

COMPARISON FOR SOMATIZATION STATUS AND ASSOCIATED VARIABLES AMONG DENTAL STUDENTS AND DENTAL PROFESSIONALS –A CROSS-SECTIONAL STUDY

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ABSTRACT

Background

Somatization refers to the tendency to experience and communicate psychological distress in the form of physical symptoms. Dental professionals and students are often exposed to high levels of occupational stress, which may predispose them to somatization. However, limited research has compared somatization status and its associated variables between dental students and practicing dental professionals.

Objective

The present study aimed to compare the somatization status and associated variables among dental students and dental professionals and to identify the factors influencing somatization in these groups.

Methods

A cross-sectional study was conducted among 200 participants, including 100 dental students and 100 dental professionals, from various dental colleges and clinics in [City/Region]. Somatization was assessed using the Patient Health Questionnaire-15 (PHQ-15), and associated variables including demographic factors, work-related stress, and lifestyle habits were recorded. Data were analyzed using descriptive statistics, Chi-square tests, and logistic regression.

Results

The prevalence of moderate-to-severe somatization was significantly higher among dental students (42%) compared to dental professionals (28%) ($p < 0.05$). Among dental students, the most common somatic symptoms were fatigue, headache, and back pain, while among dental professionals, musculoskeletal pain and sleep disturbances were more prevalent. Significant associated variables included academic/work pressure, long working hours, lack of physical activity, and insufficient sleep. Logistic regression identified academic stress and work-life imbalance as independent predictors of somatization in both groups.

Conclusion

Somatization is more prevalent among dental students than dental professionals, highlighting the need for early identification and intervention. Addressing occupational stress, promoting healthy lifestyle habits, and providing psychological support are essential to reduce somatization and improve the well-being of dental professionals and students.

Keywords: Somatization, Dental students, Dental professionals, Occupational stress, PHQ-15, Mental health, Well-being.

How to cite this article: Vyavahare S, Khond M, Kamble A, Kamble N, Kshirsagar P, Ghule A. Comparison for Somatization Status and Associated Variables Among Dental Students and Dental Professionals – A Cross-Sectional Study. Int J Drug Deliv Technol. 2026;16(72s): 1-6. DOI: 10.25258/ijddt.16.72s.1

INTRODUCTION

Stress experienced by students is multifactorial in origin, arising from an interplay of personal circumstances, educational demands, and clinical exposure. Among these, academic pressures—especially those related to examinations and

performance expectations—are consistently reported as dominant stressors. Additionally, restricted time for relaxation and recovery further exacerbates this burden.¹

As described in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, somatic

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symptom disorder (SSD) is defined by the presence of one or more physical complaints accompanied by excessive thoughts, emotions, or behaviors directed toward these symptoms, leading to considerable distress or impairment in daily functioning. These physical manifestations may or may not have an identifiable medical explanation. In earlier editions of the DSM, a diagnosis of somatic symptom disorder required that the physical symptoms could not be medically explained.²

Dental training, in particular, is recognized as inherently intensive and demanding, often leading to heightened stress levels among students. Contributing factors include a heavy academic workload, frequent assessments, clinical responsibilities, and the obligation to fulfil procedural requirements. These challenges may adversely affect not only mental health but also physical well-being.³ Recent research indicates a rising prevalence of psychological distress among medical and dental students, particularly in the form of stress, anxiety, and depressive symptoms. This trend raises significant concerns regarding students' overall well-being and underscores the importance of implementing structured psychological support systems within both academic and clinical training environments.⁴

According to estimates reported by the American Psychiatric Association in 2013, somatic symptom disorder affects approximately 5–7% of the general population. The condition is most frequently observed in individuals aged between 20 and 30 years. Several factors have been associated with an increased risk, including female sex, lower educational attainment, poor socioeconomic background, a history of chronic illness during childhood, experiences of sexual abuse, heightened health-related anxiety, coexisting psychiatric conditions, and a familial predisposition to chronic diseases. Illness anxiety disorder is comparatively less prevalent, with reported rates ranging from 0.05% to 5% in the general population. Its onset typically occurs between 30 and 40 years of age.

Identified risk factors include severe illness during childhood, serious health conditions in parents, experiences of physical or sexual abuse, inadequate caregiving, and overly protective parenting styles. In the case of conversion disorder, prevalence rates in community-based studies have been estimated to range from 11 to 300 cases per 100,000 individuals. The disorder occurs more often in females and typically presents in late childhood or early adulthood. Factitious disorder is relatively rare, with studies indicating that approximately 0.8% to 1% of individuals referred for psychiatric evaluation are affected. It is more commonly observed among middle-aged adults, particularly those who are

unemployed or unmarried. The present study aimed to assess the somatization status among dental students and dental professionals and to determine its association with demographic characteristics and other related variables using a cross-sectional study design

MATERIAL AND METHODOLOGY

A cross-sectional descriptive study design was employed to assess the prevalence of somatization symptoms and to explore their association with demographic, psychological, and lifestyle-related factors among dental students and dental professionals. Data was collected using self-administered validated questionnaires within a defined time frame by using online Google Forms. The questionnaire includes multiple-choice, one sentence and short-note questions. Participants completed 7 item demographic questionnaire which included details as age, gender, designation, living arrangements, exercise habits, average sleep duration per night and smoking habits. Additionally participants responded to the 15-item somatization scale validated by Korenke et al. Consisting of questions answered with Not bothered at all, bothered a little, bothered a lot which is scored as 0,1,2 respectively (28 for males if menstrual item is excluded) the score 0–4 is Minimal somatic symptoms, 5–9: Low severity, 10–14: Moderate severity, 15+: High severity (clinically significant).

The statistical significance of participant responses was evaluated using data from the socio-demographic information questionnaire and the PHQ-15 Scale. All collected data coded and entered systematically into Microsoft Excel. Data checked for completeness and accuracy. Somatization scale score, serving as the dependent variable, was compared against various independent variables, including age, gender, sleep pattern, smoking status, living arrangements, exercise habits, designation. Descriptive statistics (mean and standard deviation) and Inferential statistical analysis done using intergroup comparison - an Independent T test will be done. For correlation, the Pearson correlation test will be done. Statistical analysis performed using SPSS software version.

Inclusion criteria:

1. Dental students (1st to 4th year) and dental professionals (BDS, MDS)
2. Students who are 18 years or older.
3. Students who consent to participate voluntarily in the study.

Exclusion criteria:

1. Students or professionals from other than dental profession.
2. Students or professionals who decline or withdraw consent during or after participation.

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Ethical Clearance: Prior to the study, ethical approval obtained from the Institutional Ethical Committee of the institute.

RESULT

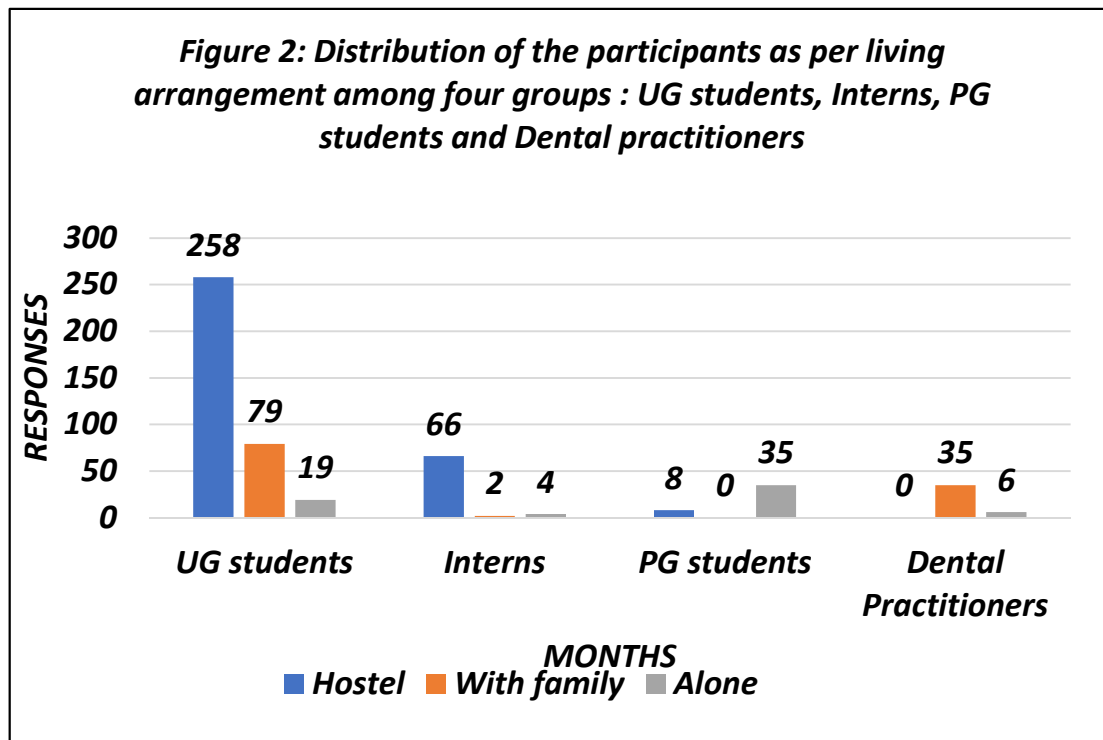
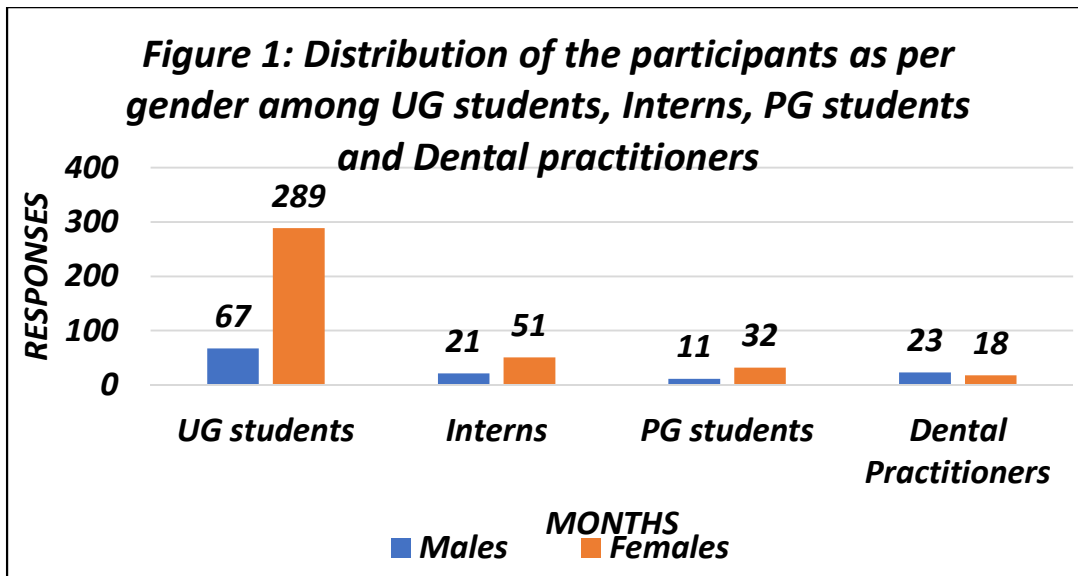
A total of 413 individuals were participated in the research. The average age of the participants was 21.7-22 years; among these, 81% were females and 18.8% were males. Analysis of somatization score was done by using one-way ANOVA test. The distribution of participants across different academic levels reveals notable variations in demographic and lifestyle factors. A higher proportion of females was observed among undergraduate students (81.2%), interns (70.84%), and postgraduate students (74.5%), whereas dental practitioners showed a male predominance (56.09%). Living arrangements differed significantly, with most undergraduate students (72.47%) and interns (91.67%) residing in hostels, while postgraduate students predominantly lived alone (81.39%), and the majority of dental practitioners stayed with their families (85.36%).

Exercise habits indicated that a large proportion of undergraduate students (71.91%) reported not engaging in regular physical activity, whereas interns (47.22%) and postgraduate students (48.83%) showed relatively higher participation in exercise. However, dental practitioners again demonstrated lower engagement (60.97% reporting no exercise). Sleep patterns revealed that most participants across all groups reported an average of 5–7 hours of sleep, with the highest proportion among undergraduate students (72.75%). Notably, a considerable percentage of postgraduate students (27.90%) and dental practitioners (26.83%) reported sleeping less than 5 hours, suggesting increased workload or stress at advanced professional levels. Smoking habits showed a rising trend with career progression, with only 3.94% of undergraduate students reporting smoking compared to 18.05% of interns, 32.55% of postgraduate students, and a significantly higher proportion among dental practitioners (58.53%).

Data collection for this study took place during theory and practical examinations and submission deadlines. Symptoms such as stomach pain, back pain, and joint pain were more severe among postgraduate students and dental practitioners, while undergraduate students reported moderate to severe discomfort. Menstrual-related problems showed a highly significant difference ($p = 0.003$), with greater severity among undergraduates. Headaches, chest pain, fainting spells,

and palpitations also differed significantly, with higher severity in advanced stages. Shortness of breath ($p = 0.002$) and gastrointestinal issues showed significant variation, while nausea and indigestion were borderline significant ($p = 0.052$). Fatigue was highly significant ($p = 0.009$), with greater severity among postgraduate students and practitioners. Sleep disturbances were also significant ($p = 0.032$), indicating their prevalence across all groups. The figure 1 illustrates the gender distribution among UG students, interns, PG students, and dental practitioners. It compares the number of male and female participants in each group. Among UG students, there is a strong female predominance, with 289 females compared to only 67 males. A similar trend is observed among interns (51 females vs 21 males) and PG students (32 females vs 11 males), indicating that females form the majority in the academic phases of dental education. However, this pattern changes among dental practitioners, where males (23) slightly outnumber females (18). This suggests a shift in gender distribution at the professional level. Overall, the figure highlights that females dominate the student population in dentistry, but male representation increases in professional practice. This variation may be influenced by factors such as career progression, work-life balance, or professional retention trends.

Participants from four groups—UG students, interns, PG students, and dental practitioners—are distributed according to their living arrangements (hostel, with family, or alone). Among UG students, the majority (258) live in hostels, followed by 79 living with family and only 19 living alone. This suggests that most undergraduate students depend on institutional accommodation during their studies. For interns, an even larger proportion (66) stay in hostels, with very few livings with family (2) or alone (4). This reflects the demanding nature of internship, where proximity to the institution is important. In contrast, PG students show a completely different pattern. The majority (35) live alone, very few (8) stay in hostels, and none live with family. This indicates increased independence and possibly relocation for postgraduate training. Among dental practitioners, most (35) live with their families, none stay in hostels, and a small number (6) live alone. This reflects a more stable and settled lifestyle after entering professional practice. Overall, the figure clearly demonstrates a shift in living patterns: from hostel-based living in early academic years to independent or family-based living as individuals progress in their careers (figure 2).



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Table 1: Distribution of the participants as per gender, living arrangements, exercise habit, average sleep duration and smoking among UG students, Interns, PG students and Dental practitioners					
Parameters	Options	UG students (n = 356)	Interns (n= 72)	PG students (n= 43)	Dental Practitioner (n = 41)
Gender	Male	67(18.8)	21(29.16%)	11(25.5%)	23(56.09%)
	Female	289(81.2)	51(70.84%)	32(74.5%)	18(43.91%)
Living arrangement	Hostel	258(72.47%)	66(91.67%)	8(18.61%)	0(0.00%)
	With Family	79(22.19%)	2(2.77%)	0(0.00%)	35(85.36%)
	Alone	19(5.36%)	4(5.56%)	35(81.39%)	6(14.64%)
Exercise habit	Yes	38(10.68%)	34(47.22%)	21(48.83%)	12(29.26%)
	No	256(71.91)	22(30.55%)	9(20.93%)	25(60.97%)
	Maybe	62(17.41%)	16(22.23%)	13(30.23%)	4(9.75%)
Average sleep duration per night	< 5 hours	75(21.06%)	8(11.12%)	12(27.90%)	11(26.83%)
	5 – 7 hours	259(72.75%)	42(58.34%)	24(55.83%)	27(65.86%)
	> 7 hours	22(6.17%)	22(30.54%)	7(16.27%)	3(7.31%)
Smoking Habit	Yes	14(3.94%)	13(18.05%)	14(32.55%)	24(58.53%)
	No	342(96.06%)	69(81.95%)	29(67.45%)	17(41.47%)

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Table No. 2: Comparison between Ug students, Interns, PG students and Dental practitioners using One way ANOVA test for Somatizations scale – PHQ: Patient health Questionnaire - 15

	Responses	UG students (n = 356)	Interns (n= 72)	PG students (n= 43)	Dental Practitioner (n = 41)	F	P value
1. Stomach Pain	Not bothered at all	69	12	0	9	11.213	0.045*
	Bothered a little	131	46	9	22		
	Bothered a lot	156	14	34	10		
2. Back Pain	Not bothered at all	66	12	5	8	9.462	0.009**
	Bothered a little	93	23	11	10		
	Bothered a lot	197	35	27	23		
3. Pain in your arms, legs, or joints (knees, hips, etc.)	Not bothered at all	55	10	6	4	12.	0.012*
	Bothered a little	87	32	11	12		
	Bothered a lot	214	30	26	25		
4. Menstrual cramps or other problems with your periods [WOMEN ONLY]	Not bothered at all	67	21	11	23	29.991	0.003**
	Bothered a little	55	12	4	7		
	Bothered a lot	234	39	28	11		
5. Headaches	Not bothered at all	38	9	13	11	7.533	0.047**
	Bothered a little	156	41	23	13		
	Bothered a lot	162	22	7	17		
6. Chest Pain	Not bothered at all	112	11	7	8	6.334	0.048*
	Bothered a little	124	23	11	9		
	Bothered a lot	120	38	25	24		
7. Fainting spells	Not bothered at all	56	12	11	11	11.319	0.046*
	Bothered a little	149	28	17	18		
	Bothered a lot	151	32	15	12		
8. Feeling your heart pound	Not bothered at all	73	12	11	9	8.211	0.0
	Bothered a little	121	36	16	11		
	Bothered a lot	162	24	16	21		
9. Shortness of breath	Not bothered at all	98	9	12	11	23.236	0.002**
	Bothered a little	131	29	19	13		
	Bothered a lot	127	34	12	17		
10. Constipation, loose bowels, or diarrhea	Not bothered at all	151	37	11	8	19.871	0.046*
	Bothered a little	187	24	24	33		
	Bothered a lot	18	11	8	0		
11. Nausea, gas or indigestion	Not bothered at all	164	29	13	10	14.332	0.052#
	Bothered a little	139	16	19	33		
	Bothered a lot	53	27	11	0		
12. Feeling tired or having low energy	Not bothered at all	36	11	0	3	17.621	0.009**
	Bothered a little	149	24	6	12		
	Bothered a lot	171	37	37	26		
13. Trouble in sleeping	Not bothered at all	34	13	0	3	1.312	0.032*
	Bothered a little	151	23	6	12		
	Bothered a lot	171	36	37	26		

* - significant

** - highly significant

- not significant

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DISCUSSION

The present cross-sectional study evaluated somatization status and its associated variables among dental students and dental professionals, revealing a considerable prevalence of somatic symptoms. The PHQ-15 scale used for assessment is a validated and widely accepted tool for measuring somatic symptom severity¹. Somatization is influenced by multiple psychological and personal factors. Previous research among university health science students has shown that personal, medical, and psychological variables significantly contribute to somatization². Sleep disturbances have also been identified as an important contributing factor, linking psychological distress with somatic symptoms³.

In the present study, dental students exhibited higher somatization levels compared to professionals. Similar findings have been reported among medical and dental students, where stress, lack of resilience, and academic burden increase susceptibility to somatic complaints⁴. Additionally, behavioral factors such as excessive internet use have been associated with psychosomatic symptoms among students⁵. Academic stress plays a crucial role in somatization. Studies among final-year medical students have demonstrated that increased academic workload and performance pressure significantly contribute to somatic symptom development⁶. Likewise, dental students frequently experience high levels of depression, anxiety, and stress, which are strongly associated with somatization⁷.

Somatic symptom disorder has been well defined in clinical literature, emphasizing the interaction between psychological distress and physical symptoms⁸. Systematic reviews have further highlighted that dental students are particularly vulnerable to stress due to academic and clinical demands^{9,10}. Epidemiological studies conducted by Coşar et al. indicate that somatic symptom disorders are prevalent across populations and are influenced by multiple psychosocial factors. Clinical guidelines also emphasize the importance of early diagnosis and management of somatization to prevent long-term health consequences^{12,13}. Psychological distress, including depression and anxiety, has been widely reported among medical students globally, contributing significantly to somatic symptoms¹⁴. The academic environment itself has been identified as a major stressor influencing students' mental health and overall well-being¹⁵.

Neurobiological mechanisms also play a role in somatization, where social stressors influence physiological responses and contribute to physical symptom manifestation¹⁶. Sleep disturbances further

aggravate both mental and physical health outcomes, strengthening their association with somatization¹⁷. Lifestyle factors such as smoking have been shown to increase the risk of anxiety and depression, thereby indirectly contributing to somatic symptoms¹⁸. In addition, occupational hazards such as musculoskeletal disorders are commonly observed among dental professionals due to the nature of their clinical work¹⁹. Functional somatic syndromes are closely linked with stress-related disorders and require comprehensive management approaches²⁰. Furthermore, stressors specific to dental education, including workload, patient management, and clinical performance, have been identified as major contributors to psychological distress²¹.

RECOMMENDATIONS

Based on the findings of the present study, it is recommended that dental institutions implement structured stress management programs, including mindfulness training, yoga, relaxation techniques, and time-management workshops, to help students and practitioners effectively cope with academic and clinical stress. Regular mental health screening using validated tools such as the PHQ-15, along with access to confidential psychological counseling services, should be made available in dental colleges and hospitals to facilitate early identification and timely intervention for somatic symptoms.

Institutions should also promote healthy lifestyle practices by creating awareness about sleep hygiene and emphasizing the importance of obtaining adequate sleep (7–8 hours), particularly among postgraduate students and dental practitioners who commonly experience sleep disturbances. Regular physical activity should be encouraged through accessible sports facilities and by integrating exercise into daily routines, as physical inactivity has been significantly associated with increased somatic complaints. In addition, lifestyle modification initiatives, including anti-smoking campaigns and wellness programs, should be introduced, especially for interns, postgraduate students, and practitioners where higher smoking prevalence has been observed.

Considering the high prevalence of musculoskeletal complaints among dental professionals, ergonomic training on proper posture, ergonomics, and the use of appropriate dental equipment should be emphasized to prevent long-term physical strain. Dental curricula should incorporate modules on stress management, mental health awareness, and work-life balance to better prepare students for professional challenges. Furthermore, improving hostel facilities and promoting peer-support groups may help reduce psychological stress, particularly among undergraduate students living

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away from their families. Academic institutions should also review and balance academic and clinical workloads to minimize excessive stress, especially during examination and submission periods. Finally, longitudinal and multicenter studies are recommended to better understand the causal relationships between somatization and associated factors and to evaluate the effectiveness of various intervention strategies

CONCLUSION

The present study reveals a high prevalence of somatic symptoms among dental students and practitioners, with a clear increase in severity across advancing academic and professional levels. Postgraduate students and dental practitioners exhibited a greater burden of symptoms such as fatigue, musculoskeletal pain, and sleep disturbances, indicating the impact of increased academic demands, clinical workload, and occupational stress. Significant differences observed across multiple somatic domains—including pain, fatigue, respiratory symptoms, and sleep disturbances—highlight the progressive nature of somatization in this population. Additionally, unfavorable lifestyle patterns, such as reduced physical activity, shorter sleep duration, and increased smoking, were more prominent at higher professional levels and may further exacerbate symptom severity. Overall, the findings emphasize the need for early recognition and targeted interventions addressing stress management, mental health, and lifestyle modification. Integrating these strategies into dental training and professional practice may help reduce somatic symptom burden and improve overall health and wellbeing among dental professionals.

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