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Personality Traits and Its Effect on Anxiety, Depression and Various Coping Strategies among Clinical and Non-Clinical Dental Students

[1]Dr. Anup N., HOD, In Charge Principal, Department of Public Health Dentistry, Jaipur Dental College, Jaipur.

[2]Dr.Vikas Jeph, Principal, Department of Public Health Dentistry, Jaipur Dental College, Jaipur.

[3]Dr.Rahul Agarwal, MDS Final Year, Department of Public Health Dentistry, Jaipur Dental College, Jaipur.

[4]Dr.Swasti Tambi, Professor, Department of Public Health Dentistry, Jaipur Dental College, Jaipur.

[5]Dr.Anchal, MDS Final Year, Department of Public Health Dentistry, Jaipur Dental College, Jaipur.

[6]Dr. Shruti Madhuri Sarma, Senior lecturer, Department of Public Health Dentistry, Geetanjali Dental and Research Institute, Geetanjali University, Jaipur.

Corresponding Author: Dr. Anup N., HOD, In Charge Principal, Department of Public Health Dentistry, Jaipur Dental College, Jaipur.

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Abstract

Introduction: Personality is a significant prognosticator of academic success during the training years at medical school. It influences doctors' collaboration and communication abilities in future professional practice. There is an established relationship of personality traits with anxiety and depression

Aim of the study: To assess the anxiety, depression, and personality Traits: A Comparative Analysis of Clinical and Nonclinical Dental Students.

Material and Methods: A cross-sectional, questionnaire-based study was carried out among undergraduate dental students. Questions were related to the consumption of alcohol, smoking, chewing gums, and chocolates. Validated questionnaires such as the Hospital and Anxiety Scale and Eysenck Personality Questionnaire-A Scale were used for evaluating anxiety and depression and personality traits, respectively. The statistical analysis was done using Statistical Package for the Social Sciences (version 24.0). Chi-square test, Student's *t*-test, and Pearson's correlation coefficient were used for analysis, and the level of significance was set at $P < 0.05$

Results: The results showed that males in nonclinical years (3.81 ± 1.18) and females in clinical years (4 ± 0.85) were more extrovert than their counterparts, whereas males and females in clinical years were more psychotic than males (3.26 ± 0.45) and females (3.03 ±

0.84) in nonclinical years. It was found that females in clinical years were more anxious and depressed than their counterparts. When extraversion was correlated with anxiety and depression, a negative correlation (-0.05,-0.63) was seen which was statistically significant for depression (P = 0.01), whereas a positive correlation was seen when psychoticism was correlated with anxiety (0.16, P = 0.61) and depression (0.5, P = 0.02). Among the total participants, a majority consumed chocolates as a coping strategy.

Conclusion: It was observed that many dental students who were in their clinical years had more anxiety and depression as compared to their nonclinical peers which could be due to their personality traits. Interventions should be targeted to deal with these problems

Keywords: Anxiety, Dental, Depression, Personality, Students.

Introduction

In order to treat the nation's sick, humanize the science of medicine, and advance public health, medical and dental education aims to produce competent, professional, and skilled medical professionals. In order to find bright, kind people who are devoted to these objectives, medical and dentistry institutions go through a rigorous selection procedure. They then spend years attempting to train these people. Students face a variety of pressures, including the demands of academics and the need to do well, uncertainty about the future, and challenges assimilating into the system. Social, emotional, physical, and family issues also cause stress for the pupils, which can have a direct or indirect impact on their academic performance and capacity to learn. While some of them struggle to handle the pressure and fall behind, others view it as an opportunity to put in more effort. The way each person handles stress varies depending on their personality [1].

A person's personality has a big impact on how well they do academically in medical school. It affects physicians' capacity for teamwork and communication in their future careers. Personality qualities have been shown to be associated with anxiety and depression [2–5]. Furthermore, compared to the general population and their age-matched classmates, medical students are more likely to suffer from anxiety and depression disorders [3,6].

Excessive stress can lower students' self-esteem, lead to physical and mental health issues, and have an impact on their academic performance. Early in childhood, students may acquire a variety of coping mechanisms to deal with such problems, such as drinking alcohol [4,5,7-11], smoking [4,5,7,10], and using drugs including cocaine, amphetamine, and cannabis [4,5,7-10].

Medical and dental professionals are susceptible to similar temptations, even though they should assist other patients in overcoming their substance abuse. Research on psychotic conditions like depression and anxiety among medical students is well-documented in the literature. In order to determine the relationship between anxiety and depression and personality factors, the kind of education exposure (clinical and nonclinical), and their impact on coping techniques among dentistry students, the current study was carried out.

Material & Methods

A cross sectional, questionnaire-based study was carried out among undergraduate dental students studying in Jaipur Dental College. The study was conducted during the middle of the session (January to March 2025) of the academic year. All dental students were invited to enroll in the study except for the interns who were attending the compulsory rotatory internship. The students were briefly explained about the nature of the study and were assured of keeping the contents confidential.

Participants were informed that they could withdraw from the study at any point without any consequences. To ensure confidentiality, all performas were anonymized through coding, preventing the identification of participants by the examiners. Inclusion criterion in the study includes:

1. Undergraduate dental students who were present during the data collection period.
2. Students who provided informed consent.

Individuals with a prior diagnosis of psychological disorders were excluded. Following the application of the inclusion and exclusion criteria, a total of 289 undergraduate dental students were included in the final sample.

The data were obtained in two sections. In the first section, questions regarding the year of study; age; gender; accommodation; and coping strategies such as consumption of alcohol, smoking, chewing gums, and chocolates were asked. After data collection, year of the study was dichotomized into clinical and nonclinical. Clinical years consisted of 3rd- and final-year students, whereas nonclinical included 1st- and 2nd-year students. Questions concerning consumption of alcohol, smoking, chewing gums, and chocolates were asked with options of yes and no. The second section comprised validated questionnaires for anxiety, depression, and personality traits. The Hospital Anxiety and Depression Scale[16] were used for the measurement of subjective anxiety and depression, where a score of ≥8 for either the anxiety or the depression component denotes possible "pathological" anxiety or depression, respectively. The Eysenck Personality Questionnaire-A Scale[17] was used to assess personality traits, with six questions for each trait, focusing on extraversion and psychoticism.

Questionnaires were circulated during one lecture for each year with prior permission from the authorities of the institution, and the aims of the study were explained. The time allotted for completion of the questionnaire was 20 min. The questionnaire was pretested to ensure that all questions were clear and understandable to participants. During the pilot study, it was noticed that many students reported a sudden increase in the consumption of chocolates and chewing gums since joining the course and even reported a soothing effect. Hence, the frequency of consuming chocolates and chewing gums was also assessed.

Statistical Analysis

IBM SPSS Statistics for Windows, version 24.0 (IBM Corp. Armonk, NY, USA) was used for the statistical analysis. Chi-square test, Student's, *t*-test, and Pearson's correlation coefficient were used, and the level of significance was set at $P < 0.05$.

Results

In the present study, 89.3% of participants were female and10.7% of participants were male. The males in nonclinical years (3.81 ± 1.18) and females in clinical years (4 ± 0.85) were more extrovert than their counterparts. It was found that males (3.26 ± 0.45) and females (3.03 ± 0.84) in clinical years were more psychotic than males (2.33 ± 0.49) and females (2.81 ± 1.15) in nonclinical years. The clinical students staying without family were more extrovert and psychotic than nonclinical students staying with family [Table 1].

The males in clinical years were more anxious (84.2%) than males in nonclinical years (66.6%) ($P = 0.66$), whereas males in clinical years were slightly depressed (36.8%) than males in nonclinical years (33.3%) ($P = 0.01$). It was found that females in clinical years were more anxious and depressed than their counterparts. The anxious students under the nonclinical category were more extrovert and psychotic than the clinical students, whereas the depressed students under the clinical

category were more extrovert and psychotic than nonclinical students [Table 2].

When extraversion was correlated with anxiety and depression, a negative correlation was seen which was statistically significant for depression ($P = 0.01$), whereas a positive correlation was seen when psychoticism was correlated with anxiety and depression [Table 3].

Among all the students who were anxious, depressed, ora combination of both, the majority consumed chocolates (24.57%, 37.37%, and 37.02%, respectively) as a coping strategy. The coping strategy which was seen the least among all the participants was smoking. [Table 4].

Legend Tables and Graphs:

Table 1: Mean number of extrovert and psychotic participants in clinical and nonclinical settings according to gender and type of residence

	Extraversion			Psychoticism		
	Clinical, mean±SD	Nonclinical, mean±SD	P	Clinical, mean±SD	Nonclinical, mean±SD	P
Male	3.39±0.91	3.81±1.18	0.007*	3.26±0.45	2.33±0.49	0.001*
Female	4±0.85	3.84±1.07	0.16	3.03±0.84	2.81±1.15	0.06
P	<0.001*	0.93		0.24	0.16	
With family	3.26±1.03	4±0.79	<0.001	2.98±0.76	2.75±1.07	0.04
Without family	4.13±1.37	3.65±0.98	0.008	3.31±0.54	3±0.63	<0.001*
P	<0.001*	0.23		0.02*	0.22	

*Statistically significant. Student's *t*-test. SD – Standard deviation

Table 2: Effect of clinical and nonclinical settings among anxious and depressed dental students in relation to personality traits and various demographic factors

	Anxiety			Depression		
	Clinical	Nonclinical	P	Clinical	Nonclinical	P
Male, n (%)	16 (84.2)	8 (66.6)	0.66	7 (36.8)	4 (33.3)	0.10
Female, n (%)	89 (66.4)	36 (29.03)		119(88.8)	92 (74.2)	
With family, n (%)	32 (20.92)	1 (0.74)	0.001*	19 (12.42)	2 (1.47)	0.005*
Without family, n (%)	73 (47.71)	43 (31.62)		107 (69.93)	102 (75)	
Extraversion, mean±SD	3.58±1.09	4.09±0.98	0.01*	3.63±0.82	2.88±0.78	0.001*
Psychoticism, mean±SD	3.01±0.90	3.09±1.10	0.64	3.04±0.81	2.92±0.72	0.24

*Statistically significant. Chi-square test, Student's *t*-test. SD – Standard deviation

Table 3: Correlation of personality traits with anxiety and depression among dental students

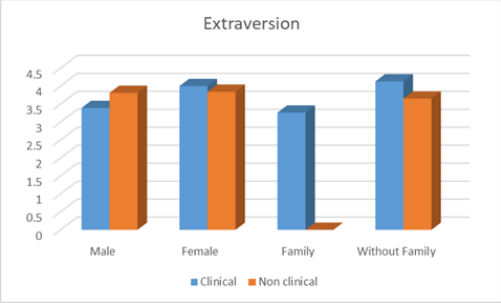
	r	*P*	*r*	*P*
Extraversion	−0.05	0.86	−0.63*	0.01*
Psychoticism	0.16	0.61	0.52*	0.02*

*Statistically significant. Pearson's correlation coefficient

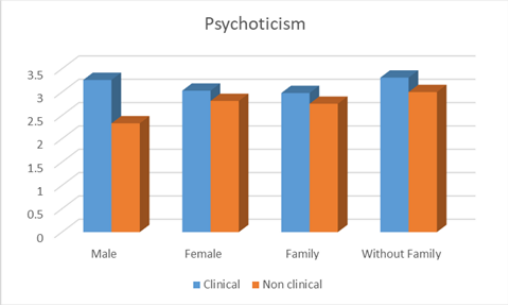
Table 4: Coping strategies reported by dental students suffering from anxiety and depression

Coping strategies	Anxiety ≥8, *n* (%)	Depression ≥8, *n* (%)	Anxiety &depression ≥8, *n* (%)
Smoking	15 (5.19)	24 (8.30)	21 (7.27)
Alcohol	42 (14.53)	57 (19.72)	65 (22.49)
Chewing gums	40 (13.84)	50 (17.30)	47 (16.26)
Chocolates	71 (24.57)	108 (37.37)	107 (37.02)

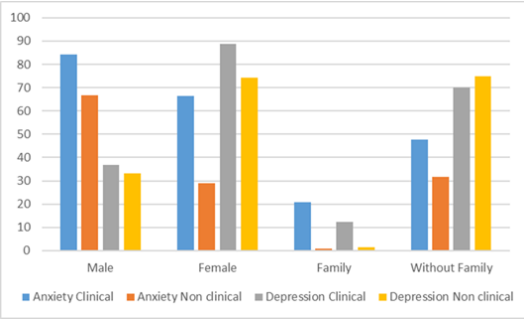
Graph 1: Mean number of extrovert participants in clinical and nonclinical settings according to gender and type of residence



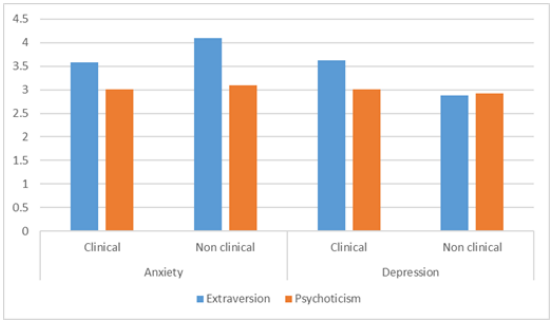
Graph 2: Mean number of psychotic participants in clinical and nonclinical settings according to gender and type of residence



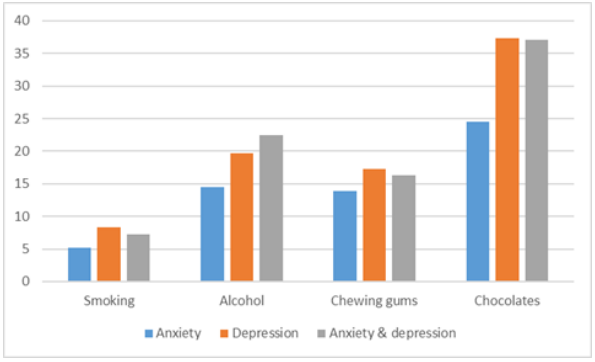
Graph 3: Effect of clinical and nonclinical settings among anxious and depressed dental students in relation to various demographic factors



Graph 4: Effect of clinical and nonclinical settings among anxious and depressed dental students in relation to personality traits



Graph 5: Coping strategies reported by dental students suffering from anxiety and depression



Discussion

The goal of the current study was to document how personality factors, the type of education received, and coping mechanisms among undergraduate dentistry students are related to anxiety and depression. According to the study's findings, both males and females in clinical years had higher levels of psychosis than those in nonclinical years. The Eysenck Personality Questionnaire's psychoticism component gauges a person's propensity for taking risks and seeking out new

experiences. There may be a change toward a more psychotic domain among this cohort because students in clinical years are abruptly subjected to a variety of activities, such as increased academic pressure and extensive clinical exposure, which makes them more susceptible to stressful situations.

Extraversion is a sign of being outgoing, confident, and emotionally upbeat. Because women are more social than men, the current study indicated that women were more extroverts than men. Males are seen as more forceful and excitement-seeking, while females are thought to have more pleasant feelings. Weisberg et al. [19] reported a similar finding regarding gender.

According to the current study's findings, males in clinical years exhibited higher levels of anxiety than their nonclinical counterparts. However, depression was somewhat higher in clinical years but roughly equal in both clinical and nonclinical years. Females of both clinical and nonclinical years showed a similar pattern of anxiety and despair. One possible explanation for this pattern is the increased demands of clinical years' coursework and practical work. Nonetheless, these results are nearly identical to the UK study conducted by Newbury-Birch et al. [10]. Additional comparison with this study showed that, in comparison to their counterparts, females in nonclinical years have somewhat higher levels of depression (Newbury-Birch et al., 2002 [10]. This disparity may be the result of the two nations' different bachelor's degree curricula and educational patterns.

The current study found that clinical students who lived apart from their families were more outgoing than their peers. This may be because dorms allow students to make entirely their own decisions, which is beneficial in the long run. You grow even more mature and responsible at the hostel because you have no one to spoil you and must handle all the responsibilities by yourself. You get to know new individuals there and learn about their beliefs. With time, the reluctance to be with strangers disappears, and the person gains confidence and becomes more outgoing. In their individual investigations, Agarwal et al. [12] and Jorm and Christensen [19] dispute this conclusion.

In comparison to their peers, clinical students and those living alone exhibited higher levels of psychosis. The reason could be that because they live in a stressful and competitive setting, hostellers are more likely to demonstrate emotional instability, anxiety, aggression, and despair than day scholars. Numerous previous studies have confirmed that homesickness is one of the detrimental impacts that leads to dysfunctional behavior, melancholy, and lack of focus [20]. It was discovered that students' unhealthy personalities were positively correlated with their residential conditions. Anxiety and homesickness are the results of hosteller rearing, which has been shown to impair emotional and psychological status [21-22].

The current study found a negative association between extraversion and anxiety and depression, which is in conflict with Sharma's findings and confirmed by Bunevicius et al. [3]. In the current investigation, a positive link was found between psychoticism and depression and anxiety. Sharma SC [23] supports this conclusion.

The majority of students, regardless of whether they were depressed, anxious, or a mix of the two, used chocolate as a coping mechanism, followed by smoking, chewing gum, and alcohol. The fact that 89.3% of the female participants in this study are more addicted to chocolate may be the source of their increased chocolate consumption. Another explanation might be because consuming chocolate makes you feel happier and more upbeat than nothing else [24-25].

The limitations of the study were social desirability bias and acquiescence bias. According to the authors, the results could have been appreciated better in a longitudinal design. Hence, new study with longitudinal design must be conducted to escalate the results in an enhanced way.

Conclusion

According to the study, a large number of dental students who completed clinical years experienced higher levels of anxiety and depression than their classmates who did not, which may be related to their personality types. According to this study, personality traits have an impact on how people deal with anxiety and depression. Targeted interventions could be a useful strategy for addressing this issue if additional research supports our findings. The crucial element is the effect of clinical professors; they must consistently set an example for students in terms of how to manage stress and how to take a good stance for their mental health. In order to remove the stigma associated with living in a dorm and to enhance the social and educational environment for these persons, appropriate environmental options should be offered, taking into account the functional abilities and personality profiles of students living away from their families. Participants were referred to a doctor for counseling if they displayed any symptoms of anxiety or depression.

Annexure

To Assess the Anxiety, Depression, and Personality Traits: A Comparative Analysis of Clinical and Nonclinical Dental Students

Proforma

Name:

Age:

Gender:

Year of study:

Accommodation: Family Without family

Any Adverse habit: Alcohol Smoking

Eating Habit: Chewing Gum Chocolates

The Hospital Anxiety and Depression Scale

Sn.	Questions	Yes definitely(3)	Yes sometimes(2)	No, not much(1)	No, not at all(0)
1.	I feel tense or ‘wound up’				
2.	I still enjoy the things I used to enjoy				
3.	I get a sort of frightened feeling as if something awful is about to happen				
4.	I can laugh and see the funny side of things				
5.	Worrying thoughts go through my mind				
6.	I feel cheerful				

7.	I can sit at ease and feel relaxed				
8.	I feel as if I am slowed down				
9.	I get a sort of frightened feeling like" butterflies" in the stomach				
10.	I have lost interest in my appearance				
11.	I feel restless as I have to be on the move				
12.	I look forward with enjoyment to things				
13.	I get sudden feelings of panic				
14.	I can enjoy a good book or radio/TV program				

Eysenck Personality Questionnaire-A Scale

Sn.	Questions	Yes	No
1.	Are you a talkative person?		
2.	Would being in debt worry you?		
3.	Are you rather lively?		
4.	Would you take drugs which may have strange or dangerous effects?		
5.	Do you prefer to go your own way rather than act by the rules?		
6.	Do you think marriage is old-fashioned and should be done away with?		
7.	Can you easily get some life into a rather dull party?		
8.	Do you tend to keep in the background on social occasions?		
9.	Does it worry you if you know there are mistakes in your work?		
10.	Are you mostly quiet when you are with other people?		
11.	Is it better to follow society's rules than go your own way?		
12.	Do other people think of you as being very lively?		

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