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Research Article

A Public Health Challenge: Assessing Burnout, Its Determinants and Coping Strategies among Medical and Dental Practitioners in Karachi, Pakistan

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ABSTRACT

Objective: To assess burnout, its associated factors and coping strategies among doctors and dentists in District East, Karachi, Pakistan.

Methods: A cross-sectional study was conducted from October 2023 to October 2025 at Baqai Institute of Health Sciences, Baqai Medical University, Karachi. The data were gathered using a self-administered questionnaire that included Oldenburg Burnout Inventory and Brief COPE Questionnaire. A total of 198 participants from both public and private healthcare facilities were selected through convenience sampling. The data were analyzed using SPSS version 26.

Results: The mean age of respondents was 34.91±7.42 years whereas 135 (68.2%) of them were female. Burnout was found to be significantly related to age, occupation, and years of experience ($p<0.05$ for all). The disengagement aspect of burnout showed a significant association with occupation, while exhaustion was significantly associated with age, occupation, and experience ($p<0.05$ for all). The coping strategies most frequently used by participants were active coping (97%), planning (96.5%), acceptance (96.5%), and religious coping (96%).

Conclusion: It was concluded that burnout scores were significantly different across categories of certain demographic characteristics such as age, occupation, and duration of experience. These findings underscore the importance of institutional initiatives to promote supportive work environments, and strengthen mental well-being among healthcare providers in Pakistan.

Keywords: Burnout, Psychological, Coping Skills, Physicians, Dentists, Pakistan.

INTRODUCTION

Burn-out is included in the 11th Revision of the International Classification of Diseases as an occupational phenomenon. It is defined as a syndrome that develops from prolonged workplace stress that has not been effectively managed. It is marked by three key dimensions: a sense of energy depletion or exhaustion, heightened mental distance or cynicism toward one's work, and a decline in professional effectiveness. [1]

Burnout is a significant occupational health issue that affects people worldwide, particularly in demanding fields like healthcare. The healthcare industry is physically and mentally challenging, and numerous factors may play a role in causing burnout among healthcare professionals. Due to inadequate compensation packages, intense workloads, role conflicts, unfairness, long hours, and a lack of leisure time, burnout and stress are more common among healthcare professionals in Pakistan. A systematic review and meta-analysis found that burnout levels vary greatly among healthcare professionals, with rates ranging from 0% to 80.5% in some

studies. [2] A recent study from Karachi, Pakistan showed that 32.6% healthcare professionals had mild burnout, 32% had burnout while 12.8% had severe burnout. [3] Another local study recently reported that healthcare workers from Pakistan were more prone to burnout as compared to other countries. [4]

American psychological association defines coping is defined as the use of cognitive and behavioral strategies to manage the demands of a situation when these are appraised as taxing or exceeding one's resources or to reduce the negative emotions and conflict caused by stress. [5] To manage burnout, healthcare workers use various coping mechanisms. A systematic review recently reported the most common coping strategies used were social and emotional support, physical activity, physical self-care, emotional and physical distancing from work; the coping mechanisms associated with less burnout were physical well-being, clinical variety, setting boundaries, transcendental, passion for one's work, realistic expectations, remembering patients and organizational activities. [6] However, when coping mechanisms are ineffective or maladaptive, they may increase the vulnerability to burnout.

Understanding and addressing burnout among healthcare professionals in Karachi is a matter of occupational health and a public health priority. Ensuring the mental and physical well-being of healthcare workers is crucial for maintaining high standards of patient care, reducing staff turnover, and building a resilient healthcare system capable of meeting the population's needs. To the best of the investigator's knowledge, recent local literature on work-related stress, burnout, and coping strategies among healthcare professionals is limited as best. This study was therefore conducted to assess burnout, its associated factors and coping strategies among doctors and dentists in District East, Karachi. The study findings are expected to contribute to the growing body of literature on burnout and its coping strategies among healthcare professionals and provide evidence-based recommendations for policy and practice.

SUBJECTS AND METHODS

After taking ethical approval (Ref. No.: FHM85-2023/MPHStudent-Batch29), a cross-sectional study was carried out at Baqai Institute of Health Sciences, Baqai Medical University, Karachi from October 2023 to October, 2025. Doctors and Dentists having at least a valid MBBS or BDS degree of either gender working in District East, Karachi were included whereas pregnant female practitioners or those with any personal disability were excluded from the study.

Assuming 50% prevalence of the study outcome for most conservative estimate, with a 95% confidence level and 7% precision, the required sample size was calculated to be 198 using the online Openepi Calculator. [7] The study participants were approached by non-probability convenience sampling technique.

After taking verbal informed consent, the data were collected by using the study questionnaire from the participants. The study questionnaire consisted of three sections; first section contained questions regarding participants' demographics and factors contributing to burnout such as age, gender, marital status, monthly household income, occupation, years of experience, working in a public or private setup, type of house, history of illness, sleeping duration per day, daily exercise or walk, and peer pressure at work; second section comprised of the Oldenburg Burnout Inventory, a 16-item scale assessing burnout across two subscales: exhaustion (items 2, 4, 5, 8, 10, 12, 14, 16) and disengagement (items 1, 3, 6, 7, 9, 11, 13, 15). Responses range from strongly agree = 1 to strongly disagree = 4, with higher scores reflecting greater burnout. Subscale scores ≥23 for exhaustion indicate significant fatigue, while disengagement scores ≥22 suggest work-related detachment and negative attitudes [8], while the third section comprised of the Brief COPE Questionnaire, which assesses 14 coping strategies through 28 items, scored on a 4-point scale from 1 ("I've not done this at all") to 4 ("I've been doing this a lot"). [9]

Data were entered and analyzed using SPSS version 26, with graphs and tables created in MS Excel. Descriptive statistics, including frequencies and percentages, were calculated for categorical variables, while means and standard deviations were computed for continuous variables. After assessing normality with the Shapiro-Wilk test, Oldenburg Burnout Inventory scores were compared across demographic groups using the Mann-Whitney U

test and Kruskal-Wallis H test. A significance level of 0.05 was applied.

RESULTS

The mean age of respondents was 34.91±7.42 years, 102 (51.5%) of them belonged to 35 years or above age group, 135 (68.2%) were female, 154 (77.8%) were married, 121(61.1%) had monthly household income equal or more than 100000 rupees, 161 (81.3%) were doctors by profession, 126 (63.6%) were working in public setup, 100 (50.5%) were living in the joint family setup, 149 (74.2) were living in their own house, 147 (74.2%) of them had no history of illness, 99 (50%) did daily exercise, 127 (64.1%) felt peer pressure at work, their mean duration of experience was 8.18±5.74 years whereas 84 (42.4%) of them had 6 to 10 year experience (table 1).

Table 1. Participant Profile

Participants Characteristics (n=198)	**Mean±SD/Count (%)**
Age (Years)	34.91±7.42
Age Group	
Less than 35 years	96 (48.5)
35 years or above	102 (51.5)
Gender	
Male	63 (31.8)
Female	135 (68.2)
Marital Status	
Single	39 (19.7)
Married	154 (77.8)
Divorced/Widowed/Separated	5 (2.5)
Monthly Household Income (Rs.)	
Less than 100000	77 (38.9)
100000 or More	121 (61.1)
Occupation	
Doctors	161 (81.3)
Dentist	37 (18.7)
Working Setup	
Public	126 (63.6)
Private	72 (36.4)
Type of Family	
Nuclear	98 (49.5)
Joint	100 (50.5)
Type of House	
Own	149 (75.3)
Rented	49 (24.7)
Sleeping Duration	7.01±1.22
History of Illness	
Yes	51 (25.8)
No	147 (74.2)
If Yes	
Physical	30 (15.2)
Mental	21 (10.6)
Do you do Daily Exercise?	
Yes	99 (50)
No	99 (50)
Peer Pressure at Work	
Yes	127 (64.1)

No	71 (35.9)
Experience (Years)	8.18±5.74
Experience Duration	
Less than 5 years	71 (35.9)
6 to 10 years	84 (42.4)
More than 10 years	43 (21.7)

The comparison of Oldenburg burnout inventory scores across categories of demographic characteristics showed that they were significantly different for age, occupation, and duration of experience, where participants who were aged 35 or above, doctors, or had practice duration of more than 10 years had the highest burnout scores than others (table 2).

Table 2. Comparison of Oldenburg Burnout Inventory Total Scores across categories of Demographic Characteristics

Demographic Characteristics (n=198)	**Mean Rank**	**p**
Age Group		0.006
Less than 35 years	87.97	
35 years or above	110.35	
Gender		0.199
Male	91.87	
Female	103.06	
Marital Status		0.230
Single/Divorced	90.38	
Married	102.11	
Monthly Household Income (Rs.)		0.091
Less than 100000	90.89	
100000 or More	104.98	
Occupation		0.034
Doctor	103.62	
Dentist	81.55	
Working Setup		0.371
Public	96.75	
Private	104.31	
Type of Family		0.849
Nuclear	98.72	
Joint	100.27	
Type of House		0.905
Own	99.78	
Rented	98.65	
Sleeping Duration		0.530
Up to 7 hours	101.62	
8 hours or more	96.43	
History of Illness		0.864
Yes	100.68	
No	99.09	
Do you daily exercise or work		0.184
Yes	94.11	
No	104.89	

Peer Pressure		0.626
Yes	98.02	
No	102.15	
Experience		0.010
Less than 5 years	85.18	
6 to 10 years	102.03	
More than 10 years	118.21	

The comparison of disengagement scores across categories of demographic characteristics showed that they were significantly different for occupation, where participants who were doctors had the highest disengagement scores as compared to others (table 3).

Table 3. Comparison of Oldenburg Burnout Inventory Disengagement Scores across categories of Demographic Characteristics

Demographic Characteristics (n=198)	Mean Rank	p
Age Group		0.167
Less than 35 years	93.74	
35 years or above	104.92	
Gender		0.199
Male	94.31	
Female	101.92	
Marital Status		0.840
Single/Divorced	101.02	
Married	99.06	
Monthly Household Income (Rs.)		0.056
Less than 100000	89.84	
100000 or More	105.65	
Occupation		0.019
Doctor	104.05	
Dentist	79.69	
Working Setup		0.287
Public	96.25	
Private	105.19	
Type of Family		0.775
Nuclear	98.33	
Joint	100.65	
Type of House		0.501
Own	97.94	
Rented	104.24	
Sleeping Duration		0.656
Up to 7 hours	98	
8 hours or more	101.66	
History of Illness		0.374
Yes	93.4	
No	101.62	
Do you daily exercise or work		0.804
Yes	98.49	
No	100.51	
Peer Pressure		0.096
Yes	94.46	
No	108.51	

Experience		0.206
Less than 5 years	93.89	
6 to 10 years	97.42	
More than 10 years	112.81	

The comparison of exhaustion scores across categories of demographic characteristics showed that they were significantly different for age, occupation, and practice duration, where participants who were aged 35 or above, doctors, or had practice duration of more than 10 years had the highest exhaustion scores compared to others (table 4).

Table 4. Comparison of Oldenburg Burnout Inventory Exhaustion Scores across categories of Demographic Characteristics

Demographic Characteristics (n=198)	Mean Rank	p
Age Group		0.006
Less than 35 years	88.16	
35 years or above	110.18	
Gender		0.099
Male	89.74	
Female	104.06	
Marital Status		0.086
Single/ Divorced	86.52	
Married	103.21	
Monthly Household Income (Rs.)		0.079
Less than 100000	90.16	
100000 or More	105.16	
Occupation		0.049
Doctor	103.32	
Dentist	82.88	
Working Setup		0.468
Public	97.28	
Private	103.38	
Type of Family		0.952
Nuclear	99.26	
Joint	99.74	
Type of House		0.941
Own	103.39	
Rented	87.68	
Sleeping Duration		0.469
Up to 7 hours	101.94	
8 hours or more	95.98	
History of Illness		0.787
Yes	101.35	
No	98.86	
Do you daily exercise or work		0.236
Yes	94.71	
No	104.29	
Peer Pressure		0.992
Yes	99.47	
No	99.56	
Experience		0.019
Less than 5 years	85.17	

6 to 10 years	104.14	
More than 10 years	114.09	

The evaluation of coping strategies used by participants revealed the most frequently adapted strategies to be active coping (97.0%), planning (96.5%), acceptance (96.5%), religion (96.0%), positive reframing (95.5%), self-distraction (95.5%), instrument support (93.4%), emotional support (92.9%), venting (90.4%), behavioral disengagement (77.8%), denial (77.3%), self-blame (75.8%) and humor (74.2%) whereas the least adapted coping strategy noted was substance use (29.3%) (table 5).

Table 5. Details of Coping Strategies Used by Participants

Coping Strategy (n=198)	**Frequency (%)**
Religion	190 (96.0)
Active Coping	192 (97.0)
Planning	191 (96.5)
Acceptance	191 (96.5)
Positive Reframing	189 (95.5)
Instrument Support	185 (93.4)
Emotional Support	184 (92.9)
Humor	147 (74.2)
Self-Distraction	189 (95.5)
Self-Blame	150 (75.8)
Venting	179 (90.4)
Behavioral Disengagement	154 (77.8)
Denial	153 (77.3)
Substance Use	58 (29.3)

DISCUSSION

The study showed that the participants aged 35 or above demonstrated significantly higher burnout scores, reflecting the long-term emotional and physical toll of healthcare work. da Silva Moro J et al. in 2022 found similar trends, suggesting that sustained job demands and insufficient recovery contribute to burnout among senior practitioners. [10] A recent systematic review though reported contrary findings [11], indicating the need for in depth assessment of this relationship.

Although the difference was not significant, females had slightly higher burnout scores. Erdur B et al. in 2006 also reported that female doctors are more prone to burnout due to the combined burden of professional and domestic responsibilities. [12] Tariq T et al. in 2025 also reported females to have higher burnout scores, although the statistical significance was not evaluated. [13] On the other hand, Malik M et al. in 2023 reported males to have higher burnout scores than females, although the difference was statistically insignificant. [14] Further exploration of this relationship is therefore recommended by the authors.

Doctors experienced significantly greater burnout than dentists. This can be attributed to the intense emotional engagement and workload faced by doctors, especially in emergency and inpatient settings. Peterson U et al. in 2008 observed similar patterns, explaining that continuous exposure to patient care demands contributes to emotional exhaustion. [15]

Moreover, presence of peer pressure was not found to be significantly associated with burnout scores of respondents. Similar findings have been earlier reported by Khan S et al. in 2024. [16] Occurrence of burnout in a healthcare professional is a multi-factorial phenomenon and even though peer pressure likely plays a role in causing burnout, such a finding was not unexpected.

Burnout scores significantly increased with years of experience, highlighting that cumulative exposure to occupational stress leads to emotional wear over time. Gómez-Polo C et al. in 2022 referred to this as the "career burnout

curve," where prolonged professional engagement results in higher fatigue and disinterest. [17]

The study results further showed a significant increase in burnout scores with increasing experience of healthcare professionals. Unlike the study results though, Malik M et al. in 2023 did not report a significant association between experience and burnout in healthcare professional. [14] This difference in findings may be attributed to use of a different measurement tool in the later study.

Doctors were found to have significantly higher disengagement scores than dentists. Given that doctors often handle emotionally draining situations, disengagement may emerge as a coping response. Demerouti E et al. in 2001 explained that disengagement develops when job resources fail to balance job demands, leading professionals to emotionally distance themselves to preserve mental energy. [18]

Although not statistically significant, disengagement tended to increase with age and experience, possibly reflecting fatigue and desensitization over time. Similar findings were discussed by da Silva Moro J et al. in 2022, where senior healthcare professionals exhibited reduced enthusiasm toward their work after years of stress exposure. [10]

Older healthcare professionals experienced higher exhaustion levels, indicating cumulative strain from years of demanding work. Likewise, Peterson U et al. in 2008 found that physical and emotional fatigue increases with age due to prolonged exposure to stress. [15]

Female healthcare professionals had higher exhaustion scores than their male counterparts, though the association was marginally insignificant. The dual responsibility of managing work and home life may explain this pattern, as noted by Erdur B et al. in 2006. [12]

Doctors were significantly more exhausted than dentists, which is understandable given their heavier patient workload and longer duty hours. Kamran RB et al. in 2020 also found that doctors report more exhaustion compared to dental professionals due to the intensity of clinical duties. [19]

The study results further showed that exhaustion levels significantly increased with experience duration. Healthcare workers with greater work experience often suffer from accumulated fatigue from consistent work pressure, as reported by Calvo JM et al. in 2021. [20]

Furthermore, participants reported using a mix of adaptive and maladaptive coping strategies. The most common positive coping methods included active coping (97%), planning (96.5%), acceptance (96.5%), and religious coping (96%), reflecting strong problem-solving and faith-based approaches. Faith and spirituality were central to coping, consistent with Maresca G et al. in 2022, who emphasized that religious coping enhances emotional endurance among healthcare workers. Active coping and planning show that participants prefer constructive approaches to manage stress. [6]

A majority of healthcare professionals also relied on emotional support (92.9%) and instrumental support (93.4%), demonstrating the importance of family and peer relationships. Carver CS in 1997 highlighted that such interpersonal support plays a vital role in reducing burnout. [9]

The frequent use of adaptive coping strategies, especially faith-based and problem-solving methods, indicates resilience within this group. However, the presence of self-blame and disengagement signals the beginning of emotional fatigue, underscoring the need for proactive mental health initiatives within healthcare institutions.

It is acknowledged that this study has certain limitations. First, since the data were collected through self-administered questionnaires, the findings rely on participants' honesty and self-awareness, which may introduce response bias. Second, the study was conducted only among healthcare professionals working in District East, Karachi, which limits the generalizability of results to other regions or healthcare sectors in Pakistan. Finally, the study did not control external stressors like family problems, financial challenges, or institutional policies that may have influenced participants' psychological well-being. These factors could be considered in future studies to achieve a more holistic understanding of this important public health challenge.

CONCLUSION

It was concluded that burnout scores were significantly different across categories of certain demographic characteristics such as age, occupation, and duration of experience.

Recommendations

Based on the findings of this study, several recommendations are proposed to address burnout among healthcare professionals in District East, Karachi. Healthcare organizations should focus on psychological support programs such as confidential counseling services and mental health awareness sessions to foster collaboration and reduce workplace tension and burnout. Moreover, since burnout was more prevalent among older and more experienced professionals, targeted interventions such as workload adjustments, rotation in duties and providing senior staff with leadership or mentoring roles may also help restore motivation and reduce exhaustion. Prioritizing mental health care among professionals will not only safeguard their well-being but also improve the quality of patient care in Pakistan.

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