual education and updating be provided for nurses regarding evidence-based nursing practices (Mohammed et al., 2021).

The public health crisis that is burn injuries is a global issue, and they are among the most devastating injuries. Burn injuries are the fourth biggest cause of death worldwide, after accidents, falls, and acts of aggression against people. 90% of burn injuries occur in middle-income poor countries, which generally lack the means to appropriately treat burns (Thomson et al., 2020). In the Eastern Mediterranean Region of the World Health Organization, which includes the occupied Palestinian territories, there has been an increase in the number of deaths and disfigurements that are caused by burns.

The area of the West Bank the Ministry of Health thinks that 7,600 people get burned every year in the West Bank. 32.4 percent of the burn patients who were taken to the hospital were between the ages of 11 and 20, 15.4 percent were over the age of 21, and 51.1 percent were children under the age of ten. Based on the same survey, most burns happen in the winter, and 62.3% of burn patients are women. The number of burn victims and what happens to them in the West Bank Burn Clinics in 2016 and 2017 for women, winter activities, scald burns, and children under 14 years old, among other groups and situations where special care may be needed to avoid burns. Deep burn full-thickness burns, burns with a larger Total body surface area, getting older, getting more treatments, and getting better at what you do should all be at the top of the list for personalized burn prevention and recovery techniques. Most burns happen at home, so prevention and awareness campaigns should focus on both how to treat burns and how to keep them from happening (Qtait and Alekel, 2018).

A nurse caring for a burn patient needs to be well-versed in the aftereffects of burns, have sharp assessment skills that allow them to notice even the most minute changes in their patient's state and have excellent interpersonal and communication abilities. A nurse's job is both difficult and gratifying when caring for a patient who has suffered a burn injury. Comprehensive clinical assessment and monitoring, pain treatment, wound care, and psychological and social support are just some of the many specialized skills required. The nurses, meanwhile, are crucial in this regard.

Nurses caring for burn patients should have the ability to quickly assess and respond to even the most minute changes in their patients' conditions, as well as the necessary knowledge of the physiological effects of burns. At the outset of treatment, therapists could develop a caring rapport with patients and their loved ones. An audit cycle is a tool for bridging the gap between research and practice. When it comes to teaching ways to avoid burn injuries and improving the overall outcome for burns in children, nurses play a significant role. Advances in resuscitation, surgical and anesthetic methods, infection control, nutritional and metabolic support, and other areas have contributed to the rise in survival rates (Ignatavicius et al., 2021).

### **1.1. Purpose of study**

Nurses are the backbone of the medical system, especially for burn patients. Nurses' clinical, pharmacological, and preventative burn care expertise has a significant impact on patient treatment and infection control. By focusing on the nurses' knowledge in this area, it is possible to improve clinical therapy and health promotion for burn patients. Furthermore, this point of view is not given sufficient consideration in the area. The West Bank Hospital nurses' expertise in burn care was the subject of this study, the objective of which was to evaluate that expertise. The focus of this study was on determining whether there is a correlation between the years of experience and education that nurses have and their overall degree of skill.

## **2. Materials and Methods**

A descriptive research design was used for the current study.

### **2.1. Participants**

Stratified random sampling was used to choose the sample of 223 nurses for the study. 89% of the nurses in the sample responded is important that all nurses who are currently employed in hospitals be included in the study population, and that this fact is taken into consideration when selecting a random sample from among the nurses who are currently employed in hospitals for the study. The sample for the study consisted of 223 registered nurses who were currently employed in either the south or the west bank of the territory. They were selected from a population that had been partitioned into five different groups before ion. Inclusion and exclusion criteria were applied. For inclusion criteria, all nurses in the West Bank work in government and non-government hospitals and were willing to take part in the study. For exclusion criteria included the non-hospitalized nurses and those who choose not to participate in the study.

### **2.2. Data collection instrument**

For this study, the following methods were used to gather information: A structured, self-administered questionnaire with four parts was used to get information about burns, nurses' knowledge, attitudes, and behaviors, as well as their knowledge of how to treat burns and deal with burn complications.

### **2.3. Analysis**

After evaluating past research, the researcher in this study uses the instrument used in the study. The word "content validity" refers to how effectively the questions connect to the topic of the study. This study's instrument was developed by the researcher herself and is backed by research from the past (Mussa, 2012). The term "content validity" provides an account of how closely the questions deal with the subject at hand. This article criticized the content validity of instruments, or their capacity to measure the study's foci. The questions were created to assess several aspects of your familiarity with burns and their complete

Coefficient alpha (also known as Cronbach's alpha) is a statistical measure of the reliability of a questionnaire, with values between 0.00 and 1.00 indicating that the questions are generally consistent with one another. Cronbach's alpha for the complete scale was 0.82 (Table 1), indicating strong internal consistency for the research's multiple measurements.

**Table 1**

<i>Reliability</i>	
<b>Reliability</b>	
Cronbach's	
Alpha	Items number
0.82	19

## 2.4. Pilot Study

A pilot study was conducted to ensure the reliability and validity of the questionnaire. Data collection lasted till January 6th, 2022. The pilot study's objectives included estimating how long data collecting would take, testing the questionnaires' reliability and validity, checking that they were easy to understand and covered all relevant topics, and identifying potential obstacles to the main study's data gathering.

Fifteen RNs were utilized in the pilot testing of the instrument. In addition to establishing the questionnaire's dependability with an alpha correlation coefficient of (0.82), replies also showed a good degree of coherence in terms of comprehending the questions asked.

## 2.5. Ethical consideration and accessibility

Ethical principles outline how one should act in a way that benefits everyone involved. After receiving thorough explanations of the study's aims, confidentiality, and funding, participants signed a consent form (included with the questionnaire). It was made abundantly apparent to all participants that they were under no need to fill out any of the questionnaires, and they might withdraw from the study at any moment, as stated on the informed consent forms that were provided with each one.

## 3. Result

**Table 2**

*Demographic variable*

Age	Percentages
(20-25)	9% (20)
(25-30)	28% (51)
(30-35)	39% (87)
(36-41)	17% (38)
(42)	7% (27)
	100%
<b>Gender</b>	%
Male	51.7(115)
Female	48.3.(108)
20	100%
<b>Level of Education</b>	%
Diploma	26.9% (60)
Bachelor	66.4% (148)
High diploma or master or master's	6.7% (15)
	100%
<b>Years of experience</b>	%
(1-5)	33% (74)
(6-10)	41% (91)
(11-15)	18% (40)
(More 15)	8% (18)
	100%
Ward	
Surgical	36% (80)
Emergency	40% (90)
ICU	26% (53)
	100%
Type of hospital	
Government	40% (90)
Non-government	60% (133)
	100%

According to Table 2, the age group (30-35) represents a higher percentage (39%), than the age group (25-30) with a percentage of 28%. Males account for 51% of the population. According to the level of education, most of the participants have bachelor's degrees (66%), years of experience (5-10) (41%), and experience (1-5) (33%). Non-government 60% for the working place.

**Table 3**  
*Percentage Nurse of s training before in burn care*

No.	Items	Result	
		Yes	No
2.1	Nurses training in burn care	33% ((74)	77% (149)

Findings from Table 3 show that only 33% of nurses have previously received burn care training.

**Table 4**  
*knowledge of burn among Nurses*

No.	Question	Result			Mean
		I know	Uncertain	I don't know	
1	Assessment of pain	60%	26%	14%	1.54
2	Find the percentage and degree of burn.	40%	40%	20%	1.8
3	Measuring vital signs from different sites of the body	60%	33%	7%	1.47
4	The necessity of nursing documentation	50%	37%	13%	1.39
5	Constant monitoring of the patient's weight is essential.	50%	25%	25%	1.75
6	Supportive food for burn patients	60%	34%	6%	1.46
7	Care of invasive Catheters	60%	28%	12%	1.52
8	dressing method	30%	28%	42%	2.12
9	The appropriate technique of sterilization	60.5%	33.7%	5.8%	1.45
10	Health education for the patient and family	30%	22%	46%	2.12
11	Microorganisms that cause infection	24%	23%	53%	2.3

Note: Results Table 4 reveals that the mean scores of nurses were deficient on (4) items (2,5,8,10,11), with a mean score of (1.72), showing that the nurses lacked acceptable knowledge of burn care.

**Table 5**  
*scores of nurses' knowledge of the treatment of burn*

No.	Question	Result			Mean
		I know	Uncertain	I don't know	
1	Types of intravenous fluids needed for burn patients.	40	23	37	1.97
2	quantity of fluid determined to require replacement	33	24	43	2.1
3	Time allotted for therapy (fluid replacement)	29	32	39	2.1
4	Types of antibiotics	20	19	61	2.41
5	Side effects of antibiotics	45	25	30	1.85
6	Types of analgesics	28	25	47	2.19
7	Provide psychological support	36	22	32	1,77
8	Assess the respiratory system for abnormality	39	29	32	1.93
	Total				2.04

In Table 5, the mean scores for nurses' hospital knowledge were moderate for four items (2, 4, 6), adequate for four items (1, 5, 7, 8), and the average mean score was 2, indicating that nurses had a moderate understanding of burn care.

**Table 6**  
*scores of nurse's knowledge of dealing with complications of burn*

No.	Question	Result		
		I know	Uncertain	I don't know

		I know	Uncertain	I don't know
1	Heart failure	33	29	38
2	Pulmonary edema	40	38	22
3	Sepsis	63	27	10
4	Paralytic ileus	30	23	47
5	Shock	54	29	17
6	Deep venous thrombosis	44	32	24
7	Renal failure	50	33	17

Table 6's results showed that the average score of nurses who knew the edge in the hospital was adequate in sepsis, renal failure, shock, and deep vein thrombosis, and moderately adequate in pulmonary edema. In addition, the risk of paralytic ileus and heart failure is low.

**Table 7**  
*correct answers in nurses with different experiences and training course*

Training courses and experiences	Frequency	Mean	Standard Deviation	P-Value (Two-Sided)
<b>Experience Duration in work</b>				0.198
1-5 y	7	22.5	0.71	ANOVA-One Way
6 -10 years	39	19.0	3.95	
11-15 years	11	22.0	2.70	
More 15 years	17	19.0	2.82	
<b>Nurses training in burn care</b>				0.04sz
Yes	74	20.23	3.86	Independent t-test
No	7	19.29	3.59	

In Table 7, we looked at how many of the "burning knowledge" questions experienced and well-trained nurses got right. There was no statistically significant difference in how well nurses did ( $P=0.198$ ) between groups with different levels of experience. Also, the difference in the number of correct answers between those who went to a training course and those who did not ( $P=0.04$ ) was statistically significant.

#### 4. Discussion

There were 51.0% of the study participants were men and 49.0% were women. About 60% worked in hospitals that were not run by the government and 40% worked in government hospitals. Over 66.4% of experienced nurses had a bachelor's degree, while 27.0% had only a high school diploma and 6.7% had a master's degree. 33% have less than five years of experience, 41% have between five and ten years, and 21.5% have more than ten years of experience. 45% of nurses are younger than 30, 40% are between the ages of 30 and 39, and 15% are older than 39.

The present study revealed that hospital nurses exhibit a moderate level of knowledge. This result is the result of a mediocre care-training program and the routine transfer of nurses across hospital units for unsatisfactory reasons. In addition, this hurts their overall hospital experience and knowledge.

Despite evidence to the contrary, hospital nurses miss numerous essential nursing services. Determine the degree and percentage of the burn, educate the patient and his or her family, and evaluate the patient's respiratory state. Throughout the first few weeks following a burn injury, the patient's ongoing examination focuses on hemodynamic changes, wound healing, pain, psychological reactions, and early issue diagnosis. Brunner et al. (2010 as cited in Jeschke et al, 2020) state that assessing the patient's respiratory and fluid status is the top priority for identifying potential problems.

According to pain assessment knowledge and nursing care are high because the pain assessment patients express their pain by adopting both verbal and communication non-verbal clear and that accepted with study (Tetteh et. al, 2021). For Calculate, the degree and percentage of burn certain answer 40% that is low and accepted with the study. For the dressing, method knowledge is

low with a percentage of 40% that's maybe a different method of dressing, and a lot of materials used in burn dressing that accept by the study (Bibi et al., 2022). Nurses' knowledge in the present study was low regarding microorganisms, low related not work in the burn department, and accepted with study (Bibi et al., 2022).

Like other states, a centralized burns unit. A significant number of burn victims are initially treated in a hospital on the periphery before being transferred to a larger facility. Consequently, it is crucial that the nurses in the emergency departments of these hospitals have sufficient knowledge of fluid management, and types of antibiotics Results of the current survey indicate low knowledge, of use of the fluid management that accepts the study (Lam et al., 2018). Despite the provided results, hospital nurses disregard some essential nursing services, like an assessment of pain, education for the patient and family, assessment of respiratory function, and provision of psychological support (Mussa & Abass, 2014). Both Hospitals appear to have appropriate knowledge of burn complications.

Training courses improve the knowledge of nurses and that has been confirmed in previous studies (Mohaddes et al, 2014; Kadhim, & Hamza, 2020; Burns et al., 2022). By comparing nurses with different backgrounds and levels of experience in burn care, the current study showed that nurses' knowledge and training in this area of practice are statistically linked. Age, education, job experience, and gender of a nurse don't always have anything to do with the quality of care they give. "Nurse Knowledge of Emergency Management for Burn and Mass Burn Injuries" found a statistically significant link between nurses' burn care knowledge and the amount of time they spent in burn care training (Lam, Huong, & Tuan, 2018). In contrast, a study called "The effect of self-care compact disk-based instruction program on physical performance and quality of life of burn patients at discharge" found a statistically significant link between nurses' knowledge and their gender, level of education, and marital status. Their results are about the same as ours.

According to the literature, nurses may have inadequate burn management knowledge. When it comes to caring for burn victims, just 22.4% of the nurses in the sample population had adequate knowledge, according to research by (Meschial and de Oliveira, 2014). Therefore, healthcare facilities need effective methods of educating this vital workforce.

## 5. Conclusion

The nurses' knowledge of burns and nursing care was of a standard that was considered moderately adequate, as was their hospital's knowledge of burn complications. The study's results could help with similar studies in the future. In this situation, the results have important implications for nursing education. Service, doing things, and learning more. Experts teach the nurses on staff how to care for burn patients as part of their education. Hospitals should offer refresher courses for staff nurses, such as an in-service education program, as part of their nursing administration.

Training the nursing staff in developed knowledge and skills. As a result of this study, a protocol will be established for the nursing care of burn patients in burn centers, and the nursing staff of developed centers, whether they are located within or outside of the country, will be trained. Implement a policy that restricts nurses' ability to move between the various units of the hospital.

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