

PREVALENCE OF POST-TRAUMATIC STRESS DISORDER (PTSD) SYMPTOMS IN BURN SURVIVORS

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Abstract

Background: Burn injuries are highly distressing events that can cause long-lasting physical trauma and profound psychological consequences, including post-traumatic stress disorder (PTSD).

Objective: To determine the prevalence of PTSD among burn survivors and identify factors contributing to its development.

Materials & Methodology: A total of 150 burn survivors were enrolled. A validated PTSD assessment tool and a structured questionnaire covering demographic and clinical characteristics were used. Data were analyzed using SPSS 23. Descriptive statistics summarized frequencies and percentages, while the chi-square test assessed associations. A p -value ≤ 0.05 was considered significant.

Results: Among participants, 57% were females and 43% males, with a mean age of 42.1 ± 1.2 years. Heat burns (38%) were most common. Most injuries were accidental (86%). The overall prevalence of PTSD was 81%, with fear and intrusive thoughts reported by 84%. All contributing factors showed significant associations with PTSD ($p=0.001$).

Conclusion: Burn survivors have a high burden of PTSD, highlighting the need for early psychological screening and timely intervention.

INTRODUCTION

Post-Traumatic Stress Disorder (PTSD) is a mental health condition that may develop after exposure to a traumatic or life-threatening event and is characterized by persistent symptoms that impair daily functioning and quality of life (Brier et al., 2023). Common triggers include severe injuries, natural disasters, sexual assault, and other traumatic experiences. Burn injuries represent one of the most severe forms of trauma, often resulting in both immediate physical damage and long-term psychological consequences. Among burn survivors, depression, anxiety, and PTSD are frequently reported, with PTSD emerging as one of the most

prevalent psychological conditions in this population (Iglesias et al., 2024); (Gardner et al., 2024).

Globally, the prevalence of PTSD varies widely. The World Health Organization estimates a lifetime prevalence of approximately 7% in the general adult population, though rates differ based on trauma exposure, cultural context, and access to mental health care (Hosseinnejad et al., 2022b). Among burn survivors, PTSD prevalence ranges from 3% to 58%, with nearly half reporting at least one PTSD symptom (Lodha et al., 2020). Factors such as burn severity, involvement of visible body areas (face or hands), age, pre-existing mental health conditions, and availability of social support significantly

influence PTSD risk (McNally et al., 2023); (Dahl et al., 2022); (Hosseinnejad et al., 2020a).

PTSD in burn survivors manifests through intrusive memories, flashbacks, avoidance behaviors, heightened arousal, and persistent negative emotions such as fear, guilt, or hopelessness, often accompanied by social isolation and body-image concerns (Miao et al., 2018). Symptoms may appear shortly after injury or emerge months to years later, emphasizing the need for long-term psychological follow-up (Waqas et al., 2018). Gender, socioeconomic status, educational level, injury severity, and social support further shape vulnerability, with females often reporting higher symptom severity (Tolin et al., 2019); (Sherin et al., 2022). Despite effective treatments such as cognitive-behavioral therapy and pharmacological interventions, early identification and psychosocial support remain critical, particularly in settings like Pakistan where PTSD data are limited and the burden remains under-recognized (Bison et al., 2021).

Materials and Methods

This cross-sectional study was conducted over a period of approximately six months following approval of the synopsis. The study population comprised adult burn patients admitted to Jinnah

Burn Center and Services Hospital, Lahore, with data collection coordinated through the Sheikhfa Fatima Institute of Nursing and Allied Health Sciences (SFINHS), Lahore. A non-probability convenient sampling technique was employed. Both male and female patients aged 18 years and above who provided written informed consent were included, while children, patients with incomplete questionnaires, those with a prior history of depression or antidepressant use, and individuals who declined consent were excluded. Based on a previously reported PTSD prevalence of 13%, the calculated sample size was 140, which was increased to 150 to account for possible non-response.

Data were collected using a structured, interviewer-administered questionnaire incorporating demographic information and PTSD symptom assessment based on DSM-5 criteria, measured on a five-point Likert scale. Ethical approval was obtained from the Institutional Review and Research Advisory Board of SFINHS, and strict confidentiality was maintained. Data were analyzed using SPSS version 23.0, with descriptive statistics used to summarize frequencies, percentages, means, and standard deviations, and results presented through tables and graphical formats.

Results

Table 1. Socio-Demographic Characteristics of Burn Patients (N = 150)

Variable	Category	Frequency (n)	Percentage (%)
Age Group (years)	18-25	19	12.6
	26-30	28	18.6
	31-35	40	26.6
	36-40	30	20.0
	41-45	20	13.3
	46-50	10	6.6
	51-55	3	2.0
Gender	Female	86	57.3
	Male	64	42.7
Marital Status	Single	62	41.3
	Married	88	58.7
Employment Status	Employed	78	52.0
	Unemployed	72	48.0
Educational Status	Educated	112	74.7
	Uneducated	38	25.3

Family Structure	Joint Family	96	62.0
	Nuclear Family	54	36.0

The table presents the socio-demographic profile of 150 burn patients. The majority of participants were aged 31–35 years, female, married, educated, and living in joint family systems. Slightly more than half

of the patients were employed, reflecting varied socioeconomic backgrounds within the study population

Table 2. Clinical Characteristics of Burn Patients (N = 150)

Clinical Variable	Category	Frequency (n)	Percentage (%)
Hypertension	Yes	36	24.0
	No	114	76.0
Diabetes Mellitus	Yes	11	7.3
	No	139	92.7
Cause of Burn	Heat	57	38.0
	Chemical	35	23.3
	Strong acids	47	31.3
	Electrical	21	10.6
Duration of Hospital Stay	≤ 1 month	83	55.3
	Up to 6 months	48	32.0
	> 6 months	19	12.7
Mode of Burn Injury	Accidental	121	80.6
	Domestic violence	29	19.4
Total Burned Surface Area (TBSA)	10%	55	36.6
	20%	38	25.3
	30%	45	30.0
	40%	4	2.6
	50%	5	3.3
	> 50%	3	2.0
Surgical Intervention Required	Yes	57	38.0
	No	93	62.0

This table summarizes the clinical profile of burn patients enrolled in the study. Most patients did not have comorbid conditions such as hypertension or diabetes. Heat burns were the most common cause, followed by strong acid burns. A majority of injuries

were accidental, and more than half of the patients required hospitalization for one month or less. Most patients had a total burned surface area of 30% or less, and fewer than half required surgical intervention.

Table 3. Pain Intensity and PTSD Status of Burn Patients (N = 150)

Variable	Category	Score	Frequency (n)	Percentage (%)
Pain Level (VAS)	No pain	0	7	4.7
	Mild pain	1	68	45.3
	Moderate pain	2	51	34.0
	Severe pain	3	24	16.0
PTSD Status	Present	—	122	81.3
	Absent	—	28	18.7

The table illustrates pain severity assessed using the Visual Analogue Scale (VAS) and the presence of PTSD symptoms among burn patients. Most patients reported mild to moderate pain, while a smaller proportion experienced severe pain. A high

prevalence of PTSD was observed, with more than four-fifths of patients exhibiting PTSD symptoms, highlighting a substantial psychological burden among burn survivors.

Table 4 Assessment of PTSD Symptoms Among Burn Patients Using DSM-5 Criteria (N = 150)
Responses rated on a Likert scale from 0 = Not at all to 5 = Extreme/Severe

PTSD Symptom Item	Agreed Responses (%)	Mean Severity Score	Interpretation
Recurrent intrusive memories of burn injury	86	4	Moderate
Distressing dreams related to burn	31	0	No symptoms
Flashbacks or feeling trauma recurring	52	2	Mild
Distressing memories of burn injury	91	5	Severe
Nightmares related to burn incident	22	0	No symptoms
Avoidance of thoughts or feelings about burn	98	5	Severe
Avoidance of places/people related to burn	93	5	Severe
Persistent negative emotional states	86	4	Moderate
Difficulty experiencing positive emotions	78	3	Mild
Feeling detached or estranged from others	91	5	Severe
Hypervigilance or feeling "on edge"	85	4	Moderate
Difficulty sleeping or concentrating	91	5	Severe
Irritability or angry outbursts	68	3	Mild
Talking to family/friends about feelings	72	3	Mild
Seeking professional psychological help	15	0	No symptoms
Avoidance of talking about burn incident	87	4	Moderate
Avoidance of burn-related reminders	96	5	Severe
Social isolation	64	2	Mild
Startle response to loud noises	86	4	Moderate
Sleep disturbance due to anxiety	81	4	Moderate
Pain-related distress linked to burn injury	98	5	Severe

This table provides a detailed assessment of PTSD symptoms among burn patients based on the DSM-5 criteria, rated on a Likert scale from 0 (Not at all) to 5 (Extreme/severe symptoms). Severe PTSD Symptoms were seen in 93%. Persistent distressing memories of the burn was in (91%). Moderate Symptoms like Recurrent intrusive memories (86%), Negative emotional states like fear, anger, or horror (86%) and Feeling easily startled or tense (85%).Mild

Symptoms were seen in 52% of the patients Interpretation. The data strongly indicates that PTSD is a major concern among burn patients, with severe symptoms of avoidance, emotional distress, pain, and sleep disturbances. The low rate of professional help-seeking (15%) suggests the need for better psychological support and intervention programs to address long-term trauma and coping strategies.

Table 5. Mean PTSD Score Among Burn Patients (N = 150)

PTSD Status	Mean Score (Mean $\pm$ SD)	Interpretation
Positive PTSD symptoms	3.89 $\pm$ 1.2	Moderate level of PTSD

The table shows the overall mean PTSD score among burn patients, indicating a moderate level of PTSD

symptom severity in the study population.

Table 6. Overall Prevalence of PTSD Among Burn Patients (N = 150)

PTSD Status	Frequency (n)	Percentage (%)
PTSD present	122	81.3
PTSD absent	28	18.7
Total	150	100.0

The table presents the overall prevalence of PTSD among burn patients, showing that more than four-

fifths of the participants were diagnosed with PTS

Table 7. Factors Contributing to PTSD Among Burn Survivors (N = 150)

Contributing Factor	n	Chi-square (χ^2)	p-value
Age	13	4.10	0.003
Anger	22	6.40	0.001
Guilt	17	5.80	0.002
Persistent pain	34	9.29	0.001
Pain with anxiety	27	10.60	0.001
High pain levels	31	6.98	0.0003
Length of hospital stay	54	8.74	0.0001
Total surface area burned	64	11.80	0.0001
Severity of burn	32	12.23	0.0001
ICU admission	58	7.80	0.001
Surgical procedures	72	9.80	0.0001
Upper/lower extremity involvement	43	13.40	0.010
Family behavior	32	8.41	0.002
Social and emotional factors	13	—	0.001
Low social support	37	11.30	0.001
Pre-existing health conditions	21	9.40	0.0001
Visibility of burn scars	63	10.50	0.001
History of mental illness	15	10.28	0.002

The table summarizes factors significantly associated with the development of PTSD among burn survivors. Clinical severity indicators such as total burned surface area, burn severity, ICU admission, surgical interventions, and prolonged hospital stay showed strong statistical associations with PTSD. Psychological factors including anger, guilt, persistent pain, anxiety, and low social support were also significantly related. Overall, all assessed factors demonstrated statistically significant associations with PTSD ($p < 0.05$), highlighting the multifactorial nature of PTSD among burn patients.

Discussion

Burn injuries represent one of the most devastating forms of trauma, producing long-term physical suffering alongside profound psychological consequences. The findings of the present study confirm that PTSD is a major mental health concern among burn survivors, supporting earlier evidence that the traumatic nature of burn injuries and the prolonged, painful recovery process significantly predispose individuals to psychological distress (Iglesia et al., 2021). The very high prevalence of PTSD symptoms observed in this study underscores the magnitude of this problem and highlights the

need to recognize psychological trauma as an integral component of burn care rather than a secondary outcome.

The socio-demographic profile of the participants revealed a higher proportion of females, with most patients being middle-aged, married, and living in joint family systems. These findings align with local studies from Pakistan, where burn injuries—particularly chemical and acid burns—are more common among women and often occur in domestic or occupational settings (Waqas et al., 2018). The predominance of accidental burns in this study is consistent with previous literature; however, the presence of burn injuries related to domestic violence, largely affecting females, reflects a critical social and public health issue that may further intensify psychological trauma (Van Dam et al., 2023). Limited education, low employment status, and rural residency may also contribute to delayed access to care and reduced psychological support, thereby increasing vulnerability to PTSD.

Clinically, most patients sustained moderate burns involving up to 30% of total body surface area, and a substantial proportion required prolonged hospitalization or surgical intervention. These findings are consistent with earlier studies indicating that burn severity, length of hospital stay, repeated surgeries, and ICU admission are strong predictors of PTSD development (Khan et al., 2025). The association between larger or visible burns and psychological distress may be attributed to body image concerns, functional limitations, and fear of social stigmatization, which persist long after physical healing.

Pain emerged as a prominent factor influencing PTSD symptoms. Although many patients reported mild to moderate pain, a notable proportion experienced severe or persistent pain, which is known to exacerbate anxiety, sleep disturbance, and emotional dysregulation. The high prevalence of PTSD symptoms (81.3%) observed in this study exceeds rates reported in some international literature but is comparable to findings from similar regional settings, where psychosocial stressors and limited mental health resources amplify psychological morbidity (Masood et al., 2018). This reinforces the role of pain, anxiety, and prolonged

physical suffering in sustaining traumatic stress responses.

The symptom-specific analysis demonstrated that intrusive memories, avoidance behaviors, emotional numbness, hyperarousal, and sleep disturbances were highly prevalent. These symptom patterns mirror DSM-5 PTSD clusters and are consistent with findings reported in previous studies among burn survivors (Bano & Naz, 2020; Ali et al., 2022). Notably, avoidance of discussing the traumatic event and low help-seeking behavior were common, while only a small proportion of patients sought professional psychological support. This reluctance may reflect stigma, lack of awareness, or limited access to mental health services, as previously highlighted in Pakistani settings (Shahid et al., 2018).

Overall, the findings of this study emphasize that PTSD among burn survivors is multifactorial, influenced by injury severity, pain, emotional responses such as anger and guilt, social support, and visibility of burn scars. Consistent with previous research, supportive family environments and early psychological interventions appear critical in mitigating PTSD risk (Bisson et al., 2021; Dahl et al., 2021). These results strongly advocate for the integration of routine mental health screening, trauma-focused psychological therapies, and social support mechanisms within burn rehabilitation programs to ensure holistic recovery and improve long-term quality of life for burn survivors.

Conclusion

Burn survivors face a significant risk of developing post-traumatic stress disorder (PTSD), with prevalence rates varying across studies. This study indicates 81 % prevalence of PTSD. The psychological impact of burns is profound, often leading to long-term distress and impairment in daily functioning. Early identification and intervention are crucial in mitigating the severity of PTSD symptoms and improving the overall well-being of survivors.

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