DOI: https://doi.org/10.54393/pbmj.v8i9.1288

PAKISTAN BIOMEDICAL JOURNAL
https://www.pakistanbmj.com/journal/index.php/pbmj/index
ISSN (E): 2709-2798, (P): 2709-278X
Volume 8, Issue 09 (September 2025)

Original Article

OPEN ACCESS

Navigating Challenges Evaluating Health System Responses to Burn Injuries in Quetta, Balochistan

Zarak Khan[1], Muhammad Ahmed Abdullah[1], Kamran Ali[1], Amna Khan[1], Kaneez Rubab[1], Ramsha Hijab Fatima[1], Muhammad Arbab[1] and Zirak Khan[1*]

[1]Department of Public Health, Health Services Academy, Islamabad, Pakistan

ARTICLE INFO

Keywords:
Burn Injuries, Access to Healthcare, Socio-Cultural Barriers, Qualitative Research

How to Cite:
Khan, Z., Abdullah, M. A., Ali, K., Khan, A., Rubab, K., Fatima, R. H., Arbab, M., & Khan, Z. (2025). Navigating Challenges Evaluating Health System Responses to Burn Injuries in Quetta, Balochistan: Navigating Challenges: Evaluating Health System Responses to Burn Injuries. Pakistan BioMedical Journal, 8(9), 26-31. https://doi.org/10.54393/pbmj.v8i9.1288

***Corresponding Author:**
Zirak Khan
Department of Public Health, Health Services Academy, Islamabad, Pakistan
zarakkhan541@gmail.com

Received Date: 4th August, 2025
Revised Date: 25th September, 2025
Acceptance Date: 28th September, 2025
Published Date: 30th September, 2025

ABSTRACT

Burns are a significant health issue in the population of low- and middle-income countries such as Pakistan. This is especially acute in the resource-strained province of Balochistan, where the healthcare system in terms of assisting burn victims in Quetta, is compromised due to a great number of systemic flaws. **Objectives:** To assess the effectiveness of the healthcare system to treat burn injuries in Quetta, Balochistan, in terms of analyzing the primary barriers to care, such as infrastructural inadequacy, the lack of staff, and sociocultural issues. **Methods:** The qualitative research design of semi-structured interviews was ascertained by the 24 interviewees in the semi-structured interviews with the professionals in the field of burn care who could reflect the patients, givers, and policymakers. Primary data were collected at the different health facilities of Quetta. Thematic analysis was able to reduce the wide categories and problems in burn care. **Results:** The financial aspect was a great concern, and the treatment was prohibitive expensive. Moreover, an increase in the number of delays in seeking care was caused by sociocultural factors, including gender-based decision-making. All these results indicate the existence of significant barriers, which are founded on insufficient investments, the absence of highly qualified staff, and ineffective infrastructure, which lead to the need to establish the overall changes in the treatment of burns. **Conclusions:** An interdisciplinary Burn Care strategy should be more preoccupied with changes in infrastructure, education of medical workers, and community involvement.

INTRODUCTION

The issue of burn accidents is one of the primary health concerns of the population in the whole world and in particular in low- and medium-income countries (LMIC). The medical facilities available in these locations are highly inadequate, and it is a significant drawback to the management of trauma patients at such locations [1]. These are specialized injuries that would require specialized clinical treatment, yet they would encompass some minor injuries to possibly fatal cases of third-degree burns. According to the WHO report, more than 180,000 deaths are caused by burn accidents annually, and increasing numbers are in the growing countries that have a disproportionate share of the number [2]. This level of mortality is caused by poor facilities, poor access to healthcare, and even loss of specialized training among healthcare professionals [3]. Burn incidents have psychological and financial long-term impacts on their victims and their families, in addition to short-term physical injuries [4]. Burn care-demanding conditions are exacerbated in Balochistan, in the Quetta District, especially, by physical isolation, the presence of socioeconomic disparities, and the availability of special remedy centers [5]. The lack of dedicated burn equipment and inadequate clinical resources are the most significant constraints that the medical device in this location should overcome in its attempt to provide active and sustainable

DOI: https://doi.org/10.54393/pbmj.v8i9.1288

burn care. Moreover, cultural stigmas and false ideals usually deprive the sufferers of access to the appropriate clinical care, which postpones the cure and adds to the morbidity and mortality [6]. Balochistan, however, still has numerous empty holes in the healthcare network of burn victims, even though the treatment of burns has improved worldwide. Poor effects for burn sufferers are resulting from some of the factors, along with inadequate pre-health facility care, a loss of complete rehabilitation programs, and a scarcity of emergency delivery services [7-9]. Inequities in access to burn care are made worse through social determinants of health, together with poverty and illiteracy. Research is scarce on burn care practice in Pakistan, primarily in local poor areas such as Balochistan. National fitness regulations habitually overlook specialized terrains such as burn control in the desire for maternal and toddler fitness [10, 11]. By feeding intensive Quetta's healthcare gadget reaction to burn accidents, investigating the infrastructure that is presently in place, establishing the procedure of the limitations, and suggesting strategies for increasing patient outcomes, this study seeks to close this gap. The study uses a qualitative technique to file the lived reviews of sufferers, clinical specialists, and legislators in an effort to inform future initiatives.

Although burn injuries are a major public health concern in low- and middle-income countries, limited qualitative research has explored how health system responses and sociocultural barriers specifically affect burn care delivery in under-resourced regions like Quetta, Balochistan. Existing literature largely focuses on clinical outcomes rather than systemic infrastructure gaps, financial barriers, and gender-based decision-making influencing access to care. There is also insufficient stakeholder-based insight from patients, providers, and policymakers regarding real-world challenges in burn management. Therefore, this study addressed these gaps by examining healthcare system effectiveness and identifying key structural and sociocultural barriers to burn care. This study aims to evaluate the effectiveness of the healthcare system's response to burn injuries in Quetta, Balochistan, by identifying key barriers to care, including infrastructural deficiencies, staffing shortages, and sociocultural factors. To inform the development of an integrated burn care strategy that enhances service delivery and improves patient outcomes in low- and middle-income settings.

METHODS

A descriptive qualitative study was conducted, utilizing semi-structured in-depth interviews. This design was chosen to provide a comprehensive exploration of burn injury management within the healthcare system in Quetta, Balochistan, and to gather detailed insights into the experiences and perceptions of key stakeholders. The qualitative method was strategically chosen in order to learn about a complex array of social and institutional processes that involved the lived experience of healthcare professionals, patients, and policy makers in burn care. This design would fit a delicate intuition into the fight and hurdles in this essential setting of healthcare. The study was conducted in various locations, namely, the Burn Departments of Bolan Medical Complex Hospital and Civil Hospital Quetta, and the community. This flexibility in settings was to bring in a wide view of burn care management, taking the institutional practices and the issues at a community level into consideration. Ethical approval was granted by the Health Services Academy (HAS) and an Institutional Review Board (IRB) to help with adherence to ethical research dictates (000885/HAS/MSPH-2023). Informed consent was obtained from all participants, and confidentiality was assured with coded identifying data and the use of secure data storage. Participants were also informed of their right to withdraw from study participation at any time without consequence, to emphasize respect for their autonomy. The collection of data was conducted in March-April 2025, and it was done in a triangulation format, comprising semi-structured interviews and analysis of the appropriate documents. Interviews of a length of 45 to 60 minutes are the result of structured discussion guides; they allow discussion in detail about some experiences of participants. Moreover, policy documentation and hospital documentation were taken into consideration in order to identify the systemic issues in delivering burn care that could include a comprehensive account of the situation. Interview Process. The interviews were in the form of semi-structured interviews to make the discussion more open-ended, to allow the participants to narrate their experiences in detail. Such a degree of flexibility stimulated the respondents to present their views and perceptions, thereby enriching the qualitative data in order to make sure that critical themes would be generated in an ad-hoc fashion. Participants of the sampled group had relevant expertise in the field of burn management; the basic strategy of purposive sampling was used in selecting the appropriate subjects. This strategy made sure that there was a rich mix in the viewpoint, such as those specializing in burn care, patients, caregivers, and policymakers. The availability of selectivity of the sample improves the content and application of the data recorded. The purpose of this research was to recruit 15-30 respondents so that they could saturate the themes to get a rich and diverse set of data. The composition of the people served in the breakdown was: 7 patients from Bolan

DOI: https://doi.org/10.54393/pbmj.v8i9.1288

Medical Complex Burn Center, 6 patients from Civil Hospital Burn Center, 5 healthcare providers from Bolan Medical Complex, 4 healthcare providers from Civil Hospital, and 2 policymakers. This distribution reflects a balanced representation of key stakeholders involved in burn care. The data were analyzed using a rigorous thematic analysis approach, following the framework outlined by Braun and Clarke (2006). The process was conducted manually by two independent coders to enhance reliability. The analysis involved six key phases: 1) transcription and immersion in the data; 2) generating initial codes; 3) searching for themes by collating relevant codes; 4) reviewing and refining themes; 5) defining and naming themes; and 6) producing the final report. To ensure consistency, the coders first independently analyzed a subset of transcripts and then met to discuss and reconcile coding discrepancies, establishing a unified coding framework. This framework was then applied to the entire dataset using NVivo software (version 14) to manage the codes and themes systematically. Emerging themes were continuously reviewed and contextualized within the existing literature on burn care. To increase the credibility of the findings, member checking was used to validate findings with participants to ensure that their perspectives were represented. Data source triangulation also added a layer of reliability by confirming results on multiple types of data. Reflexivity was sustained through a research journal, enabling the researcher to capture personal reflections and address possible bias in the research over the course of the study.

RESULTS

The total of 24 people from Quetta, Balochistan, participated in this study, and it yielded some valuable insight as to the hindrances to receiving burn care services. Five medical professionals working at Bolan Medical Complex, four from the Civil Hospitals, two legislators, and seven patients with burns from the Bolan Medical Complex Burn Centre and six from the Civil Hospital Burn Centre, comprised the eclectic group. The results showed that there is a serious problem in the Burn Departments, mostly caused by a lack of funding, disorganized infrastructure, and inadequate personnel. The themes that emerged after analysis (Table 1).

Table 1: Key Themes Identified in the Study on Burn Care Services in Balochistan

Theme	Description
Barriers to Burn Care	Highlights obstacles such as inadequate funding, insufficient infrastructure, and personnel shortages.
Financial Strain	Discusses the high costs of treatment and the financial burdens faced by patients and families.
Infection Risks	Addresses the prevalence of hospital-acquired infections (HAIs) and their impact on patient safety.
Inadequate Facilities	Examines the outdated and poorly equipped burn units affecting care quality.
Sociocultural Factors	Explores how gender roles and societal norms influence healthcare decisions, particularly for women.
Knowledge Gaps	Identifies a lack of awareness regarding burn first-aid procedures among the community.
Need for Comprehensive Care	Highlights the absence of essential support services, such as psychological and nutritional care.
Policy and Systemic Reform	Emphasizes the need for systemic changes and investment in dedicated burn care facilities.
Impact of Stigma	Discusses the stigma faced by burn survivors and its effects on mental health and treatment-seeking.

Particular note is nosocomial infections (or HAIs) that are not adequately addressed with infection prevention and control (IPC) specialists. The possibility of HAIs was a major consideration in the participants' minds, particularly when burn patients are transferred to nearby trauma wards that lacked the substantial resources for specialized care. One medical facility, "When burn patients are treated outside of dedicated burn units due to inadequate resources, the incidence of infections skyrockets," the provider said (Table 2).

Table 2: Key Concerns Regarding Burn Care Include Infection Risks, Financial Strain, and Inadequate Facilities, as Reflected in Participant Quotes

Concern Type	Description	Participant Quotes
Infection Risks	High Incidence of nosocomial infection due to a lack of IPC specialists	"When burn patients are treated outside of dedicated burn units, infections skyrocket."
Financial Strain	Exorbitant costs of burn care, particularly in private hospitals.	"The private hospital requested 10,000 rupees to begin the drip."
Inadequate Facilities	Insufficient infrastructure characterized by a lack of isolation facilities.	"Orthopedic or surgical, it doesn't matter; we just place them wherever there is a bed."

Participants frequently expressed concerns about the exorbitant expenses of burn care, particularly in private hospitals, and financial strain surfaced as a significant barrier. One patient revealed, "The private hospital requested 10,000 rupees to begin the drip." I had nothing. Families frequently had to make difficult decisions, selling valuables or taking out loans to pay for therapy. Another major obstacle was the inadequate facilities. With a combined capacity of 10 to 20 beds, the Burn Unit is divided into three sections: an upper plastic surgery ward, a post-burn ward, and a Burn Intensive Care Unit. But the infrastructure is antiquated and devoid of characteristics that are necessary for providing quality care. Due to the lack of appropriate isolation facilities, many burn victims were admitted to regular surgical wards, which raises the risk of infection. "Orthopedic or surgical, it doesn't matter; we just place them wherever there is a bed," a clinical

DOI: https://doi.org/10.54393/pbmj.v8i9.1288

officer observed. Furthermore, when accidents happen, patients are frequently transferred to Civil Hospital Quetta, which has between 30 and 50 beds but struggles with inadequate funding and space. Although the private hospital Aria Institute of Medical Sciences offers a Burn ICU, many people cannot afford its treatments. The provincial healthcare system is woefully under-resourced and cannot meet the needs of Balochistan's 4,894,402 residents, as estimated by the 2023 census. Facilities like the Bolan Medical Complex and Civil Hospitals are under tremendous strain due to this shortfall (Table 3).

Table 3: Critical Gaps in Burn Care Services

Gap Types	Description
Resources Shortage	Lack of essential painkillers and grafting equipment.
Absence of Specialists	No psychologists or nutritionists are available in burn departments
Outdated Infrastructure	The current infrastructure in burn wards does not meet the medical quality standard

Nurses emphasized the urgent need for more resources and training, stating, "We lack essential painkillers and grafting equipment. The family has to buy them if they can afford it." The absence of psychologists and nutritionists within the departments further highlights gaps in comprehensive care. An expert in infection prevention and control remarked, "The current infrastructure in the burn ward is outdated and does not meet medical quality standards." This sentiment was echoed by a policymaker, who stressed, "The government needs to prioritize the development of burn wards, especially since the incidence rate of burns is higher here than in other provinces." Sociocultural factors also had a significant impact on patient care, especially for women who frequently relied on male family members to make healthcare decisions, which could cause severe delays. "When I asked my husband to take me, he told me to wait," recalled a 34-year-old patient. My wound got worse. As one 28-year-old survivor noted, "For months, I felt the need to hide my face." Burn survivors also experienced a great deal of stigma. People's perceptions of me varied. All participant groups exhibited a widespread lack of knowledge about critical burn first-aid procedures. An adolescent said, "I recommended applying ice or toothpaste. A crucial knowledge gap that could be filled by focused educational programs is highlighted by the statement, "We lack training for situations like this." The overwhelming burden in areas with high burn event rates was recognized by policymakers, who noted that poor facilities significantly impede efficient management. "We have only a few burn care centers, which is grossly inadequate in a region with a population of 5 million," one legislator underlined. To improve management of burn care in Balochistan, a number of new policy proposals based on these findings have been put out. Among these are the following: setting up comprehensive training programs to equip healthcare professionals in burn management; launching educational campaign to raise awareness of burn prevention and burn first-aid practices; investing in the develop of dedicated burn centers; services of mental health to support burn survivors; and investing in a subsidized burn care programs to reduce financial burden to patients and improve referral system to ensure access to specialized care. It is also suggested that a new policy be established to create an Integrated Burn Care Strategy, which would include the hiring of psychologists, dietitians, and IPC specialists in burn departments. In order to remedy the systemic problems highlighted in the study and promote an efficient and humane approach to the treatment of burns in Balochistan, this would also aim to provide sanitary settings and ensure adequate training for the medical personnel.

DISCUSSION

This observation emphasizes the pressing need for systemic modifications in burn care offerings by highlighting the complicated problems that burn sufferers in Quetta, Balochistan, face. The consequences display that, in view of the fact that many sufferers have to pay for his or her care in full, economic obstacles seriously hinder access to active treatment. This is consistent with worldwide studies displaying that burn sufferers regularly experience delayed or denied care because of financial lack of confidence in low- and middle-income nations [12-14]. These problems are exacerbated by an inadequate healthcare infrastructure, which compromises the quality of care due to a lack of specialized burn care equipment and essential supplies. According to similar research from different LMICs, members said receiving remedy in trendy wards, highlighting the pressing need for stepped forward facilities [15, 16]. Access to remedy is likewise restrained through sociocultural and gender-associated boundaries, specifically for female sufferers who are stigmatized and rely on male decision-makers. These consequences are consistent with observations, which emphasize how gender norms have an effect on healthcare-seeking for behaviors [17-19]. Overall, this observation emphasizes how sociocultural, infrastructure, and monetary elements all have an effect on access to burn care. The diffusion of the head onto halt burn care deliverances in Balochistan, in addition to those terms, requires hot on those fronts through big-sized cover substitutions and web animation demands [20].

The study was limited by a small purposive sample from selected hospitals, which restricts generalizability and may introduce selection bias. Reliance on qualitative self-reported perceptions without quantitative health outcome

DOI: https://doi.org/10.54393/pbmj.v8i9.1288

data may affect objectivity and broader comparison. Future research should include larger multicenter mixed-method studies, incorporate patient outcome measures, and evaluate policy interventions and integrated burn care models in similar low-resource settings.

CONCLUSIONS

This study highlights the significant challenges that burn patients face in the specific context of Quetta, Balochistan. The healthcare system in this region may greatly improve the caliber and availability of burn treatment services by putting these context-specific suggestions into practice, which would eventually benefit patients within this province. While the barriers identified may resonate with other low-resource settings, the findings and recommendations of this study are specifically applicable to the local context of Quetta, Balochistan. This study serves as a call to action for <mark>local and regional policymakers and healthcare providers to collaborate in creating a more effective approach to burn care in this region.

Authors' Contribution

Conceptualization: MAA
Methodology: ZK[1], MAA, RHF, ZK[2]
Formal analysis: ZK[1], KR
Writing and Drafting: KA, AK, MA
Review and Editing: MAA, ZK, RHF, ZK, KR, AK, MA

All authors approved the final manuscript and take responsibility for the integrity of the work.

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

The author received no financial support for the research, authorship and/or publication of this article.

REFERENCES

[1] Rybarczyk MM, Schafer JM, Elm CM, Sarvepalli S, Vaswani PA, Balhara KS *et al.* Prevention of Burn Injuries in Low-and Middle-Income Countries: A Systematic Review. Burns. 2016 Sep 1; 42(6): 1183-92. doi: 10.1016/j.burns.2016.04.014.

[2] Forbinake NA, Ohandza CS, Fai KN, Agbor VN, Asonglefac BK, Aroke D *et al.* Mortality Analysis of Burns in A Developing Country: A CAMEROONIAN Experience. BioMed Central Public Health. 2020 Aug; 20(1): 1269. doi: 10.1186/s12889-020-09372-3.

[3] Soedjana H. Mortality Rate of Burn Injury Patients Post Closure of Burn Unit Due to Covid-19 Pandemic. Annals of Burns and Fire Disasters. 2023 Dec; 36(4): 281.

[4] Woolard A, Hill NT, McQueen M, Martin L, Milroy H, Wood FM *et al.* The Psychological Impact of Pediatric Burn Injuries: A Systematic Review. BioMed Central Public Health. 2021 Dec; 21(1): 2281. doi: 10.1186/s12889-021-12296-1.

[5] Nazeer S, Manzoor S, Un Nisa Z, Rana A, Qayyum A. A Qualitative Study on Nurses' Experiences Working in Burn Units in South Punjab, Pakistan. Journal of Health and Rehabilitation Research. 2024 May; 4(2): 805-9. doi: 10.61919/jhrr.v4i2.914.

[6] Coombes J, Hunter K, Mackean T, Ivers R. The Journey of Aftercare for Australia's First Nations Families Whose Child Had Sustained a Burn Injury: A Qualitative Study. BioMed Central Health Services Research. 2020 Jun; 20(1): 536. doi: 10.1186/s12913-020-05404-1.

[7] Chaudhry N, Khoso AB, Kiran T, Blakemore A, Lovell K, Bashir MM *et al.* Psychosocial and Physical Rehabilitation of Burn Survivors: A Large Multicenter Cluster Randomized Controlled Trial from Pakistan. European Psychiatry. 2023 Jul; 66(Suppl 1): S906.

[8] Keshri VR, Peden M, Singh P, Norton R, Abimbola S, Jagnoor J. Health Systems Research in Burn Care: An Evidence Gap Map. Injury Prevention. 2023 Oct; 29(5): 446-53. doi: 10.1136/ip-2023-044963.

[9] Kumar V, Ali BS, Choudry E, Khan S, Baig K, Durrani NU *et al.* Quality of Neonatal Care: A Health Facility Assessment in Balochistan Province, Pakistan. Cureus. 2022 Mar; 14(3). doi: 10.7759/cureus.22744.

[10] Iqbal T, Saaiq M, Ali Z. Epidemiology and Outcome of Burns: Early Experience at the Country's First National Burns Centre. Burns. 2013 Mar; 39(2): 358-62. doi: 10.1016/j.burns.2012.07.011.

[11] Rehan M, Iqbal T, Khan MS, Tariq MH, Khokhar OK, Ain Q *et al.* Burns During Covid-19 Pandemic: Demographics, Etiological and Clinical Trends in 2021 at the National Burn Care Centre in Islamabad, Pakistan. Annals of Burns and Fire Disasters. 2024 Mar; 37(1): 28.

[12] Sana H, Ehsan AN, Saha S, Hathi P, Malapati SH, Katave C *et al.* Epidemiological Predictors of Financial Toxicity in Surgical Burn Injuries: A Multicenter, Longitudinal, Cohort Study. Annals of Plastic Surgery. 2024 Apr; 92(4S): S279-83. doi: 10.1097/SAP.0000000000003853.

[13] Latifi NA, Karimi H, Motevalian SA, Momeni M. Economic Burden of Burn Injuries in A Developing Country. Journal of Burn Care and Research. 2017 Nov; 38(6): e900-5. doi: 10.1097/BCR.0000000000000515.

[14] Reyes A, Ramsey W, O'Neil C, Cobler-Lichter M, Ishii M, Satahoo S *et al.* 501 A Nationwide Survey of Burn

DOI: https://doi.org/10.54393/pbmj.v8i9.1288

Survivors: Who Is at Greatest Risk for Financial Toxicity? Journal of Burn Care and Research. 2025 Mar; 46(Supplement_1): S102-. doi: 10.1093/jbcr/iraf019.130.

[15] Abubakar AI and Sabo VY. Modifying Burn Care in A Low-and Middle-Income Countries (LMIC) to Meet Global Best Practice: A Burn Unit or Burn Isolation Ward? Burns. 2024 Dec; 50(9): 107212. doi: 10.1016/j.burns.2024.07.016.

[16] Najafali D, Najafali M, Liu H, Arellano J, Rezaei S, Galbraith L *et al.* 668 Influence of Infrastructure on Global Burn Outcomes: Analysis of the WHO Global Burn Registry. Journal of Burn Care and Research. 2025 Mar; 46(Supplement_1): S229-. doi: 10.1093/jbcr/iraf019.297.

[17] Bryski MG, Azad CL, Etchill EW, Rhee DS. Global Disparities in Burn Outcomes: Does Gender Predict Mortality in the Global Burn Registry? Journal of Surgical Research. 2023 Mar; 283: 459-68. doi: 10.1016/j.jss.2022.10.071.

[18] Mehta K, Arega H, Smith NL, Li K, Gause E, Lee J, Stewart B. Gender-Based Disparities in Burn Injuries, Care and Outcomes: A World Health Organization (WHO) Global Burn Registry cohort study. The American Journal of Surgery. 2022 Jan; 223(1): 157-63. doi: 10.1016/j.amjsurg.2021.07.041.

[19] Masood A, Masud Y, Mazahir S. Gender Differences in Resilience and Psychological Distress of Patients with Burns. Burns. 2016 Mar; 42(2): 300-6. doi: 10.1016/j.burns.2015.10.006.

[20] Jeschke MG, Van Baar ME, Choudhry MA, Chung KK, Gibran NS, Logsetty S. Burn Injury. Nature Reviews Disease Primers. 2020 Feb; 6(1): 11. doi: 10.1038/s41572-020-0145-5.