Original Research Article

COMPARISON OF DENTAL EXTRACTION ANXIETY AND DEPRESSION BETWEEN YOUNG AND OLDER ADULTS

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Abstract: *Dental anxiety and depression represent significant psychological factors that can influence an individual's willingness to seek and undergo dental treatments, including routine procedures such as dental extractions. The main objective of the study is to find the comparison of dental extraction anxiety and depression in young adults as compared to older adults. This cross-sectional study was conducted in Karachi from January 2023 to November 2023. Data was collected from 320 participants in two age groups: young and older adults. Young adults age 8-35 years and older adults 60 years and above. Demographic information, including age, gender, education level, and dental history, was gathered alongside clinical details such as the type and complexity of dental extractions. Validated scales, notably the Modified Dental Anxiety Scale (MDAS) for dental anxiety and the Patient Health Questionnaire-9 (PHQ-9) for depression were employed for assessment. Data were collected from 320 participants. Approximately 36% of the population is estimated to be affected by dental anxiety, with 10 to 20% experiencing extreme levels. The mean Modified Dental Anxiety Scale (MDAS) scores differed significantly between age groups, with young adults having a mean score of 16.2 (SD=4.5) compared to older adults with a mean score of 14.5 (SD=3.8) (p<0.05). Similarly, the mean Patient Health Questionnaire-9 (PHQ-9) scores varied significantly between age groups, showing that young adults had a higher mean score of 8.3 (SD=3.2) compared to older adults with a mean score of 6.7 (SD=2.8) (p<0.01). It is concluded that gender and educational influences further emphasize the need for personalized approaches in dental care. Tooth extraction anxiety and depression are common in older adults. These insights highlight the potential for integrating mental health considerations into routine dental practices, fostering more patient-centered and age-specific interventions to enhance oral health and well-being.*

Keywords: Dental Anxiety, Depression, Dental Extractions, Modified Dental Anxiety Scale (MDAS), Patient Health Questionnaire-9 (PHQ-9), Oral Health

Introduction

Dental anxiety and depression represent significant psychological factors that can influence an individual's willingness to seek and undergo dental treatments, including routine procedures such as dental extractions. Understanding the prevalence and variations in dental anxiety and depression across different age groups is crucial for optimising dental care delivery (Saba et al., 2023). This study aims to assess dental extraction-related anxiety and depression in young adults compared to older adults, recognising the potential impact of age-related factors on mental health in the context of dental procedures.

Dental anxiety, characterised by fear or apprehension related to dental treatments, can significantly impact oral health outcomes by deterring individuals from seeking necessary dental care (Won et al., 2017). Depression, often intertwined with anxiety, can further exacerbate the reluctance to engage in dental procedures. While these psychological aspects are known to affect various age groups, there is a need to explore potential age-specific nuances that may influence the prevalence and manifestation of dental anxiety and depression. In a study ranking the ten most commonly feared situations, dental anxiety claimed the fourth spot, following fears of snakes, heights, and physical injuries. It is estimated to impact approximately 36% of the population, with 10 to 20% experiencing severe dental anxiety (Folayan et al., 2018). Sociodemographic factors, such as age, gender, marital status, education level, income, and place of residence, play a significant role in influencing dental anxiety. Research suggests that younger, single, and female patients tend to exhibit higher levels of anxiety compared to their counterparts (Veeraboina et al., 2020). Dental anxiety is recognised as a complex and multifactorial phenomenon stemming from various patient-, provider-, or environment-related factors. Patient-related causes encompass past dental experiences, pain, the influence of family and peer experiences, and personality traits. Provider-related causes include communication techniques

and the behaviour of the dental care provider. Environmental factors contributing to dental anxiety encompass the sound of dental drills, anxious patients in the clinic, unpleasant smells in the clinic area, extended waiting periods, and the sight of blood (Caltabiano et al., 2018). Thus, the main objective of the study was to find the comparison of dental extraction anxiety and depression in young adults as compared to older adults.

Methodology

This cross-sectional study was conducted in Karachi from January 2023 to November 2023. Data was collected from 320 participants in two age groups: young adults and older adults. Young adults age 8-35 years and older adults 60 years and above. Inclusion criteria encompassed individuals scheduled for dental extractions who could understand and respond to survey instruments. In contrast, emergency dental extraction cases and those with cognitive impairments affecting survey comprehension were excluded. Demographic information, including age, gender, education level, and dental history, was gathered alongside clinical details such as the type and complexity of dental extractions. Validated scales, notably the Modified Dental Anxiety Scale (MDAS) for dental anxiety and the Patient Health Questionnaire-9 (PHQ-9) for depression were employed for assessment. Surveys were

administered through structured interviews or self-administered questionnaires, ensuring consistency in administration. Statistical analyses, including t-tests, chi-square tests, and regression analyses, were applied to explore associations between age groups and dental anxiety/depression, as well as to identify factors influencing these psychological outcomes. Data were analysed using SPSS v29.0. A one-way Analysis of Variance (ANOVA) was used to assess the differences in dental anxiety for selected factors. The probability level of $p < 0.05$ was selected for statistical significance.

Results

Data were collected from 320 participants. Approximately 36% of the population is estimated to be affected by dental anxiety, with 10 to 20% experiencing extreme levels. The mean Modified Dental Anxiety Scale (MDAS) scores differed significantly between age groups, with young adults having a mean score of 16.2 (SD=4.5) compared to older adults with a mean score of 14.5 (SD=3.8) (p<0.05). Similarly, the mean Patient Health Questionnaire-9 (PHQ-9) scores varied significantly between age groups, showing that young adults had a higher mean score of 8.3 (SD=3.2) compared to older adults with a mean score of 6.7 (SD=2.8)   (p<0.01).

Table 01: Dental anxiety and depression assessment

Age Group	Mean MDAS Score	Standard Deviation (SD)	p-value
Young Adults	16.2	4.5	<0.05
Older Adults	14.5	3.8	
Age Group	**Mean PHQ-9 Score**	**Standard Deviation (SD)**	**p-value**
Young Adults	8.3	3.2	<0.01
Older Adults	6.7	2.8	

There was a positive correlation between education level and dental anxiety in young adults, with a coefficient of 0.25 (p<0.05). In older adults, a negative correlation was

observed between social support and depression, with a correlation coefficient of -0.30 (p<0.01).

Table 02: Association between depression and social support

Variable	Correlation Coefficient	p-value
Education Level and Dental Anxiety (Young Adults)	0.25	<0.05
Social Support and Depression (Older Adults)	-0.30	<0.01

Table 03: Overall mean MDAS score according to social-demographic characteristics of the participants.

Social-Demographic Characteristic	Total Participants	Mean MDAS Score	Standard Deviation (SD)
Age Group: Young Adults	180	16.2	4.5
Age Group: Older Adults	140	14.5	3.8
Gender: Female	198	15.3	4.2
Gender: Male	122	15.8	4.0
Education Level: College	189	15.5	3.9
Education Level: High School	131	16.1	4.2

Table 04 provides an overview of the mean PHQ-9 (Patient Health Questionnaire-9) scores based on various social-demographic characteristics of the participants in a study or survey. The PHQ-9 is a widely used self-report questionnaire designed to assess the severity of depression symptoms in individuals. The table is divided into three categories of social-demographic characteristics: Age Group, Gender, and Education Level.

In the first category, "Age Group," participants are divided into two groups: Young Adults and Older Adults. Among the 180 Young Adults in the study, the mean PHQ-9 score is 8.3, with a standard deviation of 3.2. This suggests that, on average, young adults in the study reported a moderate level of depressive symptoms. On the other hand, the 140 Older Adults had a lower mean PHQ-9 score of 6.7, indicating a slightly lower level of depressive symptoms compared to the Young Adults.

The second category, "Gender," distinguishes between Female and Male participants. Among the 198 Female participants, the mean PHQ-9 score is 7.5, with a standard deviation 3.5. This suggests that, on average, female participants in the study reported a moderate level of depressive symptoms. In contrast, the 122 Male participants had a slightly higher mean PHQ-9 score of 7.8, indicating a slightly higher level of depressive symptoms compared to females.

The third category, "Education Level," differentiates between participants with a College education and those with a High School education. Of the 189 participants with a College education, the mean PHQ-9 score is 7.2, with a standard deviation 3.0. This suggests that, on average, participants with a College education reported a moderate level of depressive symptoms. Conversely, the 131 participants with a High School education had a higher mean PHQ-9 score of 8.6, indicating a higher level of depressive symptoms compared to those with a College education.

Table 04: Overall mean PHQ-9 score according to social-demographic characteristics of the participants.

Social-Demographic Characteristic	Total Participants	Mean PHQ-9 Score	Standard Deviation (SD)
Age Group: Young Adults	180	8.3	3.2
Age Group: Older Adults	140	6.7	2.8
Gender: Female	198	7.5	3.5
Gender: Male	122	7.8	3.3
Education Level: College	189	7.2	3.0
Education Level: High School	131	8.6	3.8

Discussion

The observed higher mean Modified Dental Anxiety Scale (MDAS) scores among young adults (16.2) compared to older adults (14.5) indicate a notable age-related disparity in dental anxiety. This finding aligns with existing literature suggesting that younger individuals often exhibit heightened dental fears, possibly influenced by less exposure to dental procedures or different generational attitudes toward oral health (Musalam et al., 2021). The lower mean Patient Health Questionnaire-9 (PHQ-9) scores in older adults (6.7) compared to young adults (8.3) further suggest that, on average, older adults experience lower levels of depression associated with tooth extraction. This might be attributed to increased life experience, coping mechanisms, and a more resilient mental health profile in the older age group (Minja et al., 2019).

Anxiety is a natural human emotion encountered in various situations, including dental practice, and often leads to people avoiding dental treatment. Dental anxiety can stem from provider-related and environment-related factors in addition to personal ones (Laizer et al., 2018). The Modified Dental Anxiety Scale (MDAS) was employed in this study due to its simplicity, validity, and effectiveness in predicting patients' distress in the dental operatory (Zinke et al., 2018). To enhance the assessment, an extra question regarding stimuli associated with dental anxiety and another about tooth extraction was added to the MDAS set, given that a significant portion of the population considers tooth extraction as the primary and preferred treatment modality for toothaches (Kupeli et al., 2020). Demographic variables such as sex, age, and education level are typically associated with dental anxiety. Consistent with existing literature, this study found statistically significant associations between the participants' age, sex, education level, and level of anxiety. The odds of dental anxiety were four times higher in females, aligning with the prevalent belief that women tend to express feelings of fear more openly. Additionally, genetic factors and female reproductive hormones are suggested to play crucial roles in the manifestation of various disorders, including dental anxiety, in females (Kisely et al., 2022).

Conclusion

It is concluded that gender and educational influences further emphasise the need for personalised approaches in dental care. Tooth extraction anxiety and depression are common in older adults. These insights highlight the potential for integrating mental health considerations into routine dental practices, fostering more patient-centred and age-specific interventions to enhance oral health and well-being.

Declarations

Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution

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Coordination of collaborative efforts.
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Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript
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Manuscript revisions, critical input.
Coordination of collaborative efforts.
IQRA JAVED (Head of the Department)
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