

Nurses' Knowledge Regarding Management of Burn Injury Patients at Selected Hospital in Dhaka, Bangladesh

Halima Akter^{1*} RN, BSN; Barnali Mazumder² RN, BSN; Shipra Mallik³ RN, BSN; Rina Akter⁴ RN, BSN; Khadija Akter⁵ RN, BSN; Rabeya Akter⁶ RN, BSN; Jasmin Akter⁷ RN, BSN; Priority Kabir⁸ RN, BSN; Most. Sammi Akter⁹ RN, BSN; Rina Khatun¹⁰ RN, BSN; Jahirul¹¹ RN, BSN; Md. Farhad Hossain¹² RN, BSN; Bethika Rani Biswas¹³ RN, MSN; Anima Samadder¹⁴ RN, MPH
^{1,3,5,6,7}, 2nd Year Students of B. Sc. in Post Basic Nursing, Session :2021-2022;
College of Nursing Mohakhali, Dhaka-1212.
^{2,4,8,9,10,11,12}, 2nd Year Students of B.Sc. in Post Basic Public Health Nursing, Session :2021-2022;
College of Mohakhali, Dhaka-1212.
^{13,14}, Guides and Faculty of College of Nursing, Mohakhali, Dhaka-1212

Corresponding Author:- halimapolycon2022@gmail.com

Abstract:-

➤ *Background:*

Burn injuries is the most common and alarming issues all over the world. Nurses plays a crucial role in health care setting and quality nursing care is essential for burn injury patient.

➤ *Aim:*

The aim of this study was to assess the level of nurses' knowledge regarding management of burn injury patients at selected hospital in Dhaka.

➤ *Methods:*

A descriptive type of cross-sectional study was conducted among 50 nurses those were selected by convenient sampling technique from Sheikh Hasina National Institute of Burn and Plastic Surgery, Dhaka. The study was done between July 2023 to June 2024. A self-administered questionnaire was used for data collection which consists of 25 items in 4 dimensions. Data were analysed by using descriptive statistics such as mean, frequencies and percentage.

➤ *Results:*

The mean age of respondents was 28.16 with the range of 22-37 years. Most of the respondents (88%) were female and (12%) were male. The overall result of this study showed that only (4%) respondents had excellent knowledge, (18%) respondents had very good, (22%) respondents had good knowledge, (50%) respondents had average knowledge respectively and rest of (6%) had below average knowledge regarding management of burn injury patient. Among the respondents only (34%) got special training on management of burn injury patient.

➤ *Conclusion and Recommendation:*

On the basis of the findings, this study suggested that special training on burn injury and formal training on

burn nursing including the opportunity of attending the workshop, seminar and awareness program.

Keywords:- Nurses, Knowledge, Management, Burn Injury Patient, Bangladesh

I. INTRODUCTION

A. *Background of the Study*

Burn injuries are a serious public health issue all over the world [1]. Approximately, 180 000 deaths occur by burn every year estimated by World Health Organization (WHO) and majority of these occur in low- and middle-income countries. Burn is an injury to the skin or other organic tissue primarily caused by heat or due to radiation, radioactivity, electricity, friction or contact with chemicals [29]. Globally, nearly 11 million people affected with burn. In addition, approximately, 300,000 die every year and contributes to the increase of morbidity and disability [24]. Southeast Asia is considered as "the epicentre of burn injuries" because more than half of the fire-related deaths occur in Southeast Asia alone [11].

In India, more than 2300 fire related deaths were estimated annually which is about 20% of the global mortality burden [12]. Another study found that, in India, around 7 million people suffer from burn each year with 1.4 lakhs deaths and 2.4 lakhs people suffer from disability [23;24]. World Health Organization show that Burns are the second most common injury in rural Nepal, accounting for 5% of disabilities. In Pakistan, higher incidence approximately 1,388/1,00,000 annually as compared to global incidence of 110/1,00,000 per annual [5].

In Bangladesh, around 3,65,000 people experience burn injuries every year among them 27,000 needed hospital admission and over 5,600 people died. Burn requires long time hospital stays and are a major cause of disability which lead to a huge psychological, economic and social impact on

the patient and family members. In rural area, the mortality rate for burn injuries was 21 per 1,000,000 and morbidity rates were 528 per 1, 00,000 population. Approximately 90% of burns occur in the kitchen at home and 89% of deaths are caused by flame burn during winter season [3].

Sheikh Hasina National Institute of Burn and Plastic Surgery in 2022, estimated a total of 83,245 patients received treatment purpose among of them 984 died causes of severe burn injuries [28]. Inappropriate management of burn injury causes burn wound infection, sepsis, pneumonia, acute respiratory distress syndrome (ARDS), acute renal insufficiency, neurological sequelae and multi organ failure. About 75% of mortality among burn patients related to sepsis [5].

Burn injury can affect people of all ages. A number of factors increase the risk for burn injury are associated with low socio-economic condition, inadequate safety measures in workplace and home, poverty and overcrowding, underlying medical conditions including-epilepsy, peripheral neuropathy, and physical & cognitive disability, alcohol abuse and smoking, easy to access to chemical used for assaults, use of kerosine as a fuel source. Burn has also a social dimension. It may be associated with accidental, suicidal, or homicidal causes [23;24].

Nurses' plays a vital role in the overall management of a burn injury patient with various protocols in a given situation. The management not only involves medical care but also a psychological assessment of the victim and the family [10]. The first 24 hours following a burn is called the golden hour "appropriate management within this time can save lives and reduce its severity and minimize complications" [4]. Therefore, Advances in resuscitation, Fluid replacement, Nutritional and metabolic support, surgical management, intensive care and control of infection are essential for burn management [27].

Therefore, nurses are the important target population to determine their level of knowledge regarding management of burn injury patient to increase the quality of patient care. However, a few studies have conducted among nurses' knowledge regarding management of burn injury, in Bangladesh. For this reason, the investigator would like to assess the nurses' knowledge regarding management of burn injury patients at Sheikh Hasina National Institute of Burn and Plastic Surgery (SHNIBPS), Dhaka.

B. Justification

Burn injury is the fourthly prevalent injury in the world with high mortality rate [15]. According to American Burn Association (ABA) approximately 265,000 individuals worldwide die from fires [26]. Many South-Asian countries, including India, Pakistan, Nepal, Sri-Lanka, Afghanistan and Bangladesh, burn injuries have emerged as a major health issue [3]. In Bangladesh, According to Directorate General of Health Services, every year more than a million people are getting burned. Among them, about half a million of the burn patients get admitted in the hospitals, and about 6-8 thousand dies out of severe burn [7].

Bangladesh is a densely populated country with its population 163 million, and fire is common issue now-a-days [2]. There have been several tragic fire accidents in Bangladesh over the last few years. Notable among them the Bailey Road fire accident in which 46 people died and 12 were injured [6]. Bongo Bazar tragedy a heart-breaking fire accident where six market were gutted by fire and 3845 people lost their business and the damage was estimated around 305 crore takas, this loss had a huge impact on the country's economic status [23]. Another worst nightmare was Sita Kundu tragedy- a deadly blast that occurred at the BM inland container depot in Sitakunda, Chattogram Killing at least 49 people and injured 100 [22; 27]. On 19 February, 2020 a huge explosion ripped through the Churhatta intersection Chawkbazar area in Dhaka. There 67 people died on the spot and more than 20 were injured. There are also other accidents such as fire in Banani FR tower, Mohakhali Khawaja tower, Moghbazar, Korail slum etc [25].

In this aspects nursing care of burn injury patient is one of the most challenging issues nowadays, it includes pain management, fluid resuscitation, dressing, and advanced critical care management, early excision and grafting [17;20]. Those nurses' who are working in the burn unit, should have advanced knowledge associated with patients' need which is essential in providing nursing care [8]. In addition, Sheikh Hasina National Institute of Burn and Plastic Surgery is a newly established super specialized burn hospital in the Asian sub-continent, there most of the nurses are newly recruited, less experienced and shortage of special training. Therefore, this study will serve an important purpose for contextualizing the current situation of nurses. For these reasons, the researcher focused to assess the nurses' knowledge on the management of burn injury patient.

C. Research Question

- *What is the level of nurses' knowledge regarding management of burn injury patients?*

D. Research Aim

The aim of this study is to assess the level of nurse's knowledge regarding management of burn injury patients at Selected hospital in Dhaka, Bangladesh.

E. Objectives

- To assess the level of nurses' knowledge regarding concept of burn injury.
- To explore the level of nurses' knowledge regarding management of burn injury.
- To find out the nurses' knowledge regarding complications of burn injury.
- To measure the level of nurses' knowledge regarding prevention of infection in burn patient.
- To state the socio-demographic characteristics of the respondents.

F. Research variables

➤ Socio-Demographic Variables

- Age (in years)
- Gender
- Religion
- Marital Status
- Educational qualification
- Length of government service
- Total Service Experience in burn unit
- Special training regarding burn

➤ Knowledge Related Variables

- Concept of burn injury (meaning, etiology, classification, risk factors).
- Management (Medical, Nursing & Surgical) of burn injury patients.
- Prevention of infection in burn injury patients.
- Complications of burn injury patients.

➤ Operational Definition

- **Nurse: In this study**, the nurse refers to the person who have licensed as a senior staff nurse and working in burn department at Sheikh Hasina National Institute of Burn & Plastic Surgery in Dhaka, Bangladesh.
- **Knowledge: In this study**, the researchers considered to explore the level of knowledge of respondents about management of burn injury patient which refers to the clear concept of burn, etiology, classification, risk factors, management, infection prevention and complications of burn injury.

II. LITERATURE REVIEW

A literature review is a comprehensive summary of preview research on a topic. It is an important part of research. Review of literature is an integral step in research process. Without literature review is not possible to conduct the study. Review of literature is an imperative part in relevant to research paper. This chapter of the study was described from different authors and organizations that can be utilized to provide a better understanding of burn injury from the following outlines:

- *Definition of Burn Injury*
- *Causes of Burn Injury*
- *Classification of Burn Injury*
- *Risk factors of Burn Injury*
- *Management of Burn Injury*
- *Prevention of Burn Injury*
- *Complications of Burn Injury*
- *Incidence and Prevalence of Burn Injury in Worldwide and Bangladesh*
- *Nurses' Knowledge related to Management of Burn Injury Patients*

➤ Definition of Burn Injury

Burn is defined as destruction found in the epidermal tissue, dermal tissue, due to contact with thermal, chemical, or electrical agent (Bozorgnejad *et al.*, 2019). Burn injury occurs as a result of destruction or loss of body tissue resulting from exposure or direct contact to any type of chemical, thermal, electrical, or radiation [9].

➤ Causes of Burn Injury

Burn takes place when the skin comes into contact with a heat source. There are many causes of burn injury, dry heat such as fire or a hot object, wet heat such as boiling water, steam or hot liquids, hot metals, radiation such as that from X-ray, sunlight or other sources of ultraviolet radiation, friction such as rubbing forces with an object, electrical currents, and certain chemicals such as strong acid, lye, paint thinner or gasoline and abuse [17].

➤ Classifications of Burn Injury

Burn can be classified according to the body surface area that is involved as, minor, moderate, major and severe burn.

- **Minor Burns** involve 10% TBSA or less.
- **Moderate Burns** involve 11% to 20% of TBSA.
- **Major Burns** involve 20% to 60% of TBSA.
- **Severe Burns** involve >60% of TBSA [14].

➤ Classification of Burn on the Basis of Depth:

- **Superficial (first degree)** involves the epidermis of the skin only, it appears pink to red, there are no blisters, and it is dry, it is moderately painful. Superficial burns heal without scarring within 5 to 10 days.
- **Superficial partial thickness (Second degree)** involves the superficial dermis, it appears red with blister and is wet. Severe pain and healing typically occur within 3 weeks with minimal scarring [13].
- **Deep partial thickness (second degree)** involves the deeper dermis, it appears yellow or white, is dry. there is minimal pain due to a decreased sensation, healing occurs in 3 to 8 weeks with scarring present.
- **Full-thickness (third degree)** involves the full thickness of skin and subcutaneous structures, it appears white, or black/brown. The burn is lethargy and dry, there is minimal to no pain because of decreased sensation. Full-thickness burn heal by contracture and take greater than 8 weeks and require skin grafting [21].
- **Fourth-degree burns:** These burns are the most severe out of all the classifications, they affect all layers of skin, and reach down to the fat, bone, tissues, and muscles, the appearance of the burn may be black or charred, and nerve damage may cause the victim to feel no pain. They can cause permanent damage or even death [17].

➤ Risk Factors of Burn injury

The risk population of burn injury within Bangladesh include women of low socioeconomic status who work in the kitchen with cooking fires and kerosene lamps [2]. Poverty, type of housing, overcrowding, lack of supervision of

children, safety education [24]. Age <3 years or >60 years and co-morbidities such as epilepsy, malnutrition [14].

➤ *Management of Burn injury*

Management of burn injury according to the phase.

- **Pre-hospital phase:** Primary concern is ABC's (airway, breathing, circulation), remove from the burn source, check patency of airway and for adequate ventilation, check for adequate circulation, flush the skin for chemical injuries, remove clothing, prevent hypothermia.
- **Emergent phase:** It begins immediately after injury and ends with the restoration of capillary permeability (24-48hrs), the management involves fluid resuscitation based on the client's weight and extent of injury and prevent shock through maintain adequate circulating blood volume and maintain vital organ perfusion [14].
- **Acute phase:** When the client is hemodynamically stable, has restored capillary permeability and has been showing sign of diuresis, acute phase took place. The main goal of the acute phase is focused on the prevention of infection, wound care, optimum nutrition and physical therapy.
- **Rehabilitative phase:** It is the final phase of managing a burn injury. Most frequently, it overlaps the acute phase and it goes on after hospitalization. Main goals during this phase are helping the client gain independence and achieve maximal function and prevention of scar contracture [17;19].

➤ *Prevention of Infection in Burn Injury Patient*

Hand hygiene is the first initial step towards successful infection control of burn injury patients. Standard precautions should be maintained when care is provided to all patients with burn injury. Use sterile equipment and maintain aseptic technique when dealing with open wound or other invasive procedures. Chlorohexidine bath is recommended twice a day to prevent burn infection [5].

➤ *Complications of Burn injury*

The common complications associated with burn injury are involves Sepsis, Burn wound infection, Pneumonia, Acute respiratory distress syndrome (ARDS), Respiratory failure, Acute renal failure, and multi organ failure [5].

➤ *Incidence and Prevalence of Burn Injury in Worldwide and Bangladesh*

Burns are a global public health problem, accounting for an estimated 180 000 deaths annually. The majority of these occur in low- and middle-income countries and almost two thirds occur in the African and South-East Asia Regions [29]. In Bangladesh, around 3,65,000 people experience burn injuries every year among them 27,000 needed hospital admission and over 5,600 people died [3].

➤ *Nurses' Knowledge related to Management of Burn Injury Patients*

A cross-sectional study was conducted among assessment of nurses' knowledge concerning management of Patients with Burns at Fayhaa General Hospital in Basra City. Twenty nurses were recruited using the purposive non probability sampling technique. The study result showed that

(5%) have poor level of knowledge, (50%) have moderate knowledge, and (45%) have good level of knowledge concerning burn. Thus, the study concluded that frequent educational programs for nursing staff to enhance nurses' knowledge concerning management of patients with burns [6].

A descriptive type of cross-sectional study was conducted among nurses' knowledge regarding Aseptic technique in managing burn patient in teaching Hospital at Mosul City. Sixty nurses were recruited using the purposive non probability sampling technique. The study result showed that age group (26-30) years were (41.7%), and gender (51.7%) of male nurses. Most nurses have secondary school graduated (60.0%), and half of nurses have (1-5 years) experience in nursing was (50.0%). More than half of nurses have average knowledge (58.3%), whereas there was no significant relationship between the nurses' knowledge level and their demographic characteristics. Thus, the study concluded that nurses' have a lack of knowledge regarding aseptic technique in the management of burn patients [18].

In 2021, a descriptive type of cross-sectional study was conducted among nurses' knowledge, practice, and attitude regarding burn injury management in Egypt. The study was conducted at three hospitals (Beni- Suef general hospital, Minia general hospital, and Minia university hospital). Forty nurses were included in the current study sample. The data was collected by using self-administered questionnaire, observational checklist, and attitude scale. The study showed that, majority of the studied nurses (82.5%) had unsatisfactory knowledge and (100%) had satisfactory practice and negative attitude regarding burn injury management [17].

In 2020, a cross-sectional study was conducted among nurses' knowledge regarding the prevention of infection in burn patient management in tertiary care hospital Pakistan. Their sample size was 171 charge nurses who are working in burn unit at Jinnah Hospital. The data was collected by convenient sample technique using checklist and questionnaire. The study showed that, there are poor knowledge and practices of nurses regarding prevention of infection in burn patient [20].

In 2019, a cross-sectional study was conducted on nurses' knowledge towards management of patients with burn in Duhok city, using a semi-structured questionnaire among 37 nurses with different level and experience in nursing. The nurses are recruited from burn hospital. The study stated that most of the nurses were males (62.2%) and were in 30-39 years old (51.8%). Most of the participants had secondary school, institute level of education and between 1-10 years of experience (75.7%). Thus, the study showed that most of the nurses had presented correct answers on burn management but answer on shock and monitor edema were low (51.4% and 62.2%, respectively [9; 10].

A descriptive type of cross-sectional study was conducted by Buksh *et al.*, (2019) in Lahore on assessment of nurses' knowledge and practice for prevention of infection in

burn patients. Forty-eight (48) nurses' knowledge was assessed by using self-structured questionnaire and their practices were evaluated by direct monitoring using an observational checklist. The study showed that female constituted 100% of study participants. 62.5% of nurses had a General Nursing and Midwifery whilst 37.5% had a nursing degree. 73% (35) of participants had less than 2 years of experience working in the burn's unit. Knowledge regarding infection control was received by 89% of nurses but their source of information was practice not in service educational programs. Therefore, this study revealed that nurses' low level of knowledge and practices regarding prevention of infection among burn patients [5].

In 2018, A survey was conducted on 353 nurses of emergency burn and trauma department at a district in Vietnam. Contents of the survey included first aid and initial care for burn and mass burn injuries. They found that only 15.3% of the participants answered correctly over 50% of the items. The average percentage of correct answers was 39.7%. More than half of them (53.6%) recognized that oral fluid resuscitation is an appropriate method for cases of mass burn injuries and 44.6% of them declared that pre-transportation intubation is required for the patient with suspected inhalation injury. While a small percentage presented the correct answer about burn triage (5.4% only). A significantly higher knowledge level was recorded among nurses who had attended training courses in the past [13].

A qualitative study was conducted by Biswas *et al.*, (2018) on exploring perceptions of common practices immediately following burn injuries in rural communities of Bangladesh using Focus Group Discussions (FGD) as the data collection method. Six unions of three districts in rural Bangladesh were randomly selected and FGDs were conducted in these districts with six burn survivors and their relatives and neighbours. The participants stated that burn injuries are common during the winter in Bangladesh. Residents in the rural areas said that it was common practice, and correct, to apply the following to the injured area immediately after a burn: egg albumin, salty water, toothpaste, kerosene, coconut oil, cow dung or soil. Some also believed that applying water is harmful to a burn injury. Most participants did not know about any referral system for burn patients. They expressed their dissatisfaction about the lack of available health service facilities at the recommended health care centres at both the district level and above [3,4].

III. METHODS AND MATERIALS

The research methodology describes the whole process of the study which covers the areas on research design, study area, study duration, population, sample size, sampling technique, research instrument, data collection procedure, data analysis and interpretation, ethical consideration and assessment criteria.

➤ Study Design

A descriptive type of cross-sectional study design was conducted at Sheikh Hasina National Institute of Burn & Plastic Surgery (SHNIBPS).

➤ Study Period

The study was conducted from July 2023 to June 2024.

➤ Study Setting

The Sheikh Hasina National Institute of Burn & Plastic Surgery (SHNIBPS), Dhaka was selected as the study place for conducting this research. It's a super specialized government hospital for burn patients and established in 2019. The bed capacity is 500 and about 600 hundred senior staff nurses are working in this hospital. where all types of burn patients come from all over the country for advanced and better treatment. All of the nursing personnel work cordially, cooperatively, and dedicatedly for providing care including inpatient and outpatient services. We choose ICU (intensive care unit), HDU high dependency care unit male and female), and OT (operation theatre) and Male and Female where 200 senior staff nurses were working as care provider.

➤ Study Population

The entire population of this study was approximately 200 in this Hospital. All nurses who met inclusion criteria and working in ICU, HDU (male & female), OT, Male and Female Ward at SHNIBPS was considered as the study population.

➤ Sample Size

The sample size of this study was 50 (fifty) according to 25% proportion rate nurses from the total number of population (N=200) for conducting this study [30].

➤ Sampling Technique

Non probability purposive sampling technique was adopted for selecting the sample of the study by the researcher to fulfil the purpose of the study who were met the inclusion criteria.

- **Inclusion Criteria:** Inclusion for selecting study participants include:

- ✓ Nurses who had been working at ICU, HDU, OT (male & female), Male and Female burn units at SHIBPS.
- ✓ Nurses who agreed voluntarily to participate in this study.
- ✓ Nurses those who was psychologically and physically sound.

- **Exclusion Criteria:** Those nurses were excluded from the study who did not meet the inclusion criteria.

➤ Research Instrument:

A structured questionnaire was developed by the researchers on the basis of the study objectives and variables after reviewing the relevant literatures.

➤ The Questionnaire Consisted of Two Parts:

- **Part: 1** Socio- demographic questionnaire: consisted of 8 items including- age (in years), gender, religion, marital status, educational qualification, length of government service, total service experience in burn unit, and special training regarding burn.

- **Part: 2** Knowledge related questions regarding burn consisted of **04 domains**. Domain-1= Concept of burn) which contain 08 questions, Domain-2= management of burn which contains 12 questions, Domain-3= prevention of infection in burn patient which contains 3 questions, Domain-4= complications of burn which contains 3 questions. Each question had 04(four) options and 01(one) option was considered as correct answer. Four mark was allocated for correct answer and thus total marks were 100 (hundred).

➤ *Validity*

The validity of the questionnaire was assessed and maintained by the subject teachers and experts in related area in College of Nursing, Mohakhali, Dhaka.

➤ *Reliability*

A Pre-test was conducted at burn departments in Dhaka Medical College, Hospital on the same characteristics of 10 sample to check acceptance and consistency of the instrument. Mean score of pre-tests was 76 out of 100. After that necessary correction was done before finalization of the questionnaire.

➤ *Ethical Consideration*

After approval of the academic research project proposal by the appropriate authority of the College of Nursing, Mohakhali, Dhaka and prior to start data collection procedures, a written permission letter was issued to the hospital director (Sheikh Hasina National Institute of Burn & Plastic Surgery; SHNIBPS), Dhaka by the principal, College of Nursing Mohakhali, Dhaka, **Memo no. P.F. 1-1/2003/CN/204/1(3)** and obtained permission from the concerned authority, Director of the selected hospital.

- *Informed Consent and Voluntary Participation:*

The written permission was taken from respondents after explaining the objectives of the study by the researchers to encourage them for voluntarily participation. **Confidentiality and anonymity** were strictly maintained

regarding obtaining data from the respondents. The respondents were ensured that their names were not published anywhere except by the concerned investigators. The collected data was kept under lock and key to avoid expression to others, and it was destroyed after the completion of the study. The respondents were ensured that there was **no harm** for participation in this study and they could **withdraw** from this study at any time without any hesitation.

➤ *Data Collection Procedure*

Data were collected after obtaining permission from the Principal, College of Nursing, Mohakhali Dhaka, concerned authority and respondents of SHNIBPS. The researcher introduced himself/herself to the respondents and explained the objectives and benefits of the study and asked them to participate in the study. A written consent was obtained from them. After getting consent the researcher were collecting data through a self-administered questionnaire which was taken about 15- 20 minutes per participant.

➤ *Data Management*

Collecting data were checked, organized and entered into the master sheet then was analysed manually by the researchers with the help of scientific calculator.

➤ *Data Analysis and Interpretation*

The descriptive statistics were used for the analysis of the respondents' characteristics, distribution and level of knowledge of burn injury in terms of frequency, percentages range and mean. The important variables were analysed to fulfil the objectives of the study.

➤ *Data Presentation*

The results were presented by using tables and charts (pie, bar and column) with interpretation.

- **Grading Criteria:** Total marks were 100 and grading was done within 100%.

Table 1 Data Presentation

S/N	Knowledge level	Percentage
01.	Excellent	90-100%
02.	Very good	80-89%
03.	Good	70-79%
04.	Average	60-69%
05.	Poor	<60%

IV. RESULT

This chapter provides detailed description of the results with appropriate interpretation depending on the nature of the variables and objectives. The result of the demographic characteristics and nurses' knowledge regarding management

of burn injury patients were presented as frequency, percentages, and mean by using column, pie chart and table.

➤ Part 1: Socio-Demographic Characteristics of the Respondents

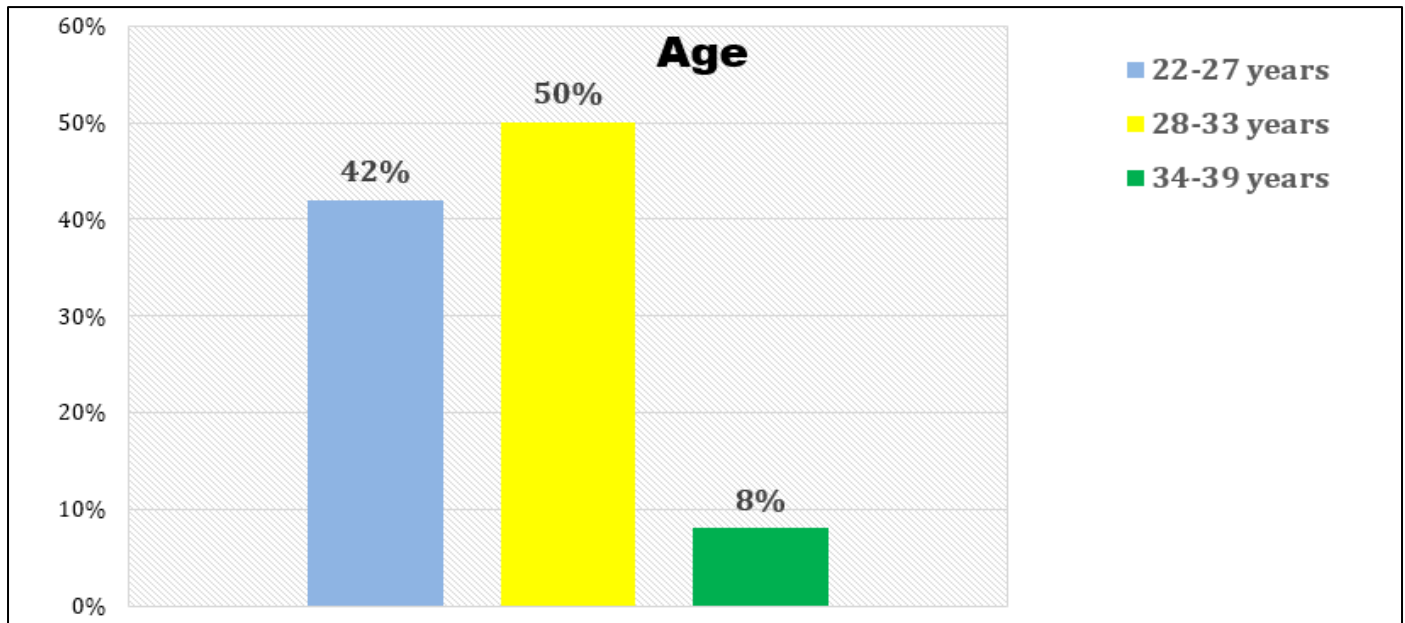


Fig 1 Distribution of Respondents by Age Group n = 50
Mean age 28.16 years (range 22 to 37)

The above figure 1. shows that the most of the respondents (50%) were age group between 28-33 years, and very few (8%) respondents age group in between 34-39 years. The respondents age range was 22 to 37 years with mean age 28.16 years.

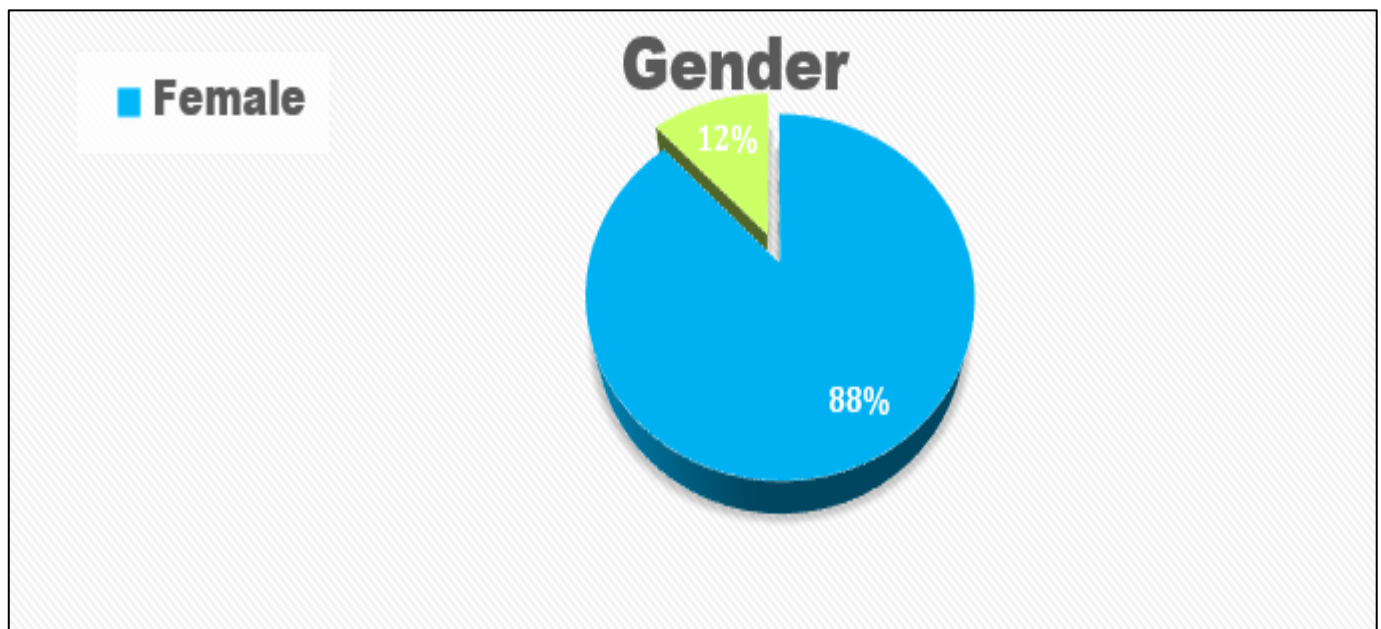


Fig 2 Distribution of Respondents by Gender n = 50

Figure .2 The pie chart shows that the majority respondents (88%) were female and rest of (12%) were male.

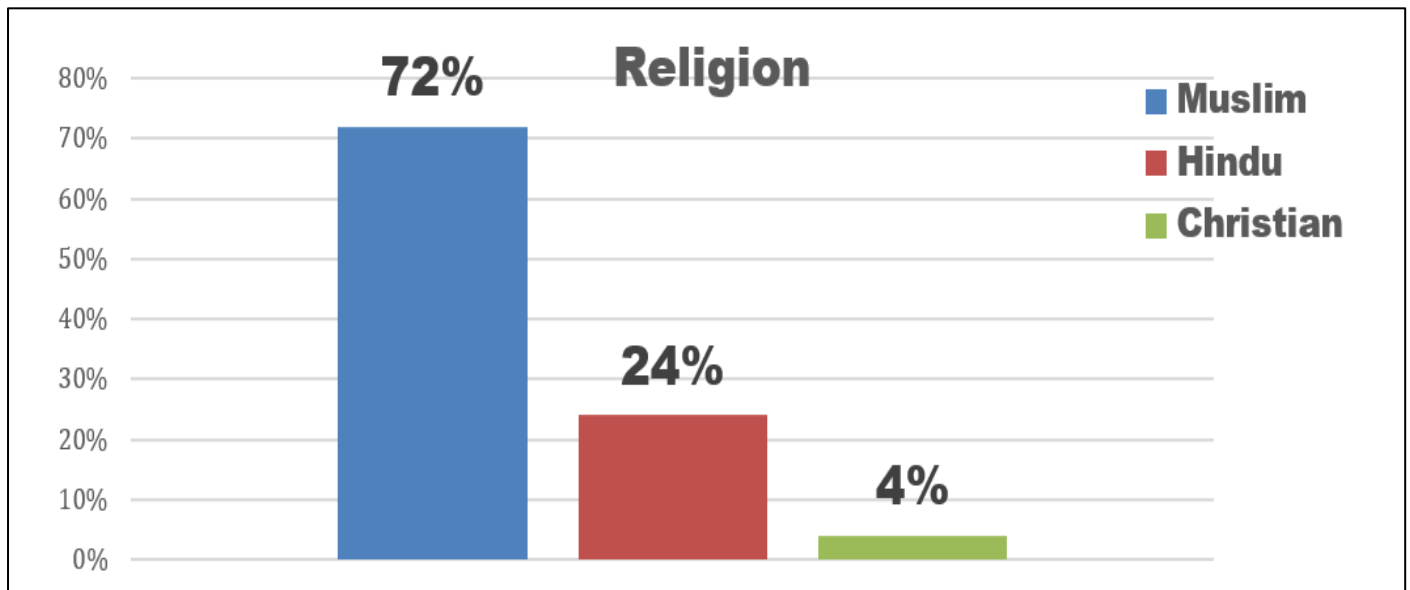


Fig 3 Distribution of Respondents by Religion n = 50

Figure .3 The above column chart shows that out of 50 respondents (72%) were Islam, (24%) were Hindu, and the rest of (4%) were Christian.

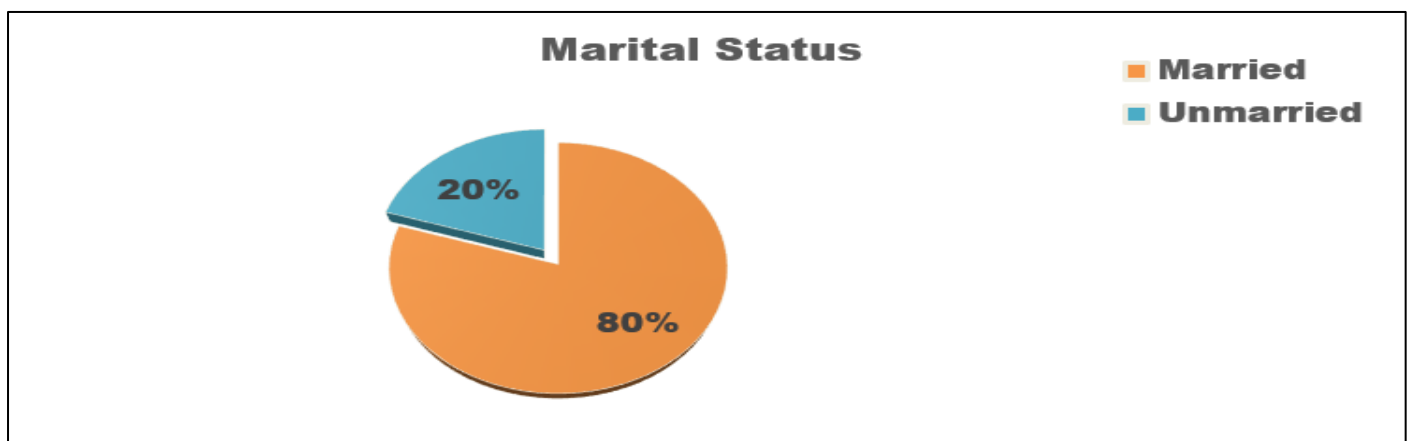


Fig 4 Distribution of Respondents by Marital Status n = 50

Figure .4 The above figure shows that, the majority (80%) of the respondents were married and the remaining were unmarried (20%).

Table 2 Distribution of the respondents by professional qualification n=50

Variables	Categories	<i>f</i>	%
Educational Qualification	Diploma in Nursing Science & Midwifery	32	64
	Basic Bachelor of science	06	12
	Post basic B.sc in Nursing/ PHN	11	22
	MSN/MPH	01	02

Above table 2. shows that more than fifty percent (64%) respondents were completed only Diploma in Nursing Science & Midwifery, (22%) respondents were completed Post Basic BSc in Nursing/PHN, (12%) were completed Basic Bachelor of Science and only (2%) respondents were completed MSN/MPH Course.

Table 3 Distribution of respondents by total length of govt. services n=50

Variables	Categories	<i>f</i>	(%)
Total Length of Government Service	1-3	28	56
	4-6	19	38
	7-9	03	06

Result of the table 3. shows that (56%) respondents had 1-3 years, (38%) had 4-6 years and rest of (6%) had 7-9 years total length of govt. services.

Table 4 Distribution of Respondents by Working Experience in Burn Department n=50

Variables	Categories	f	(%)
Working experience in burn department	1-3	33	66
	4-6	15	30
	7-9	02	4

Above table 4. shows that (66%) respondents had 1-3 years, (30%) had 4-6 years and only (4%) had 7-9 years working experience in burn department.

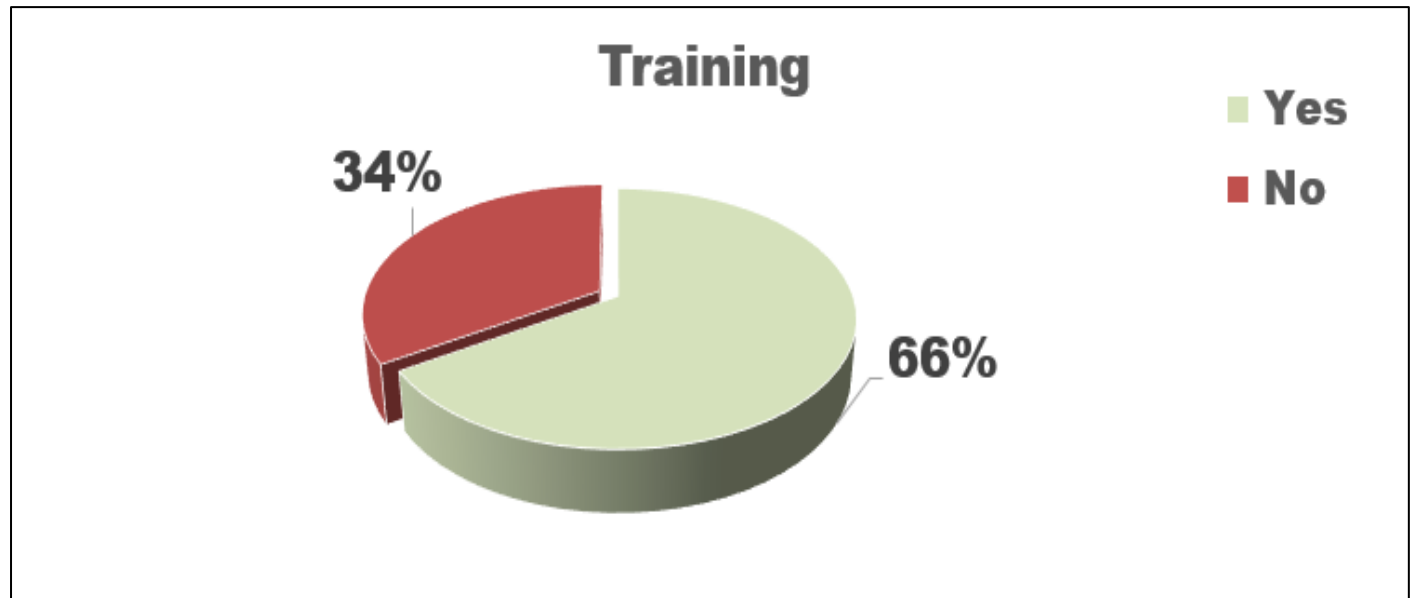


Fig 5 Distribution of Respondents by Training on Management of Burn. n=50

Figure 05. The pie chart shows that majority (66%) of the respondents had no training on burn management and only (34%) of the respondents had training on burn management

➤ Part – II: Knowledge Related Information

In this section results are presented according to objectives of this study.

Table 5 Distribution of the respondent's Knowledge regarding the concept part of burn injury n =50

SL. No	Variables	Correct Answer		Incorrect Answer	
		(f)	(%)	(f)	(%)
01	A burn is a type of injury caused by heat, radiation & chemical	47	94	3	6
02	The common cause of burn injury is flames	35	70	15	30
03	The responsible virus for burn infection in hospital is herpes simplex virus	13	26	37	74
04	The most common type of burn is thermal burn	23	46	27	54
05	The third -degree burn is painless	35	70	15	30
06	The percentage of major burn injury is more than 25%	16	32	34	68
07	The symptom of superficial burn injury is redness and painful	46	92	4	8
08	Vulnerable group for burn injury are adult, women and children	30	60	20	40

The above table 5. shows that the most of the respondents (94%) provided correct answer about meaning of burn injury and (70%) of the respondents gave correct answer regarding common cause of burn injury and degree of burn injury, On the other hand, among all the respondents (74%) answered incorrectly to the responsible virus for burn

infection in hospital and (68%) answered incorrectly to the percentage of major burn injury, (60%) respondents provided correct answer to the vulnerable group for burn injury, and less than fifty percent (46%) of the respondents provided correct answer to the most common type of burn injury.

Table 6 Level of Knowledge Regarding the Concept of Burn Injury. n=50

	Knowledge level	Grading Criteria	(f)	(%)	Obtained Marks	Mean score
Concept of burn injury	Excellent	90-100%	1	2	32	32
	Very Good	80-89%	7	14	196	28
	Good	70-79%	8	16	192	24
	Average	60-69%	13	26	260	20
	Poor	< 60%	21	42	304	14.47
Total			50	100	984	19.68
Mean of total knowledge score= 19.68 (61.5%) Average level of knowledge						

Table 6 shows that among all the respondents less than fifty percent (42%) had below average knowledge and (26%) had average knowledge. On the other hand (16%) had good knowledge, (14%) had very good knowledge, and only (2%)

had excellent knowledge regarding concept of burn injury. Mean of total knowledge score was = 19.68 out of 32 marks (eight items) which indicates the average level of knowledge in the area on concept of burn injury.

Table 7 Distribution of the respondent's knowledge regarding the management part of burn injury n =50

SL. No	Variables	Correct Answer		Incorrect Answer	
		(f)	(%)	(f)	(%)
01	The rule of nine used in burn patient for estimation of burn % of total body surface area (TBSA)	48	96	02	04
02	The golden hour for burn injury management is first 24 hours	30	60	20	40
03	The emergency management of burn injury patient in first 24 hours is fluid resuscitation	49	98	01	2
04	The technique used for cleaning a burn wound is using sterile saline solution & gentle irrigation	43	86	07	14
05	The intravenous fluid resuscitation rule for burn injury patient is (%body surface area) x (weight in kg) x 4 = volume in ml	24	48	26	52
06	The common fluid used for burn patient is Hartman's solution	23	46	27	54
07	The first step of chemical burn management is continuous flushing with water for 20-30 minutes	45	90	05	10
08	The determination of fluid adequacy during the first 48 hours of burn is urine output	38	76	12	24
09	The supplementary is need for better burn healing is 25% albumin	40	80	10	20
10	The nutritional support is more essential for burn injury patient is protein	50	100		
11	The primary goal of fluid resuscitation in burn patient is restore tissue perfusion and oxygen delivery	21	42	29	58
12	The vaccine is given immediately after burn injury is tetanus toxoid & tetanus immunoglobulin	50	100	—	—

Above table 7 shows that most of the (96%) respondents provided correct answer to the rule of nine for burn management, (90%) respondents provided correct answer to the First step of chemical burn management, (86%) respondents provided correct answer to the technique used for cleaning a burn wound, (80%) respondents provided correct answer to supplementary for better burn healing, (60%) respondents provided correct answer to golden hour for burn

management and only (48%) respondents provided correct answer to the intravenous fluid resuscitation rule for burn injury patient. on the other hand, nearer sixty percent (58%) of the respondents provided answer incorrectly to primary goal of fluid resuscitation in burn patient, and (54) respondents provided answer incorrectly about the common fluid used for burn patient

Table 8 Level of Knowledge Regarding the Management of Burn Injury n=50

Variables	Knowledge level	Scores	(f)	(%)	Obtained Marks	Mean Scores
Management of burn injury patient	Excellent	90-100%	06	12	268	44.66
	Very Good	80-89%	19	38	760	40
	Good	70-79%	14	28	504	36
	Average	60-69%	06	12	192	32
	Poor	<60%	05	10	124	24.8
Total			50	100	1848	36.96
Mean of total knowledge score= 36.96 (77%) Good level of knowledge						

Table 8 shows that among all the respondents only (12%) had excellent knowledge, (38%) had very good knowledge and (28%) had good knowledge. On the other hand (12%) had average knowledge and (10%) had below

average knowledge regarding management of burn injury. Mean of total knowledge score was = 36.96 out of 48 marks (twelve items) which indicates the good level of knowledge in the area on management of burn injury patient.

Table 9 Distribution of the respondent's knowledge regarding the prevention of infection in burn injury patient n = 50

SL. No	Variables	Correct Answer		Incorrect Answer	
		(f)	(%)	(f)	(%)
01	The initial method to prevent burn infection is Hand washing	40	80	10	20
02	The recommended chlorohexidine bath for burn patient is 2 times daily	28	56	22	44

The above table 9 shows that, majority of the (80%) provided correct answer to the initial method to prevent burn infection. Whereas only (56%) respondents provided correct

answers in the area of recommended chlorohexidine bath for burn patient to prevent infection.

Table 10 Level of Knowledge Regarding Prevention of Infection in Burn Injury Patient n=50

	Knowledge level	Scores	(f)	(%)	Obtained Marks	Mean Scores
Prevention of infection in burn patient	Excellent	90-100%	27	54	216	8
	Very Good	80-89%				-
	Good	70-79%				-
	Average	60-69%	23	46	56	2.43
	Poor	<60%				
Total			50	100	272	5.44
Mean of total knowledge score=5.44 (68%) Average level of knowledge						

Table 10 shows that among all the respondents nearer fifty percent (46%) had average knowledge and (56%) had excellent level of knowledge regarding prevention of infection in burn patient. Mean of total knowledge score was

= 5.44 out of 08 marks (two items) which indicates the average level of knowledge in the area on prevention of infection in burn patient.

Table 11 Distribution of the Respondent's Knowledge Regarding the Complication Part of Burn Injury n = 50

SL No	Variables	Correct Answer		Incorrect Answer	
		(f)	(%)	(f)	(%)
01	The immediate complication of burn injury is dehydration	40	80	10	20
02	The complication of inhalation burn injury is Acute-respiratory distress syndrome (ARDS)	43	86	07	14
03	The late complication of burn injury is contracture	21	42	29	58

The above table 11 shows that, majority of the (86%) provided correct answer to the complication of inhalation injury burn patient, (80%) provided correct answer to the

immediate complication of burn injury. On the other hand, (58%) respondents provided answer incorrectly in the area of late complication of burn injury.

Table 12 Level of Knowledge Regarding the Complications of Burn Injury n=50

	Knowledge level	Scores	(f)	(%)	Obtained Marks	Mean Scores
Complications of burn injury	Excellent	90-100%	12	24	144	12
	Very Good	80-89%				
	Good	70-79%				
	Average	60-69%	30	60	240	8
	Poor	<60%	8	16	32	4
Total			50	100	416	8.32
Mean of total knowledge score=8.32(69.33%) Average level of knowledge						

Table 12 shows that among all the respondents only (24%) had excellent knowledge, (60%) had average knowledge and (16%) had below average level of knowledge regarding complication of burn. Mean of total knowledge

score was = 8.32 out of 12 marks (three items) which indicates the average level of knowledge in the area on complication of burn injury.

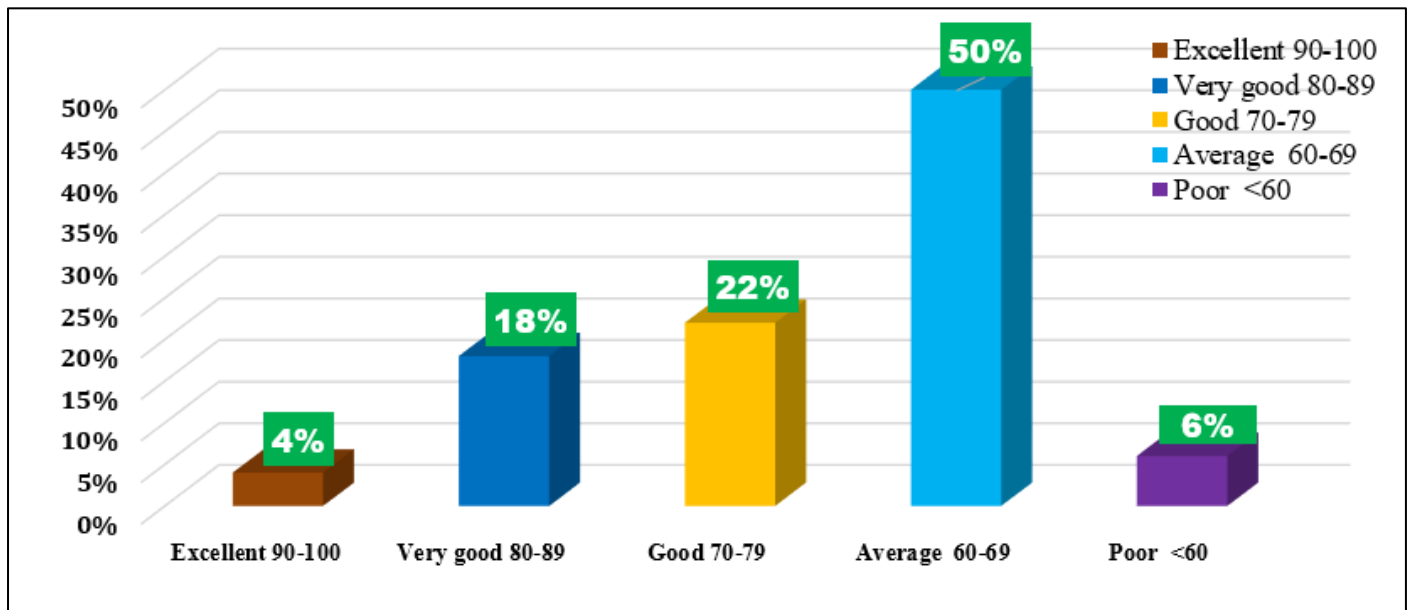


Fig 6 Overall level of Knowledge Regarding Burn Injury n=50

Figure 6. Above chart represents the respondents' overall level of knowledge regarding burn injury. Among all the respondents' 50% had average level of knowledge, 22% had good level of knowledge, 18% had very good knowledge, 6% had below average level of knowledge and only 4% had

excellent level of knowledge regarding burn injury. Mean of total knowledge score of burn injury was = 71.15 out of 100 which indicate that respondents had good level of knowledge in current study.

Table 13 Distribution of Respondents' overall Burn Injury Knowledge by Education n=50

Variable	Categories	(f)	(%)	Mean
Level of Educational qualification	Diploma in Nursing Science & Midwifery	32	64	69.00
	Graduate nurse (Post Basic BSc in Nursing & PHN, Basic Bachelor of Science, MSN & MPH)	18	36	72.44

Table 13 shows the respondents' overall knowledge regarding burn injury by education. Those respondents, who had completed graduation degree their total mean knowledge score 72.44 and only diploma nurses had total mean

knowledge score 69.00. So, this table indicates that graduated nurses are more knowledgeable regarding burn injury than diploma nurses.

Table 14 Distribution of Respondents' overall Burn Injury Knowledge by Training n=50

Variable	Categories	(f)	(%)	Mean
Training	Yes	17	34	73.64
	No	33	66	68.48

Table 14 shows the respondents' overall knowledge regarding burn injury by training. Those respondents had training on burn their total mean knowledge score (73.64) and those had no training on burn their total mean knowledge score (68.48). So, this table indicates that trained nurses are more knowledgeable regarding burn than who had no training on burn.

V. DISCUSSION

A descriptive type of cross-sectional study was designed to assess the level of nurse's knowledge regarding management of burn injury patients who are working Sheikh Hasina National Institute of Burn & Plastic Surgery Hospital, Dhaka Bangladesh. A total of 50 respondents were selected by convenient sampling technique for this study to find out the knowledge regarding burn injury management by using a

self-administered structured questionnaire which was consist of two parts: Socio-demographic information and knowledge-based information on burn injury management.

➤ Socio-Demographic Information

The present study involved 50 Nurses with the mean age of 28.16 years with the range of 22 to 37 years. Among the respondent's half of the (50%) were age group in between 28-33 years, where the lowest (8%) were age group in between 34-39 years, (88%) respondents were female and only (12%) were male. Near to similar a study is conducted (Mohammed *et al.*, 2021) reported that majority of the (85%) respondents were female and the rest (15%) were male. In this study, (72%) of the respondents were Muslim. The study found that majority of the respondents (64%) completed only Diploma in Nursing Science and Midwifery course, whereas only (2%) were found master's degree in this study.

The current study revealed that, (66%) respondents had 1-3 years working experience in burn department and only (34%) respondents had training regarding burn management. Whereas in Iraq, near to similar a study conducted by Mukhlif *et al.*, 2021 showed that more than fifty percent (60%) respondents had (1-5) years working experience and only (28%) respondents had training experience regarding burn injury [18]. Another study by [9] Showed near to similar result about (80%) nurses had 1-4 years of experience in burn ward. In contrast, a study reported that, majority (81.1%) respondents had training experience and (13.5%) respondents had 11-20 years working experience in burn department [10].

➤ Knowledge Related Information

This study shows that less than fifty percent (42%) had below average knowledge and only (2%) had excellent knowledge about concept of burn injury, (94%) was known meaning of burn injury, (70%) known common causes of burn injury, (46%), most common type of burn injury and degree of burn injury (70%), and determination of fluid adequacy during the first 48 hours (76%), which is similar to a study from Duhok city in Iraq reported that the majority of the respondents answer correctly to most of the questions regarding burn management, (67%) were know the most common causes of burn injury, (89%), know the types of burn (86%) know the degree of burn injury, I/V fluid resuscitation (94.6%) and vaccine immediately after burn injury (68.5%) [10].

The present study shows that among all of the respondents (54%) had excellent level of knowledge and (46%) had average level of knowledge regarding prevention of infection in burn injury patient, (56%) respondents provided correct answer regarding chlorohexidine bath for burn patient to prevent infection. In Pakistan a study conducted to assess the nurses' knowledge regarding prevention of infection in burn patient by (Buksh *et al.*, 2020) reported that majority respondents (85%) had very good knowledge, (15%) low level of knowledge and (79.2%) respondents provided correct answer regarding chlorohexidine bath for burn patient to prevent infection [5].

The present study showed that the respondents' overall knowledge regarding burn injury (6%) respondents had poor level of knowledge, half of the respondents (50%) had average knowledge, (22%) had good, (18%) had very good and only (4%) had excellent level of knowledge. The mean score of knowledge was (71.15%) which indicates good level of knowledge of the respondents in current study. A descriptive type of cross-sectional study was conducted at Al-Fayhaa General Hospital in Barsa city to assess the nurse's knowledge concerning management of patients with burns. A non-probability purposive sample of total 20 nurses who work in burn center. This study result showed that overall (5%) had poor knowledge, (50%) average knowledge, and (45%) had good level of knowledge regarding burns, that was consistent with the present study [6]. Another study conducted on nurses' knowledge of First Aid Management of Burn Patients at the Peshawar Burn and Plastic Surgery Center among 88 respondents overall, (56%) had good knowledge of burns, while (32%) of respondents

had average, and (12%) had low level of knowledge regarding first aid management of burn patient which is near to similar with current study [2].

This current study showed that those respondents had graduation degree, they had more knowledge (mean score 72.44) than Diploma in Nursing Science & Midwifery (mean score 69). This finding is consistent with the results from a study was conducted in Egypt, they found that Bachelor of science nurses had better knowledge than General Nursing and Midwifery (Buksh *et al.*, 2021). The study reveals that those respondents had training regarding burn are more knowledgeable than those had no training on burn. Near to similar a study conducted by [17]. They found that there was a relationship between nurses' knowledge and their training on burn which is consistent with current study.

VI. LIMITATIONS OF THE STUDY

➤ The Limitation of the Study that Faced the Researchers during Conducting the Research-

- This study was conducted only one hospital at National Institute of Burn & Plastic Surgery Hospital that's why this result may not be generalized to all the setting in Bangladesh.
- This study only focused on the assessment of knowledge but not the practice of nurses. So, this study did not explore the management of all services on burn injury management.
- Researchers used developed questionnaire without measuring internal consistency to maintain reliability of the instrument due to limitation of advanced statistical analysis (SPSS).
- Had found limited study on nurses' knowledge regarding cervical cancer in Bangladesh perspective.
- The study sample size was only 50. So, the results may not in a large- scale survey.
- Data was collected on duty nurses only morning shift. So, there some inconsistency may occur in result.

VII. CONCLUSION

Burn injury is a major global public health crisis. A descriptive study was carried out to assess the level of nurses' knowledge regarding management of burn injury patient at Sheikh Hasina National Institute of Burn & Plastic Surgery Hospital. The present study showed that, respondents had (71.15%) good level of knowledge regarding overall management of burn injury patients. Burn injury knowledge influenced by the respondent's level of education and training on burn management. Therefore, on the basis of the study finding the level of nurses' knowledge towards burn injury requires improvement. The improvement of knowledge could reduce the risk of future burn injury related disorder including shock, infection and multi organ failure etc. In this context, this study concerns the need of higher education and special training regarding burn injury should be provided for nurses to ensure quality care to the patient.

RECOMMENDATIONS OF THE STUDY

The following recommendation are prepared based on the findings after study in order to improve the body of knowledge regarding burn injury.

- Provide specialization training regarding burn to improve the nurses' knowledge regarding burn management as well as proper care to the burn injury patients.
- Organize available facility to join in the workshop, seminar and awareness programs etc. for burn nurses to facilitate advance information regarding burn injury management.
- In-service refresher training programs and continuing in-service education programs to be emphasized for the nurses on burn injury patient care.
- Encourage and motivate the staff to attend educational programs by offering all kind of facilities for that.
- Develop a nursing guideline for care specially for burn injury patient in each burn unit.
- The area of burn nursing should be included in Diploma curriculum to increase care providers' knowledge.
- Further study is needed from the generalized of the research findings.

ACKNOWLEDGEMENT

This research project entitled “**Nurses’ Knowledge Regarding Management of Burn Injury Patients at Selected Hospital in Dhaka**” conducted by students of research group 01 under the subject of “Nursing Research” for the partial fulfillment of the degree of Bachelor of Science in Post Basic Nursing & Bachelor of Science in Post Basic Public Health Nursing course. So, there is no any source of findings from others. First of all, researchers would like to give all gratitude and praises and thanks to the Almighty Allah who has blessed for strengthening to start of this work until completion. The members of group “01” would like to express their heart full gratitude and deepest appreciation to the principal, subject teachers and guide teachers (Bethika Rani Biswas and Anima Samadder) of College of Nursing, Mohakhali, Dhaka-1212, Bangladesh for their constant constructive guidance, facilities and wordless encouragement, valuable suggestions, significant corrections, alterations, directions and cooperation for improvement in all aspect of this study. Researchers also grateful to the hospital authority and every nurse respondent for their participation and co-operation. The study has no conflict of interest.

REFERENCES

- [1]. Abd Elalem, S. M., Shehata, O.S. M & Shattla, S. I. (2018). The effect of self-care nursing intervention model on self-esteem and quality pf life among burn patients. *Clin Nurs Stud*, 6(2), 79-90.
- [2]. Bailey, M. E., Sagiraju, H. K. R., & Alamgir, H. (2019). Epidemiology and outcomes of burninjuries at a tertiary burn care centre in Bangladesh. *Burns* 45(4),957-963.
- [3]. Biswas, A., Abdullah, A. S. M., Deave, T., Dalal, k., & Mashreky, S. R. (2020). Exploration of Gaps and challenging in managing burn injury ai district and sub government health care facilities in Bangladesh. *Burns open*, 4(1), 16-21.
- [4]. Biswas, A., Abdullah, A.S.M., Dalal, K., Deave, T., Rahman, F., & Mashreky, S.R. (2018). Exploring perceptions of common practices immediately following burn injuries in rural communities of Bangladesh. *BMC health services research*, 18,1-6. <http://doi.org/101186/s12913-018-3287-3>
- [5]. Buksh, N. A., Ghani, M., Amir, S., Asmat, K., & Ashraf, S. (2019). Assessment of Nurses’ Knowledge and Practice for Prevention of Infection in Burn Patients. *Saudi Journal of Medical and Pharmaceutical Sciences*, 5(10), 846-855.
- [6]. Das, K, S. (2024, 2 March). Bailey Road Fire no Precautions Despite Being Aware of Risks. *The Prothom Alo*. Retrieved from <https://en.prothomalo.com/bangladesh/tafmjshjbs>
- [7]. Directorate of General Health Services. (n.d.). About Registration of Burn Patients and Considering Burn as Notifiable Disease. Retrieved from <https://old.dghs.gov.bd/index.php/en/home/961-about-registration-of-burn-patients-and-considering-burn-as-notifiable-disease>
- [8]. ICN (International Council of Nurses); Retrieved on 5th June,2022 from <https://www.ncbi.nlm.nih.gov>
- [9]. Kadhim, H.R., & Hamza, R.A.H. (2020). Effectiveness of an Educational Program on Nurses’ Knowledge toward Burn Management. *Medico Legal Update*, 20(4),1944-1945.
- [10]. Kadhim, M.H., Ahmad, S.T., &Kadhim, S. (2019). Assessment Of nurses’ knowledge toward management of patients with burn in Duhok city. *Journal of Duhok university*, 22(2) 35-40. <https://doi.org/10.26682/sjuod.2019.22.2.4>
- [11]. Karki, B., Rai, S.M., Nakarmi, K. K., Barnet, S.J., Magar, M.G., Nagarkoti, K. K., &Thapa, S. (2018). Clinical Epidemiology of Acute Burn injuries at Nepal Cleft and Burn Centre, Kathmandu, Nepal. *Burn Surgery and Research*.
- [12]. Keshri, V. R., & Jagnoor, J. (2021). Burn in India: a call for health policy action. *The lancet public health* 7(1), 8-9. [https://doi.org/10.016/S2468-2667\(21\)00256-5](https://doi.org/10.016/S2468-2667(21)00256-5)
- [13]. Lam, N.N., Huong, H.T.X., & Tuan, C.A. (2018). Nurse knowledge of emergency management for burn and mass burn injury. *Annals of burns and fire disasters*, 31(3), 246
- [14]. Marhan, G. S. K., Mahgoub, A. A., & Abass, M.S. (2019). The effect of scenario-based teaching for critical care nurses and physician on their knowledge of fluid creep. *Journal of Nursing Education and Practice*, 9(4).
- [15]. Mashreky, S. R., Shawon, R. A., Biswas, A., Ferdoush, J., Unjum, A., and Rahman, A. (2018). Changes in burn mortality in Bangladesh: Findings from bangladesh health and injury survey (BHIS) 2003 and 2016. *Burns* 44, 1579–1584. doi: 10.1016/j.burns.2018.01.009

- [16]. Merriam- Webster (n. d). In Merriam- Webster. Com dictionary. Retrieved from March 20.2023 from <https://www.merriam-webster.com/dictionary/knowledge>
- [17]. Mohammed, R. K., Hassan, M. S., & Mohammed, I. R. (2021). Effect of an Educational Nursing Program on Nurses Performance Regarding Burn Injury Management. *International Journal of Novel Research in Healthcare and Nursing* 8(2) 50-63.
- [18]. Mukhlif, H.H., & Mansour, K.A. (2021). A study to assess nurses' knowledge regarding aseptic technique in managing burn patients. *Annals R.S.C.B., ISSN*25(6),14251432. <https://www.merriamwebster.com/dictionary/knowledge>.
- [19]. Nielson, C. B., Duethman, N. C., Howard, J. M., Moncure, M., and Wood, J. G. (2017). Burns: Pathophysiology of systemic complications and current management. *J. Burn Care Res.* 38, e469–e481. doi: 10.1097/bcr.0000000000000355
- [20]. Parveen, K., Hussain, M., Afzal, M., & Gilani, S.A. (2020). Assess the knowledge and practices of nurses regarding the prevention of infection in burn patient in tertiary care hospital Lahore. *Journal of Health, Medicine and Nursing*, 74(2), 178-231.
- [21]. Park, M., Kim, G., & Kim, K. (2020). The effect of pressure injury training for nurses: A systematic review and meta-analysis. *Advances in skin & wound care*, 33(3), 1-11.
- [22]. Raihan, R. (2023, 18 March). Sitakundas curse of industrial accident. *The Daily Star*. <https://www.thedailystar.net/weekend-read/news/sitakundas-curse-industrial-accidents-3273976>
- [23]. Rahman, A. (2023, 4 April). Banga bazar Fire. *The Daily Star*. Retrieved from <https://www.thedailystar.net/news/bangladesh/accidents/fires/bangabazar-fire-4-firefighters-injured-mob-attacks-fire-service-hq-3288351>
- [24]. Ramli, R. N., Prawoto, A., Riasa, N. P., Saputro, I. D., & Masud, A. F. (2021). Epidemiology and knowledge of first aid treatment related to burn injury in the rural region of Kulon Progo, Indonesia. *Open Access Macedonian Journal of Medical Sciences*, 9(E), 101-108.
- [25]. Rahman, S., & Rahman, S. (2020, 19 February). Emerging from the ashes. *The Business Standard*. Retrieved from <https://www.tbsnews.net/feature/emerging-ashes-46361>
- [26]. Rosenfeld, j. (2023). Burn Injury Statistics. *Rosenfeld Injury Lawyers* Retrieved from <https://www.rosenfeldinjurylawyers.com/chicago-burn-injury-lawyer/statistics/>
- [27]. Smolle, C., Cambiaso-Daniel, J., Forbes, A. A., Wurzer, P., Hundeshagen, G., Branski, L. K., et al. (2017). Recent trends in burn epidemiology worldwide: A systematic review. *Burns* 43, 249–257. doi: 10.1016/j.burns.2016.08.013
- [28]. Sumy, K. N. (2023) Burn Units Crowded with patients. Retrieved from <https://www.newagebd.net/article/191625/burn-units-crowded-with-patients>.
- [29]. World Health Organization. (2018). *Burns*. <https://www.who.int/news-room/fact-sheets/detail/bur>
- [30]. Polit DF, Beck CT. (2008). Nursing research: Generating and assessing evidence for nursing practice. Lippincott Williams & Wilkins; 2008.

APPENDIX I. PERMISSION LETTER

Mr. Zahir
Pl. do needful

১
১৫/১১/২০২৪

Dr. F.A. Asma Khan
Assistant Director (Clinical/Admin.)
Sheikh Hasina National Institute of Burn and Plastic Surgery, Dhaka

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
অধ্যক্ষের দপ্তর
কলেজ অব নার্সিং,
মহাখালী, ঢাকা-১২১২।

স্মারকসং-পি.এফ/সিএন/২০৪

প্রাপ্তি:

তারিখ: ২০/০৮/২০২৪

পাঠ্যক্রম
শেখ হাসিনা জাতীয় বর্ন ও প্লাস্টিক সার্জারী ইনস্টিটিউট
ঢাকা।

বিষয়ঃ আপনার প্রতিষ্ঠানে/কমিউনিটিতে কলেজ অব নার্সিং, মহাখালী, ঢাকায় অধ্যয়নরত বিএসসি ইন নার্সিং ও বিএসসি ইন পাবলিক হেলথ নার্সিং কোর্সের চূড়ান্ত বর্ষের শিক্ষার্থীদের রিসার্চ প্রজেক্ট তৈরীর জন্য তথ্য সংগ্রহ প্রসঙ্গে।

কলেজ অব নার্সিং, মহাখালী, ঢাকায় অধ্যয়নরত ২০২১-২০২২ইং শিক্ষাবর্ষ (চূড়ান্ত বর্ষ) গ্রুপ- বিএসসি নার্সিং ও বিএসসি পাবলিক হেলথ নার্সিং কোর্সের শিক্ষার্থীদের রিসার্চ প্রজেক্ট তৈরীর জন্য তথ্য সংগ্রহ সংক্রান্ত কাজ করার জন্য আপনার প্রতিষ্ঠান উপযুক্ত বিদ্যায় একটি গ্রুপকে আপনার প্রতিষ্ঠানে প্রেরণ করার জন্য আগ্রহ প্রকাশ করিতেছি। আপনার সদয় অবগতির জন্য ছাত্র/ছাত্রীদের গ্রুপের নামের তালিকা ও ব্যবধানের বিষয় (সংক্ষিপ্ত আকারে) সংযুক্ত করা হইল।

যতএব মহোদয়ের নিকট আবেদন এই যে, উল্লিখিত বিষয় এর উপর ছাত্র/ছাত্রীদের জন্য তথ্য সংগ্রহ করার জন্য এখানে আসা হয়।

Requ
১৫/১১/২০২৪
Rozina Begum
Nursing Superintendent
Sheikh Hasina National Institute of
Burn and Plastic Surgery
Dhaka. Bangladesh

স্মারকসং-পি.এফ. ১-১/২০০৩/সিএন/২০৪

তারিখ: ২০/০৮/২০২৪

অনুলিপি অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য প্রেরিত হইলঃ-

১. সিনিয়র অধ্যাপক, _____, ঢাকা।
২. গুয়ার্ড ইনচার্জ, _____, ঢাকা।
৩. কমিউনিটি প্রদান, _____, ঢাকা।

অধ্যক্ষ
২০/০৮/২৪
কলেজ অব নার্সিং,
মহাখালী, ঢাকা-১২১২।

অধ্যক্ষ
২০/০৮/২৪
কলেজ অব নার্সিং,
মহাখালী, ঢাকা-১২১২।