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BURNOUT AND ITS ASSOCIATION WITH WORKLOAD, STAFFING ADEQUACY AND JOB SATISFACTION AMONG OT PROFESSIONALS

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Abstract

Background: *Operating theatre professionals work in high-pressure clinical environments that may expose them to occupational burnout. Workload, staffing adequacy, and job satisfaction are important workplace factors that may influence professional well-being.*

Objective: *To assess burnout-related symptoms and determine their association with workload, staffing adequacy, and job satisfaction among operating theatre professionals.*

Materials and methods: *A quantitative cross-sectional study was conducted among 102 operating theatre professionals working in tertiary care hospitals in Lahore, Pakistan. Data were collected using a structured, researcher-developed questionnaire covering demographic characteristics, burnout-related symptoms, perceived workload, staffing adequacy, and job satisfaction. Statistical analysis was performed using IBM SPSS Statistics version 26. Spearman's rank correlation was used to assess associations between study variables. A p-value of less than 0.05 was considered statistically significant.*

Results: *Among the 102 participants, 52 (51.0%) were females and 50 (49.0%) were males. The mean age was 32.80 ± 7.63 years. The mean burnout-related symptom score was 19.06 ± 2.16. A weak positive and statistically significant correlation was observed between burnout and workload (r_s = 0.204, p = 0.040). However, correlations between burnout and staffing adequacy (r_s = −0.133, p = 0.182) and job satisfaction (r_s = 0.077, p = 0.440) were statistically non-significant. Burnout-related symptom scores differed significantly across professional designations (H = 10.760, p = 0.029), with OT technologists reporting the highest mean score (20.39 ± 2.99).*

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Conclusion: *Higher perceived workload was significantly associated with increased burnout-related symptoms among operating theatre professionals. Professional designation was also significantly associated with differences in burnout-related scores. Appropriate workload distribution, supportive working environments, and organizational interventions may help improve occupational well-being among operating theatre personnel.*

INTRODUCTION

Burnout is an issue that has become a significant concern amongst healthcare workers, especially in very high stress clinical settings. Burnout is recognized by the World Health Organization (WHO) as an occupational phenomenon caused by chronic stress at work that is not effectively managed [1]. It is defined by three primary factors: emotional exhaustion, mental distance, and cynicism toward work, and diminished professional effectiveness. In addition to recognizing that burnout is a multidimensional response to prolonged occupational stress, Maslach and Leiter emphasize the need to look at the workplace, not solely to identify and explain the individual problem of burnout [2].

One of the most difficult areas of medical facilities to operate in is operation theatres. The professionals in these environments have to maintain concentration without ever losing their focus, have to make timely clinical decisions, coordinate with other multidisciplinary teams, and have to be able to handle complicated surgical procedures in a relatively short period of time with great time pressure. Patient safety, strict infection control requirements, emergency situations, and situations with unpredictable surgery schedules may increase demands further. The operating theatre environment is constantly physically, emotionally and psychologically challenging for those working in the theatre, which may leave them at risk of experiencing a burn-out. Long working hours, hard training conditions, negative clinical outcomes, and poor relationships at work have been shown in research with anaesthesiology residents to be significant factors in occupational burnout [3,4].

Operating room staff is not the only group of workers that suffers from burnout. Occupational stress can vary among the different professions in an operating room: surgeons, anaesthesiologists, staff nurses, operating theatre technologists and OT technicians. Burnout prevalence in orthopaedic surgeons was found to be 48.9% in a systematic review of 8471 orthopaedic surgeons across various studies, with significant differences noted between studies and professional groups [4]. Likewise, long working hours, high demands at work and a lack of opportunities for rest have been linked to burnout among anaesthesiology residents [3]. The results of this study underscore the need to not only understand burnout in nurses, but in all professions.

Job satisfaction represents another important dimension of professional well-being and may influence the relationship between workplace conditions and burnout. It reflects an individual's overall evaluation of their professional role, working environment, interpersonal relationships, managerial support, and opportunities for professional development. Low job satisfaction may develop when occupational demands are consistently high while organizational support, recognition, and resources remain inadequate. Conversely, a supportive working environment and positive professional relationships may help reduce the negative effects of occupational stress. Research among operating room nurses has demonstrated that job strain, burnout, and organizational commitment are interconnected, suggesting that workplace support and organizational conditions deserve consideration when examining professional well-being [5]. These findings support the need to examine job satisfaction alongside workload and staffing adequacy rather than considering burnout in isolation.

The relationship between job stress and burnout, highlighting the importance of job demands and supportive interactions with co-workers on job

outcome [6,7]. In addition, a meta-analysis of OT nurses found that job stress and work-family conflict were both correlated with burnout in a positive manner, suggesting that job and personal stressors may have a combined effect on nurse's burnout symptoms [8, 9, 10].

While burnout has now been studied among surgeons, anaesthesiologists and OT nurses in many countries around the world, little evidence exists to assess the joint effect of workload, staffing adequacy and job satisfaction in professional groups other than surgeons and anaesthesiologists. Furthermore, the experience of burnout can vary from setting to setting because of variations in the healthcare system, institutional resources, working conditions and staffing requirements. This sparks the need to go for research in multiple tertiary care hospitals with different operating theatre employees to get the wider picture of occupational wellbeing.

The study therefore aimed to determine the prevalence of burnout related symptoms and explore the relationship between workload, staff adequacy and job satisfaction among operating theatre staff from various tertiary care hospitals.

METHODS:

A quantitative cross-sectional study was conducted, involving multiple operation theater professionals from various tertiary care hospitals in Lahore. The study population included healthcare professionals who are directly involved in the functioning of the operating theatres such as surgeons, anesthesiologists, operation theatre nurses, OT technologists and OT technicians.

The sample size was determined based on a correlation-based approach, with an anticipated 0.27 correlation coefficient, 80% statistical power, 5% significant level, and 95% confidence. The sample size was around 102 participants. This method is consistent with guidelines for determining sample size used in correlation-based research [11]. The eligible participants were recruited from the selected hospitals using non-probability sampling technique. Healthcare professionals who have a minimum of 6 months experience, having worked in Operating Theatres within the selected hospitals, and who wish to participate were included. Those who were on long-term leave during data collection period, and those who decline informed consent were excluded.

The data were gathered by a structured self-administered researcher-made questionnaire based on the literature search on relevant issues regarding occupational burnout, workload, staffing adequacy and job satisfaction. There were five components to the questionnaire. The first section gathered demographic and occupational data such as age, gender, professional designation, professional experience, working experience in the operating theatre and shift patterns. The remaining sections measured symptoms associated with burnout, perceived workload, staff adequacy, and job satisfaction. The responses were collected mainly on a Likert scale ranging from 1 to 5 depending on the domain with appropriate responses for each domain.

The questionnaire checked for content and face validity by the subject experts who were working in the operating theatre practice. A pilot study was performed with about 15-20 eligible professionals who were not a part of the final study sample. Cronbach's alpha, were carried out for the questionnaire domains to check internal consistency. The overall Cronbach's alpha coefficient was 0.78. Data were collected through Google Forms. The Google Forms link was electronically shared with eligible operating theatre professionals working in the participating hospitals. Participants were informed about the purpose of the study, voluntary participation, and confidentiality of their responses before completing the questionnaire. After submission, responses were automatically recorded in Google Forms and exported into Microsoft Excel for data screening, coding, and subsequent statistical analysis. Data were analyzed in IBM SPSS Statistics 26. Continuous variables were tested for their normality. Spearman's correlation was used to analyze relationships between the scores on the various burnout scales and workload, staffing adequacy and job satisfaction. A p value < 0.05 was deemed as statistical significance.

RESULTS:

The study included 102 operating theatre professionals, comprising 52 (51.0%) females and 50 (49.0%) males. The mean age of participants was 32.80 ± 7.63 years. Surgical technologists constituted the largest professional group (24.5%), followed by OT nurses (23.5%), anesthesiologists (18.6%), OT technicians (17.6%), and surgeons (15.7%). Regarding work schedules, 35.3% reported morning-only shifts, while 32.4% reported rotational shifts and 32.4% reported day and night shifts. The mean professional experience was 5.17 ± 3.89 years.

Table 1: Descriptive statistics of questionnaire domain scores.

Domain	Mean ± SD	Median (IQR)	Minimum–Maximum
Burnout-related symptoms	19.06 ± 2.16	19 (18–20)	13-28
Perceived workload	13.09 ± 4.25	14 (10–16)	5-24
Staffing adequacy	12.07 ± 1.97	12 (11–14)	8-16
Job satisfaction	11.26 ± 3.02	12 (10–13)	5-21

Table 1 shows descriptive statistics of questionnaire domain scores. The mean burnout-related symptom score was 19.06 ± 2.16, with a median of 19. The mean perceived workload score was 13.09 ± 4.25, while staffing adequacy demonstrated a mean score of 12.07 ± 1.97 following reverse coding of the negatively worded item. The mean job satisfaction score was 11.26 ± 3.02. These findings indicate that participants reported considerable burnout-related experiences alongside concerns regarding staffing adequacy and job satisfaction.

Table 2: Association of burnout with workload, staffing adequacy and job satisfaction.

Variables	Spearman's rho (r_s)	p-value
Burnout and workload	0.204	0.040
Burnout and staffing adequacy	-0.133	0.182
Burnout and job satisfaction	0.077	0.440

A Spearman's rank correlation analysis was conducted to assess the association between burnout, workload, staffing adequacy, and job satisfaction among OT professionals. The findings revealed a weak positive and statistically significant correlation between burnout and workload ($r = 0.204$, $p = 0.040$), indicating that increased workload was associated with higher levels of burnout. However, burnout showed a negligible negative correlation with staffing adequacy ($r = -0.133$, $p = 0.182$) and a negligible positive correlation with job satisfaction ($r = 0.077$, $p = 0.440$). Both associations were statistically non-significant ($p > 0.05$). (Table 2)

Table 3. Association of burnout with demographic and occupational characteristics.

Variable	Test statistic	p-value
Professional designation	10.760	0.029
Gender	1329.5	0.844
Age	-0.137	0.171
Professional experience	0.056	0.574

Table 3 shows association of burnout with demographic and occupational characteristics. A statistically significant difference in burnout-related symptom scores was observed across professional designations (H = 10.760, p = 0.029). OT technologists demonstrated the highest mean score (20.39 ± 2.99), whereas anesthesiologists demonstrated the lowest mean score (18.32 ± 2.47).

Overall findings showed that physical exhaustion was the most prominent burnout-related symptom, with a mean score of 3.75 ± 0.85. Working hours and on-call duties were the highest-rated workload concern (2.83 ± 1.44). Participants reported considerable concerns regarding staffing adequacy, particularly the availability of staff for appropriate breaks and rest periods. Job satisfaction scores were relatively low across all five groups. Burnout-related scores differed significantly across professional designations, with OT technologists reporting the highest scores.

DISCUSSION:

The results indicated a correlation between workload and symptoms of burnout but it was not strong, only significant at the 0.04 level (r_s = 0.204, p = 0.040). But there was no statistically significant association between staffing and job satisfaction and burnout. Also, there were significant differences between the scores for the different professional designations with OT technologists reporting the highest mean score. The most clearly reported symptom of burnout was physical exhaustion (3.75 ± 0.85), indicating the physically and psychologically stressful nature of operating theatres work. Occupational exhaustion can result from long working hours, emergency duties, prolonged periods of concentration and from complex surgical operations. The challenging conditions of the theatres and the multifactorial determinants of occupational burnout have also been emphasized in previous studies [3,6,12].

Because of the positive correlation between workload and burnout, more intense workloads could be related to higher occupational exhaustion. The results are similar to that of Dai et al., who found occupational stress and work-family conflict as factors related to burnout in operating room nurses [13]. Likewise, Xu et al. showed the links between stress overload, fatigue and workplace outcomes for operating theatre nurses [14]. The results in this study highlight the significance of workload distribution, duty balancing and rest periods. Staffing adequacy showed a negative association but not statistically significant with burnout (r_s = −0.133, p = 0.182). In the same way, job satisfaction had a slight positive correlation (r_s = 0.077, p = 0.440). These results indicate that associations measured were not statistically significant in the current sample. Other issues of concern in organizations include staffing arrangements, managerial support, professional recognition, and workplace relationships, however. Bae discussed the importance of nurse staffing and working hours in regards to job satisfaction and burnout [7]. Additionally, Nagle et al. noted that there were several factors on an organizational and individual level that influenced healthcare workers' burnout [15].

There was a significant difference between professional designations in terms of scores on some of the burnout items (H = 10.760, p = 0.029). The highest mean score was reported by OT technologists (20.39 ± 2.99) and the lowest was reported by anesthesiologists (18.32 ± 2.47). This difference could be due to variations in workers' duties, physical requirements, and the distribution of work. There were no correlations between burnout-related scores and gender, age or professional experience. These results indicate that more research is needed on occupational and organizational factors. The impact of healthcare worker burnout goes beyond its effects on the individual, as Li et al. showed that it is linked to poor patient safety and quality-of-care results, which has implications for healthcare delivery [16].

The study has a few limitations such as it was cross sectional, the sample size was relatively small, it had a non-probability sampling, and its dependent data was a researcher developed self-reported questionnaire. In addition, the results are not

prevalence for burnout, but rather the symptoms of burnout. Multicentre, larger size studies using standardized assessment tools are recommended for the future. The results in general reflect workload as a correlate of burnout related symptoms in OT professionals and the importance of implementing organizational measures to support the health of OT professionals.

CONCLUSION:

The study identified a significant positive association between perceived workload and burnout-related symptoms among operating theatre professionals, indicating that increased workload may contribute to greater occupational exhaustion. Burnout-related symptom scores also differed significantly across professional designations, with OT technologists reporting the highest mean scores. However, staffing adequacy and job satisfaction did not demonstrate statistically significant associations with burnout-related symptoms. These findings highlight the importance of addressing workload distribution, duty scheduling, rest periods, and professional support within operating theatre settings.

Ethical considerations and consent to participate

Administrative permission was obtained from the participating tertiary care hospitals, whose identities have been kept confidential at their request.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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