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Original Article

Nurses' Knowledge of First Aid Management of Burn Patients at the Peshawar Burn and Plastic Surgery Center

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ABSTRACT

A burn is an injury to the skin and tissues caused by chemical, electricity, radiation or heat. Burn injuries cause a relatively high morbidity and mortality rates worldwide. **Objective:** to assess first aid knowledge of nurses working in burn centers. **Methods:** A descriptive cross-sectional design with a sample size of 84 using an appropriate sampling technique was used in the study. The study was conducted in July 2022 and he August at the Peshawar Burn and Plastic Surgery Center. The instrument used for data collection was his 10-item self-structured questionnaire with a Chronbach alpha reliability of 0.87. SPSS version 24.0 was used to calculate frequencies and percentages for categorical variables. **Results:** Overall, 56% of participants reported having a good knowledge of burns, while 32% of participants reported being average, and 12% of participants reported first aid for burn patients reported low knowledge. **Conclusions**: This study concluded that nurses working in burn and plastic surgery departments have good knowledge of first aid administration.

INTRODUCTION

An injury to the skin and tissues known as a burn can be brought on by chemicals, electricity, radiation, or heat [1]. The burn is classified according to severity of the burn; first degree burn is an injury to the epidermis, second degree or limited thickness burn is damage to the epidermis and some part of the dermis, third degree burn or full thickness is involved the deepest layer and tissues underneath [2]. Burn related injuries the most common and alarming issues all over the world. According to WHO, nearly 180,000 death occur due to burn every year [3]. The numbers of cases reported in the developing countries are maximum compared to developed countries; therefore the developing countries mortality rate is higher than developed world [4, 5]. Ultimately this extends the Disability Adjusted Life Years (DALYs) in low and middle income countries. According to WHO, the Pakistan has higher incidence 1388/100000 as compared to global incidence which is 110/100000 [6]. Patients with severe burns require an intensive and multidisciplinary medical approach. Nurse's work in burn centers is essential for the care required for burn patients. The knowledge and practices of nurses in burn centers play a vital role in

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providing high quality care to burn patients [7, 8]. Assessment, early response and first aid are the initial steps taken not only for the rehabilitation of burns but also for the mass damages as a result of burns. Mainly burned patients are not treated in specialized burn centers initially, but are treated at local emergency departments of district hospitals as early management. Emergency departments will prioritize cases of mass burn victims, and offer emergency care to the burned sufferers [9]. The advancements and literature available have helped improve burn patient care procedures among nurses worldwide [10]. Burn injuries cause a relatively high morbidity and mortality rates worldwide. Patients with severe burns require an intensive and multidisciplinary medical approach [11]. Globally the world health organization (WHO) estimated that 265000 peoples died annually as a result of burn injuries, among the death rates the people of south asia is more vulnerable (57%), followed by Africa (12.2%) and eastern Mediterranean (11%) [12]. The center for diseases control (CDC) reported that every 2 hourly approximately 2000 peoples death occur, while in every 23 minutes one person affect as a result of burn in the United States [13]. Nurses play a major role in the awareness and control of infections in burn patients. The advancements and literature available have helped improve burn patient care procedures among nurses worldwide [10]. Therefore, the concern of the present study was to find out the way nurses use their knowledge and practices regarding prevention of burn site infections. Additionally, more information and knowledge will be added to the already existing literature about prevention of burn site infections. The basic aim of this study is to assess the knowledge of nurses regarding first aid management of patients with burn injuries in Burn and Plastic Surgery Peshawar.

METHODS

The study used a cross-sectional study design and the study setting was the Hayatabad Peshawar Burn and Plastic Surgery Unit. Sample size was calculated through online calculator having 95% confidence interval and having a 5% margin of error that was 84 while using convenient sampling technique. This survey he conducted in July and August 2022. Nurses working in the emergency room, operating room, and burn ward were inclusion criteria for study participants, and nurses working in plastic surgery were excluded from the study. The vehicle used for data collection was a self-structured questionnaire based on American Burn Association (ABA) and WHO guidelines so the validity and reliability of the content has been reviewed and assessed by experts involved in burns and management. A pilot study was conducted on questionnaire reliability with a sample size giving a Chronbach alpha of 0.87 in her 10% of participants. Questioners were reviewed by the Peshawar Tertiary Hospital Ethics Review Board and the ERB team. First, the study was approved by the supervisor. This study was conducted at Hayatabad Peshawar Burn Center Hospital. Permission for data collection was granted by hospital administrators. The objectives and objectives of the study were explained to the participants in an understandable manner. Ethical Approval Written approval was obtained from the Director of the Institute of Nursing Sciences KMU. Permission for data collection was granted by the Medical Director of the Peshawar Burns and Plastics Centre. Written consent was obtained from all study participants prior to data collection. Data were collected in a separate room to ensure study confidentiality. The participant was assured that personal data would never be passed on to third parties. Data were investigated with her SPSS version 22.0. Frequencies and percentages were calculated for all study variables. A chi-square test was used to estimate the association between burn patient knowledge level and burn injury and the sociodemographic profile of the participants.

RESULTS

In the current study majority of the participants were female (76.2%) compared to male (23.8%) (table 1).

Characteristics	N (%)
Gender	
Male	20 (23.8 %)
Female	64 (76.2 %)
Age	
Less than 25 Years	33 (39.3 %)
25 - 35 Years	51 (60.7 %)
Experience	
Less than 2 Years	51 (60.7 %)
2 - 5 Years	32 (38.1 %)
6 - 10 Years	1 (1.2 %)
Marital status	
Single	48 (57.1 %)
Married	35 (41.7 %)
Widow	1 (1.2 %)
Qualification	
Diploma in Nursing	36 (42.9 %)
Post RN BSN	21 (24.0 %)
Generic BSN	26 (31.0 %)
MSN	1 (1.2 %)

Table 1: Demographic data of the participants

The nurse's knowledge regarding the first aid management was assessed. The majority (78.6%) of the participants were reported in wounds of thermal water is best measure (table 2).

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	N (%)
1: Use of cold water	
a) Yes	66 (78.6%)
b) No	18 (21.4%)
Total	84 (100.0%)
2: what is your choice in the following?	
a) Ice	17 (20.2%)
b) Toothpaste	26 (31.0%)
c) Fish oil	2 (2.4%)
d) Honey	2 (2.4%)
e) None of above	37 (44.0%)
Total	84 (100.0%)
3: if patient eye is affected then what is your priority ?	
a) Move the victim to the nearest hospital as soon as possible	36 (42.9%)
b) Finding and applying neutral agent	4 (4.8%)
c) Stimulate and keep blinking with fresh water	33 (39.3%)
d) Using high pressure water to clean the injured eyes	11 (13.1%)
Total	84 (100.0%)
4: Estimated parkland for adults The formula is	
7 (8.3%)	36 (42.9%)
75 (89.3%)	4 (4.8%)
1 (1.2%)	33 (39.3%)
1 (1.2%)	11 (13.1%)
84 (100.0%)	84 (100.0%)
5: If hydration is required in adult then what should be the volume of urine?	
a) 3ml/kg/h	8 (9.5%)
b) 2ml/kg/h	20 (23.8%)
c) 0.5ml/kg/h	40 (47.6%)
d) As much as possible	16 (19.0%)
Total	84 (100.0%)
6: Needed urine output to indicate adequate hydration in burnt child:	
a) 1ml/kg/h	47 (56.0%)
b) 2ml/kg/h	17 (20.2%)
c) 3ml/kg/h	7 (8.3%)
d) As much as possible	13 (15.5%)
Total	84 (100.0%)
7: Symptoms of inhalation injury:	
a) Occurred in closed space	2 (2.4%)
b) Face burn	8 (9.5%)
c) Voice change	5 (6.0%)
d) Difficulty in breathing	23 (27.4%)
e) Carbonaceous	1 (1.2%)
f) All the above sign	45 (53.6%)
Total	84 (100.0%)
8: Appropriate method of fluid ventilation for mass burns:	
a) Rehydrate orally with caution	21 (25.0%)
b) Intravenous only	63 (75.0%)
Total	84 (100.0%)
9: Transferring patients with mass injuries on priority basis	
a) First come first served	23 (27.4%)
b) On the basis of severity	61 (72.6%)
Total	84 (100.0%)
10: For mass burns with suspected inhalation injury, is intubation required before transfer?	
a) Yes	22 (26.2%)
b) Assess for condition before shifting	48 (57.1%)
c) Only for respiratory distress	14 (16.7%)
Total	84 (100.0%)

Table 2: Knowledge of nurses regarding first aid management

The Overall knowledge regarding first aid management among 56% of participants reported having adequate knowledge of burns, while 32% reported having average knowledge and 12% of participants reported first aid for burn patients reported low knowledge of management (Figure 1).

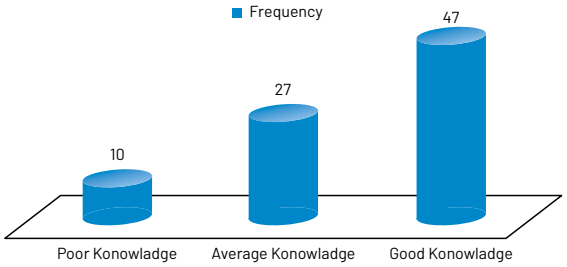

Figure 1: Overall knowledge of nurses regarding first aid

DISCUSSION

In the current study, 56% of participants reported good knowledge of first aid for burn victims, 32% of participants reported average knowledge, and 12% of participants reported I reported my lack of knowledge. Studies that support current evidence report that nurses have a good knowledge of first aid for burns [9]. Similarly, another study reported that 39.8% of participants answered 50% or more of the questions correctly. A majority of 71.8% of participants thought that taking oral rehydration was the appropriate method, but the current study found that 75% of nurses reported limiting IV fluids [10]. Nurses in the current study reported that ice (20.2%), toothpaste (31%), fish oil (2.4%) and honey (2.4%) should be applied to burns immediately after injury. According to the survey, 43.8% of nurses said they applied cold ice water to the wound, and 78.5% of nurses said they had never applied raw eggs, honey or green plants to the burn site. Toothpaste is traditionally applied to burns and has been reported to be effective in lubricating burns. /kg/% should be dosed [14, 15]. TBSA Similar to these results, a study reported that fluid restriction should be based on body weight and surface area of the burn area. In addition, 2–4 ml/kg of crystalloids were required for basic rehabilitation therapy in the first 24 h, depending on the TBS area of the burn wound treatment [16]. The study resulted in an average knowledge score of 8.07 out of 13 [17]. In addition, another study reported quite different results, revealing a low level of knowledge among nurses regarding the care of burn patients [18]. In the sampler context, unsatisfactory

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awareness among the nurses was reported regarding first aid management of burn wound injuries [9]. According to 78.6% of survey participants, cold water is the best first aid for burns. According to studies supporting the current findings, 68% of patients received cooling before being brought to a burn center, and 46% received cooling for at least 20 minutes [19]. This result indicates that the initial burn response is directly related to minimal wound severity is consistent with Cold fresh water reduced the intensity of burn pain and swelling. Similarly, another study also reported that in wounds of thermal water that should be cold is best measure. Cool fresh water reduced the intensity of pain and swelling as a result of thermal burn injuries [20]. The study showed a significant association between knowledge level and age, gender, nationality, marital status, job title ($P<0.001$) [9].

CONCLUSIONS

The study concluded that nurses working in burn and plastic surgery have a good sense and knowledge regarding first aid management of burns patient, but this practice could be improved by providing continuous training and monitoring. The study also revealed that first aid knowledge is not correlated with age, gender and qualification.

Conflicts of Interest

The authors declare no conflict of interest

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