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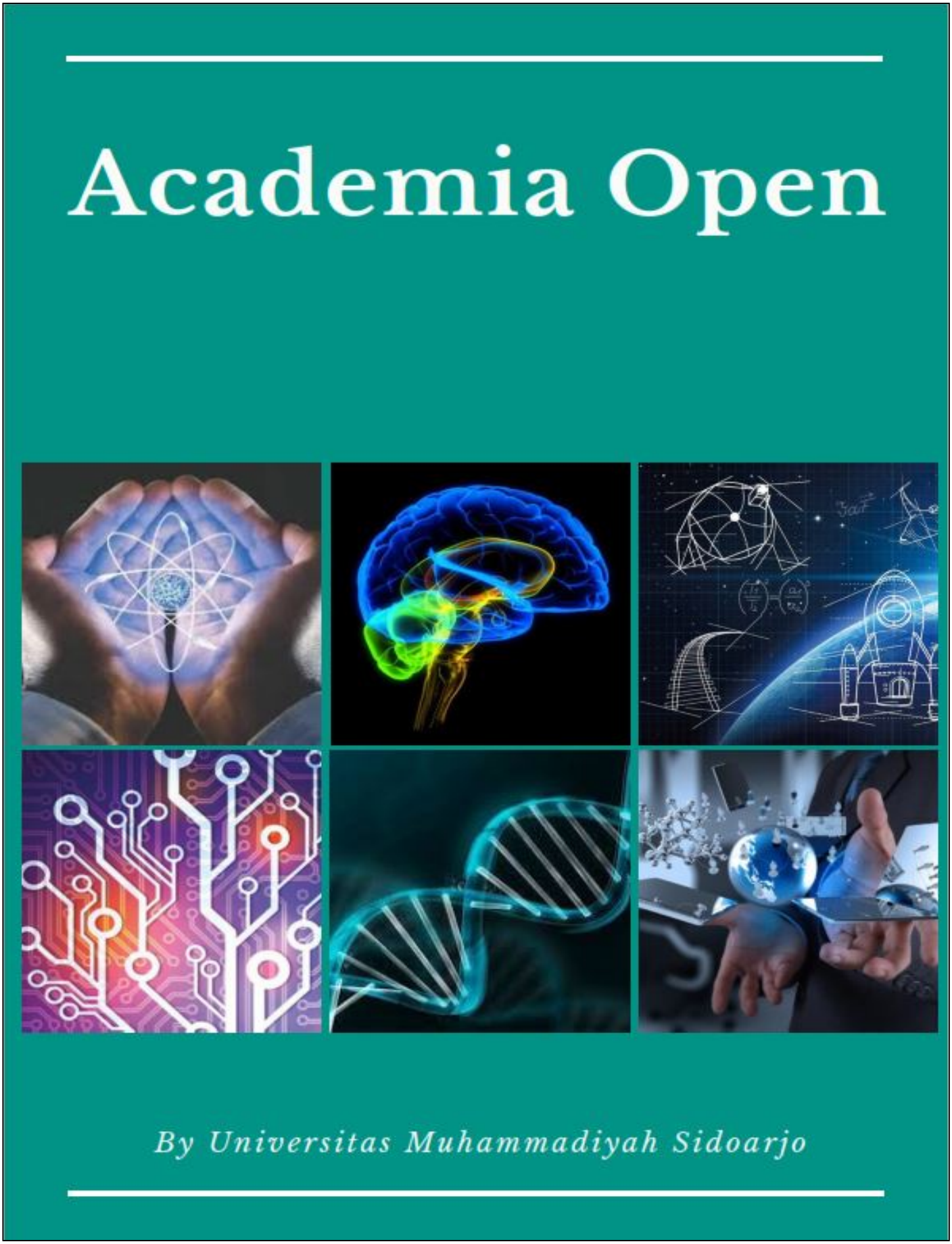

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Burn Management by Nursing Students at Basrah University-Iraq

Penanganan Luka Bakar oleh Mahasiswa Keperawatan di Universitas Basrah-Irak

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Abstract

Background: In the process of managing burns, especially mass-burn injuries, first aid, and proper initial care are regarded as crucial measures. Improving the standard of burn treatment is largely dependent on the expertise and practical abilities of nursing students working in burn departments.Methodology: 150 students, both male and female, participated in a descriptive cross-sectional study design at Basrah University's College of Nursing to assess their burn management expertise. Data was gathered via a questionnaire with closed-ended questions. The survey is divided into two sections. The first section includes five questions on the students' sociodemographic traits, such as their age, gender, study type, graduation stage, and place of residence. Twenty questions in the second section of the survey ask about students' understanding of burn management. The study employed a standardized 3-point Likert scale with the options YES, NO, and I DON'T KNOW. 150 students were given the completed questionnaire form, which they read and completed. The researchers then collected the completed form. Results: Most of the sample were in the age interval 19-28,22% of the sample were males and 78% were females. The students had good knowledge about burn management. There are highly significant associations between the academic stage and the scores students got. Conclusions: Most of the samples were in the age interval 19-28 years. The students had good knowledge about burn management. There was a highly significant association between the academic stage and the scores the students got. Recommendations: Expand the burn course to enhance students' knowledge and Introduce a simulation lab about burn management as part of the skill lab. In the College.

Highlights:

1. Knowledge of burn management linked to academic stage progress.
2. Most participants were female and aged 19-28 years.
3. Enhance skills with expanded courses.

Keywords: Burn management, nursing students, descriptive study, knowledge assessment, Basrah University

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Introduction

The majority of people globally are directly impacted by injuries, which are a rising health concern [1]. The majority of people globally are directly impacted by injuries, which are a rising health concern [2]. Burns are a kind of skin damage brought on by radiation, heat, electricity, chemicals, or friction [3]. Burns are regarded as a severe health issue, with an estimated 180,000 deaths each year, most of which take place in low- and middle-income nations [4]. In 2018, around 11 million people suffered severe burns that affected a significant portion of their body surface. People of different ages and socioeconomic backgrounds can get burn damage [5].

When it comes to the crucial care of a burn patient, nurses are essential. To handle a situation logically, they need to be familiar with the various kinds of protocols that are available. Medical and psychological evaluations of the patient and their family should be part of the management [6].

Removing burned clothing, properly cleaning the area, and covering it with sterile clothing are the steps involved in managing local injuries at the accident scene. The maintenance of vital functions, appropriate replacement therapy, and analgesia are all manifestations of the ongoing treatment in the relevant hospital's emergency room [7].

Managing these patients entails both short-term care in the ER and long-term care in the burn unit. Prioritizing the airway, breathing, and circulation is the first line of treatment. Long-term care objectives include wound debridement, controlling the hypermetabolic reaction, and preventing infection and multiple organ failure [2]. It is reasonable to assume that one of the main issues facing personnel who are treating severe burns is fluid loss. Burn patients' prognosis and outcome are directly improved by appropriate hydration management [8]. The American Burn Association recommends that fluid resuscitation be administered to both adult and pediatric patients whose burns exceed 20% of their total body surface area (TBSA) under their weight and the surface area that has been burned. [9].

An injury to the skin or other tissues brought on by heat, cold, electricity, chemicals, friction, or UV light (such as sunburn) is called a burn [10]. The majority of burns are caused by heat from fire, solids, or hot liquids (scalding) [11].

Burns mostly happen at home or work. Stoves, flames, and hot liquids are among the hazards that come with domestic kitchens. Risks in the job include electric burns, chemical burns, and fire. Other risk factors include smoking and alcoholism. Burns can also happen from interpersonal violence or self-harm [12].

People of different ages and socioeconomic backgrounds can get burn damage. Every year, an estimated 40,000 people are admitted to hospitals and 486,000 people need burn treatment. Flame-related cases accounted for the greatest percentage (43%), followed by scalding (34%), direct source contact (9%), electrical (4%), chemical (3%), inhalation-only (2%), and unspecified or miscellaneous categories (5%). Burn injuries are excruciating, expensive, deformity-causing, necessitate significant and prolonged rehabilitative treatment, and are frequently linked to permanent disability. Significant improvements in the morbidity and mortality of burn patients have been made possible by advancements in burn care, such as effective fluid resuscitation, infection management, early excision, and grafting, an improved team approach, and the establishment of dedicated burn facilities. To maximize patient outcomes, the nurse's role in the interdisciplinary treatment team includes providing comprehensive, evidence-based care throughout the whole burn injury recovery process [13].

Classification of burns:

Burns are categorized into four degrees based on the extent of tissue loss [14]

1. The entire epidermis and different areas of the dermis are affected by partial-thickness or second-degree burns. They hurt and are usually linked to the development of blisters. The healing period usually lasts between two and three weeks, depending on the extent of the skin injury. Skin appendages and hair follicles are still present. The presence of blisters is common, and they are usually extremely painful [15].

2. Burns that just affect the skin's outermost layer are referred to as superficial or first-degree burns. [15]. The pain usually lasts for three days, and they appear red without blisters [16][17].

3. The epidermis and dermis are destroyed in third-degree (full-thickness) burns, and occasionally the underlying tissue is also harmed. The color of wounds can vary greatly, ranging from burned to red, brown, or pure white. Due to damaged nerve fibers, the burned area is numb. Hair follicles and sweat glands are damaged, and the microcirculation is disrupted, giving the wound a leathery, dry appearance. Patients are frequently misled by the intensity of this burn as they don't experience any pain where the injury occurred [15,16].

4. Burns that penetrate deep into muscle, bone, or tissue are referred to as fourth-degree burns (deep burn necrosis) [15][16].

Extent of Body Surface Area Injured:

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The rule of nines, the Lund and Browder method, and the Palmer method are some of the techniques used to estimate the TBS impacted by burns. These resources help the medical team decide on the course of treatment, which may involve moving the patient to a burn center. Burn centers are located in hospitals and are specifically furnished with the tools and staff needed to care for burn patients from the moment of injury until they recover. The American College of Surgeons jointly grants burn center status, which establishes the standards for referral to a burn center [18].

Rule of Nines:

The rule of nines is the most widely used technique for estimating the severity of burns in adults. Clinicians can rapidly determine the size of burns using this approach, which is based on anatomic regions that each account for around 9% of the TSA. The TBS is computed by the percentage of an anatomic area that is burned; for instance, if roughly half of an arm were burned, the TBSA burned would be 4.5% [19].

Lund and Browder Method:

The Lund and Browder method, which calculates the percentage of the surface area of different anatomic parts—particularly the head and legs—as a function of the patient's age, is a more accurate way to determine the extent of a burn. Clinicians can get a trustworthy estimate of TBSA burned by segmenting the body into extremely small sections and estimating the percentage of TBS accounted for by each bodily part. The initial assessment is performed when the patient first arrives at the hospital and should be updated within the first 72 hours because by then the wound's delineation and depth become more apparent. Both printed and electronic versions of the Lund and Browder chart are easily accessible [19].

Palmer Method:

The Palmer method can be used to determine the number of burns in patients who have dispersed burns. About 1% of the patient's TBSA is represented by the size of their hand, including their fingers [20].

Management:

Resuscitation:

Starts with evaluating and stabilizing the patient's respiration, circulation, and airway.

1. Until they reach a hospital, people who have sustained severe burns might be covered with clean sheets.

2 If a person has not received a tetanus vaccination in the last five years, a booster injection should be administered because burn wounds are prone to infection.

3 Early feeding is crucial for severe burns. Consuming more protein is also advised, and vitamins and trace minerals are frequently needed. In addition to conventional therapies, hyperbaric oxygenation might be helpful [21][22].

Wound care:

a Early cooling (within 30 minutes of the burn) lessens pain and burn depth, but caution is needed because hypothermia can occur from overcooling. Ice water can further injure the body; hence it is best to execute it with cool water (10–25 °C/50.0–77.0 °F).

b Extensive watering may be necessary for chemical burns.

c. A vital part of wound care includes cleaning with soap and water, removing dead tissue, and applying dressings.

d. Leave blisters intact if they are present.

e. After two days, second-degree burns should be reassessed.

f. First-degree burns can be appropriately treated without dressings. Although topical antibiotics are frequently advised, their usage is not well supported by research. Antibiotics like silver sulfadiazine are not advised since they may lengthen the healing period [23,24,25].

Intravenous fluids:

Boluses of isotonic crystalloid solution should be administered to patients with inadequate tissue perfusion. Formal fluid resuscitation and monitoring should be administered to children who have more than 10–20% TBSA (Total Body Surface Area) burns and to adults who have more than 15% TBSA burns. If at all possible, this should be started before hospitalization for patients whose burns exceed 25% TBSA. The number of intravenous fluids needed

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within the first 24 hours can be estimated using the Parkland formula. The calculation is based on the weight and TBS of the affected person. The fluid is given in two parts: half during the first eight hours and the other half during the next sixteen. The time is measured from the moment of the burn, not from the start of fluid resuscitation. Children need more glucose-containing maintenance fluid. Rarely are blood transfusions necessary. Because of the potential for problems, they are usually only advised when the hemoglobin level drops below 60–80 g/L (6–8 g/dL) [26,27].

Methods

To assess the knowledge of 150 male and female students at Basrah College of Nursing on burn management, a descriptive cross-sectional survey design was used. The present study was carried out at Basrah University, College of Nursing. A convenient sample consisted of (150) students from Basrah University, College of Nursing.

Data was gathered via a questionnaire with closed-ended questions. The survey is divided into two sections. The first section includes five questions about the students' sociodemographic traits, such as their age, gender, study type, graduation stage, and place of residence. Twenty questions make up the second section, which assesses students' understanding of burn control. The study employed a standardized 3-point Likert scale with the options YES, NO, and I DON'T KNOW. After 150 students read and completed the previously completed questionnaire, the researchers gathered the completed forms and assessed each one based on the correct usual response.

SPSS (Statistical Package for Social Sciences) 26 was used to conduct the analysis, where we measured the frequencies, percentages, means of score, and Pearson’s correlation.

Result and Discussion

Age	Frequency	Percent
19-28	124	98.0
29-38	2	1.3
39-48	1	.70
Total	150	100.0

Table 1. *Age of the sample (n=150)*

The table showed that 98% were in the age interval 19-28 years, 1.3 % in the interval 29-38 years and only 0.7 in the 39-48 years.

Sex	Frequency	Percent
Male	33	22.0
Female	117	78.0
Total	150	100.0

Table 2. *Gender of the sample (n=150)*

According to the table, 78% of the sample was female and 22% was male.

Residence	Frequency	Percent
Urban	50	33
Rural	100	66.0
Total	150	100.0

Table 3. *residency of the sample*

According to the table, 66% of the study sample was from rural areas and 33% was from urban areas.

Stage	Frequency	Percent
Second	50	33.3
Third	50	33.3
Fourth	50	33.3
Total	150	100.0

Table 4. *the stage of the sample*

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The table showed that 33% of the study sample was from the second stage, which was equal to the third and fourth stages.

Course	Frequency	Percent
Morning	122	81.3
Evening	28	18.7
Total	150	100.0

Table 5. *Distribution of the students according to course (n=150)*

The table showed that 81.3 % of the study sample was from the morning study and 18.7% from the evening study.

Mean of Score intervals	Frequencies	Percentages
2-2.5	34	22.6 %
2.5-3	116	77.4 %
Total	150	100%

Table 6. *Mean of scores intervals (n=150)*

The table shows the distribution of the study sample according mean of scores they got. 22.6% were within the interval 2-2.5 mean of scores which indicates a significant association between the right answer and the student's responses to the questionnaire i. e. the answers were true to some extent. 77.4% were within the interval 2.5-3 mean of scores which indicates the highly significant association between the Wright answer and the student's responses for the questionnaire i. e. the answer where most of them are true.

Correlations		
	Stage	Scores
Stage	Pearson Correlation	1
	Sig. (2-tailed)	
	N	150
Scores	Pearson Correlation	.283**
	Sig. (2-tailed)	.000
	N	150
**. Correlation is significant at the 0.01 level (2-tailed).		

Table 7. *The correlation between stage and scoring (n=150)*

The table showed that there was a highly significant association between the academic stage and the scores the students got. We examined the statistical correlation between the scores of the students and other demographic features but unfortunately, we did not find any correlation between them.

Conclusion

1- Most of the samples were in the age interval 19-28.

2- (22%) of the sample were males and (78%) were females.

3- The students had good knowledge about burn management.

4- There was a highly significant association between the academic stage and the scores the students got

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