



# PREVALENCE OF BURN PATIENTS ADMITTED AT KHYBER TEACHING HOSPITAL PESHAWAR, PAKISTAN

- 1- Muhammad Adnan (Khyber Teaching Hospital Peshawar)
- 2- Salman Khan (NCS-Khyber Medical University)
- 3- Ayesha Bashir (Senior Lecturer, Riphah International University, Islamabad)
- 4- Anam Amjad (Lecturer, Faculty of Pharmacy, IBADAT International University, Islamabad)
- 5- Aneela Zia (Lecturer, Riphah International University, Islamabad)
- 6- Ramsha Tariq (Senior Lecturer, Riphah International University, Islamabad)
- 7- Aqsa Batool (University of Lahore, Islamabad Campus)

## ABSTRACT

**Back ground:** Still burn is an important area under research in Pakistan. Injuries caused due burns along with its consequences are considered a major threat to the community health standards. The objective of this study was to determine the causes of burns and location where burn occurs in burn and plastic surgery unit at Khyber teaching hospital Peshawar Pakistan.

**Methods:** This cross-sectional investigation took place over a span of four months and involved patients aged between 1 and 40 years who were admitted to Khyber Teaching Hospital in Peshawar. We examined the medical records of burn patients who were hospitalized, and an analysis was conducted using the SPSS software.

**Results:** Out of the total 100 patients, 55 cases (55%) were identified as male, while the remaining were female (45%). The age group most significantly affected was males aged 20 to 30 years. The majority of burn injuries occurred in the domestic setting (68%). Thermal burns, including scalds and flames, were the primary cause of burns (70%). The upper limbs were the most frequently affected body region (23%), with second-degree burns being the prevailing type.

**Conclusions:** The findings of this study reveal that thermal sources (scalds and flames) are the leading cause of burn injuries within the specified population. The study also indicates a substantial percentage of burns occurring at home, emphasizing the potential for prevention through increased awareness and attention.

**Keyword:** Burn, Scald, flame

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## INTRODUCTION

Burn is a type of injury to skin or flesh (fat and muscles tissues) caused by heat. Electricity (high voltage, low voltage), chemical (acid, base), radiations (ultraviolet, X-rays) and cold. Skin which is the largest external organ of the body is mainly categorized into three layers: the outer layer is epidermis, beneath epidermis dermis is present contains blood vessels, sweat gland, and third layer is

subcutaneous tissue. The American Burn Association(ABA) has suggested a more accurate definition of first degree, second degree, and third-degree burns, which is classifying them according to depth of skin devastation such as epidermal or superficial (first-degree),partial-thickness (second-degree), superficial partial or deep partial-thickness and full-thickness (third-degree)



burns (may also be categorized as a deep full-thickness)(1).

Burns which include the full thickness of the skin are known as full thickness burns or they include only a part of the thickness of the skin and are known as partial thickness burns(2). Burns injury is a community health issue, and often accompanied with discomfort, emotional stress, long hospitalization, long lasting deformity and deformity(3). Burn injuries are supreme shattering among all injuries and a chief worldwide public health emergency and are the fourth most common form of trauma worldwide, after traffic accidents, falls, and social violence(4). Maximum burns are comparatively minor and do not need absolute medical management. While burns including a large surface area, life threatening body parts, old age or paediatric population often require management in specific burn centers(5).

Thermal burns, resulting from contact with heated materials including flames, hot fluids, solid substances, and vapors, lead to cell damage through coagulative necrosis (6). Non-fatal burns often lead to significant physical and psychological consequences, necessitating comprehensive management, recovery, and systemic interventions. The economic burden of burn injuries includes both short-term and long-term costs for families, communities, and the nation as a whole (7). Among childhood accidents, burn injuries account for 25%, mainly caused by accidental falls into fires and scalding from hot liquids (8). Factors contributing to burn severity include the type of burn (e.g., scalding), younger age, larger burn area, and the presence of inhalation injuries. Notably, inhalation injury is widely recognized by many researchers as a major predictor of mortality in burn victims. In fact, nearly 50% of children under the age of nine involved in household fires suffer from inhalation injuries. Another prevalent issue is burn injuries resulting from domestic violence against women. A significant portion of female burn cases is linked to intentional self-harm with suicidal intent, often stemming from marital conflicts (9).

Globally, every year nearly six million patients need medical assistance for burn, most of which are managed in outpatient clinics, according to World Health Organization (WHO), an estimated 265,000 people die because of burn injuries (10). In the United States, American Burn Association noted that 500,000 patients every year need medical management for burn injuries, and the mortality of these patients is four thousand per annum or 0.8 per cent of those patients needing medical management(11).

According to WHO survey, the proportion of death due to burn in low income countries are eleven times more common than in the high income societies (12). WHO has recorded the world's greatest occurrence of burns from Pakistan which is accounting to 1388 per 100,000 per year as compared to worldwide occurrence of 110/100,000 per year(13). However, burn injury in Pakistan is now an under-researched area. The Global Burden of Disease 2010 suggests that the age-standardized death ratio for burn injury is 5.8 per 100,000 people in Pakistan due to heat, hot objects and fire (14).

In Pakistan there is no long term epidemiological data available on burn injuries. Some data are present which document the degree of the problem. We tried to find out the prevalence of burn patients in Khyber Teaching Hospital Peshawar, Pakistan

#### **MATERIAL AND METHODS**

A cross-sectional study was conducted to find out the prevalence of burn patients admitted in burn and plastic surgery unit at Khyber Teaching Hospital (KTH) Peshawar. The current study was conducted in Khyber Teaching Hospital (KTH) Peshawar, Pakistan. The study was taken approximately 4 months i.e. from 1<sup>st</sup> March 2021 to 31<sup>st</sup> July 2021. The current study was conducted in Burn and Plastic surgery unit, in which patients were admitted for burn management. A total of hundred (100) patients were selected for this study. Convenient non-probability sampling techniques were used to collect data from patients through questionnaire. All those patients who contented the following criteria

were included in the study such as patients whose ages were greater than one year and less than forty years. All those patients who contented the following criteria were excluding from the study such as patients whose ages were less than one year and greater than forty years.

Data were collected from the patient through self-generated questionnaires. All filled questionnaires checked carefully. An SPSS version 22 for window was used to analyze the data. All the variables which were included in the questionnaires were checked for each and every mistake Descriptive statistics were applied on the data for determination of percentages and frequencies displayed in the form of tables and charts. Cross tabulated methods were used for data analysis

**RESULTS**

total of one hundred (100) patients were examined. The patients were categorized into four age groups and burn injuries were classified into three types. Among the total

patients, 70 (70%) suffered burn injuries caused by thermal sources (scalds and flames). Specifically, in the age group of 2-10 years, 19% experienced burns from thermal sources; in the 11-20 age group, the percentage was 12%; in the 20-30 age group, it was 27%; and in the 30-40 age group, it was 12%. Burn injuries due to chemical exposure accounted for 6% in the 2-10 age group, 4% in the 11-20 age group, 7% in the 20-30 age group, and 3% in the 30-40 age group, Burns resulting from electricity were reported at 1% in the 2-10 age group, 4% in the 11-20 age group, 4% in the 20-30 age group, and 1% in the 30-40 age group.

**Table1. Patient has which type of burn?**

Age group	Patient has which type of burn			Total
	Thermal	Chemical	Electrical	
2-10	19	6	1	26
11-20	12	4	4	20
20-30	27	7	4	38
30-40	12	3	1	16

  

Age * Gender Cross tabulation				
Age		Gender		Total
		Male	Female	
Age	2-10	17	9	26
	11-20	8	12	20
	20-30	18	20	38
	30-40	12	4	16
Total		55	45	100

  

Total	70	20	10	100
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Table 1 shows that the incidence of thermal burn (Scald, flame) was more (27%) in age 20-30 years, while electrical burn was less than other types of burn in age 2-10 years.

**Table 2: Age + Gender Cross Tabulation**

From the total sample of 100 burn patients, 55 (55%) were identified as males, while 45 (45%) were females. Percentage of patients of age group 2-10 burnt was 26%, age 11-20

years were 20%, age 20 to 30 years were 38%, and patient of age 30-40 years which were burnt are 16%.17 males and 9 females were burnt in age 2-10 years,8% male and 12%



females were burn in age 11-20 years, the males and female's patient which were burnt in age 20-30 years are 18% and 20%, similarly the male patients of age 30-40 years were 12% and females were 4%.

**Table 2 show that females were burnt more (20%) in age 20-30 years, while burn were less in female patient of age 30-40 years which was 4%.**

In the recent study of sample 100 patients, 55% were male patients and female patients

were 45%, in which 68% burns were occurred at home, 13% were occurred at duty place, while 19% occurred accidentally. In table 3 the rate of burn in males were occurred at home are 37 %, burn in female's patient at home were 31%, similarly burns were occurred in males at duty place are 10%, burn in female's patient at duty place are 3%, in the same way accidental burn was occurred in males are 8% while accidental burn in females are 11%.

**Table 3: Place where burn occurred?**

Place where burn occurred	Gender		Total
	Male	female	
Home	37	31	68
Duty place	10	3	13
Accidentally	8	11	19
Total	55	45	100

Table 3 show that most burns were occurred at home in male (37%), while fewer burns were occurred at duty places in females (3%).

**Table4: patient has which degree of burn?**

Patient has which degree of burn					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	First degree burn	22	22.0	22.0	22.0
	Second degree burn	62	62.0	62.0	84.0
	Third degree burn	16	16.0	16.0	100.0
	Total	100	100.0	100.0	

**Table 4.** In the recent study we were noted patient of various degree of burn, the frequency of first degree burn was noted 22%, for second degree burn the frequency was 62%, for third degree burn the frequency was 16%. It shows that frequency of second degree burn was more (62%) than other frequency

**DISCUSSION**

Burn injuries occur globally and have plagued human being since former time till the present time. In all countries including advanced or developing nations, burns create, a therapeutic and emotional problems, but also has severe financial and community consequences not merely to them, but also to their family and culture in

general(15) . like to this study, a greater frequency of burn injuries among young adults has been noted at the state and local level in other studies from Turkey, Iran, India, and Turkey(16) According to Liu, the vast majority of burns occurred at home .Flame burns were most common followed by scalds, In another study conducted in Nepal, main cause of flame burn was household fire due to similar reasons as was in our case. Similar to our study, greater than half the patients were males in a study carried by in US California. Greater frequencies of patients were in 20 to 30 years' age group. In a similar study from Nepal, the majority of patients were in 15 to 59 years age group (17).In recent study we were four



groups of different age, in all age groups the most common cause of burn was noted as thermal sources (scald), in which total patient effected due to thermal burn were 70%, the percentage of thermal burn was more maximum in patient of age 20-30 years than other ages, similarly patients burn due electricity were found less in age 20-30. In this study we were noted that females were burnt more than male, the total female patients which were effected in this study were 45% of age 20-30 years. In conflict related burns, the head and neck are now the most commonly affected areas, which is in line with the increasing incidence of head and neck injury in 21st century conflict in general(18). It was found that the major burn injury sites are the lower limbs, followed by the trunk and upper limbs. There is no consent in this favor, but view point out. The circumferential burns of chest and peripheries may compromise the life and or function of the affected limb. When affecting hands and feet, burns are measured important and distressing, since there is considerable probability of consequences that compromise the financial and social efficiency of the victim(19). This study show that the body part which was burnt more are upper limbs in male which were noted 23%, while the body parts which were burnt less is face and trunk. Furthermore, upper limbs were noted maximum with 2<sup>nd</sup> degree burn. Human influences involved poor observation of children, filling lamps and heater while burning, deficiency of first aid information and not seeking therapeutic consideration early after injury(20)

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