Evaluating the Impact of Depression, Anxiety, Occupational Stress and its Related Factors on Sleep Quality among Dental Practitioners in Madurai City – An Analytical Cross Sectional Study

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Abstract:-

> Background:

The field of dentistry is renowned not only for its intricate nature and professionalism but also high stress that permeating into realm of sleep health with serious mental health.

➤ Aim:

This study aimed to assess the prevalence of occupational stress and to explore the dynamics linking occupational stress and sleep disturbances among dental practitioners.

> Materials and Methods:

An online survey among 181 dentists was conducted in Madurai city using mini dass-12 item scale, modified 19 occupational stressors under 5 categories (cronbach's α -0.93, CVI -0.96), coping strategies and the Pittsburgh Sleep Quality Index (PSQI) and sociodemographic characteristics of the respondents was also collected. Chi square test and binary logistic regression was used to evaluate the effect.

> Results:

The prevalence of overall poor sleep quality was 65.7% which was high among anxious(49.6%,) and stressed(35.9%) population. The global PSQI score were

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found to be associated with anxiety and stress. Patient related stressors like coping with uncooperative patient,time related stressor like long working hours,workload pressure,taking only few breaks,income related factors like insufficient money after all expenses,job stressors like health impact, staff problems and coping strategies like self situation control, doing exercise,yoga and planning social gathering were also found to have statistically significant impact on sleep quality

> Conclusion:

This study throws light on the fact that various mental health states ,certain stress factors and some coping strategies undergone among dental professionals was linked to their quality of sleep.

Keywords:- Stress, Depression, Anxiety, Dental Practitioners, Mini DASS, Pitsburg Sleep Quality Index, Sleep).

I. INTRODUCTION

Mood disorders, such as depression, anxiety, and stress, are commonly associated with symptoms including despair, anhedonia, excessive worrying, and physiological hyperexcitability. These illnesses are on the rise. The prevalence statistics show that at some time in their life,

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20.6% and 33.7% of people, respectively, had suffered from serious depression and anxiety. Individuals' working environments were made worse by these circumstances. The lives of those affected by mood disorders are negatively impacted. For instance, there is an increase in suicidal thoughts and attempts in those who suffer from depression[1]. While it has advantages and disadvantages, work-related stress is a normal occurrence that develops as a psychological reaction to an outside circumstance. Eustress, a term for positive stress, is different from the negative kind of stress known as distress because it encourages people to deal with difficulties and can even have a positive impact[2]. Chronic stress, which can have a significant impact on the body, is caused when people are subjected to stressors on a with little time for recovery regular basis in between[3].George et al. define stress as a biological reaction to any negative internal or external stimulus (physical, mental) that tends to disrupt the homeostasis of the organism. According to the World Health Organization, occupational stress is the 21st-century global health epidemic. According to the Health and Safety Executive, stress was the cause of 49% of all missed workdays in 2016–2017 and 40% of all work-related illnesses. This is predicted to cost society 5.2 billion year, or 12.5 million working days. Importantly this could be a scenario among workers in health care sector especially the dental profession when coming to patient care^[4].

Numerous studies conducted worldwide have highlighted the prevalence of stress among dental practitioners. For example, a systematic review published in the Journal of Occupational Health in 2018 found that the prevalence of occupational stress among dentists ranged from 15% to 66%, with variations observed across different countries and regions[5].In India specifically, a study published in the Indian Journal of Dental Research in 2018 reported that 80% of dental professionals surveyed experienced moderate to severe stress. Similarly, research conducted in other countries, such as the United States, United Kingdom, Australia, and European nations, has consistently shown elevated levels of stress among dental practitioners. Low self-esteem, exhaustion, and issues with appetite and sleep are some examples of psychological indicators of distress; physical effects might include migraines, aches in the muscles, high blood pressure, and a higher risk of cardiovascular disease and other illnesses; and both physical and psychological symptoms can be persistent. Excessive stress can also cause or worsen maladaptive behaviors like substance abuse, smoking, overeating, and drinking too much alcohol[6].Statistics on dentistry and cardiovascular disease, alcoholism, drug abuse, divorce and elevated rates of suicide suggest that the typical life of a general dental practitioner (GDP) is a stressful one[7].

Dental professionals encounter a variety of stressors in the course of treating patients on a daily basis and in the course of performing various dental tasks. Most dentists are perfectionists who become easily agitated when the ideal therapeutic outcome is not achieved. Major stress factors also include the responsibility of meeting the high aesthetic standards of patients and their unwavering desire for technical perfection. Since they were in dental college, a sizable portion of dentists have suffered from obsessive and compulsive behaviors. Their behavioral patterns are demanding and they have unrealistic excessively expectations. Dentists appear to be more susceptible to stress due to the unique nature of the professional dental environment. Dentists must focus on a tiny oral cavity in a cramped, confined workspace while working for extended periods of time in an uncomfortable position. It is typically common to be isolated from other dentists. They also struggle with time constraints and money concerns. They have to work in an uncomfortable environment with loud noises and dust from dental materials while doing multiple tasks at once during dental treatment. One of the things that stresses out dentists about their jobs is disagreements with dental assistants. Significant stressors include anxious or difficult patients, staff issues, equipment breakdowns, defective materials, unfavorable working conditions, medical emergencies in the surgery, and the routine nature of the work. Other significant stressors include difficult patients with unrealistic expectations and uncooperative attitudes, as well as dentists' constant drive for technical perfection and knowledge[8].

Nelson et al. define sleep quality as individual satisfaction with all aspects of sleep, namely efficiency, latency, duration, and awakening from sleep. Four aspects affect sleep: physiological, psychological, environmental, and a combination of all aspects. High levels of anxiety and perceived stress can cause inadequate or poor quality sleep. Stress and anxiety can have a detrimental effect on health outcomes through inadequate and poor-quality sleep, which is a risk factor for many chronic diseases in and of itself. In other words, sleep issues arise before elevated stress. Stress appears to reduce sleep efficiency, increase awakenings, and decrease restorative sleep phases, such as rapid eye movement and slow wave sleep. Just like with perceived stress, difficulty sleeping usually comes before increased anxiety[9,10].

Despite this, there is an inbuilt human's natural phenomenon of making cognitive and behavioral efforts necessary to manage and control environmental external or internal demands that are perceived as negative or stressful to one's resources. Coping can be defined as the set of cognitive and/or behavioral processes that a person uses to reduce, minimize, tolerate, or control different stressful situations with the aim of managing internal and external or environmental demands in the best possible way[11].

Most studies of professional problems among dentists have been conducted in countries with sophisticated professional systems and highly organized dental care markets. Little information has been gathered from countries with emerging professional structures and unequal levels of development especially in India. Madurai city was chosen Since there present a research gap in this area of research in south Indian settings and examining dentist stress in Madurai can offer valuable insights into the challenges faced by dental professional in evolving urban environments. Assessing the prevalence of stress, depression, anxiety level and poor sleep

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quality among dental practitioners alone is a reductionist idea when one could not identify what causes it and the role of self-moderating behavioural practices. There arises the need for identifying the different pattern of stress challenges faced, their inherent coping behaviour and exploring the dynamic linking the stress and other mental distress, stress factors, coping strategies to the sleep quality among dental practitioners in south Indian scenario. The study proceeds with the hypothesized statement that "There is an association between occupational stress, potential stress factors, coping strategies with sleep quality among dental practitioners"The aim of the study is to assess the prevalence of depression, anxiety, occupational stress and its related factors and its association with sleep quality among dental practitioners in Madurai city.

II. MATERIALS AND METHODS

A. Methodology of the Study

An online cross sectional analytical study was conducted among dental practitioners in Madurai city through google forms. The study was conducted during the period of January 2024 to February 2024. The study was performed after getting approved by the Best dental science college-Institutional ethical Committee (Approval number: BDSC-IEC/2024/MAY/P-18) and follows STROBE Guidelines for cross sectional studiesThe inclusion criteria includes Dentist of age 23 years and above ,who are willing to voluntarily participate ,those working in all practice settings (own clinic, employed, consultant) regardless of experience. The exclusion criteria includes dentist who are academicians only,non practicing dentist,dentist who are undergoing postgraduation courses.

Based on the results of the pilot study conducted, the sample size was estimated using the formula, Sample size, n = $(Z_{\alpha/2}+Z_{\beta})^2\sigma^2r^2/L^2\beta^2$ Where $Z_{\alpha/2}$ = Its standard normal variate (at 5% type 1 error(p<0.05), it is $1.96Z_B = 0.84$ at 80% power. Standard deviation, $\sigma = 2.09$, Variance, $\sigma^2 = 4.368$ Correlation coefficient, r =0.8, Margin of the error, L =10% of the variance = 0.436. The sample size was estimated to be 181.Convenient sampling method was employed for entering study participants. Before recruiting the questionaire, the participants accepted an informed consent that explained that they were participating voluntarily and anonymously. It was emphasized that full confidentiality would be upheld at all times and that no names or other identifying information would be included in the study's report.

B. Construction of Questionnaire

The questionnaire was designed with four sections with section -1 consisting of sociodemographic and work characteristics. Section-2 consisting of Mini DASS -12 item scale to assess the prevalence of depression, anxiety and stress level. Section -3 consisting of modified occupational stressor -19 items to assess the prevalence and frequency of the potential stress factors that were faced in daily work basis, self-perceived job stress level and 10-stress coping strategies. Section -4 consisting of sleep quality assessment using Pittsburgh sleep quality index. All the measurement scales except modified occupational stressors-19 items were pre validated. The modified occupational stressors -19 items was a modified scale from occupational stressors-33 items researched by H.B Choy et al,2017. which was modified based on south Indian practice setting and prevailing factors for this study situations.

C. Questionaire Validity and Reliability Testing for Modified Occupational Stressors -19 Items

Face validity of the questionnaire was tested by an expert panel. The modified occupational stressors scale containing 19 items were provided to 4 subject matter experts. The CVR value for modified occupational stressors - 19 items were estimated to be 0.96 that implies excellent content validity. Using modified occupational stressors -19 items scale response provided by 15 subjects participating in the pilot study, the internal consistency was assessed by Cronbach's alpha. The values obtained was 0.93 respectively and was found to be very reliable.

D. Data Collection using Questionaire

The data collected was primary source of data and were collected using google survey forms.

> Assessment of Sociodemographic & General Information:

The sociodemographic and general information of the participants such as age, gender, monthly income, alcohol consumption, smoking status, years of practice, type of practice, location, hours of work per week, educational qualification, specialization, marital status, working status of spouse, number of children, religious beliefs were collected.

Assessment of Depression, Anxiety, Stress among Dental Practitioners:

A shortened version of the DASS using 12 items given by Osman et al., 2012[1]was used to measure the level of depression, anxiety, stress among dental practitioners. This scale contains 3 parts-depression, anxiety and stress and each part contains 4 items. Participants were asked to rate each statements on a 4-point likert scale as 0=Did not apply to me at all, 1=Applied to me to some degree, or some of the time, 2=Applied to me to a considerable degree, or a good part of time, 3=Applied to me very much, or most of the time). To arrive at final interpretation score of DASS-42,DASS-21 scale was proposed to be multiplied by 2.Similar to it ,in this DASS -12 scale,the score for each item was to be multiplied by 3.5 to obtain the interpretation so that each part has a score range from 0 to 42. The depression,anxiety,stress score was interpreted as in table 1.

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Table 1 DASS	Scale Interpretation	
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	Depression	Anxiety	Stress
0-Normal	0-9	0-7	0-14
1-Mild	10-13	8-9	15-18
2-Moderate	14-20	10-14	19-25
3-Severe	21-27	15-19	26-33
4-Extremely severe	28-42	20-42	34-42

> Assessment of Potential Occupational Stressors

The occupational stressors -33 item by HB Choy et al,2017[12]was modified in this study according to south Indian practice setting into modified occupational stressor - 19 in 5 domains like patient related stressors, time related stressors, income related stressors, job related stressors and staff related stressors. Participants were asked to rate the frequency of exposure to stress factors on a 5-point likert scale as 0=never,1=rarely,2=sometimes,3=often and 4=always.

> Assessment of Self-Reported Perception of level of Stress:

Practitioners were also asked to self-rate their level of perception of stress from their profession as 0=not at all stressful,1=little stressed,2=moderately stressed and 3= extremely stressful.

➤ Assessment of Stress Coping Strategies:

Based on the work by Cooper et al[12],10 stress-coping strategies of dentists were included and the participants were asked to choose as many strategies that they were indulged in.

➤ Assessment of Sleep Quality:

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) for assessing seven factors of sleep quality including subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction. It uses a 4point Likert scale (0-3) where the scores from each component are summed to generate a global score (0-21).A global PSQI score greater than 5 indicates poor sleep quality and was categorized as <5 score -good quality sleep(=0) and >5 score - poor quality sleep(=1)[13].

> Statistical Analysis

The data collected will be compiled and analyzed using IBM SPSS software version 20.Descriptive statistics was used to provide frequency distribution of characteristics of study participants.Chi square test was used for testing association between independent variables and the dependent variable which are of categorical type.Binary logistic regression was used to model the relationship between a set of independent variables and a binary dependent variable.

III. RESULTS

A total of 181 response were obtained from dental practitioners.

> Demographics

The demographics of the respondents are shown in Table 2. Majority of the participants in this study belongs to 25-34 years age group(70.2%),females (66.9%),less than 5 years of practice(85.6%),own clinic practice(35.8%),clinic employed dentist (33.2%),less than 48 hours of working per week(49.2%),unmarried(64.1%),clinic located in urban area(51.4%) and of commercial nature (59.2%), owns BDS degree(55.2%),monthly income less than 50,,000(73.5%), general dental practitioner(54.1%),having religious belief (75.1%).

Variables	Category	Percentage (n)
Age	<25 years	25.4% (46)
	25-34 years	70.2% (127)
	35-44 years	3.8`% (7)
	45-54 years	0.6% (1)
Sex	Male	33.1% (60)
	Female	66.9% (121)
Years of practice	<5 years	85.6% (155)
	5-10 years	11.1% (20)
	>10 years	3.3% (6)
Type of practice	Own clinic	35.8% (65)
	Consultant	7.2% (13)
	Multispeciality	6.6%(12)
	Clinic employed dentist	33.2% (60)
	Clinician+academician	4.4% (8)
	Consultant+ academician	6.6% (12)
	Clinician +consultants	6.2% (11)
Working hours/week	<48 hrs	49.2% (89)
	48-72 hrs	39.8% (72)

Table 2 Demographic Characteristics of the Population

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	>72 hrs	11% (20)
Marital status	Married	35.9% (65)
	Unmarried	64.1%(116)
Location (place)	Rural	48.6%(88)
	Urban	51.4%(93)
Location (nature of area)	Commercial	59.2%(107)
	Residential	40.8% (74)
Educational qualifications	BDS	55.2% (100)
	MDS	38.1% (69)
	Doctorate	2.3% (4)
	FDS	3.3% (6)
	others	1.1%
Monthly income	<50,000	73.5% (133)
	50,000-11akhs	18.8% (34)
	>1 lakhs	7.7% (14)
Speciality	General practitioners	54.1% (98)
	Oral medicine& radiologist	4.4% (8)
	Public health dentistry	8.3% (15)
	Periodontics	2.3% (4)
	Oral & maxillofacial surgery	7.7% (14)
	Oral pathologist	6.6% (12)
	Prosthodontics	2.3% (4)
	Pedodontics	4.4% (8)
	Endodontist	4.4% (8)
	Orthodontist	5.5% (10)
Spouse working	working	34.3%(62)
	Not working	1.6%(3)
	No spouse	64.1%(116)
No of childrens	No children	18.2%(33)
	Have children	17.7% (32)
	others	64.1% (116)
Religious belief	Has belief	75.1% (136)
	No belief	24.9%(45)

Depression, Anxiety, Stress

The prevalence of depression was found to be 59.1% with severe and extremely severe depression present among 12.2% and 9.9% of the population. The prevalence of Anxiety was found to be 64.1% with severe and extremely

severe anxiety present among 10.5% and 21% of the population. The prevalence of stress was found to be 45.9% with severe and extremely severe stress present among 10.5% and 7.8% of the population as shown in table 3.

Table 3 Frequency	Distribution of Participants a	t Different levels of Severit	v of Depression, Anxiety, Stress
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Levels of Severity	Depression	Anxiety	Stress
Normal	40.9%(74)	35.9%(65)	54.1%(98)
Mild	17.1%(31)	0	11%(20)
Moderate	19.9%(36)	32.6%(59)	16.6%(30)
Severe	12.2%(22)	10.5%(19)	10.5%(19)
Extremely severe	9.9%(18)	21%(38)	7.8%(14)

Potential Occupational Stessors

Prevalence and frequency of exposure to various potential occupational stressors among dental practitioners were given in supplementary table 1.

Insufficient money in hands (44.8%) was the most prevalent one followed by uncertainty about future (38.7%),cost variations among clinic(34.8%),inability to meet expectation(34.3%),conflict b/w profit need& professional ethics(33.1%) were also commonly & most frequently encountered ones. (To Note: % was obtained on adding both 'often' and 'always' category since these categories denotes its chronicity and major impact.

Coping Strategies

Prevalence of different stress coping strategies undergone by the population were given in supplementary table 2. Among the 10 stress coping strategies, Seek support and advice (eg spouse, friends, and colleagues) was found to be the most undertaken stress coping strategy (81.3%) among the dental practitioners followed by Social gathering (43.6%), Avoiding the stressful situation (41.4%), yoga practice

(40.9%), pursue outside interests(38.1%), Try to control one's own working situation / condition(35.4%) etc.

Association between Participant Demographics and Sleep Quality

Spouse working was found to be associated with poor sleep quality with chi square value of 6.570 and was statistically significant (p value-0. 037). The proportion of population with poor sleep quality whose spouse were working was found to be 24.3% and in unmarried population, it was 41.4% All other demographic variables provided in supplementary table 3 doesn't seems to be associated with poor sleep quality in this study.

Association between Depression, Anxiety, Stress with Sleep Quality

Anxiety and stress was found to be associated with poor sleep quality with chi square value of 20.747 and 15.003 and was statistically significant(p value <0.05) as given in supplementary table 4.The overall proportion of poor sleep quality among anxious population was 49.7% and among severely and extremely anxious population, it was 8.8% and 16.6% respectively. The overall proportion of poor sleep quality among stressed population was 35.9% and among severely and extremely stressed population, it was 8.3% and 6.6% respectively. Depression was not found to be associated with poor sleep quality in this study.

Association between Various Potential Occupational Stressors with Sleep Quality (Supplementary Table 5)

Patient related stressor such as Coping with difficult or uncooperative patients, time related stressor such as Workload pressure, Maintaining high levels of concentration for long periods with few breaks, income related stressors such as Conflicts between profit needs and professional ethics, Variation in treatment cost among clinics, Insufficient money in hand after all work expenses and staff salaries, job related stressors such as Health impact like fatigue or musculoskeletal pain, staff related stressors such as Staffrelated problems (absenteeism, personal friction) was found to be associated with sleep quality. The proportion of poor sleep quality among frequently (often & always category)exposed to stressor "Coping with difficult or uncooperative patients" was found to be 15.5%. The proportion of poor sleep quality among frequently (often & always category)exposed to stressor "Workload pressure" was found to be 24.3 %. The proportion of poor sleep quality among frequently (often & always category)exposed to stressor "Maintaining high levels of concentration for long periods with few breaks" was found to be 14.9 %. The proportion of poor sleep quality among frequently (often & always category)exposed to stressor "Conflicts between profit needs and professional ethics" was found to be 22.6 %. The proportion of poor sleep quality among frequently (often & always category)exposed to stressor "Variation in treatment cost among clinics" was found to be 26.5 %. The proportion of poor sleep quality among frequently (often & always category)exposed to stressor "Insufficient money in hand after all work expenses and staff salaries" was found to be 33.7%. The proportion of poor sleep quality among frequently (often & always category)exposed to stressor "Health impact like fatigue or musculoskeletal pain" was found to be 24.3%. The proportion of poor sleep quality among frequently (often & always category)exposed to stressor "Staff-related problems (absenteeism, personal friction)" was found to be 11.1%. All other stressors were not found to be associated with sleep quality.

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Association between Self Rated Stress level with Sleep Quality (Supplementary Table 6)

The self perceived rating of stress level was found to associated with sleep quality and was found to be statistically significant with p value < 0.05. The overall proportion of poor sleep quality among stressed population was 64.1% and among extremely stressed self rated population, it was found to be 13.3% respectively.

Association between Various Stress Coping Strategies with Sleep Quality (Supplementary Table 7)

Strategies like "Try to control one's own working situation / condition", "Social gathering"were found to be associated with sleep quality and was statistically significant with p value <0.05.The proportion of good sleep quality among those undertaken the strategy like "Try to control one's own working situation / condition" was 16%. The proportion of good sleep quality among those undertaken the strategy like "Social gathering" was 18.8% respectively.

Table 4 showing binary logistic regression analysis model of sleep quality for all measured variables. It was found that the dental practitioners who were often exposed to staff related problems were having higher chance of getting poor quality of sleep (OR =49.38).The dental practitioners who had self rated the job to be little stressful and moderately stressful were having lesser chance of getting poor sleep quality with Odd ratio of 0.007 and 0.074.The dentist whose spouse were working were at higher risk of getting poor sleep quality with odds ratio of 9.463.The dentist who rarely and always encountered with Coping with uncooperative patient were having higher risk of getting poor sleep quality with odds ratio of 1068.6 and 97.5 respectively.

IV. DISCUSSION

Employment can act as a source of meaning and purpose in one's life. However, if you are in a job where you feel you are not appreciated or valued, it may call into question the belief that what you are doing is worthwhile. An Australian report shows that the amount spent on mental health services has gone up over the last few years, coming to a total of about \$9 billion. More significantly, compared to other professions, the medical and healthcare industries have a notably higher cost and volume of workers' compensation claims related to stress and stress-related mental disorders. As the prevalence of mental health disorders increases within the profession so too will the economic, social, and individual impacts of these disorders[6]. There seems a trend of increased occupational stress among dental practitioners. It is suggested that the high levels reflect the current state of dentistry. These were seem to be due to changing trends in technology and the resultant challenges faced every day. These factors not only limits to psychological domain but

also had a remark on one's behaviour and biological mechanism and were reported to have direct link on one

'sleep quality since sleep is an essential function for various bodily regulations[2,14]

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Fable 4 Bina	y Logistic	Regression	analysis	Model	of Sleep	Quality for	Independent	Variables
	5 0	0	2		1		1	

Independent		В	S.E.	Wald	df	Sig.	Exp(B)	95% C.I	.for EXP(B)
variables								Lower	Upper
Staff related	rarely	.534	1.128	.224	1	.636	1.705	.187	15.556
problems	sometimes	.332	1.094	.092	1	.762	1.393	.163	11.886
	often	3.900	1.314	8.813	1	.003*	49.385	3.762	648.261
	always	.680	1.390	.239	1	.625	1.974	.129	30.082
Selfrate	Little stressed	-4.988	1.480	11.353	1	.001*	.007	.000	.124
	Moderately	-2.607	1.218	4.582	1	.032*	.074	.007	.803
	stressed								
	Extremely	-2.379	1.375	2.992	1	.084	.093	.006	1.372
	stressed								
Spousework	working	2.247	.666	11.404	1	.001*	9.463	2.568	34.877
	Not working	-43.296	19956.360	.000	1	.998	.000	.000	
Anxiety	mild	-1.147	.793	2.093	1	.148	.318	.067	1.502
	moderate	.978	.841	1.351	1	.245	2.659	.511	13.828
	severe	1.651	1.219	1.834	1	.176	5.212	.478	56.855
Coping with	rarely	6.974	2.228	9.801	1	.002*	1068.697	13.571	84159.334
uncoopearative	sometimes	2.898	1.516	3.654	1	.056	18.141	.929	354.228
patient	often	2.295	1.543	2.213	1	.137	9.925	.482	204.175
	always	4.580	1.770	6.692	1	.010*	97.514	3.034	3133.722
Work pressure load	rarely	-20.682	6423.279	.000	1	.997	.000	.000	
	sometimes	-19.469	6423.279	.000	1	.998	.000	.000	
	often	-20.559	6423.279	.000	1	.997	.000	.000	
	always	-19.194	6423.279	.000	1	.998	.000	.000	

Note: Binary logistic regression with stepwise forward wald function performed,S.E-standard error,df- degree of freedom,C.Iconfidence interval,* -statistically significant(p value<0.05)

This study was done to assess the prevalence of various mental health states like depression, anxiety, stress, poor sleep quality and the prevailing stress factors, coping mechanism undertaken and also to explore the relationship between these mental health states and its related factors on sleep quality among dental practitioners in Madurai city. The study was conducted among dental practitioners aged above 23 years since 23 is the age at which there is a transformation from dental student to dental practitioners and the period where the expectations and realities hits different, where one faces all kind of challenges and acquire mixed emotions at different threshold level. Majority of study participants falls in the age range of 25-34 years (70.2%) which implies the dentist in the early phase of the career and beginning of evolutionary phase.Similar to it, the study done by Dalho et al. in 2021 had more proportion of young aged practitioners(50%)[10].In contrast to it, study conducted by Avers et al, in 2008[15] and collins et al in 2019[4] had equal age proportion of dentist. Females were found to be higher(66.9%).A similar scenario found in study by collins etal,2019[4],Dalhon et al,2021[10].In contrast to it,Males showed more participation in study by Ayers et al,2008[15],HB Choy et al,2017[16].Majority of the population had less than 5 years of practice experience(85.6%).A similar pattern was observed in research by Ashish Dwivedi et al,2016[17].Dentist working in his own clinic(35.8%) and clinically employed dentist(33.2%) were higher. A similarity of more own clinic participated in study by practitioners song et

al,2017[18].Dentist working for less than 48 hours were higher(49.25%).which was in line with study by H.LMyers et al,2004[7].Majority of them were unmarried(35.9%).This was in contrast with study by song et al,2017[18],HB Choy et al,2017[16].Most of the practitioners work in urban setting(51.4%) and of commercial nature(59.2%) as similar in study by HB Choy et al. 2017[16]. Majority of them had BDS qualification(55.2%).Dentist earning monthly income of less than Rs 50,000 were higher(73.5%). Majority of them were General dental practitioners(54.1%). Majority of them had religious belief(75.1%) which was contrast to study by HB Choy et al,2017[16]. The difference in participation was based on individual's interest and lack of time despite their work schedules. Smoking and alcohol consumption were not adequately reported by participant in this study. Although study by song et al,2017[18] and 2019[2] shows high proportion of such behaviour among dentist.

The diagnosis of depression or anxiety is associated with several symptoms that often overlap, the DASS scale seems to a distinct tool to separately assess each factors. Since they encompass seven facets of depression (dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest, anhedonia, and inertia), four of anxiety (autonomic arousal, skeletal musculature effects, situational anxiety, and subjective experience of anxious affect), and five stress facets (difficulty relaxing, nervous arousal, easily upset, irritable, and impatient[1].

improve their well being.

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assessed among the individual. Among the 10 stress coping strategies, Seek support and advice (eg spouse, friends, and colleagues) was found to be the most undertaken stress coping strategy (81.3%) among the dental practitioners followed by Social gathering(43.6%), Avoiding the stressful situation(41.4%),yoga practice(40.9%), pursue outside interests(38.1%), Try to control one's own working situation / condition(35.4%) etc. The most undertaken activity was believed to help individual to manage stress effectively and

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Numerous studies had reported that psychological distress like depression, stress and anxiety was associated with poor sleep quality and these link was found to be responsible for certain communicable diseases and adverse behavioral habits. Identifying the association between these psychological factors and sleep quality along with other mediating factors was crucial as it helps in providing the correct interpretation of the findings. Sleep quality measures, supplementing the socio-demographic data, sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) developed by Buysse et al. The PSQI was used to gauge the quality of sleep and pattern for a 4 specified month. It is a validated clinical and non-clinical measure for assessing seven factors of sleep quality including subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction[13]. The prevalence of poor sleep quality in this study was 65.7% which was similar to the study by Dalhon et al,2021(i.e, 71%)[10],55% in korea reported by song et al,2019[2]. The poor sleep quality were actually due to resultant stress, anxiety and depression in otherwise healthy individual. Chronic activation of HPA axis due to these condition disrupts cortisol production impacting sleep cycles, also the limbic system involved in processing emotions, becomes overactivated and become unable to transit to sleep[26]. In the model for evaluating factors associated with poor sleep quality, dental practitioners whose spouse were working had more risk for getting poor sleep quality in this study. This could be due to the spouse working in high stressed environment can bring that stress home and affect the other one's stress level and in turn making harder to fall asleep or may be due to lack of understandability or other personal conflicts in home environment[27]. The dentist who self rated the job to be little stressful and moderately stressful had lower risk of getting poor sleep quality. This was in contrary to finding by Zhang et al, 2018[28] in which stress was found to be associated with poor sleep quality. This could possibly be attributed to greater resilience among middle-aged dentists, as past experiences allow them to work better under stress and develop more tailored coping skills or to older workers' commitment to work and over time a person will become more involved in his work because the focus is on completing his tasks, and tasks that are considered complicated provide additional motivation for workers[29].Dentist who often encountered staff related problems and who rarely and often encountered with uncooperative patient were at high risk for getting poor sleep quality. This could be due to rumination. Rumination is a maladaptive response style to a stressful situation, whereby, an individual tends to repeatedly think about or fixate on the

The overall prevalence of depression, anxiety and stress was found to be 59.1%,64.1% and 45.9% .The proportion varies across various countries and even within several regions of same country at different period. The prevalence of stress in Iran was reported to be 58.9% in study by shiva pouradeli et al,2016[19];50.87% in Iran reported by kamel abdi et al.2022[20]; 86% reported in UK by kay EJ et south al,2005[21];65% in Africa bv S.Bhat et al,2019[22];51% in UK by Martin kamp et al,2024[23];19% in Philippines by Dalhon et al,2021[10];55% in korea by Kyung won song et al,2019[2] and 48.1% in Sweden by Susanne markland et al,2019[24]. The prevalence of depression was reported to be 43.7% in korea by song et al,2019[2];77.4% in Lithuania by Alina puriene et al,2008[25] and the anxiety reported to be 13% in korea by song et al,2019[2]. These variation maybe due to their cultural, lifestyle practice ,nature of the job, Governmental policy and legislation. Dental practitioners in this study population has more of experiencing depression (59.1%) and anxiety (64.1%) and low proportion to be experiencing stress(45.9%). The possible reason could be due to exposure to specific stressors that predominantly trigger depression and anxiety rather than general stress. As some chronic life challenges creates a sense of hopelessness leading to depression and anxiety. It can also be due to work related issues that leads to anxiety and depression without necessarily manifesting as general stress.

The modified occupational stressors-19 scale contains all the potential stressors faced in the working environment under 5 domains like patient related, time related, income related, job related and staff related stressors. Almost more than 80% of population had reported to have exposed to all the 19 potential stressors at varying frequency i.e rare or often.

Insufficient money in hands (44.8%) followed by uncertainty about future (38.7%), cost variations among clinic(34.8%), inability to meet expectation(34.3%), conflict b/w profit need& professional ethics(33.1%) were the commonest & most frequently encountered stressors among the population. A similar study by HB choy et al,2017[16] finds different pattern of prevailing stressor. The difference in perceived stressor could be due to fear of litigation in abroad countries. The fear of litigation and laws itself can elevate one's stress level to some extent. However, these factors can be a major chronic challenge that can create any sense of depression and anxiety like dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest, anhedonia, and inertia or autonomic arousal, skeletal musculature effects, situational anxiety, and subjective experience of anxious affect. All other stress factors which were less frequently reported. This could be due to the fact that although it was prevalent, one had learned to face the challenges from the factors efficiently through reorienting mechanism to the extent that its presence was no longer appreciated.

There was also the role of different behaviour and cognitive efforts made by an individual which also known as coping strategies. Strategies reported by Cooper et al [12]was

situation. Previous studies demonstrated that a higher tendency toward rumination was associated with insomnia and poor sleep quality[9].

Though stress and anxiety does not shows any significantly association, these factor tend to overlap in disguise with all other factors and was associated with poor sleep quality. This dynamic process itself is a complex and a mysterious one. All the psychological distress were seem to be lower in this population. This could possibly be due to positive personality trait such as neurocitism, extraversion, agreeableness and conscientiousness[11] or due to higher levels of psychological resilience characterized by the ability to quickly recover from a stressful event[9].Several studies suggested that resilience can reduce the adverse effects of stress on mental health and sleep.

Strength of the Study

Interaction between a combination of sociodemographic, work related, and psychological factors as well as other factors such as marital status, number of children and various stress factors and coping mechanism were also examined for exploring their individual role on sleep quality in this research. The study population included young dentist population from 23 years of age that helps to identify the pattern of stress in their early phase of career.

V. LIMITATIONS OF THE STUDY

There was differences in demographic variables leading to certain groups being over or underrepresented in the sample. Other research has suggested that those experiencing high levels of stress, or other mental health concerns would be less inclined to take part, so it could be an underrepresentation The outcomes were self reported. Although this is the standard way to assess this exposure it is a potential limitation as the measurement may be influenced by the participants' affective state. If participants' affective state influenced both reporting of working conditions and subsequent risk of depression, This would cause reporting bias and inflated estimates. Information bias might be present because of social desirability and thus our results might underestimate the results. There may be Subject bias and should be considered in interpretations of the results of the study phase of career.

VI. FUTURE RECOMMENDATION

Further research among the entire dental fraternity of the country addressing all the possible limitation is warranted for better understanding of the present situation. Adequate informing of dentists about the effects of stress on their general health and efficiency at work are the most important in the prevention of musculoskeletal diseases, cardiovascular diseases, diabetes and other metabolic disorders that occur as a result of stress during work. Considering high stress in professionals, the use of stress management strategies in educational programs through workshops seems necessary. To improve the living standards of dentists, training in basic and advanced problem-solving skills and cognitive restructuring procedures in the face of stress, positive thinking and boundaries , consideration of work-life boundaries, and interventions in coping strategies should be taken into consideration.Even though the current oral health situation in India features huge unmet treatment needs, job opportunities are scanty as there is no oral health policy in India at the national level, and in many states there are no dental services provided under the public health sector. Consequently, job opportunities for fresh undergraduates are solely concentrated in the private sector where there is an increased competition.Although this professional sector seeks the least attention from the Government, change in this scenario would hope to improve the well being of dental professionals phase of career.

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VII. CONCLUSION

Poor sleep quality was associated more with stress & anxiety condition and also few occupational stressors and coping strategies playing a facilitating and modifying role. It was also found to be based on one's personality trait and resilience level which were inherent factors that could potentially contributing a huge role here. Stress prevention and properly informing dentists about maintaining mental and general health is imperative in advancing the dental profession and science as a whole.

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SUPPLEMENTARY FILE

➤ Supplementary

Table 1 Frequency of Exposure to Various Potential Occupational Stresso	ors among Dental Practitioners
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Stressors	Never	Rarely	Sometimes	Often	Always
Iatrogenic errors(S1)	25.4%(46)	49.2%(89)	24.3%(44)	1.1%(2)	0
Unexpected Medical emergency	44.2%(80)	41.4%(75)	12.7%(23)	0.6%(1)	1.1%(2)
during procedures(S2)					
Coping with difficult or	3.3%(6)	42.6%(77)	35.9%(65)	14.9%(27)	3.3%(6)
uncooperative patients(S3)					
Patients misconception(S4)	15.4%(28)	35.9%(65)	28.2%(51)	13.3%(24)	7.2%(13)
Long working hours(S5)	14.3%(26)	35.4%(64)	26%(47)	13.3%(24)	11%(20)
Workload pressure(S6)	16.6%(30)	24.9%(45)	30.4%(55)	13.3%(24)	14.8%(27)
Maintaining high levels of	14.4%(26)	31.5%(57)	34.3%(62)	11%(20)	8.8%(16)
concentration for long periods					
with few breaks(S7)					
Inability to meet your own	11.6%(21)	24.3%(44)	29.8%(54)	18.8%(34)	15.5%(28)
expectations or standards (S8)					
Conflicts between profit needs	22.1%(40)	22.7%(41)	22.1%(40)	22.1%(40)	11%(20)
and professional ethics (S9)					
Variation in treatment cost	7.7%(14)	24.9%(45)	32.6%(59)	17.7%(32)	17.1%(31)
among clinics (S10)					
Insufficient money in hand after	11%(20)	17.1%(31)	27.1%(49)	19.9%(36)	24.9%(45)
all work expenses and staff					
salaries (S11)					
Lack of patient appreciation and	13.3%(24)	29.8%(54)	28.7%(52)	16.6%(30)	11.6%(21)
awareness of the complexity of					
the job (S12)	10.00/(0.0)	24 52 (222)	2.62(117)	4.5.50/(200)	22.22///22
Uncertainty about the future of	13.8%(25)	21.5%(39)	26%(47)	15.5%(28)	23.2%(42)
dentistry (S13)	0.00///00			110/000	10.00/00.00
Health impact like fatigue or	9.9%(18)	24.9%(45)	35.4%(64)	11%(20)	18.8%(34)
musculoskeletal pain(S14)	0.00/(1.0)	20.00//50	27.62/(60)	14.00/(27)	7.00/(1.4)
Changing trends in technique	8.8%(16)	30.9%(56)	37.6%(68)	14.9%(27)	7.8%(14)
and practice (\$15)	11.10/(20)	24.00//(22)	20.70/(70)	6.60/(12)	0.00//1/0
Unsatisfactory auxiliary	11.1%(20)	34.8%(63)	38./%(/0)	6.6%(12)	8.8%(16)
help(S16)	10.50/(10)	44.20/(00)	22.69/(50)	6.60/(12)	6 10/(11)
Unsatisfactory laboratory items	10.5%(19)	44.2%(80)	32.0%(39)	0.0%(12)	0.1%(11)
and delays (S17)	10.00/(22)	22.10//((0))	22.69/(50)	7.70/(1.4)	0.40/(15)
Stall-related problems	18.2%(33)	33.1%(00)	32.0%(39)	/./%(14)	8.4%(15)
(absenteeism, personal					
Bunatian marking as a tan-	22 10/(60)	24.00/(62)	17 10/(21)	0.00/(16)	6 20/(11)
r ractice working as a team(peer	35.1%(00)	54.8%(05)	17.1%(31)	0.070(10)	0.270(11)
related issues/(319)			1	1	1

➤ Supplementary

Table 2 Prevalence of different stress coping strategies undergone by the population

Stress coping strategies	Prevalence% (n)
Try to control one's own working situation / condition	35.4%(64)
Pursue outside interests	38.1%(69)
Devote yourself more to your work	20.4%(37)
Re-interpret problem positively	28.2%(51)
Exercise, yoga practice	40.9%(74)
Avoid the stressful situation	41.4%(75)
Seek support and advice (eg spouse, friends, and colleagues)	81.3(111)
Social gathering	43.6%(79)
Take medication	5%(9)
Others (specify)	0.6%(1)

➢ Supplementary

	Showing Association between 1 a			ind Sleep Quanty	
Characteristic	Levels	Good sleep quality	Poor sleep quality	Chi square	P value
Age	Under 25	22(12.2%)	24(13.3%)	5,992	0.112
8.	25-34	37(20.4%)	90(49.7%)	-	
	35-44	3(1.7%)	4(2.2%)		
	45-54	0	1(0.5%)		
	55-64	0	0		
	above 65	0	0		
Sex	Male	25(13.8%)	35(19.4%)	2.190	0.095
	Female	37(20.4%)	84(46.4%)		
Years of practice	<5 years	53(29.3%)	102(56.4%)	0.007	0.996
	5-10 years	7(3.8%)	13(7.2%)		
	>10 years	2(1.1%)	4(2.2%)		
Type of practice	Own clinic	21(11.6%)	44(24.3%)	16.234	0.062
	Consultant	5(2.8%)	8(4.4%)		
	Multispeciality	6(3.3%)	6(3.3%)		
	Clinic employed dentist	20(11%)	40(22.1%)		
	Clinician+academician	0	8(4.4%)		
	Consultant+ academician	5(2.8%)	7(3.9%)		
	Clinician +consultants	5(2.8%)	6(3.3%)		
Working hours/week	<48 hrs	25(13.8%)	64(35.4%)	2.955	0.228
	48-72 hrs	29(16%)	43(23.8%)		
	>72 hrs	8(4.4%)	12(6.6%)		
Marital status	Married	21(11.6%)	44(24.3%)	0.171	0.680
	Unmarried	41(22.7%)	75(41.4%)		
Location(place)	Rural	51(28.3%)	37(20.3%)		
	Urban	40(22.2%)	53(29.2%)		
Location(nature of	Commercial	61(33.6%)	46(25.6%)		
area)	Residential	35(19.5%)	39(21.3%)		
Educational	BDS	36(19.9%)	64(35.4%)	5.267	0.261
qualifications	MDS	20(11%)	49(27.1%)		
	Diploma course	0	2(1.1%)		
	Doctorate	2(1.1%)	2(1.1%)		
	FDS	4(2.2%)	2(1.1%)		
Monthly income	<50,000	42(23.2%)	91(50.3%)	2.203	0.332
	50,000-11akhs	13(7.1%)	21(11.6%)		
	>1 lakhs	7(3.9%)	7(3.9%)		
Speciality	General practitioners	38(21%)	60(33.1%)	13.070	0.159
	Oral medicine& radiologist	4(2.2%)	4(2.2%)		
	Public health dentistry	4(2.2%)	11(6.1%)		
	Periodontics	1(0.6%)	3(1.7%)		
	Oral & maxillofacial surgery	1(0.6%)	13(7.1%)		
	Oral pathologist	4(2.2%)	8(4.4%)		
	Prosthodontics	2(1.1%)	2(1.1%)		
	Pedodontics	5(2.8%)	3(1.7%)		
	Endodontist	2(1.1%)	6(3.2%)		
	Orthodontist	1(0.6%)	9(5%)		
Spouse working	working	18(9.9%)	44(24.3%)	6.570	0.037^{*}
	Not working	3(1.7%)	0		
	No spouse	41(22.7%)	75(41.4%)		
No of children	No children	13(7.2%)	20(11%)	1.665	0.435
	Have children	8(4.4%)	24(13.3%)		
	others	41(22.7%)	75(41.4%)		
Religious belief	Has belief	46(25.4%)	90(49.8%)	0.045	0.484
[No belief	16(8.8%)	29(16%)		

Table 3 Showing Association between Participant Demographic Characteristics and Sleep Quality

*-statistically significant (P value <0.05)

➤ Supplementary

Table 4 Showing Association between Depression, Anxiety, Stress with Sleep Quality.

Variables	Severity levels	Good sleep	Poor sleep quality	Chi square	P value
		quality			
Depression	normal	30(16.6%)	44(24.3%)	7.287	0.121
_	mild	14(7.8%)	17(9.4%)		
	moderate	10(5.5%)	26(14.4%)		
	severe	4(2.2%)	18(9.9%)		
	Extremely severe	4(2.2%)	14(7.7%)		
Anxiety	normal	36(19.9%)	29(16%)	20.747	0.000*
-	mild	0	0		
	moderate	15(8.3%)	44(24.3%)		
	severe	3(1.7%)	16(8.8%)		
	Extremely severe	6(4.4%)	30(16.6%)		
Stress	normal	44(24.3%)	54(29.8%)	15.003	0.005^{*}
	mild	8(4.4%)	12(6.6%)		
	moderate	4(2.2%)	26(14.4%)		
	severe	4(2.2%)	15(8.3%)		
	Extremely severe	2(1.2%)	12(6.6%)		

*-statistically significant (P value <0.05)

➤ Supplementary

Table 5 Showing Association between Various Potential Occupational Stressors with Sleep Quality.

Stressors	Frequency of	Good sleep	Poor sleep	Chi square value	P value
	exposure	quality	quality		
Iatrogenic errors(S1)	never	21(11.6%)	25(13.8%)	4.418	0.220
	rarely	27(14.9%)	62(34.3%)		
	sometimes	14(7.7%)	30(16.6%)		
	often	0	2(1.1%)		
	always	0	0		
Unexpected Medical emergency	never	27(14.9%)	53(29.3%)	1.821	0.769
during procedures(S2)	rarely	26(14.3%)	49(27.1%)		
	sometimes	9(5%)	14(7.7%)		
	often	0	1(0.6%)		
	always	0	2(1.1%)		
Coping with difficult or	never	2(1.1%)	4(2.2%)	13.5	0.009^{*}
uncooperative patients(S3)	rarely	25(13.8%)	52(28.7%)		
	sometimes	30(16.6%)	35(19.3%)		
	often	2(1.1%)	25(13.8%)		
	always	3(1.7%)	3(1.7%)		
Patients misconception(S4)	never	15(8.3%)	13(7.2%)	6.038	0.196
_	rarely	22(12.1%)	43(23.8%)		
	sometimes	14(7.7%)	37(20.4%)		
	often	7(3.9%)	17(9.4%)		
	always	4(2.2%)	9(5%)		
Long working hours(S5)	never	14(7.7%)	12(6.6%)	7.343	0.119
	rarely	23(12.7%)	41(22.7%)		
	sometimes	15(8.4%)	32(17.7%)		
	often	6(3.3%)	18(9.9%)		
	always	4(2.2%)	16(8.8%)		
Workload pressure(S6)	never	15(8.3%)	15(8.3%)	15.5	0.004^{*}
	rarely	19(10.5%)	26(14.4%)		
	sometimes	21(11.6%)	34(18.8%)		
	often	5(2.7%)	19(10.5%)		
	always	2(1.1%)	25(13.8%)		
Maintaining high levels of	never	13(7.2%)	13(7.2%)	13.452	0.009^{*}

0.134

0.035*

 0.017^{*}

 0.004^{*}

0.421

0.093

 0.006^{*}

0.135

concentration for long periods with few breaks(S7)	rarely	22(12.2%)	35(19.3%)	
with it with bit cans(57)	sometimes	18(9.9%)	44(24.3%)	
	often	9(5%)	11(6.1%)	
	always	0	16(8.8%)	
Inability to meet your own	never	11(6.1%)	10(5.5%)	7.033
expectations or standards (S8)	rarely	16(8.8%)	28(15.5%)	
-	sometimes	20(11%)	34(18.8%)	
	often	10(5.5%)	24(13.3%)	
	always	5(2.8%)	23(12.7%)	
Conflicts between profit needs	never	19(10.5%)	21(11.6%)	10.325
and professional ethics (S9)	rarely	15(8.3%)	26(14.4%)	
-	sometimes	9(5%)	31(17.1%)	
	often	9(5%)	31(17.1%)	
	always	10(5.5%)	10(5.5%)	
Variation in treatment cost	never	10(5.5%)	4(2.2%)	12.002
among clinics (S10)	rarely	17(9.5%)	28(15.5%)	
	sometimes	20(11%)	39(21.5%)	
	often	7(3.9%)	25(13.8%)	
	always	8(4.4%)	23(12.7%)	
Insufficient money in hand after	never	14(7.8%)	6(3.3%)	15.099
all work expenses and staff	rarely	10(5.5%)	21(11.6%)	
salaries (S11)	sometimes	18(10%)	31(17.1%)	
	often	10(5.5%)	26(14.4%)	
	always	10(5.5%)	35(19.3%)	
Lack of patient appreciation and	never	7(3.9%)	17(9.4%)	3.890
awareness of the complexity of	rarely	24(13.3%)	30(16.6%)	
the job (S12)	sometimes	17(9.3%)	35(19.3%)	
	often	8(4.4%)	22(12.2%)	
	always	6(3.3%)	15(8.3%)	
Uncertainty about the future of	never	11(6.1%)	14(7.7%)	7.951
dentistry (S13)	rarely	15(8.3%)	24(13.3%)	
	sometimes	19(10.5%)	28(15.5%)	
	often	10(5.5%)	18(9.9%)	
	always	7(3.9%)	35(19.3%)	
Health impact like fatigue or	never	10(5.5%)	8(4.4%)	14.3
musculoskeletal pain(S14)	rarely	17(9.4%)	28(15.5%)	
• • • •	sometimes	25(13.8%)	39(21.5%)	
	often	7(3.9%)	13(7.2%)	
F	alwavs	3(1.7%)	31(17.1%)	
Changing trends in technique	never	8(4.4%)	8(4.4%)	7.024
and practice (S15)	rarely	20(11.1%)	36(19.9%)	
•	sometimes	26(14.4%)	42(23.2%)	
1	often	4(2.2%)	23(12.7%)	
4	always	4(2.2%)	10(5.5%)	
Unsatisfactory auxiliary	never	5(2.8%)	15(8.3%)	6.198
		- () /	- \ - · - · - /	

198 0.135 help(S16) 21(11.6%) 42(23.2%) rarely 21(11.6%) 49(27.1%) sometimes often 7(3.8%) 5(2.8%) always 8(4.4%) 8(4.4%) Unsatisfactory laboratory items 9.103 0.059 never 10(5.5%) 9(5%) and delays (S17) rarely 28(15.5%) 52(28.7%) sometimes 21(11.6%) 38(21%) 3(1.6%) 9(5%) often 11(6.1%) 0 always Staff-related problems 18(9.9%) 15(8.3%) 13.693 0.008^{*} never (absenteeism, personal 24(13.2%) 36(19.9%) rarely friction)(S18) 11(6.1%) 48(26.5%) sometimes

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	often	5(2.8%)	9(5%)		
	always	4(2.2%)	11(6.1%)		
Practice working as a team(peer	never	20(11.1%)	40(22.1%)	5.595	0.232
related issues)(S19)	rarely	23(12.7%)	40(22.1%)		
	sometimes	6(3.3%)	25(13.8%)		
	often	8(4.4%)	8(4.4%)		
	always	5(2.8%)	6(3.3%)		

*-statistically significant (P value <0.05)

➤ Supplementary

Table 6 Showing Association between Self Rated Stress level with Sleep Quality.

	0						
Self rated stress levels	Good sleep quality	Poor sleep quality	Chi square value	P value			
Not stressful	11(6.1%)	3(1.7%)	23.548	0.000^{*}			
Little stressful	29(16%)	40(22.1%)					
Moderately stressful	20(11%)	52(28.7%)					
Extremely stressful	2(1.1%)	24(13.3%)					

*-statistically significant (P value <0.05)

> Supplementary

Table 7 Showing Association between Various Stress Coping Strategies with Sleep Quality.

Coping strategies		Good sleep	Poor sleep quality	Chi square	P value
		quality		value	
Try to control one's own working	absent	33(18.1%)	84(46.4%)	5.376	0.016^{*}
situation / condition					
	present	29(16%)	35(19.3%)		
Pursue outside interests	absent	38(21%)	73(40.3%)	0.530	0.767
	present	24(13.3%)	46(25.4%)		
Devote yourself more to your work	absent	48(26.6%)	96(53%)	0.265	0.370
	present	14(7.7%)	23(12.7%)		
Re-interpret problem positively	absent	43(23.8%)	87(48.1%)	0.284	0.357
	present	19(10.5%)	32(17.6%)		
Exercise, yoga practice	absent	32(17.7%)	75(41.4%)	2.197	0.093
	present	30(16.6%)	44(24.3%)		
Avoid the stressful situation	absent	32(17.7%)	74(40.8%)	1.877	0.113
	present	30(16.6%)	45(24.9%)		
Seek support and advice (eg	absent	24(13.3%)	46(25.4%)	0.000	0.560
spouse, friends, and colleagues)	present	38(21%)	73(40.3%)		
Social gathering	absent	28(15.5%)	74(40.9%)	4.803	0.021^{*}
	present	34(18.8%)	45(24.8%)		
Take medication	absent	58(32%)	114(63%)	0.437	0.371
	present	4(2.2%)	5(2.8%)		
Others (specify)	absent	62(34.3%)	118(65.2%)	0.524	0.657
	present	0	1(0.5%)		

*-statistically significant (P value <0.05)