

Assessment of Different Personality Traits Amongst Dental Interns and First-year Undergraduate Students: A Cross-sectional Study

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ABSTRACT

Introduction: Personality traits are stable patterns of cognition, emotion, motivation and behaviour that individuals display across various situations. Performance in medical and dental education requires a range of personality traits; therefore, understanding human behaviour and individual differences necessitates an understanding of these traits. Research on the personalities of medical students and those in training programmes for other health professions has revealed certain traits that are linked to academic and clinical success throughout the educational process.

Aim: To assess the different personality traits amongst dental interns and first-year undergraduate students.

Materials and Methods: A cross-sectional study was conducted at the Department of Paediatric and Preventive Dentistry, I.T.S. Dental College, Hospital and Research Centre, Greater Noida, Uttar Pradesh, India, from March 2024 to June 2024. The study included 206 participants, comprising 98 interns and 108 first-year students. A Big Five Personality Test (BFPT) questionnaire consisting of 44 questions was distributed via Google Forms through mail and WhatsApp to

the participants. The questionnaire focused on five personality traits: extroversion, agreeableness, conscientiousness, emotional stability and openness to experience. The normality of the data was tested by the Shapiro-Wilk test and was found to be normally distributed. The significance of the differences in means of parameters between the two groups was tested using an independent t-test, with a significance level set at $p < 0.05$.

Results: A total of 206 participants were included in the present study. The agreeableness and conscientiousness traits were significantly higher in interns ($p < 0.001$; t-value: 19.235 and 13.103, respectively), while the openness to experience trait ($p < 0.001$; t-value: -16.918) was expressed more by first-year dental students. The traits of extroversion and emotional stability showed similar scores in both interns and first-year dental students.

Conclusion: Conscientiousness and agreeableness were found to be higher amongst interns, whereas first-year students exhibited the openness to experience trait more significantly. The authors suggest further exploration of the impact of different personality types on academic performance, clinical skills and patient management.

Keywords: Big five personality test, Clinical competence, Education

INTRODUCTION

Personality is a dynamic configuration of an individual's internal psychophysical systems that influences thoughts and actions [1]. Personality may remain consistent or change over time due to both genetic and environmental factors. Personality traits are stable patterns of cognition, emotion, motivation and behaviour displayed across various situations. These traits are central to the formation of behaviours, communication patterns, stress reactions and professional growth amongst healthcare professionals, including dentists. Dentistry is a challenging profession that demands not only technical proficiency but also interpersonal sensitivity, emotional control and flexibility. The formation and demonstration of personality traits tend to change gradually during dental education with increased clinical exposure, responsibilities and patient contact.

The BFPT was described by Allport GW in 1961. [2]. Kabigting F (1949) advocated for the idea of the five-factor theory, which fundamentally defines personality and became the basis of the BFPT [3]. The five main categories (factors) into which the Big Five model divides individual personality traits are neuroticism, extroversion, openness to experience, agreeableness and conscientiousness [4].

- Extroversion is the extent to which individuals engage with the outside world and experience happiness and other positive emotions.

- Agreeableness: This trait gauges how much individuals value cooperation, social harmony and moral qualities such as decency and honesty.
- Conscientiousness: This refers to the extent to which individuals value planning, possess tenacity and maintain a goal-oriented mindset.
- Emotional Stability: This measures the degree to which individuals maintain composure and equilibrium. They generally do not frequently experience negative emotions and tend to be calm and emotionally steady.
- Neuroticism (or Emotional Instability): This is the opposite of emotional stability; individuals displaying neuroticism are emotional and have a propensity to overreact.
- Openness to experience: This trait reflects the extent to which individuals exhibit intellectual curiosity, individualism and self-awareness.

Research on the personalities of medical students and those in training programmes for other health professions has revealed specific traits linked to academic and clinical success throughout various phases of the educational process. Dentistry is a unique profession where dentists must run their own clinical practice while primarily focusing on patient care. It is likely that dentists differ from the general population due to certain personality traits.

To effectively manage their offices and collaborate closely with patients, many dentists possess a variety of personality qualities. These traits need to be cultivated right from undergraduate education. Therefore, the current study was designed to determine and compare the most common personality traits displayed by interns and first-year undergraduate dental students. The present study is a novel research aimed at comparing the personality traits of interns and first-year dental students. The rationale for including both groups lies in their positions at opposite ends of the Bachelor in Dental Surgery (BDS) program spectrum, allowing for an assessment of how curriculum and college experiences impact personality.

MATERIALS AND METHODS

This cross-sectional study was conducted at the Department of Paediatric and Preventive Dentistry, I.T.S. Dental College, Hospital and Research Centre, Greater Noida, Uttar Pradesh, India, between March 2024 and June 2024 and included 206 participants comprising 98 interns and 108 first-year students. The study protocol was analysed and approved by the Institutional Ethics Committee (IEC/ Pedo/09/24). The present cross-sectional survey utilised the Big Five Personality Traits (BFPT) scale to assess the personality traits amongst dental students [5]. A BFPT questionnaire consisting of 44 questions was distributed via Google Forms through email and WhatsApp to participants, with periodic reminders sent.

Inclusion criteria:

- First-year dental students and interns currently enrolled at ITS Dental College, Greater Noida.
- Students who consented to participate in the research.

Exclusion criteria:

- Incomplete or partially filled questionnaire responses.
- Students unwilling to participate or who withdrew from the study.

Study Procedure

For each question on the BFPT questionnaire, responses were rated using a Likert scale [6]. Respondents were instructed to choose the option that best reflected their level of agreement. The choices ranged from “disagree” to “agree” and were scored as follows: 1=disagree, 2=slightly disagree, 3=neutral, 4=slightly agree and 5=agree. The evaluation of personality traits-Extroversion (E), Agreeableness (A), Conscientiousness (C), Emotional Stability (ES) and Openness to Experience (O)-of an individual was conducted using the established scoring criteria.

STATISTICAL ANALYSIS

All collected data were entered into Microsoft (MS) Excel and analysed using Statistical Package for the Social Sciences (SPSS) version 23.0. Descriptive statistics, including mean, standard deviation and standard error of the mean, were calculated. The normality of the

data was tested using the Shapiro-Wilk test, confirming that it was normally distributed. The significance of the differences in means between the two groups was tested using an independent t-test, with a significance level set at ($p < 0.05$).

RESULTS

A total of 206 dental students responded and submitted completed questionnaires, comprising 98 interns and 108 first-year students. The sample included 76 males (36.89%) and 130 females (63.11%) [Table/Fig-1].

Gender	n (%)
Male	76 (36.89%)
Female	130 (63.11%)
Designation	n
Interns	98
First-year	108

[Table/Fig-1]: Demographic details of the participants (n=206).

The results indicate that the agreeableness trait scores for interns were statistically significantly higher than those of first-year dental students ($\{p < 0.001\}$, $\{t = 19.235\}$). The mean scores were 35.58 for interns and 24.35 for first-year students. The mean score for conscientiousness was 36.01 amongst interns and 28.42 amongst first-year students, which also exhibited a statistically significant difference ($\{p < 0.001\}$, $\{t = 13.103\}$). Openness to experience was significantly higher amongst first-year undergraduate students ($\{p < 0.001\}$, $\{t = -16.918\}$) [Table/Fig-2].

Neuroticism and extroversion did not significantly differ between interns and first-year dental students ($p > 0.05$). The mean neuroticism trait scores were 28.02 for interns and 27.68 for first-year students. The extroversion trait showed mean values of 28.52 and 28.34 for interns and first-year students, respectively [Table/Fig-2].

DISCUSSION

Personality traits consist of a person's inherent characteristics that are influenced by environmental factors [7]. The distinctive thoughts, emotions and behaviour patterns are reflected in an individual's personality traits. The Big Five personality model is the most recognised personality theory, comprising five key factors: neuroticism, extroversion, openness to experience, agreeableness and conscientiousness.

Success in dental education is determined by a combination of cognitive skills and personality traits. In addition to cognitive skills, individuals require a variety of personality traits to succeed in dental schools and, ultimately, in their practice. The personalities of dental students significantly impact their academic and professional success, as well as their relationships with teachers, peers and patients. Strong interpersonal and communication skills are essential for dental students to effectively address patients' concerns, reassure them and educate them about dental procedures.

Parameters	Students	n	Mean \pm SD	Mean difference \pm SEM	t-value	p-value
Extroversion score	Intern	98	28.5204 \pm 4.26501	0.17782 \pm 0.56339	0.316	0.753 ^{NS}
	First-year	108	28.3426 \pm 3.82115			
Agreeableness score	Intern	98	35.5816 \pm 3.92435	11.22978 \pm 0.58382	19.235	<0.001**
	First-year	108	24.3519 \pm 4.40754			
Conscientiousness score	Intern	98	36.0102 \pm 3.91533	7.58428 \pm 0.57881	13.103	<0.001**
	First-year	108	28.4259 \pm 4.34968			
Neuroticism score	Intern	98	28.0204 \pm 3.76084	0.33522 \pm 0.51439	0.652	0.515 ^{NS}
	First-year	108	27.6852 \pm 3.61887			
Openness score	Intern	98	32.7245 \pm 3.67713	-10.37736 \pm 0.61338	-16.918	<0.001**
	First-year	108	43.1019 \pm 4.95954			

[Table/Fig-2]: Comparison of Mean \pm SD of parameters amongst two students groups (N=206).

Test applied -Independent t-test^{NS} Not Significant, $p > 0.05$, * Significant $p < 0.05$, **Highly significant $p < 0.01$

Emotional intelligence and empathy play critical roles in fostering patient satisfaction and trust [8]. Dental students who possess a compassionate and understanding disposition are better equipped to deliver patient-centered care, addressing patients' emotional and psychological needs, which is essential for their comfort and engagement during treatment.

The present research aimed to determine and compare the most common personality traits displayed by interns and first-year undergraduate dental students.

The first-year undergraduate students predominantly exhibited the trait of openness to experience, which may be attributed to the fact that they were new to the field of dentistry. This trait could also be observed amongst first-year undergraduates in other professions, as they are fresh school graduates [9]. The term openness describes the depth and complexity of a person's emotional and intellectual life. It reflects creativity, intellectual curiosity and an inclination toward innovation. Additionally, openness is linked to the expression of feelings, ideas, behaviours and experiences that emphasise mental performance and creativity. This quality is considered favourable in the dental profession, as it facilitates academic success, clinical innovation and adaptability to the ever-evolving nature of dentistry.

However, a significant difference was observed in the exhibition of this trait amongst interns and first-year. A study conducted by Chamberlain TC et al., showed that dental students scored higher in openness to experience [10]. Communication is considered a vital attribute of dentists and it depends largely on openness to experience. Asokan S et al., assessed personality traits amongst paediatric dentists and described openness as a crucial determinant of successful behaviour management, prompting the use of appropriate techniques like storytelling, distraction and euphemisms [4].

Conscientiousness was the most dominant trait amongst interns. It is defined as being orderly, dependable and self-disciplined in both social and private life, as well as planning ahead rather than acting impulsively. Furthermore, this personality trait relates to how individuals regulate and control their impulses. The qualities of organisation, perseverance and purposefulness associated with conscientiousness align with the discernment, prudence and trustworthiness required to support the consistent and repetitive nature of dental practice [10]. The development of this trait amongst interns can be attributed to increased age, knowledge and experience. In contrast, this trait was significantly lower amongst first-year students due to their inexperience and unfamiliarity with the profession, which may reduce their ability to pay attention to details and follow structured routines. A study by Doherty E and Nugent E concluded that conscientiousness is a key requirement in the fields of medicine and dental science [11]. In a study of 373 dental students in Canada, Poole A et al., found that academic success was predicted by openness to experience, whereas both clinical and academic performance were predicted by conscientiousness [12].

Agreeableness was the second most predominant trait amongst interns and was observed to be significantly higher. It reflects the capacity to prioritise the needs of others over one's own, as well as a propensity for kindness, cooperation and consideration. Social harmony, teamwork and friendliness are all components of agreeableness [13]. Asokan S et al., demonstrated agreeableness as the most predominant trait amongst paediatric dentists [4]. This attribute contributes to building good rapport and communication with patients.

Neuroticism and extraversion did not show significant differences between the two groups. Neuroticism, the tendency to worry excessively, is characterised by emotional instability, anxiety and sadness; it is the opposite of emotional stability. This trait was exhibited to a lesser extent by both groups. This was consistent with the findings of Asokan S et al [4]. Goolsby S et al., concluded

that emotional stability was higher amongst male students compared to female students [14]. Extraversion is characterised by friendliness, action orientation, a cheerful attitude and assertiveness. Effective communication and relationship building—innate traits of extroverts—are essential for patient-centred dental care [9]. This quality enhances the ability to manage patient concerns, explain complex procedures and create a welcoming environment.

Research has consistently supported the importance of students' personalities as essential factors for success in both academic and professional life [15,16]. However, studies on personality traits in medical education remain limited [17] and are even rarer in dental education [18]. Therefore, further research in this area is warranted.

The strength of the present study lies in the fact that it is the first to compare personality traits between interns and first-year dental students.

Limitation(s)

The present study relied solely on participants' self-assessment of personality traits through a questionnaire. It was not feasible to evaluate personality characteristics under the supervision of a psychologist and self-assessment may be considered insufficient for accurately determining personality type. Confounding factors such as previous experiences prior to joining college were not considered in this research.

CONCLUSION(S)

The present study compared the personality traits of interns and first-year dental students and found that agreeableness and conscientiousness were more prominent amongst interns, whereas openness to experience was more prevalent amongst first-year students. The authors recommend further exploration of how different personality types impact academic performance, clinical skills and patient management.

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