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Association of Dental Anxiety with Personality Traits among Engineering Students in Chennai City: A Questionnaire Study

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Abstract:
Introduction: Dental anxiety, a common psychological condition, significantly impacts individuals' oral health-seeking behaviors and overall dental care. It is influenced by various factors, including personality traits, which determine how individuals perceive and respond to anxiety-inducing situations. Engineering students, often under academic stress, may exhibit unique patterns of dental anxiety linked to their personality profiles. This study aims to investigate the association between dental anxiety and personality traits among engineering students in Chennai city using a structured questionnaire. **Materials and methods**: This cross-sectional study was conducted among engineering students from various colleges in Chennai city between June and August 2024. A total of 400 students aged 18–25 years were selected using stratified random sampling to ensure representation across academic years. **Results:** 21.4% of participants had high dental anxiety (MDAS > 15). **Discussion:** The findings indicate that personality traits, particularly neuroticism and introversion, significantly influence dental anxiety among engineering students. Neurotic individuals are prone to overthinking and experiencing heightened emotional reactions to stressful situation. **Conclusion:** This study highlights a significant association between dental anxiety and personality traits among engineering students in Chennai city. Neuroticism and introversion were strongly correlated with higher dental anxiety levels.
Keywords: Dental anxiety, cross-sectional study, engineering students

Introduction

Dental anxiety is an irrational fear of dental procedures that can result in the avoidance of dental visits, worsening oral health conditions. (Haydar, 2017)According to the American Psychiatric Association, dental anxiety is categorized under specific phobias and is influenced by psychological, environmental, and demographic factors.Personality traits, as described by the Big Five Model (openness, conscientiousness, extraversion, agreeableness, and neuroticism), are known to shape individuals' responses to stress and anxiety-inducing situations. (Singh, Rathore and Dubey, 2024)However, there is limited evidence on how these traits influence dental anxiety among young adults, particularly engineering students, who often experience academic stress that could exacerbate anxiety.Dental anxiety, a common psychological condition, significantly impacts individuals' oral health-seeking behaviors and overall dental care. It is influenced by various factors, including personality traits, which determine how individuals perceive and respond to anxiety-inducing situations.(Campbell, 2017; Singh, Rathore and Dubey, 2024) Engineering students, often under academic stress, may exhibit unique patterns of dental anxiety linked to their personality profiles. This study aims to investigate the association between dental anxiety and personality traits among engineering students in Chennai city using a structured questionnaire. Understanding this relationship can help identify vulnerable individuals and develop tailored psychological and dental interventions to improve oral health outcomes in this population.(Öst and Skaret, 2013; Campbell, 2017; Singh, Rathore and Dubey, 2024)This study aims to assess the prevalence of dental anxiety and its association with personality traits among engineering students in Chennai city using a structured questionnaire-based approach.

Materials and Methods

Study Design and Population

This cross-sectional study was conducted among engineering students from various colleges in Chennai city between June and August 2024. A total of 400 students aged 18–25 years were selected using stratified random sampling to ensure representation across academic years.

Inclusion and Exclusion Criteria

- Inclusion criteria:
- Students enrolled in engineering programs.
- Those with no history of psychiatric disorders.
- Exclusion criteria:
- Students undergoing current dental treatment.
- Those with incomplete questionnaire responses.

Data Collection Tools

1. Modified Corah's Dental Anxiety Scale (MDAS): A validated 5-item scale to assess dental anxiety. Scores range from 5 (low anxiety) to 25 (extreme anxiety).
2. Big Five Inventory (BFI): A 44-item questionnaire assessing the five personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism.

Data Collection Procedure

Participants were asked to complete an online questionnaire after providing informed consent. The questionnaire comprised demographic details, MDAS, and BFI. Confidentiality was ensured throughout the study.

Statistical Analysis

Data were analyzed using SPSS software (version 25.0). Descriptive statistics were used to calculate mean MDAS scores and personality trait scores. Correlation analysis (Pearson's coefficient) was used to assess the relationship between dental anxiety and personality traits. A p-value < 0.05 was considered statistically significant.

Results

Demographics

Out of 400 participants, 365 completed the questionnaire (response rate: 91.25%). The majority were male (61.6%), with an average age of 20.4 ± 1.8 years.

Prevalence of Dental Anxiety

- The mean MDAS score was 13.2 ± 4.1, indicating moderate dental anxiety.
- 21.4% of participants had high dental anxiety (MDAS > 15).

Personality Trait Distribution

- Neuroticism had the highest mean score (3.8 ± 0.6), followed by conscientiousness (3.6 ± 0.5).
- Extraversion and openness were relatively lower (3.0 ± 0.4 and 3.1 ± 0.5, respectively).

Correlation Analysis

- Positive correlation:

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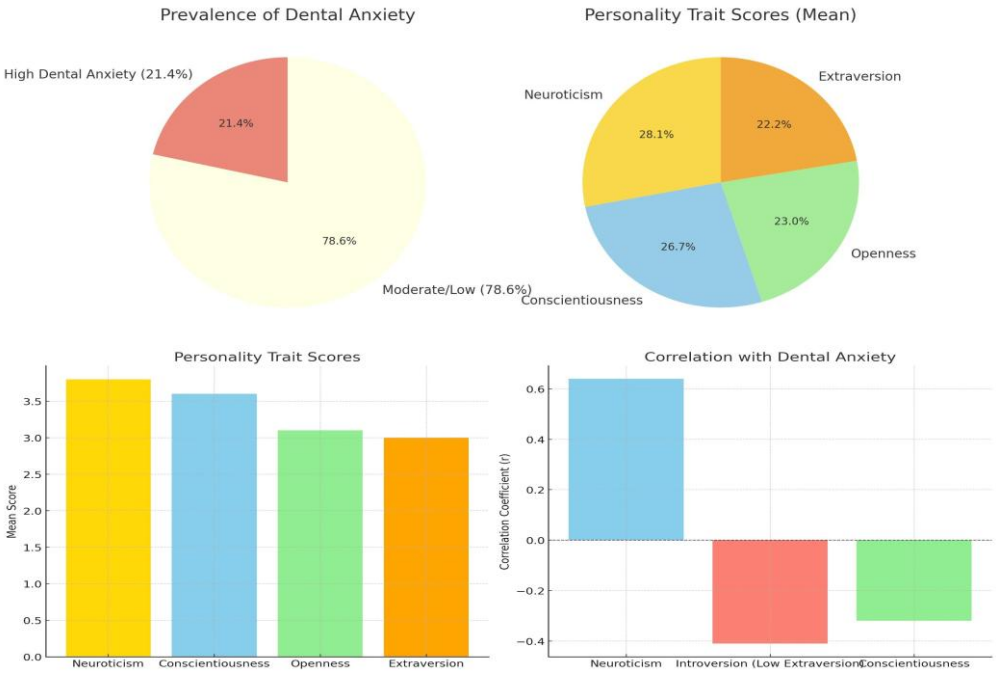
- Neuroticism (r = 0.64, p < 0.01): Higher neuroticism was strongly associated with increased dental anxiety.
- Introversion (low extraversion) (r = -0.41, p < 0.05): Introverted students reported higher dental anxiety levels.
- Negative correlation:
- Conscientiousness (r = -0.32, p < 0.05): Conscientious students reported lower dental anxiety levels.
- No significant association was found between dental anxiety and openness or agreeableness.



Discussion

The present study provides valuable insights into the relationship between dental anxiety and personality traits among engineering students in Chennai. The findings indicate that neuroticism and introversion are significantly associated with higher levels of dental anxiety(Dionne, Phero and Becker, 2002). These traits are often linked to heightened emotional sensitivity and a predisposition to fear, which may explain the increased anxiety observed in such individuals. On the other hand, students with traits like extroversion and emotional stability exhibited lower levels of dental anxiety.(Rotaru *et al.*, 2024) Extroverted individuals are typically more social and resilient, enabling them to better cope with stressful situations, including dental visits. Emotional stability further aids in reducing fear and anxiety by promoting a balanced response to potentially distressing experiences.(Bchara *et al.*, 2024; Rotaru *et al.*, 2024)Engineering students often face intense academic pressure, which can compound their stress levels and make them more susceptible to dental anxiety. This heightened anxiety could serve as a barrier to seeking timely dental care, potentially leading to deteriorated oral health(Ledwoń *et al.*, 2024). The unique academic and psychological challenges faced by this demographic underscore the need for dentists to adopt a personalized approach to care. Understanding the role of personality traits can help dental professionals implement targeted strategies, such as behavioral management techniques or counseling, to alleviate anxiety.The study emphasizes the importance of integrating psychological assessment into dental care for young adults. By addressing personality-driven anxiety, dentists can create a more comfortable and supportive environment, encouraging regular dental visits and fostering long-term oral health. Future research could explore similar associations across other demographics for broader applicability.(Ticku *et al.*, 2024)

Conclusion

This study highlights a significant association between dental anxiety and personality traits among engineering students in Chennai city.(Nezhad, Ashourioun and Sadeghdaghighi, 2024) Neuroticism and introversion were strongly correlated with higher dental anxiety levels, while conscientiousness appeared to have a protective effect. Dentists should consider these psychological factors when managing dental anxiety and implement interventions such as cognitive-behavioral therapy and desensitization techniques to improve patient experiences.(Singh, Ghimire and Dhungana, 2024)Findings reveal that traits such as neuroticism and introversion contribute to higher levels of dental anxiety, whereas extroversion and emotional stability are linked to reduced anxiety. The unique stressors faced by engineering students may amplify their dental anxiety, emphasizing the need for tailored approaches in dental care. (*Oral Health of United States Adults: The National Survey of Oral Health in U.S. Employed Adults and Seniors, 1985-1986 : National Findings*, 1987; Singh, Ghimire and Dhungana, 2024)By understanding the psychological factors influencing dental anxiety, dentists can adopt patient-specific strategies to create a more comfortable environment, ultimately improving oral health outcomes and reducing anxiety-related barriers to seeking dental treatment.(Öst and Skaret, 2013)

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