|| ISSN(online): 2589-8698 || ISSN(print): 2589-868X ||

Available online on http://www.ijmbs.info

International Journal of Medical and Biomedical Studies; 2025; 9(2); 104-109

Original Research Article

Psychosocial Impacts of Burn Injuries on Patients and Their Families

Gagan Hembrom[1], Aman Buriuly[2], Zenith Harsh Kerketta[3]

[1]Senior Resident, Department of General Surgery, SNMMCH, Dhanbad, Jharkhand, India

[2]Tutor, Department of Pathology, MGMMCH, Jamshedpur, Jharkhand, India

[3]Assistant Professor, Department of Surgery, RIMS, Ranchi, Jharkhand, India

Received: 19-01-2025 / Revised: 04-02-2025 / Accepted: 11-03-2025

DOI: https://doi.org/10.32553/ijmbs.v9i2.3057

Corresponding author: Gagan Hembrom

Conflict of interest: No conflict of interest

Abstract:

Background: Burn injuries not only cause significant physical trauma but also lead to severe psychological distress, social stigma, and financial burdens for both patients and their families. Understanding the psychosocial impacts of burns is crucial for developing effective mental health support, rehabilitation programs, and community reintegration strategies.

Methods: This hospital-based prospective observational study was conducted at RIMS, Ranchi, over one year, including 100 inpatients with acute burn injuries. Psychological assessments measured anxiety, depression, PTSD, coping strategies, and social support using standardized tools and clinical interviews. Data collection included demographic details, trauma-related stress, and stress biomarkers to evaluate the psychosocial impact of burn injuries.

Results: The study found that inpatient parents experienced significantly higher anxiety (mean = 11.05, SD = 5.40) and depression (mean = 7.80, SD = 3.75) compared to normative values. In the outpatient group, anxiety remained relatively stable over time, while depression peaked between 6–24 months post-injury before slightly decreasing. Family functioning gradually improved, with the lowest dysfunction scores observed in parents over two years post-injury. These findings highlight the need for early and long-term psychological support for parents of burn-injured children.

Conclusion: The study found high levels of anxiety (72%) and depression (46%) among inpatients, with psychological distress decreasing over time in outpatients. Family functioning was significantly impacted, particularly in the early months post-injury.

Keywords: Burn injuries, psychological impact, anxiety, depression, post-traumatic stress, coping mechanisms, family functioning.

Introduction

Burn injuries represent a major global health concern, ranking among the leading causes of trauma-related deaths in several regions. Each year, over 200,000 fatalities result from various types of burns, with a significant proportion occurring in low-income and developing nations [1]. In the Indian subcontinent, burns are frequently associated with suicides, and epidemiological data suggest that more than half of all burn cases occur in low- and middle-income countries, particularly in South East Asia [2]. While the physical consequences of burn injuries are well-documented, their psychological and social impacts on patients and their families remain an area requiring greater attention.

In India, nearly one million individuals suffer from moderate to severe burn injuries annually, leading to profound emotional, psychological, and socioeconomic consequences [3]. Burn survivors often experience post-traumatic stress disorder (PTSD), depression, anxiety, and social stigma, which significantly affect their quality of life and reintegration into society. Families of burn patients also face considerable psychological distress, financial burdens, and long-term caregiving responsibilities. The causative factors of burns, whether accidental or intentional, vary by region and are influenced by demographic and environmental factors. Understanding these variations is crucial for developing targeted psychosocial interventions, improving mental health support, and addressing societal stigma associated with burn injuries.

Many of the psychological and social consequences of burns can be mitigated through comprehensive rehabilitation programs, psychosocial support services, and community awareness initiatives [5]. Factors influencing post-burn mental health include patient demographics, burn severity, visibility of scars, and the availability of social support. Tools such as the Abbreviated Burn Severity Index (ABSI) are often used to assess burn severity and guide medical treatment, but there is a growing need for structured psychological assessment tools to evaluate the long-term emotional and social well-being of survivors [6]. Additionally, burn survivors, especially older adults, are at a heightened risk of developing psychological distress due to prolonged hospital stays, social isolation, and the challenges of adapting to a changed physical appearance [7,8].

The aim of this study is to evaluate the psychosocial impacts of burn injuries on patients and their families, focusing on mental health outcomes, social reintegration challenges, and coping mechanisms. By analyzing the emotional and social burden of burn injuries, this research seeks to identify gaps in psychological care and propose strategies to enhance mental health support and rehabilitation efforts for burn survivors and their caregivers.

Methods

Study Design

This study was a hospital-based prospective observational study aimed at evaluating treatment outcomes in patients with burn injuries, with a focus on severity and first aid response. The study was conducted at Rajendra Institute of Medical Sciences (RIMS), Ranchi, Jharkhand, to assess the factors influencing patient recovery and prognosis.

Study Population

The study included patients with acute burn injuries who were admitted to the hospital. Both male and female patients across all age groups were considered for inclusion. The study sought to understand burn injury patterns, treatment approaches, and the role of early medical intervention in patient outcomes.

Study Period

The research was conducted over a period of one year, from November 2021 to October 2022, ensuring adequate patient recruitment and data collection for comprehensive analysis.

Sample Size

A minimum of 100 patients with confirmed cases of acute burn injury were included in the study. This sample size was selected to provide meaningful insights into burn severity, treatment effectiveness, and patient recovery trends.

Inclusion Criteria

Patients with acute burn injuries who provided written informed consent were included in the study. Only in-patients (IPD) were considered to ensure adequate monitoring and follow-up during

hospitalization. The study encompassed male and female patients across all age groups to evaluate outcomes across diverse demographics.

Exclusion Criteria

Patients who were unwilling to participate in the study were excluded. Additionally, individuals with old burn injuries or those who chose to leave the hospital against medical advice were not included in the analysis. These criteria ensured that only patients with acute burn injuries undergoing standard hospital care were studied.

Data Collection

Patient information was collected using a structured proforma, documenting demographic details such as name, age, sex, date of admission, date of discharge, and time of injury. Psychological aspects, including pre-existing mental health conditions, coping mechanisms, and social support systems, were also recorded. Additional factors such as the mode of injury, presence of trauma-related stress, and emotional responses were noted to assess the psychosocial impact.

Psychological Assessment

A comprehensive psychological evaluation was conducted to assess the emotional and mental well-being of patients. Standardized tools were used to measure anxiety, depression, post-traumatic stress disorder (PTSD), and overall psychological distress. Coping strategies, self-esteem levels, and perceived social support were also evaluated to understand the broader psychosocial effects of burn injuries.

Investigations

Psychological assessments were supplemented with validated questionnaires and clinical interviews to gauge cognitive and emotional responses to trauma. Stress biomarkers such as cortisol levels were measured in some cases to correlate physiological stress responses with psychological symptoms. Additionally, family interviews and social support assessments were conducted to determine the extent of emotional and financial burden on caregivers.

Statistical analysis

Statistical analysis was performed using appropriate software to assess the relationship between burn severity, first aid response, and treatment outcomes. Descriptive statistics such as mean, standard deviation, and percentages were used to summarize patient characteristics and clinical findings. Inferential tests, including chi-square and regression analysis, were applied to determine significant associations between variables.

Results

The results for the inpatient parent group (N = 20) indicate a significantly higher prevalence of anxiety and depression compared to normative values. The mean anxiety score was 11.05 (SD = 5.40), which is notably elevated compared to the normative mean of 6.14, with 72% of patients meeting the threshold for clinical anxiety. Similarly, the mean depression score was 7.80 (SD = 3.75), surpassing the normative mean of 3.68, with 46% of patients classified as having clinical depression. These findings highlight the considerable psychological distress experienced by inpatient parents, likely influenced by the acute phase of their child's burn injury and the associated caregiving burden (Table 1).

Table 1: Summary of Results for the Parent Group (Inpatient) (N = 20)

Measure	Mean	S.D.	Minimum	Maximum	Normative Mean	Sig. (p)	‘‘Caseness’’ (%)
Anxiety	11.05	5.40	1	20	6.14	<0.01	72
Depression	7.80	3.75	0	13	3.68	<0.01	46

In the outpatient parent group (N = 80), anxiety and depression levels varied based on time since injury. Parents of children within six months post-injury reported an anxiety mean score of 5.80 (SD = 4.30) and a depression mean score of 2.80 (SD = 3.40), with 33% and 12% reaching clinical significance, respectively. Anxiety levels remained relatively stable across time, with slight increases in the 6–24 months group (5.90, SD = 3.20) and >2 years group (5.70, SD = 3.90). Depression showed a more noticeable increase in the 6–24 months group (4.20, SD = 3.30), though it declined slightly in the >2 years group (3.50, SD = 2.25). Family functioning scores also showed a gradual improvement over time, with parents in the >2 years group reporting the lowest levels of dysfunction (1.58, SD = 0.44). These findings suggest that while initial distress is high, psychological symptoms may persist in some parents, particularly in the medium term, emphasizing the need for long-term mental health support (Table 2).

Table 2: Summary of Results for the Parent Group (Outpatient) (N = 80)

Measure	Time Since Injury	Mean	S.D.	Minimum	Maximum	Sig. (p)	‘‘Caseness’’ (%)
Anxiety	<6 months (N = 40)	5.80	4.30	0	15	0.12	33
	6–24 months (N = 20)	5.90	3.20	1	11	0.28	35
	>2 years (N = 20)	5.70	3.90	1	13	0.30	34
Depression	<6 months (N = 40)	2.80	3.40	0	14	<0.01	12
	6–24 months (N = 20)	4.20	3.30	0	11	0.38	24
	>2 years (N = 20)	3.50	2.25	0	8	0.22	2
Family Functioning	<6 months (N = 40)	1.60	0.48	1.00	2.70	<0.01	12
	6–24 months (N = 20)	1.62	0.52	1.00	2.55	<0.05	11
	>2 years (N = 20)	1.58	0.44	1.00	2.20	<0.01	1

Discussion

This study highlights the significant psychological distress experienced by parents of burn-injured children, particularly during the inpatient phase. Clinically high levels of anxiety and depression were observed among parents with no prior history of mental health issues. The strong correlation between parental anxiety and depression suggests a global impact on parental well-being at this stage. Given the wide range of psychological responses, early

psychological screening and intervention for parents should be an integral part of burn care. The psychosocial team must proactively identify vulnerable parents, as addressing parental distress early may improve overall family adjustment and facilitate better coping strategies. Additionally, many parents with pre-existing psychological vulnerabilities may require specialized support within the burn unit, adding to the psychosocial workload [9].

In exploring the factors contributing to parental distress, individual characteristics such as maternal age and personality traits (e.g., lower extraversion) appeared more significant than injury-related variables. Social factors, including family functioning, played a crucial role in predicting psychological distress. Notably, injury-related factors such as total body surface area affected, perceived severity, and burn visibility did not significantly correlate with parental anxiety or depression. This suggests that all parents, regardless of the severity of their child's burn, are at risk of adverse psychological effects. The outpatient phase further underscores the evolving nature of psychosocial distress, with anxiety being predominant in the early months, depression peaking at 6–24 months, and general anxiety persisting beyond two years. The highest depression levels during the mid-term phase may be linked to the ongoing process of scar maturation and the realization of permanent disfigurement [10]. Although findings for the >2 years group suggest a return to anxiety as the primary concern, the small sample size necessitates further research to confirm this trend.

Despite the overall anxiety and depression levels in outpatient parents not exceeding those found in the general population, the proportion experiencing clinically significant distress remains substantial. These findings strongly support the need for ongoing psychological screening beyond hospitalization, particularly around two years post-burn, when distress levels remain pronounced. Poor family functioning was closely linked to parental depression, highlighting the need for psychosocial support programs that promote healthy family dynamics. Prior research indicates that children recover better in supportive family environments, reinforcing the importance of family-centered interventions. Additionally, enhancing parental psychological well-being may improve compliance with treatment, further benefiting the child's recovery process [11]. Studies on other pediatric patient populations, such as those with chronic illnesses, have shown that supporting families in their caregiving role can also lead to financial savings within healthcare systems [12].

The absence of significant associations between injury severity and parental distress has implications for burn care services, particularly in determining staff competencies within different levels of the burn care system. Given that smaller burns may be treated at burn facilities rather than specialist centers, it is essential that trained personnel at these facilities possess the necessary skills to screen, assess, and support families at risk of psychological distress. The results emphasize the need for a multidisciplinary approach, with staff capable of recognizing and referring families for tailored psychological interventions. Support programs should address parental acceptance of their child's altered appearance, interventions for post-traumatic distress, management of behavioral and emotional difficulties, and guidance on social interactions for both parents and children. Future research should focus on refining psychological interventions for families and evaluating their long-term benefits in improving psychosocial outcomes.

Conclusion

This study underscores the significant psychological distress experienced by

parents of burn-injured children, emphasizing the need for early and ongoing psychosocial support. High levels of anxiety and depression were prevalent during the inpatient phase, with distress persisting in varying forms throughout the outpatient period. Notably, parental distress was influenced more by individual and social factors, such as personality traits and family functioning, rather than injury severity or visibility. These findings highlight the necessity of routine psychological screening and targeted interventions for parents, both during hospitalization and in the years following the injury. Integrating structured psychosocial support into burn care services can improve family well-being, enhance child recovery, and potentially reduce healthcare burdens. Future research should further explore long-term parental adjustment and effective intervention strategies to optimize outcomes for both parents and children.

References

1. World Health Organization (WHO): Global burden of disease : 2004 summary tables. WHO, Geneva.
2. World Health Organization: Fact sheet No. 365; May, 2012.Available from: http:// www.who. int/ media-centre/factsheets/fs365/en.
3. Akther JM, Nerker NE, Reddy PS, Khan MI, Chauhan MK, Shahapurkar VV. Epidemiology of Burned patients admitted in burn unit of a rural tertiary teaching hospital. Pravara Med Rev 2010; 2:11- 07 .
4. Hanumadass ML. Some thoughts on organization of delivery of burn care in India. Indian J Burns 2003;11:18-20
5. Bailey's & Love's. Short Practice of Surgery. 27th Edition. page 317.
6. Tobiasen J, Hiebert JH, Eldich RF (1982). Prediction of burn mortality. Surg Gynaecol Obstet 154(5):711-714.
7. Dahal P et al (2015). Baux and abbreviated burn severity score for the prediction of mortality in patients with acute burn injury. J Coll Med Sci Nepal 11(4):24-27
8. Osler T, Glance LG, Hosmer DW (2010) Simplified estimates of the probability of death after burn injuries: extending and updating the Baux score. J Trauma 68(3):690–697.
9. Cahners SS, Bernstein NR. Rehabilitating families with burned children. Scand J Plast Reconstr Surg 1979;13(1): 173–5.
10. Woolard, A., Hill, N. T., McQueen, M., Martin, L., Milroy, H., Wood, F. M., ... & Lin, A. (2021). The psychological impact of paediatric burn injuries: a systematic review. BMC public health, 21(1), 2281.
11. Walker JG, Johnson S, Manion I, Cloutier P. Emotionally focused marital therapy decreased marital distress and improved marital functioning in couples with ill children. J Consult Clin Psychol 1996;64: 1029–36
12. Pape, S., & Sollars, A. J. (2022). Management of severe burns. ABC of Major Trauma: Rescue, Resuscitation with Imaging, and Rehabilitation, 368.