

# Assessment of work-related burnout risk and its causal factors in dentists.

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**Abstract**—This study investigates the prevalence of burnout among professional dental practitioners and explores potential correlations between demographic and work-related factors with burnout experiences. The research sample consisted of 133 actively practicing dentists selected from the general population. Data collection was conducted online using the Burnout Assessment Tool – Work-Related Short Version integrated into survey forms. Descriptive statistics of burnout scores and their interpretations were utilized to evaluate the incidence of burnout within the sample. To test the hypotheses, statistical analyses, including ANOVA AND t-test, were performed. The findings indicated the presence of burnout among the dentists in the sample group, with a statistically significant association observed between burnout scores and clinic ownership.

**Index Terms**—Burnout, Dentists, Burnout Assessment Tool, ANOVA, t-test.

## I. INTRODUCTION

The term ‘burnout’ was first used in a clinical sense in the early 1970s by Herbert Freudenberger, a practicing American psychologist. The concept was developed further by the academic researcher and social psychologist Christina Maslach, who subsequently developed the most widely used questionnaire for assessing burnout [1].

Burn-out is defined in International Classification of Diseases (ICD-11) as follows:

Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions:

- feelings of energy depletion or exhaustion.
- increased mental distance from one’s job, or feelings of negativism or cynicism related to one's job; and
- reduced professional efficacy.

Burn-out refers specifically to phenomena in the occupational context and should not be applied to describe experiences in other areas of life [2].

The effects of burnout are far-reaching. On a personal level, it can lead to mental health challenges, such as anxiety and depression, as well as physical ailments including sleep disturbances and weakened immunity. From an organizational perspective, burnout is associated with decreased productivity, higher rates of absenteeism, employee turnover, and overall diminished workplace morale.

Recognizing and addressing burnout—both general and work-related—is essential for promoting individual well-being and fostering healthy, sustainable environments across all spheres of life.

The nature of dental work makes it a particularly fertile ground for occupational stress. Dentists often work in confined spaces with limited support, maintaining abnormal posture at times while engaging in precise, high-stakes procedures. They also deal directly with patients who may be fearful, uncooperative, or in severe pain—creating emotionally taxing encounters that repeat daily.

Moreover, dental professionals in private practice must also shoulder financial management, human resource responsibilities, and marketing pressure roles that may fall outside their training or comfort zone. For those working in institutional or public health settings, bureaucratic oversight, low remuneration, and lack of autonomy can exacerbate feelings of disengagement and frustration. These stressors can accumulate gradually, making early signs of burnout hard to detect until they manifest in psychological or physiological symptoms.

Burnout does not merely affect the individual dentist, it has cascading effects on clinical performance, patient safety, and organizational efficiency. A burned-out practitioner may exhibit reduced empathy, increased irritability, diminished concentration, and a higher risk of errors. This can lead to compromised patient care, lower satisfaction, and even legal or ethical violations. Long-term burnout has been associated with substance abuse, cardiovascular issues, and even suicidal ideation among healthcare workers.

Additionally, burnout can lead to professional attrition—dentists leaving the profession prematurely or avoiding certain patient populations or procedures. This impacts access to care, especially in underserved or rural communities. The ripple effect extends to dental assistants, hygienists, and administrative staff, contributing to toxic workplace environments and reduced morale.

Burnout often develops gradually and can go unnoticed until it reaches a critical stage, leading to significant mental, emotional, and physical consequences. Without proper assessment, early warning signs—such as fatigue, irritability, reduced

motivation, and declining job performance—may be misattributed to temporary stress or personal shortcomings. Timely identification through structured assessment allows for early intervention, potentially preventing the escalation into more severe conditions such as anxiety disorders, depression, or chronic health problems.

From an organizational perspective, unrecognized and unaddressed burnout can result in decreased employee engagement, increased absenteeism, higher turnover rates, and reduced overall productivity. By integrating regular burnout assessments into workplace health and wellness initiatives, employers can not only support individual staff members but also enhance organizational performance and morale.

Moreover, burnout assessment provides valuable data that can inform targeted interventions. This includes modifying workloads, improving work-life balance, enhancing leadership support, and fostering a positive work culture. Assessments can also help track the effectiveness of implemented strategies over time, making them essential tools in both diagnosis and ongoing management.

There are various prominent tools that are available to assess burnout, few of them are Maslach's Burnout Inventory (MBI) developed by Christina Maslach and Susan E. Jackson in the early 1980s; Copenhagen Burnout Inventory (CBI) developed by Kristensen et al. in 2005 as part of the Project on Burnout, Motivation and Job Satisfaction (PUMA) study in Denmark; Burnout Assessment Tool (BAT) - developed by Schaufeli, De Witte, and Desart in 2019; Oldenburg Burnout Inventory (OLBI) developed by Demerouti and Nachreiner 1998; Shirom Melamed Burnout Measure (SMBM) - developed by Shirom and Melamed in 2006 etc.[1][3][4][5]and [6]

The objective of this research study is to evaluate the prevalence of burnout among dentists using the Burnout Assessment Tool – work-related version (short version: BAT-12). Additionally, the study aims to analyze the risk of professional burnout by interpreting both individual and total burnout scores. Furthermore, it seeks to examine the correlation between burnout scores and various factors, including age, dental specialization, place of dental practice, dental practice ownership, average clinical work hours per day, and average monthly income among dental professionals. Through these objectives, the study intends to provide a comprehensive understanding of the factors influencing burnout in dental practitioners.

## II. REVIEW OF LITERATURE

Ciğerim et al. conducted a cross-sectional online survey on dentists working in different parts of Turkey, using a questionnaire consisting of demographic data, Maslach Burnout Inventory (MBI), and Beck's Depression Inventory (BDI) sections. Out of the 290 responders (172 male and 118 female dentists), they found that women exhibited higher Emotional Exhaustion (EE) than men. It was also found that the EE scores of dentists working in faculties and private clinics were lower than those of dentists working in Oral Dental Health Centers (ODHCs) [8].

C. Gómez-Polo, A. M. M. Casado, and J. Montero conducted an online survey answered by 1,298 Spanish dentists. The survey recorded their gender, age, work environment, number of practices in which they work, whether they work alone or not, whether they own or co-own the practice, years of experience, working hours per week, and their responses to the Maslach Burnout Inventory-Human Services Survey (MBI-HSS). The results indicated that the percentage of dentists with signs of burnout classified as "Emotional Exhaustion" was higher for women (64.4%) than men (56.7%); for those working in a rural setting (70.1%) compared to those in an urban setting (59.9%); for non-owners (65.6%) compared to owners (58.3%); and for those who always or frequently work alone (63.7%) compared to dentists who never or rarely work alone (59.9%). A high level of burnout was experienced by 9.8% of dentists [9].

S. Arora and A. Knight [10] conducted a cross-sectional survey on graduated dentists in Singapore and found that, overall, low to moderate levels of burnout were reported by the 210 survey respondents. Average Copenhagen Burnout Inventory (CBI) scale scores (out of 100) were as follows: personal burnout = 49.14, work-related burnout = 46.41, and patient-related burnout = 37.72. High to severe levels of burnout were self-reported by 24 individuals (11.3%) for personal burnout, 17 individuals (8.0%) for work-related burnout, and 9 individuals (4.2%) for patient-related burnout.

J. Meyerson and colleagues in 2019 conducted a study to analyze the influence of Sensory Processing Sensitivity (SPS) on burnout and professional quality of life among Israeli dentists using a questionnaire. Linear regression analysis of the responses from 243 dentists revealed that burnout could be predicted by the three aspects of SPS—ease of excitation, low sensory threshold, and aesthetic sensitivity—accounting for 32% of the variance. Additionally, these three aspects of SPS also predicted dentists' satisfaction at work (24% of the variance). Ease of excitation and low sensory threshold, but not aesthetic sensitivity, predicted dentists' reactions to their patients' stress and trauma (23% of the variance) [11].

S Kulkarni et al. [12] conducted a survey in 2016 amongst 97 dentists with 6 months to 5 years of experience to measure daily burnout and investigate the extent of expectations from a dental career and the feeling of being an unqualified new dental practitioner. The questionnaire survey consisted of the Copenhagen Burnout Inventory. The results revealed that the factors most commonly considered responsible for professional burnout were emotional exhaustion (39.27%), frustrations (47.83%), feeling worn out at the end of the day (35.05%), feeling worn out at the end of the working day (46.80%), exhaustion in the morning at the thought of another day at work (35.05%), feeling that every working hour is tiring (46.80%), and having less energy and less time for family and friends (47.83%).

P.V. Jugale, P. Mallaiah, A. Krishnamurthy, and R. Sangha in their cross-sectional study to evaluate the prevalence of burnout and work engagement (WE) among dentists in East Bangalore, India used a structured, self-administered questionnaire to collect data on dentists' demographics, practice characteristics, burnout levels (6-item Maslach Burnout Inventory), and WE (4-item

Utrecht Work Engagement Scale). Among the 67 responders, high burnout was observed in 5.15% of dentists. Personal accomplishment was significantly associated with dentists in the older age group, married, MDS qualified, having long working hours with assistants, more years into practice, and traveling greater distances from their residence. Dedication was significantly associated with dentists working with assistants, emotional exhaustion with long working hours, and driving their own vehicle. Despite persistent burnout, high work engagement was reported [13].

Huri and colleagues [14] in their survey of 337 Turkish dentists using a self-structured questionnaire, MBI and BDI. It was observed that 29% of the participants showed burnout and 22.2% showed depressive symptoms. Participants exhibited increases in emotional exhaustion (38%) and depersonalization (22%), along with a decrease in personal accomplishment (12%).

M. Jin, S. Jeong, E. Kim, Y. Choi, and K. Song (2014) conducted a cross-sectional survey of Korean dentists using a custom designed questionnaire, MBI-HSS, and questions including socio-demographic details and job-related characteristics. Among the 444 responders, it was observed that in the subscales of burnout, 41.2%, 55.9%, and 41.4% of respondents scored highly in emotional exhaustion and depersonalization and poorly for personal sense of accomplishment, respectively. High burnout was more likely to occur in association with certain sociodemographic and job-related characteristics, particularly younger age, male gender, lack of occupational calling, and unwillingness to reselect dentistry as a profession [15].

### III. NEED FOR THE STUDY

With the progression of time, work-related stress has steadily infiltrated the professional lives of individuals across various fields, and dentistry is no exception. The modern dental practice environment, though clinically rewarding, is replete with challenges that may adversely affect the psychological well-being of practitioners. Factors such as extended work hours, repetitive physical strain, emotional labor, mental fatigue, increasing patient expectations, heightened administrative responsibilities, reduced financial returns, diminished job satisfaction, and the looming fear of litigation cumulatively contribute to high levels of occupational stress among dentists.

These cumulative stressors, if unaddressed, can lead to psychological disturbances such as anxiety and depression, ultimately culminating in burnout—an occupational phenomenon recognized by the World Health Organization. Burnout, characterized by emotional exhaustion, depersonalization, and reduced personal efficacy, affects not only the quality of life and professional satisfaction of dental practitioners but also their ability to deliver safe, effective, and empathetic patient care. The ripple effects of untreated burnout include diminished productivity, increased clinical errors, lower patient trust and satisfaction, and even early retirement or career abandonment by the professionals themselves.

Despite being a critical concern, dentistry has often remained under-acknowledged and under-researched, particularly in comparison to other healthcare fields such as medicine and nursing. While tools like the Maslach Burnout Inventory (MBI) and the Copenhagen Burnout Inventory (CBI) have been frequently used in burnout studies, they have limitations in terms of comprehensiveness and contemporary relevance. The recently developed Burnout Assessment Tool (BAT) by Schaufeli, De Witte, and Desart (2020) represents a more refined, psychometrically robust, and multidimensional approach to understanding burnout [4]. It assesses not only exhaustion and mental distance (traditional core symptoms) but also incorporates cognitive and emotional impairment—factors especially relevant in cognitively demanding professions such as dentistry.

Another compelling reason for conducting this study lies in the evolving landscape of dental practice. The post-pandemic reality has introduced new stressors, including financial insecurity, infection control protocols, and reduced patient inflow, which may exacerbate the risk of burnout. Furthermore, the interplay of demographic variables (such as age, gender, and years of experience) and occupational characteristics (such as specialization, type of practice, and ownership status) may influence individual vulnerability to burnout. A nuanced understanding of these factors is necessary for developing tailored intervention strategies.

This study is therefore designed with the dual objective of evaluating the occurrence and extent of burnout among professional dental practitioners using the Burnout Assessment Tool – Work-Related Version (BAT-12) and examining the interrelationships between burnout and various demographic and occupational parameters. The findings are expected to provide valuable insights for mental health professionals, policymakers, dental education institutions, and regulatory bodies to promote preventive measures, foster supportive work environments, and encourage the adoption of coping strategies that enhance the well-being of dental practitioners.

By addressing a critical gap in current research and utilizing a contemporary tool with a multidimensional scope, this study aims to contribute to the growing body of knowledge around occupational health in dentistry, ultimately leading to better outcomes for both practitioners and their patients.

### IV. RESEARCH METHODOLOGY

#### *Aim of the study*

To evaluate the occurrence of burnout amongst professional dental practitioners.

#### *Hypotheses*

Based on the above-mentioned review of literature, the following are the hypotheses of this study which will be tested by the methodology described below:

1. There is no significant difference in burnout scores of dental professionals across age groups.
2. There is no significant difference in burnout scores across dental specializations (General dentistry; Oral Medicine, Radiology, Pain clinic; Oral and Maxillofacial Surgeon, Prosthodontist, Pedodontist, Periodontist, Orthodontist, Endodontist, Oral Pathologist and Community Oral Health Specialist).

3. There is no significant difference in burnout scores across places of dental practice (Urban, Rural, Both urban and rural).
4. There is no significant difference in burnout scores between dental clinic owners and non-owners.
5. There is no significant difference in burnout scores across different clinical work hour groups (1–5 hours, 6–10 hours, 11–15 hours).
6. There is no significant difference in burnout scores across average monthly salary groups (Less than 25,000/- Indian Rupees, More than 25,000/- Indian Rupees but less than 50,000/-, More than 50,000/- Indian Rupees and less than 75,000 Indian Rupees, More than 1 Lakh Indian Rupees and less than 2 Lakh Indian Rupees, More than 2 lakh Indian Rupees)

### **Objectives of the study**

1. To assess the prevalence of burnout among dentists using the Burnout Assessment Tool – work-related version (short version- BAT-12).
2. To analyze the risk of professional burnout in dentists by interpreting the individual and total burnout scores.
3. To examine the correlation between burnout scores and factors such as age, dental specialization, place of dental practice, dental practice ownership, average clinical work hours per day, and average monthly income among dental professionals.

### **Participants**

Professional dental practitioners participated in this study. The inclusion criteria required participants to be actively involved in dental practice. Exclusion criteria included dental professionals not actively practicing dentistry, incomplete survey responses, and non-responders or unwilling participants. The sample size was 133, and the sampling technique utilized was a combination of stratified sampling alongside the snowball sampling method.

### **Study design**

The study utilized quantitative survey design.

### **Procedure**

Informed consent was obtained from all participants. Participation in the study was entirely voluntary. Data collection was carried out using an online questionnaire distributed via Google Forms. The questionnaire gathered demographic information and work-related details, including:

- Type of practice (e.g., general dentistry or specialists).
- Practice settings (e.g., private clinic, corporate clinic/hospital, government clinic/hospital).
- Ownership in practice (owner or non-owner).
- Place of practice (Urban, Rural or both urban and rural).
- Years of clinical experience.
- Average working hours and working days per week.
- Average monthly income.

Additionally, the questionnaire incorporated the Burnout Assessment Tool (BAT) – Work-Related Version. The BAT consisted of 22 items spanning the following dimensions:

- Primary symptoms:
  - Exhaustion (3 items).
  - Mental Distance (3 items).
  - Emotional Impairment (3 items).
  - Cognitive Impairment (3 items).
- Secondary symptoms:
  - Psychological Distress (5 items).
  - Psychosomatic Complaints (5 items).

Participants scored each item on a 5-point frequency scale, ranging from Never (Score 1) to Always (Score 5). Total scores of the Burnout Assessment Tool were calculated and interpreted according to the published guidelines.

### **Analysis**

Descriptive analysis of BAT-12 scores and total burnout scores was performed using standard statistical tools. Hypotheses were tested using ANOVA single-factor analysis and t-tests.

## **V. ANALYSIS AND RESULTS**

To assess the magnitude and distribution of burnout within the dental community, a cross-sectional study was conducted using the BAT-12. This tool was chosen for its multidimensional approach and contemporary relevance, especially in high-stress professions such as healthcare. The survey-based design enabled the collection of quantitative data from a diverse sample of practicing dentists, capturing a wide spectrum of demographic and occupational variables.

The survey aimed not only to identify the prevalence of burnout, but also to explore how it varies across different age groups, dental specializations, practice settings, ownership status, working hours, and income levels. This multifactorial perspective was crucial for understanding burnout not as an isolated psychological event, but as a consequence of systemic occupational stressors that may differ depending on the context of dental practice.

Respondents represented a broad range of experience levels and work environments, from newly graduated practitioners working in urban private practices to senior clinicians operating in rural healthcare centers. By collecting such a varied dataset, the study was positioned to draw meaningful insights into both common and unique burnout patterns within the profession.

The quantitative phase of this research focused on descriptive and inferential statistical analyses. The initial analysis involved summarizing key characteristics of the respondents—such as their age distribution, clinical experience, and workplace context—to establish the demographic context of the sample. This step was essential for interpreting the variability in burnout scores and understanding whether certain professional characteristics are more strongly associated with elevated burnout risk.

Subsequently, burnout scores were calculated using the BAT-12 scale, and participants were classified according to the risk levels defined in the Burnout Assessment Tool manual. Beyond simple score reporting, further statistical analysis, including ANOVA and t-tests, were employed to test hypotheses regarding the relationships between burnout and specific professional or personal variables.

The following section presents the findings of this analysis in detail. It begins with a description of the sample's demographic and professional composition, followed by an interpretation of the burnout score distribution. These results are then examined in relation to various factors such as age, specialization, work hours, and income, providing a comprehensive overview of the prevalence and predictors of burnout in dental practitioners.

## Results

A total of 133 dental professionals who met the inclusion criteria of the study were selected for this study. Their responses for the survey were recorded using online Google Forms. Out of the 133 dentists, 58.6 % were female while the rest were male. According to the dentist's age, they were categorized according to different age groups i.e., 22 - 25 years, 26 - 30 years, 31 - 35 years, 36 - 40 years, 41 - 45 years, 46 - 50 years, 51 - 55 years, 56 - 60 years and 61 - 65 years. Table 1 given below is the distribution of the number of dentists under each age group category.

Table 1. Distribution of Dentists by Age Groups in the Sample

Age Groups	No. of Dentists
22-25 years	6
26-30 years	24
31-35 years	25
36-40 years	29
41-45 years	32
46-50 years	12
51-55 years	3
56-60 years	1
61-65 years	1

The dentists were categorized into ten specializations: general dentistry, oral medicine and radiology, oral and maxillofacial surgery, prosthodontics, pedodontics, periodontics, orthodontics, endodontics, oral pathology, and community oral health specialists. Figure 1 is a bar plot graph showing the distribution of the dentists according to their specialization.

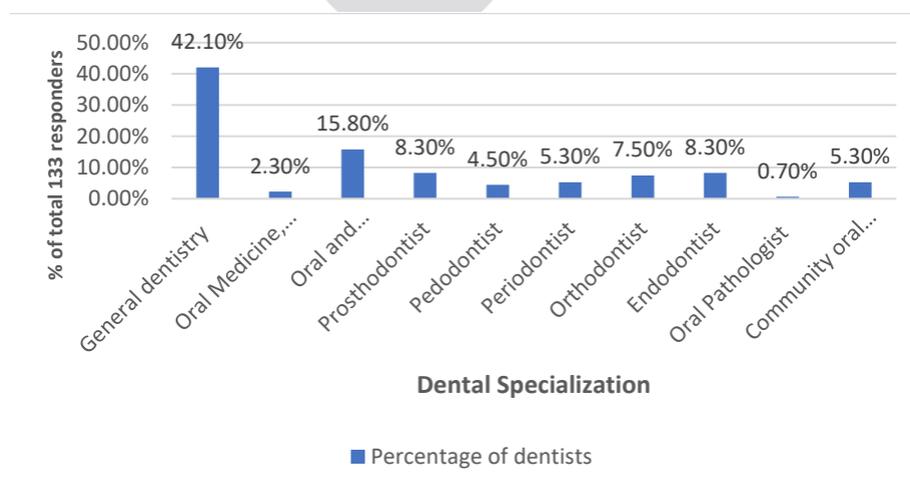


Figure 1. Percentage Distribution of Dentists Based on their Specialization

While 78.2 % of the 133 dentists practiced in the urban areas, 18 % practiced in the rural areas and the rest of the dentists practiced dentistry in both urban and rural areas. Based on the clinical setting of their dental practice, 75.2 % of the survey respondents worked in a private clinical setting, 20.3 % worked in a corporate clinical (or hospital) setting and 4.5 % of them

worked in a government clinical (or hospital) setting. Out of 133 dentists, 71 owned a dental practice and the remaining 62 dentists were clinic non-owners.

Table 2 is the distribution of dental professionals based on their years of clinical experience (rounded up to the nearest year count).

Table 2. Distribution of Dentists Based on their Clinical Experience

Clinical Experience	Number of Dentists
<5 years	35
6-10 years	36
11-15 years	27
16-20 years	19
21-25 years	12
26-30 years	2
31-35 years	1
36 - 40 years	1

Figure 2 depicted below is a pie chart representation of the percentage of dental professionals based on their average number of working hours per day.

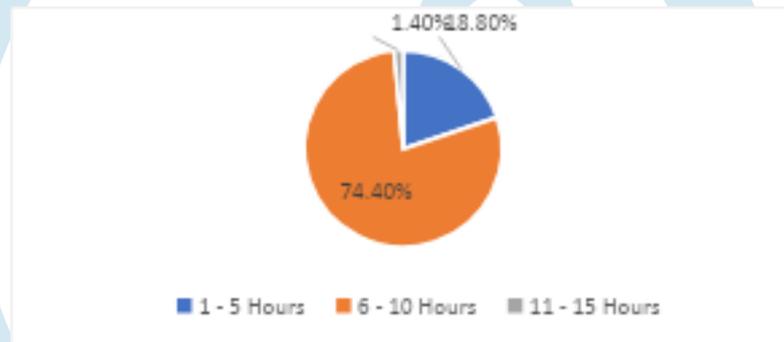


Fig 2. Percentage Distribution of Dentists based on Average Working Hours per day.

Out of the 133 dentists, the majority i.e., 100 dentists worked 6 days a week and only 17 dentists worked 7 days a week. The rest of the dentists worked either 5 days or less than 5 days a week. Figure 3 given below is the percentage distribution of the dentists based on their average monthly income.

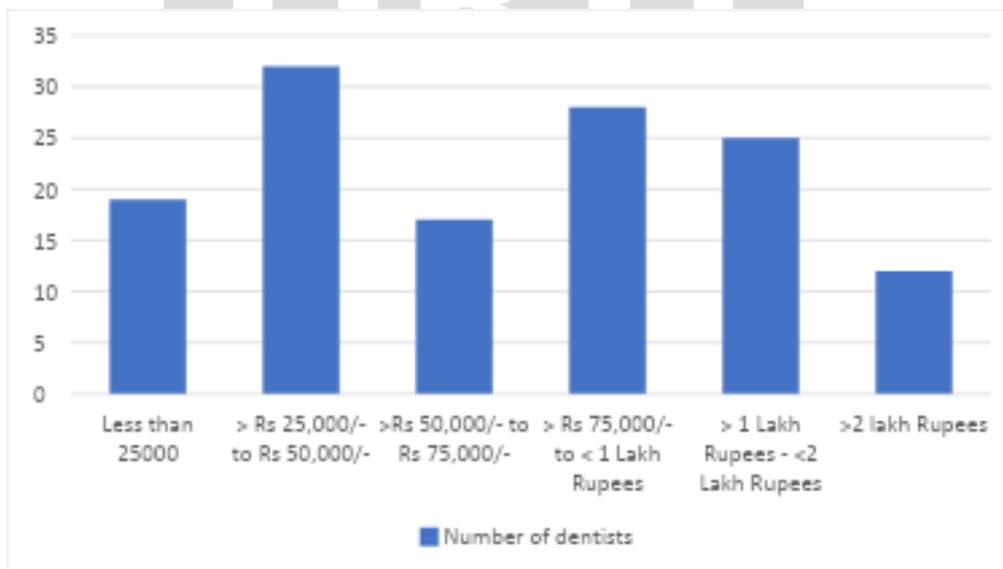


Fig 3. Distribution of Dentists based on their Average Monthly Income

**Burnout Scores Analysis and Results**

The burnout scores for individual dental practitioners were determined using the Burnout Assessment Tool (BAT-12), following the guidelines outlined in the Burnout Assessment Tool – User Manual. The total scores derived from the responses were divided by 12 to calculate the final BAT-12 scores, which ranged between 1.00 and 5.00. The total burnout scores were derived by adding the BAT-12 scores to the psychological distress complaints and the psychosomatic complaints scores. By dividing the total score by 22, the final burnout scores were obtained. Both the burnout scores and the total burnout scores were interpreted based on the reference scores as described in the BAT User Manual. These reference scores are described below in Table 3 and Table 4 respectively.

Table 3. Reference Score Ranges for Interpretation of Burnout Risk Score – Only BAT-12

Score range	Interpretation
1.00-2.53	"No burnout exists"
2.54 – 2.95	"Risk of burning out"
2.96 – 5.00	"Burnout most likely"

Table 4. Reference Score Range for Interpretation of Total Burnout Risk Score

Score range	Interpretation
1.00 - 2.58	"No burnout exists"
2.59 – 3.01	"Risk of burning out"
3.02 – 5.00	"Burnout most likely"

Note : Total Burnout risk score = BAT-12 + Psychological complaints score + Psychosomatic complaints score

Table 5 given below is the results of the descriptive statistics performed on the BAT-12 scores and the total burnout scores in terms of mean, median, mode, standard deviation, minimum score, maximum score and the range.

Table 5. Descriptive Statistics of BAT-12 Scores and Total Burnout Scores

Descriptive Statistics	BAT-12 Scores	Total Burnout Scores
Mean	1.98	2.08
Median	1.83	2.05
Mode	1.83	2.05
Standard Deviation	0.67	0.66
Minimum Score	1	1
Maximum Score	4.58	4.77
Range	3.58	3.77

By interpreting the BAT-12 scores and Total Burnout Scores (Table 3, Table 4 respectively), Table 6 given below is the distribution of dentists screened for burnout risk based on their individual scores.

Table 6. Distribution of Dentists by Burnout Risk Based on Individual Scores

Risk of Burnout	Total Number of Dentists	
	Based on BAT-12 Scores	Based on Total Burnout Scores
"No burnout exists"	112 (84.2 %)	108 (81.2 %)
"Risk of burning out"	7 (5.3 %)	15 (11.3 %)
"Burnout most likely"	14 (10.5 %)	10 (7.5 %)

Note. Numbers in the parenthesis indicated the percentage of dentists out of the total sample population i.e., 133 dentists.

### Results of Correlational Analysis

To further explore the potential factors contributing to burnout among dental professionals, a series of correlational analyses were performed. The objective of these analyses was to determine whether statistically significant relationships exist between burnout scores and various demographic and professional variables.

Burnout, as measured through both the BAT-12 and the Total Burnout Score (which includes psychosomatic and psychological distress components), was treated as the dependent variable in all analyses. Independent variables were selected based on their theoretical and practical relevance to occupational stress and included:

- Age of the dentist
- Specialization within dentistry
- Place of dental practice (urban, rural, or both)
- Ownership status of the dental practice
- Average number of clinical working hours per day
- Average monthly income

Each of these factors was hypothesized to potentially influence burnout levels, either by acting as a source of job-related stress or by modifying the individual's capacity to cope with such stress. By statistically evaluating the strength and significance of these relationships, this study aimed to shed light on the specific occupational and demographic profiles that may be more susceptible to burnout.

To test these relationships, one-way ANOVA was used for multi-group comparisons (such as age groups, income categories, and specialization types), while t-test was employed for binary comparisons (e.g., practice owners vs. non-owners). The results were assessed at a standard significance level ( $p < 0.05$ ), and findings were interpreted to inform future recommendations for intervention and support systems in the dental field.

Table 7 is the summary of the ANOVA correlations analysis done between total burnout scores and the five different factors.

Table 7. Summary ANOVA correlational analysis

Factor correlated with the total burnout score	Source of variation	Sum of Squares	Degrees of freedom	Mean Square	F-Statistic	p value
Age groups	Between groups	6.4637	8	0.8080	1.8709	0.0704
	Within groups	53.5518	24	0.4319		
	Total	60.0156	132			
Specialization of the dentist	Between groups	3.4397	9	0.3822	0.8344	0.5858
	Within groups	56.3367	123	0.4580		
	Total	59.7764	132			
Place of practice	Between groups	0.4584	2	0.2292	0.5084	0.6026
	Within groups	58.6117	130	0.4509		
	Total	59.0702	132			
Average working hours per day	Between groups	0.4257	2	0.2129	0.4719	0.6249
	Within groups	58.6445	130	0.4511		
	Total	59.0702	132			
Average monthly income	Between groups	4.7570	5	0.9514	2.2247	<b>0.0558</b>
	Within groups	54.3131	127	0.4276		
	Total	59.0702	132			

On examining the results of the statistical ANOVA correlational analysis factors such as age group, dental specialization, place of practice and average working hours per day did not have a statistically significant correlation with the total burnout score since the p-value is relatively higher than the assumed level of significance i.e., 0.05. However, on the correlational analysis performed between total burnout scores and the average monthly income, the p-value (0.0558) marginally exceeds the significance threshold of 0.05. This suggests that there is no statistically significant difference in burnout scores across average monthly income groups, though results are close to statistical significance.

Table 8 contains the results of a t-test comparing burnout levels between clinic owners and non-owners. This analysis explores how autonomy or ownership responsibilities affect burnout.

Table 8. *t*-test: Two-Sample assuming unequal variances

	Yes	No
Mean	1.8762	2.1127
Variance	0.3826	0.4990
Observations	71	62
Hypothesized Mean Difference	0	
df	122	
t Stat	-2.0407	
P(T<=t) one-tail	0.0217	
t Critical one-tail	1.6574	
P(T<=t) two-tail	0.0434	
t Critical two-tail	1.9796	

T Stat: In both tests, t Stat values were negative (-2.04066 and -2.05912), reflecting that clinic owners have significantly lower burnout scores compared to non-owners.

P-Values:

- One-tail test: p-values were 0.021721 and 0.020732, both less than the common threshold of 0.05, indicating statistical significance.
- Two-tail test: p-values were 0.043442 and 0.041464, also below the significance threshold, reinforcing this finding.

Critical Values:

Both t Stat values fall outside the critical ranges for one-tail and two-tail tests, further validating the statistical significance. Since the p-values are less than the significance threshold of 0.05, the null hypothesis is rejected. The results demonstrate that clinic owners experience significantly lower burnout scores on average compared to clinic non-owners. This suggests a potential statistically significant relationship between clinic ownership status and burnout levels.

## VI. DISCUSSION

The aim of this study was to evaluate the presence of burnout amongst professional dental practitioners. This study was designed to use Burnout Assessment Tool – Work-Related Short version questionnaire as the means of collecting the data. The data collected by online survey method was also used to test the hypotheses if there was any correlation between burnout scores and demographic factors such as age of the dentist or work-related factors such as dental specialization, place of dental practice, clinic ownership, average working hours per day and average monthly income.

The results of the study prove that a very small portion of the sample population are either experiencing burnout or at a high risk of experiencing burnout which is determined by the BAT-12 and the total burnout scores. This is indicated by 5.3 % and 11.3 % of the 133 dentists whose burnout scores (BAT-12 and Total burnout scores) are interpreted as “Risk of burning out”, while 10.5 % and 7.5 % of the same population belong to the “Burnout most likely” category. This finding is consistent with other studies in literature, including the study by P.V Jugale and others, who identified high burnout in 5.15% of the 67 dentists surveyed [13]. Similarly, the systematic review and meta-analysis conducted by J Da Silva Moro et al. identified the overall prevalence of burnout in dentists to be 13% (95% confidence interval [CI]: 0.006–0.21;  $I^2 = 97.07%$ ) [16].

In addition to the evaluation of burnout and the burnout risk categorization based on the burnout scores, the study also attempted to verify if there was any correlation between demographic factors as well as work-related factors and the burnout scores. Firstly, when evaluating the correlation between the chronological age of dental practitioners and burnout scores, no statistically significant correlation was identified. This is in contrast to the findings by M. Jin, S. Jeong, E. Kim, Y. Choi, and K. Song [15] who reported higher burnout rates in younger Korean dentists. Similarly, in a 2022 study involving a survey of 1,298 Spanish dentists using the MBI-HSS scale, C. Gómez-Polo, A.M.M Cascado, and J. Montero identified statistically significant differences ( $p < .001$ ) in the Emotional Exhaustion and Depersonalization dimensions of burnout, demonstrating an inverse relationship: the younger the age, the higher the score for the dimension in question[9].

In the evaluation of the correlation between work specialization and burnout score, no statistically significant association was identified between a dentist’s work specialization and burnout score/risk. This finding contrasts with the results of the study performed by Asali and colleagues in 2021, whose study on 278 dentists revealed that among various dental specialties, prosthodontists and endodontists exhibited a higher prevalence compared to other specialties ( $p < .05$ ) [17].

There is no statistically significant difference in burnout levels among dental practitioners based on whether they perform clinical work in urban, rural, or mixed settings. This suggests that the place of dental practice does not influence burnout scores or the burnout risk experienced by dentists. However, Gómez-Polo and colleagues. found that Emotional Exhaustion dimension scores were higher for those working in rural settings (70.1%) than for those working in urban settings (59.9%), indicating that the place of practice may have some impact on burnout experienced by dentists [9].

Meanwhile, it has been observed that clinic ownership is significantly correlated with burnout scores. A two-sample t-test assuming unequal variances revealed a statistically significant difference in burnout scores between clinic owners ( $M = 1.88$ ,  $SD = 0.62$ ) and non-owners ( $M = 2.11$ ,  $SD = 0.71$ ),  $t(122) = -2.04$ ,  $p = .043$ . One-tailed t-tests performed on the burnout scores between clinic owners and non-owners showed p-values of 0.021721 and 0.020732 (both below the threshold of 0.05). Similarly, two-tailed t-test p-values were 0.043442 and 0.041464 for clinic owners and non-owners, respectively. These findings suggest that clinic owners experience less burnout due to factors such as autonomy, control over dental practice, better financial incentives, stronger sense of purpose, and better support systems through delegation of work to other professionals and specialists, reducing workload and job-related stress. The findings in this study are in lieu with those of another study which noted that Emotional Exhaustion dimension scores of the MBI-HSS were higher for dental clinic non-owners (65.6%) compared to clinic owners (58.3%) [6].

Conversely, there was no correlation identified between the average working hours of dental professionals and their burnout scores. However, other studies, such as that of P.V. Jugale and colleagues [13], reported significant Emotional Exhaustion scores among dentists working longer hours. Similarly, S. Kulkarni et al. (2016), in their survey of 97 dentists, found that 46.8% of respondents reported that "every working hour was tiring" as a factor contributing to professional burnout. Gómez-Polo et al. (2022) also observed a direct relationship between Emotional Exhaustion dimensions of burnout and clinical working hours [9]. Regarding average monthly income, no statistically significant relationship was found between burnout scores across salary groups, though results approached statistical significance ( $p = .0558$ ). Further verification through larger sample sizes representing the population is required.

The findings of this study provide a comprehensive overview of burnout levels among dental professionals, highlighting key demographic and occupational trends. While most participants were categorized as not experiencing burnout, a notable proportion showed signs of being at risk or already experiencing high levels of burnout. Correlational analyses revealed that most demographic and work-related factors, including age, specialization, place of practice, working hours, and income—did not show statistically significant associations with burnout. However, practice ownership emerged as a significant factor, with clinic owners reporting lower burnout scores compared to non-owners. These insights set the stage for further interpretation and discussion in the following section, emphasizing the importance of workplace dynamics, autonomy, and support systems in mitigating burnout in dental practice.

Burnout among dental professionals is a multifactorial phenomenon influenced by a complex interplay of psychological, social, economic, and workplace-related factors. The results of this study not only provide valuable insight into current trends but also reflect the broader occupational health landscape for dental practitioners, both locally and globally. The relatively low burnout prevalence identified in this sample suggests that while most dentists may have developed coping strategies or operate in relatively balanced work environments, a vulnerable subset remains at risk and requires targeted attention.

One important consideration is the evolving nature of dental practice itself. Technological advancements, changing patient expectations, administrative burdens, and increased competition all contribute to the shifting stress landscape. These evolving pressures, combined with traditionally known stressors such as time constraints, patient anxiety, and perfectionism inherent in clinical dentistry, may influence burnout risk in ways that are not always immediately apparent through surface-level demographic analysis.

Furthermore, burnout is not merely an outcome of work-related stress but also a reflection of internal resources and resilience. Individual psychological traits, social support systems, and access to mental health resources are likely to modulate how dental professionals perceive and respond to stressors. Thus, the absence of statistically significant associations in many areas of this study should not negate the subjective experience of stress or its potential cumulative effects over time.

It is also crucial to recognize that burnout can manifest subtly and progressively. Even when statistical correlations are not significant, qualitative differences in professional engagement, satisfaction, and overall well-being may still be present. Longitudinal research may better capture the delayed or compounding impact of chronic stress, particularly in those who remain in high-demand roles over extended periods.

Another key observation from this study is the significant association between clinic ownership and reduced burnout. This highlights the potential protective role of professional autonomy, decision-making authority, and perhaps a greater sense of purpose or ownership satisfaction. Future research should explore these aspects in more detail to determine whether similar protective factors can be cultivated or emulated in non-owner settings.

In addition, although income was not significantly correlated with burnout in this study, the near-threshold p-value suggests this factor may warrant further exploration. Financial stress, especially when coupled with high professional demands, can be a potent contributor to emotional exhaustion. Other variables such as debt burden, lifestyle expectations, or discrepancies between effort and reward could also be examined.

Lastly, a broader psychosocial framework may be useful in guiding future inquiry. Factors like work-life balance, collegial support, mentorship availability, and workplace culture are all important dimensions of the burnout experience. Expanding the scope of research to include such variables could provide a more nuanced and actionable understanding of burnout in dentistry.

## VII. LIMITATIONS OF THE STUDY

This study has some limitations which might have affected the results of the study. The limitations are as follows:

- The size of the sample may challenge the generalization of the results.

- The factors related to clinic ownership that might have contributed to the significant relationship between burnout scores and clinic ownership were not explored.

## VIII. SUMMARY

This study aimed to assess burnout among professional dental practitioners. To collect data, the Burnout Assessment Tool – Work-Related (BAT-12) Short Version questionnaire was utilized. The online survey method gathered data to explore potential correlations between burnout scores and various demographic factors, including the age of dentists, as well as work-related variables such as dental specialization, practice location, clinic ownership, average daily working hours, and monthly income. The total scores from the Burnout Assessment Tool were computed and interpreted in accordance with the established guidelines.

A descriptive analysis of the BAT-12 scores, along with the overall burnout scores, were conducted using standard statistical methods. Hypotheses were tested using correlation. The study identified the presence of burnout as well as the existence of the risk of potential burnout amongst the dental practitioners. There is a statistically significant relationship between clinic ownership and burnout scores but the same is not seen when considering other factors such as the age of the dentist, dental specialization, average working hours, place of dental practice and the average monthly income.

## IX. CONCLUSION

In conclusion, this study highlights the prevalence and risk of burnout among dental practitioners, emphasizing the need for further interventions to address this issue. The findings suggest that clinic ownership is a significant factor associated with burnout, while other factors such as age, dental specialization, average working hours, practice location, and monthly income do not show a statistically significant correlation.

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