ORIGINAL ARTICLE

EXAMINING THE BURNOUT EPIDEMIC: PREVALENCE AND CONTRIBUTING FACTORS AMONG HEALTH-CARE PROFESSIONALS IN BALOCHISTAN: A CROSS-SECTIONAL STUDY.

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Background: Burnout is a well-recognised occupational phenomenon characterised by a prolonged state of physical and emotional exhaustion, depersonalisation, and reduced sense of personal accomplishment. Healthcare professionals are disproportionately vulnerable owing to the inherently demanding, high-stakes nature of clinical practice. This study investigated the prevalence of burnout and its contributing factors among healthcare workers (HCWs) in Balochistan, the largest but most under-resourced province of Pakistan. **Methods:** A cross-sectional study was conducted at six major public-sector hospitals across three divisions of Balochistan (Quetta Division, Khuzdar Division, and Makran Division) from January to June 2023. A quota sampling technique was employed, with participant quotas allocated proportionally across the six hospitals based on their estimated eligible workforce sizes. Within each hospital, healthcare professionals were recruited by convenience — those present on duty and willing to participate during scheduled data-collection visits were enrolled consecutively until the hospital quota was met. A total of 307 healthcare professionals — including physicians, nurses, pharmacists, and allied health staff — were enrolled. Burnout was assessed using the American Public Welfare Association (APWA) 28-item standardised questionnaire, which classifies respondents into five burnout grades (Grade I–V). The minimum required sample size was calculated using the formula $n = Z^2P(1-P)/d^2$ with an estimated burnout prevalence of 32%, a 95% confidence level, and a 5% margin of error, yielding a minimum of 334. **Results:** Of the 307 participants, 30% (n=92) reported no stress or professional burnout, 37% (n=112) experienced stress without burnout, 16% (n=48) demonstrated a fair likelihood of burnout, 10.77% (n=32) were in early burnout, and 4.3% (n=13) showed advanced burnout. The predominant self-reported causes of burnout were work overload (40%), a suboptimal work environment (25%), long working hours (18%), low wages (15%), and miscellaneous factors (2%). **Conclusion:** Burnout affects a substantial proportion of healthcare professionals in Balochistan, with approximately one-third showing clinically significant burnout indicators. Work overload, inadequate staffing, and financial constraints are the principal drivers. Targeted institutional interventions, including workload redistribution, competitive remuneration, and formal resilience-building programmes, are urgently needed to safeguard workforce wellbeing and sustain the quality of healthcare delivery in the province.

Keywords: Burnout; healthcare professionals; Balochistan; Pakistan; occupational stress; cross-sectional study

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INTRODUCTION

Burnout is a state of chronic occupational stress that leads to physical and emotional exhaustion, depersonalisation, and a diminished sense of personal accomplishment. First described by Freudenberger in 1974 and subsequently operationalised by Maslach and Leiter, it has emerged as a global occupational health crisis with particular severity in the healthcare sector.[1] Healthcare professionals are uniquely susceptible because of the compounding pressures of direct patient care, ethical dilemmas, long working hours, and systemic resource constraints.[2]

Balochistan, the largest province of Pakistan by land area, faces a paradox: rich in natural resources yet strikingly deficient in human development indices. The province's healthcare infrastructure is characterised by sparse facility distribution, severe shortages of trained personnel, and chronic underfunding.[3] Healthcare workers in Balochistan additionally contend with security concerns and

geographic barriers that collectively amplify occupational stressors. Despite these challenges, empirical data on burnout in this population remain scarce, limiting evidence-based policy responses.

Globally, the literature consistently identifies heavy workload, insufficient institutional support, adverse work environments, and inadequate remuneration as primary burnout antecedents.[4-6] In South Asian contexts, including Pakistan, burnout rates among physicians and nurses have been documented at 25–45%, with significant variation across specialties and institutional settings.[7] Burnout not only impairs the physical and psychological wellbeing of affected professionals, but also compromises patient safety through increased rates of medical errors, reduced empathy, and higher staff attrition.[8,9]

The present study was undertaken to: (i) determine the prevalence and severity of burnout among healthcare professionals working in public-sector hospitals across Balochistan; (ii) identify the principal occupational and demographic factors associated with burnout; and (iii) generate evidence to inform targeted, context-sensitive interventions for burnout prevention and management in this region.

MATERIAL AND METHODS

Study Design and Ethical Approval: A cross-sectional analytical study was conducted from January to June 2023. Ethical approval was obtained from the Institutional Review Board (IRB) of Jhalawan Medical College (JMC), Khuzdar (Reference No: JMC-IRB-2022-47), in accordance with the Declaration of Helsinki. Written informed consent was obtained from all participants prior to data collection.

The study was conducted at six major public-sector hospitals across three administrative divisions of Balochistan: (1) Bolan Medical Complex Hospital (BMCH), Quetta; (2) Civil Hospital, Quetta; (3) District Headquarters Hospital (DHQ), Khuzdar; (4) Jhalawan Teaching Hospital, Khuzdar; (5) DHQ Hospital, Turbat; and (6) Makran Teaching Hospital, Turbat. These facilities collectively represent the principal tertiary and secondary referral centres of Quetta, Khuzdar, and Makran Divisions, serving an estimated catchment population of approximately 5.4 million individuals.

The target population comprised all actively practicing healthcare professionals — including medical officers, resident physicians, specialist consultants, registered nurses, and allied health professionals (laboratory technicians, radiographers, and physiotherapists) — employed at the six study hospitals during the study period. Based on institutional rosters, the estimated total eligible workforce across all six hospitals was approximately 2,200 personnel.

A quota sampling technique was employed to ensure proportional representation across the six participating hospitals. Hospital-specific quotas were determined a priori based on the estimated size of the eligible healthcare workforce at each facility, as derived from institutional staff rosters, so that larger hospitals with greater staff pools received correspondingly higher participant targets. The total target of 334 questionnaires was distributed across hospitals as follows: Bolan Medical Complex Hospital, Quetta (n=90); Civil Hospital, Quetta (n=72); Jhalawan Teaching Hospital, Khuzdar (n=58); DHQ Hospital, Khuzdar (n=42); Makran Teaching Hospital, Turbat (n=42); and DHQ Hospital, Turbat (n=30) (Table A). Within each hospital, participants were recruited by convenience sampling — all healthcare professionals present on duty during scheduled data-collection visits who met the inclusion criteria and provided written informed consent were enrolled consecutively until the hospital-specific quota was achieved. This within-facility convenience approach was adopted in recognition of the logistical constraints and unpredictable staff availability inherent to busy public-sector hospitals in Balochistan. A total of 307 fully completed questionnaires were obtained across all six hospitals, representing the final analytical sample (response/completion rate: 91.9%).

Table A: Quota Allocation by Hospital and Achieved Enrolment

Hospital	Division	Target Quota (n)	Achieved Enrolment (n)
Bolan Medical Complex Hospital (BMCH), Quetta	Quetta	90	83
Civil Hospital, Quetta	Quetta	72	67
Jhalawan Teaching Hospital, Khuzdar	Khuzdar	58	53
DHQ Hospital, Khuzdar	Khuzdar	42	38
Makran Teaching Hospital, Turbat	Makran	42	38
DHQ Hospital, Turbat	Makran	30	28
Total	**—**	**334**	**307**

The minimum required sample size was estimated using the formula: $n = Z^2P(1-P)/d^2$. The estimated prevalence of burnout (P) was set at 32%, derived from Afzal *et al*. (2020), a large cross-sectional study examining burnout among health professionals across multiple Pakistani hospitals, which is the closest available reference population.[7] A 95% confidence level was applied (Z = 1.96) and a margin of error (d)

of 5% was assumed. This yielded a minimum sample size of 334.

Healthcare professionals actively on duty and willing to provide written informed consent were included. Those on extended leave (>2 weeks) during the study period, locum staff employed for less than three months, and individuals who declined participation were excluded.

The structured questionnaire comprised two sections. Section 1 captured demographic and occupational data (age, gender, religion, marital status, professional category, years of post-qualification experience, institution type, and satisfaction with current specialty). Section 2 comprised the APWA 28-item burnout assessment tool, scoring burnout on a 5-grade scale as detailed in Table 1. Data collectors were trained research assistants who administered questionnaires in person in a private setting to minimise social desirability bias. Data were entered and analysed using SPSS version 26.0 (IBM Corp., Armonk, NY). Descriptive statistics (frequencies and percentages) were computed for all variables. The distribution of burnout grades was tabulated against demographic and occupational variables. Chi-square tests were used to assess associations between categorical variables and burnout grade. A two-tailed p-value of <0.05 was considered statistically significant.

RESULTS

Of the 334 questionnaires distributed, 307 were completed and returned, yielding a response rate of 91.9%. The mean age of participants was 30 ± 2.8 years. The majority identified as Muslim (88%; n=270), with the remainder comprising other religious affiliations (12%; n=37). In terms of gender, females were slightly more represented (56%; n=172) than males (44%; n=135). Regarding marital status, 33% (n=101) were single and 67% (n=206) were married. Three-quarters of respondents (75%; n=230) had post-graduation clinical experience. Nearly all participants (98%; n=301) were employed in government institutions, with only 2% (n=6) in private facilities. The majority (72%; n=221) expressed satisfaction with their current specialty (Table 2). The distribution of burnout grades revealed a spectrum of professional wellbeing across the study cohort. The largest proportion of respondents (37%; n=112) reported stress without reaching the threshold for professional burnout (Grade II). Thirty percent (n=92) reported no stress (Grade I), while 16% (n=48) demonstrated a fair likelihood of burnout (Grade III). A clinically important minority were in early burnout (Grade IV; 10.77%; n=32) or advanced burnout (Grade V; 4.3%; n=13), indicating active need for intervention (Table 3). When participants were asked to identify the primary cause of their occupational stress, work overload emerged as the most frequently cited factor (40%; n=123), followed by an unsatisfactory work environment (25%; n=77), long working hours (18%; n=55), low wages (15%; n=46), and other unspecified reasons (2%; n=6) (Table 4). Of the 307 respondents, nurses comprised the largest professional group (44.6%; n=137), followed by doctors (33.2%; n=102), allied health professionals (13.7%; n=42), and pharmacists (8.5%; n=26) (Table 5).

Table-1: Burnout Grading Criteria — American Public Welfare Association (APWA) Questionnaire

Grade	Score Range	Interpretation
I	26 – 38	No stress or professional burnout
II	39 – 50	Stress but no professional burnout
III	51 – 70	Fair likelihood of burnout
IV	71 – 90	Early burnout
V	> 90	Advanced burnout

Table-2: Demographic Characteristics of Study Participants (n=307)

Variable	Category	Frequency (n)	Percentage (%)
Mean Age (years)	30 ± 2.8	—	—
Religion	Muslim	270	88%
	Other	37	12%
Gender	Male	135	44%
	Female	172	56%
Marital Status	Single	101	33%
	Married	206	67%
Post-graduation Experience	Yes	230	75%
	No	77	25%
Institution Type	Government	301	98%
	Private	6	2%
Specialty Satisfaction	Satisfied	221	72%
	Not Satisfied	86	28%

Table-3: Distribution of Burnout Grades Among Study Participants (n=307)

Grade	Description	Frequency (n)	Percentage (%)

I	No stress or professional burnout	92	30.0
II	Stress but no professional burnout	112	36.5
III	Fair likelihood of burnout	48	15.6
IV	Early burnout	32	10.4
V	Advanced burnout	13	4.2
Total		**307**	**100.0**

Table 4: Self-Reported Causes of Occupational Burnout Among Study Participants (n=307)

Reason for Burnout	Frequency (n)	Percentage (%)
Work overload	123	40.1
Unsatisfactory work environment	77	25.1
Long working hours	55	17.9
Low wages	46	15.0
Other reasons	6	2.0
Total	**307**	**100.0**

Table-5: Professional Distribution of Study Participants (n=307)

Profession	Frequency (n)	Percentage (%)
Nurses	137	44.6%
Doctors	102	33.2%
Pharmacists	26	8.5%
Allied Health Professions	42	13.7%
Total	**307**	**100%**

Table-6: Distribution of Burnout Grades by Professional Category (n=307)

Profession	Total (n)	No Stress (26–38)	Stress (39–50)	Fair Chance (51–70)	Early Burnout (71–90)	Advanced Burnout (>90)
Nurses	137	41	33	25	25	10
Doctors	102	31	53	12	6	1
Pharmacists	26	11	14	1	0	0
Allied Health	42	9	12	10	1	2
Total	**307**	**92**	**112**	**48**	**32**	**13**

DISCUSSION

This cross-sectional study provides some of the first systematic data on burnout among healthcare professionals in Balochistan, Pakistan. The overall prevalence of clinically significant burnout — operationally defined as Grades III–V on the APWA scale — was 30.6% (n=93 of 307). This figure is broadly consistent with burnout prevalence estimates reported in comparable South Asian contexts, though meaningful differences exist and warrant discussion.

Afzal *et al.*, in their multi-centre Pakistani cross-sectional study, documented a burnout prevalence of approximately 32% among health professionals at public-sector hospitals, a finding closely mirrored by the present study.[7] Bano *et al*. similarly reported a burnout prevalence of 34.5% among physicians at public-sector hospitals in Quetta, Balochistan, using the Maslach Burnout Inventory (MBI), and identified high workload and poor administrative support as primary contributing factors — in direct concordance with our findings.[24] These similarities suggest that the drivers of burnout in Balochistan are systemic and persistent, not artefacts of a particular study period.

In contrast, our study recorded a substantially lower prevalence of advanced burnout (4.2%) compared to the estimates of Embriaco *et al*., who found that up to 46.5% of ICU intensivists in French tertiary centres met criteria for high burnout.[4] This discrepancy likely reflects differences in specialty-specific demands, the exclusively pre-COVID temporal context of our study, and the broader cultural and contextual factors that modulate burnout expression. Rothenberger's systematic review similarly found that burnout is not specialty-specific, but the intensity of burnout does vary substantially across clinical contexts.[12]

The finding that work overload was the leading self-reported cause of burnout (40%) is consistent with the global literature. West *et al*. identified excessive workload as the single most consistently reported burnout antecedent across specialties and healthcare systems.[3] In the Balochistan context, this is compounded by severe physician-to-population ratios — estimated at below 1 per 1,000 in rural areas — which force individual providers to manage patient volumes far exceeding safe clinical thresholds. This structural deficit distinguishes the Balochistan context from higher-income settings where workload interventions are more tractable.

The role of the work environment as the second most frequently cited factor (25%) is corroborated by Aiken *et al*., whose large multinational nursing study demonstrated that institutional support structures —

including nurse-to-patient ratios, administrative responsiveness, and access to resources — are powerful moderators of burnout risk.[5] Adriaenssens *et al*. further demonstrated that interpersonal competencies and perceived autonomy within the work environment are protective against burnout escalation.[7] The predominantly government-employed nature of our cohort (98%) is important here: public-sector facilities in Balochistan are characterised by older infrastructure, limited supplies, and hierarchical administrative cultures that offer little room for professional autonomy or self-determination.

One finding that distinguishes our study from comparable international literature is the prominence of low wages as a burnout contributor (15%). While Ramirez *et al*. noted cultural and personal-value orientations as burnout modulators,[10] the financial dimension is underrepresented in Western burnout frameworks such as the MBI, which focus primarily on emotional exhaustion and depersonalisation. In Pakistan, where public-sector physician salaries frequently fall below the cost of living in urban centres, financial inadequacy represents an independent stressor that amplifies the effect of other occupational demands. Dewa *et al*.'s economic analysis of burnout supports the premise that financial dissatisfaction is both a burnout driver and an outcome.[11]

Stratified analysis by professional category revealed that nurses recorded the highest burden of clinically significant burnout, accounting for all cases of advanced burnout among the major professional groups (Grade V; n=10) and the largest absolute number of early burnout cases (Grade IV; n=25). This finding is consistent with the established international literature. Aiken *et al*. demonstrated in a landmark multinational study that nurses bear a disproportionate burnout burden relative to other healthcare professionals, attributable to a convergence of high patient-to-nurse ratios, extended shift hours, comparatively lower remuneration, and diminished institutional support.[5] In the Balochistan context, these systemic vulnerabilities are further amplified by chronic nursing shortages, the physical and emotional demands of night-shift rotations, and limited career progression pathways within the public-sector nursing cadre. Taken together, these findings underscore that any institutional burnout-reduction strategy in Balochistan must treat nurses as a priority subgroup requiring targeted, profession-specific interventions rather than generic workforce wellness measures.

The gender distribution of our sample — with females slightly over-represented (56%) — is consistent with the broader feminisation of the healthcare workforce in Pakistan's urban and peri-urban hospitals. However, our study did not stratify burnout grades by gender or specialty, which limits conclusions about differential vulnerability. Poghosyan *et al*.'s multinational nursing study found significant gender and specialty-specific variations in burnout intensity that a larger sample would enable us to examine.[21]

The comparatively lower rate of advanced burnout in our study versus COVID-era studies (e.g., Chirico & Magnavita, 2020[20]) reinforces the profound exacerbating effect of pandemic-era demands on healthcare worker wellbeing. Our pre-COVID baseline data are therefore particularly valuable for understanding the endemic burden of burnout in this region, independent of crisis-related spikes. Post-pandemic follow-up studies in Balochistan are recommended to quantify the COVID-attributable increment in burnout severity.

Several limitations should be acknowledged. First, the convenience of restricting the study to six urban tertiary and secondary hospitals means that findings may not be fully generalisable to rural district health staff, who may face distinct and arguably more severe stressors. Second, the APWA tool, while pragmatic and validated in public health settings, has less extensive psychometric documentation than the MBI or the Copenhagen Burnout Inventory (CBI); future studies should consider these instruments for comparative purposes. Third, the cross-sectional design precludes causal inference. Fourth, social desirability bias in self-reporting of professional distress cannot be excluded, despite efforts to ensure anonymity. Notwithstanding these limitations, this study provides a valuable and previously lacking empirical baseline for burnout research in Balochistan.

CONCLUSION

Burnout affects approximately 30% of healthcare professionals working in public-sector hospitals in Balochistan, with a distribution spanning subclinical stress to advanced burnout. Work overload, an unsatisfactory work environment, and financial inadequacy are the principal modifiable contributors. These findings underscore the urgent need for multi-level, evidence-based interventions: at the institutional level, workload redistribution, improved staffing ratios, and occupational support programmes are required; at the provincial government level, competitive remuneration structures and investment in healthcare infrastructure are essential. Healthcare administrators and policymakers in Balochistan should prioritise burnout prevention as a prerequisite for sustainable, high-quality healthcare delivery. Longitudinal and qualitative studies are needed to deepen understanding of burnout trajectories and evaluate the effectiveness of proposed interventions in this under-resourced setting.

AUTHORS' CONTRIBUTION

ASG and NS conceptualised and designed the study, and contributed to the literature review. BA and NS performed data collection and statistical analysis. MMB undertook critical review and proofreading of the manuscript. All authors reviewed and approved the final manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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