

Association of Stress, Anxiety and Depression with Initiation of Tobacco Use among Dental Students of Moradabad, India

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Abstract: Introduction: Transition of the students from high school to a professional institute is a big change in their life. Different environment, diverse teaching and learning strategies, increase academic demand and fear of failure leads to stress, anxiety and depression among dental students. Many studies have found that stress and anxiety are the risk factors for the initiation of tobacco. Multiple factors have been proposed to explain this, including use of cigarettes to reduce anxiety (i.e., self-treatment) and an increased susceptibility of those with anxiety in initiating smoking in response to peer pressure. **Objectives:** To determine the prevalence and association of stress, anxiety and depression with initiation of tobacco use among dental students of Moradabad **Methodology:** A questionnaire based cross-sectional study was done using DASS-21 Scale to assess stress, anxiety and depression along with questionnaire related to tobacco use among 243 dental students. **Results:** The study shows the prevalence of moderate to severe depression, anxiety and stress is 14.4%, 33.70% and 16.04%. It also shows significant association of tobacco use with initiation of tobacco use among dental students. **Conclusion:** Study suggests stress, anxiety and depression might act as a trigger factors for initiation of tobacco use among dental students.

Keywords: Dental students, tobacco, depression, anxiety and stress.

1. Introduction

According to world health organization (WHO) mental health is a state of well-being in which every individual realizes his/her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to community [1]. There are multiple factors that contribute to the dental student's mental illness and health problem that affect their career [2]. A major change in their lives is the transition from high school or college to a professional institute. Stress, anxiety and depression can affect individual's mental health [3]. The curriculum and environment of the dental college is known to be highly demanding and a stressful learning experience for dental students. The early clinical exposure that many dental schools adopt, that is, the students are exposed to clinical dentistry demands early in the course duration combined with academic requirements. Many

studies have demonstrated the impact of stress on dental students, and perceived sources of stress in diverse academic settings (Humphris et al, Gorter et al, Divaris et al, S. kumar et al) [4-7]. Tobacco is one of the most important tools commonly used to cope with anxiety and stress⁸. Evidence suggests that smoking is more likely to occur in individuals with increased stress⁹⁻¹⁴ (Brown et al. 1996; Patton et al. Sonntag et al. 2000; Goodwin et al. 2005; Cuijpers et al. 2007; Swendsen et al. 2010). This has been explained by multiple factors, including the use of cigarettes to reduce anxiety (i.e. self-treatment) and an increased susceptibility of those with anxiety to initiate smoking in response to peer pressure^{10,15} (Patton et al. 1998; Tjora et al. 2011). The high co-occurrence of tobacco use and mental illness is an alarming situation for public health and tobacco use accounts for much of the decrease in life expectancy associated with mental illness. Many studies have demonstrated a positive link between tobacco use and mental health [16]. So, a cross sectional study was conducted to determine the depression, anxiety and stress as well as initiation of tobacco use among dental students in Moradabad, India and also to find the association between depression, anxiety and stress on initiation of tobacco use.

2. Methodology

The cross sectional study was conducted among the undergraduate students of dental college of Moradabad city, India, during the month of July 2018 to investigate possible association of stress, anxiety and depression on initiation of tobacco use among dental students. The questionnaire-based study includes DASS-21 (depression, anxiety and stress scale) data collection tool developed by Lovibond and Lovibond in 1995 to evaluate the core symptoms of depression, anxiety and stress and four close-ended tobacco and alcohol related issues. The questionnaire's validity and reliability has been established. DASS-21 is a scale of 21 question, comprised of 7 questions that are summed for each subscale of depression, anxiety and stress. Each item is scored from 0(not at all) to 3(high level). The minimum score is zero and maximum score is 42. Because

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the DASS-21 is a short-form version of the DASS (42 items), the final score for each sub-scale is multiplied by two and evaluated according to its severity rating index.

Ethical clearance was obtained from Institutional Ethical Review Board (IERB) of the college prior to initiating the study. All the undergraduate students were requested to participate in the study except for the internees attending the compulsory rotatory internship. The objective and importance of the study was described to the students and verbal consent were taken from the students. The students who were present on survey day were included and no attempt was made to include absentees. The author distributed questionnaires for each year during college hours with prior permission from the institution's director and collected them after completing the questionnaire. There was a total attendance of 280 students out of 320 students. Thirty-seven incomplete questionnaires were excluded while the remaining 243 completed questionnaires were included for statistical analysis using SPSS 19.

3. Results

A total of 280 out of 320 undergraduate dental students participated in the study. The overall response rate was 75.93% in which 34.56% of the respondents were males and the remaining 65.43% were females. Year wise distribution (%) of depression, anxiety and stress among study subjects are presented in Table 1. The number of students having depression, anxiety and stress were higher among first and fourth year as compare to second and third year. The number of students having depression was found to be highest in first year while anxiety and stress were highest in final year. Distribution of tobacco use before and after joining the dental college among dental students is presented in Table 2. 20.57% students were tobacco users before joining the institution while 32.51% were tobacco users after joining the institution. The number of the students who initiated tobacco use were highest among final year while none of the students initiated tobacco use among second year.

Association of depression, anxiety and stress with initiation of tobacco use among dental students is presented in Table 3. In first year students, significant association was found among students who were having stress and initiated tobacco use while in third and final year students, significant association was found among students who were having anxiety, stress and initiated tobacco use. So, it can be concluded that the study shows prevalence of depression, anxiety and stress as well as initiation of tobacco use among dental students. It also shows there is significant association of stress and anxiety with the initiation of tobacco use among dental students.

4. Discussion

The study's main objective was to identify the association of depression, anxiety and stress with the initiation of tobacco use among undergraduate dental students, Moradabad, India. The study shows that the prevalence of moderate to severe depression, anxiety and stress is 14.4%, 33.70% and 16.04%. This is lower than the study done among Melaka

Manipal Medical College, Malaysia students wherein the percentages are 30.7%, 55.5%, and 16.6% respectively¹⁷. The prevalence of depression is found to be highest in first year while prevalence of anxiety and stress was found to be highest in final year students. Hawazin W. Elani *et al* conducted a systematic review and found that main sources of stress, anxiety and depression are academic factors (84%) followed by the clinical factors (63%)¹⁸. As the study was conducted one month before the examination, so workload, examination, grades are most important contributing factor causing stress, anxiety and depression among undergraduate dental students. As the dental students need to perform well in academics as well as surgical aspect of dental care, including performing treatments on patients to qualify as a competent dentist. In confirmation to previous studies (alzahem *et al*, S. kumar *et al*) exams have been one of the most potent factor of stress, anxiety and depression among all the year of students [19,7]. Tobacco use is one of the most common tool that is used to cope with anxiety 20-23 (Park and Breland, 2007; Parrott and Murphy, 2012; Perkins *et al.*, 2010; Slopen *et al.*, 2012). Self-report studies have shown that the one of the main reason of tobacco use is to reduce stress, anxiety and induce a state of relaxation 24-26 (Aronson *et al.*, 2008; Fidler and West, 2009; McEwen *et al.*, 2008).

A nation-wide survey also shows that people primarily use tobacco to manage their anxiety and stress levels (American Psychological Association, 2012)²⁷. It is found that 44.6%, 25%, 29.5% of dental students initiated tobacco use who are suffering from depression, anxiety and stress. Sekhon *et al.* considered tobacco use as the negative coping mechanism by the students to relieve stress and anxiety²⁸. A few studies (16.7 percent) suggested changes in dental student's behaviors like smoking habits in relation to high stress levels¹⁸. Gordon and Rayner, in a study of dental students in Africa, described smoking practices and found that students reported "examination stress" and "relaxation" among their reasons to smoke [29].

20.57% dental students were tobacco user before joining the institution and 32.51% dental students started tobacco using after joining the institution while the initiation of tobacco use was found to be highest in final year students. The final year students had more workload, clinical as well as academics as compare to other years of graduation³⁰. As final year students might be more stressed about learning clinical procedures as during this period most of the advanced clinical procedures are learnt and practiced³¹ (Zac morse *et al*). One of the other reason might be insecurity among students regarding career establishment after graduation is the major issue affecting the students in India. Another reason might be heavy competition among students to achieve job in abroad and to get admission in post-graduation (S. kumar). The association of stress and anxiety with initiation of tobacco use was found to be significant. This suggests that stress, anxiety are might be trigger factors for initiation of tobacco use among dental students. Several studies have confirmed the stressful nature of dentistry and the stress-related problems among dental students³²⁻³³(Newbury-Birch *et al.*, 2002; Gordon and

Table 1
Year wise distribution (%) of Depression, Anxiety and stress among study subjects

Year	Severity	Depression	Anxiety	Stress
First Year	Mild	2 (5.88%)	4 (11.76%)	9 (26.47%)
	Moderate	10 (29.41%)	4 (11.76%)	6 (17.64%)
	Severe	0 (0.00%)	8 (23.52%)	0 (0.00%)
Second Year	Mild	2 (4.00%)	10 (20.00%)	13 (26.00%)
	Moderate	0 (0.00%)	6 (12.00%)	1 (2.00%)
	Severe	0 (0.00%)	4 (8.00%)	3 (6.00%)
Third Year	Mild	4 (6.34%)	6 (9.52%)	15 (23.80%)
	Moderate	13 (20.63%)	12 (19.04%)	4 (6.34%)
	Severe	0 (0.00%)	14 (22.22%)	0 (0.00%)
Fourth Year	Mild	22 (22.91%)	14 (14.58%)	22 (22.91%)
	Moderate	10 (10.41%)	24 (25.00%)	12 (12.50%)
	Severe	2 (2.08%)	10 (10.41%)	13 (13.54%)

Table-2
Distribution of Tobacco use before and after joining dental college among dental students

	Tobacco users before joining the institution (n)	Tobacco users after joining the institution (n)
First year	12 (35.29%)	16 (47.05%)
Second year	10 (20.00%)	10 (20.00%)
Third year	18 (28.57%)	23 (36.50%)
Fourth year	10 (10.41%)	30 (31.25%)
Total	50 (20.57%)	79 (32.51%)

Table-3
Association of Depression, Anxiety and stress with initiation of tobacco use among dental students

Students initiated tobacco use	Students with depression who initiated tobacco use	Students having Anxiety who initiated tobacco use	Students having Stress who initiated tobacco use
First year (n=4)	33.33% p = 0.022	25.00% p = 0.006	26.66% p = 0.000
Second year (n=0)	0% p = (NA)	0% p = (NA)	0% p = (NA)
Third year (n=5)	29.41% p = (0.004)	15.66% p = (0.000)	26.31% p = (0.000)
Fourth year (n=20)	58.82% p = (0.025)	41.66% p = (0.000)	42.55% p = (0.000)
Total (n =29)	44.61%	25.00%	29.59%

Rayner, 2010; Plasschaert et al. 2001). The reassessment of the existing educational system towards more student oriented could help collaborative learning among the students, which may have a positive effect towards difficulties faced during their course of study³⁴. Many intervention studies have evaluated such programs for dental students, including specific courses, stress-reduction programs, introduction to behavioral sciences and faculty incorporated advising systems³⁵ (Howard et al). In our opinion, it would be better for more experienced dental professionals and dental educators to recognize that there are stressors of different types, and that these need to be managed. The institutions should plan a regular counselling programs for students to cope with stress and anxiety. Positive coping mechanisms should be encouraged from early years of graduation among dental students.

5. Conclusion

The cross-sectional study shows the prevalence of depression, anxiety and stress among dental students. It also shows that there is significant association between stresses, anxiety with initiation of tobacco use among dental students. The initiation of tobacco use was seen highest in final year students which suggests that students get involve in negative coping mechanism of stress and anxiety. There is a need of student advisor and counsellors along with encouraging

students to involve in positive coping mechanisms of stress and anxiety. The findings of this study accentuate the importance of screening among dental students and recommends appropriate interventional measures to prevent the complications of stress, anxiety and depression.

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