

RESEARCH COMMUNICATION

Dental anxiety among the adult residents of Barangay Cambaog, Bustos, Bulacan, Philippines

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ABSTRACT

Background: Dental anxiety (DA) creates a vicious cycle of dentist avoidance, oral health neglect, increased unmet treatment needs, compromised well-being and quality of life (QoL), which then generates added anxiety. The prevalence of DA among adult Filipinos has not been investigated.

Objectives: This study aimed to establish baseline data on dental anxiety among the adult residents of Barangay (Brgy.) Cambaog, Bustos, Bulacan, Philippines.

Methodology: Three hundred thirty-six (336) randomly selected adult residents completed a questionnaire that included demographics, frequency of dental visits, self-assessment of their oral health status, the Corah's Dental Anxiety Scale (DAS), and reasons for their DA.

Results: The study showed that 11% of the 336 participants had DA, were young adults, affecting twice as many women than men, had lower levels of education, and with a lessening of anxiety with age. Participants with DA were also found to have infrequent dental visits, were symptom-driven, had poorer self-assessed oral health status, and only 13% of the respondents with DA viewed their oral health as healthy. Needles, tooth extraction, pain, previous negative experience, and sound of the drill were some of the triggers that elicited anxiety.

Conclusion: DA affects a proportion of the adult residents of Brgy. Cambaog and can be considered a dental public health problem. The use of screening tools like DAS should be considered for the early recognition of patients with DA so that management measures may be taken to enhance the delivery of oral health services.

Keywords: dental anxiety, Corah's Dental Anxiety Scale, DAS, adult patient

Introduction

Dental anxiety (DA) often leads to avoidance of seeking dental care, leading to adverse outcomes in oral health. It acts as a barrier and creates a cycle wherein patients avoid dentists, delay or neglect their oral health, have unmet treatment needs, tend to self-medicate, and affect their oral health-related quality of life (QoL) which generates added anxiety [1-8]. It is reported to be the 5th most common fear and occurs across all age groups and nationalities [9]. Studies have pointed to a stable or even decreasing prevalence among specific populations over time [10,11]. The study aimed to establish baseline data on the prevalence, demographics, perceived oral health status, frequency of dental visits, and reasons contributing to DA among adult Filipinos.

Prevalence of DA has been shown to range from 4% to 30% in various population groups, with 10-20% of individuals

exhibiting high anxiety [3,5,7,11-16]. Onset is mainly during childhood, and etiologic factors include influence from family, painful, traumatic, negative, or embarrassing dental experience, fear of being reprimanded, communication gaps, and unprofessional conduct of the dental personnel [7,16-19].

Several studies found a higher prevalence of DA among women and those with low income [8,16,20-22]. As to DA and age, some studies claim younger persons have higher DA scores than older individuals [2,7,8,11,13,15,16], while others dispute [6,23]. Literature also conflicts with DA and education level; some report a higher prevalence among individuals with lower levels of education [11,22,23], while some contradict [24].

Highly anxious patients, measured clinically or by self-assessment, are more likely to have poorer oral health, more

significant treatment needs, increased frequency of dental absences, and irregular or canceled appointments to no dental visits [9,22,24,25,28]. These patients can also cause stress to the dental staff. Their unpredictable and uncooperative behavior may lead to more complicated and time-consuming procedures, delaying or disrupting schedules and economic productivity [4,9,12,20,26]. There are reports that those with high DA are more negative, hostile, or have unfavorable attitudes towards dental personnel [17,25,26].

Tools are available for the dental setting to gauge the level of anxiety among patients. Among the methods specific for adults, Corah's Dental Anxiety Scale (DAS) is widely used as it is easy to administer, found to be most appropriate for clinical settings, has high reliability and validity, has been translated in several languages, and is comparable to other scales available [1,24]. DAS is a four-item questionnaire with each question having five choices; the lowest score that can be obtained is 4 and the highest is 20. A cut-off score of ≥ 13 indicates having DA, and those below 13 having none [9,24,27].

Methodology

Brgy. Cambaog, Bustos, Bulacan, Philippines was chosen as the study site for convenience in resources and data collection. Based on the census tract, a random sampling of the adult residents was done to serve as the baseline population for Filipino adults. Inclusion criteria were age 18 years and above and a resident of Brgy. Cambaog. Bedridden, seriously ill, or mentally challenged adults were excluded from the study. From the adult population of 3,184, the computed sample size was 343 with a confidence level of 95 and confidence interval of 5. Ten percent (10%) was added to the computed size to compensate for participants' anticipated loss, giving a sample size of 380. Percentage, mean, and mode were done to analyze the data gathered.

This descriptive cross-sectional study design used a two-part questionnaire: the first part determined the demographics (age, gender, education), frequency of dental visits, self-assessed oral health status, and reasons for their DA. The second part made use of the DAS to determine whether or not the participants presented any anxiety. The Tagalog DAS version was edited, verified, back-translated, and certified as the official and accurate translation by the University of the Philippines Manila Sentro ng Wikang Filipino. To evaluate the clarity of the questionnaire, pilot tests were conducted on 25 randomly selected residents excluded from the sample population. Consent forms and questionnaires were distributed with the assurance that all data collected will only be for the study;

participants are non-identifiable, strict anonymity and confidentiality of the responses was maintained to conform to the World Medical Association Declaration of Helsinki.

Results

This study considered the DA cut-off score of ≥ 13 as having DA [9,24,27]. Of the 380 questionnaires distributed, 336 (88%) were completed. Results revealed that 11% of the respondents had DAS scores of ≥ 13 , the mean age of the dentally anxious respondents was 35 years, there were twice as many women than men having DA, a lessening of anxiety with age, and those with lower levels of education had higher DAS scores.

Data from this study shows that 16% of dentally anxious participants visited a dentist the last 1-6 months, 13% from one year ago, 47% from more than a year ago, and 24% had never been to one. Regarding the frequency of dental visits, 53% of the dentally anxious visited the dentist on a need basis or were symptom-driven, with only 5% going on regular visits. A total of 84% who are dentally anxious perceived their oral health from slightly unhealthy (needing some treatment) to unhealthy (having many unmet treatment needs).

Respondents, not necessarily with DAS ≥ 13 , replied to what elicits dental anxiety in them. Table 1 presents the reasons for the causes of DA ranked according to the mode in which they have been listed.

Table 1. Ranking and Reasons for DA among the Adult Residents of Brgy. Cambaog

Rank	Reasons for Dental Anxiety
1	Needle
2	Tooth extraction
3	Anticipation of pain
4	Based on previous dental experience
5	Sound of the drill
6	Afraid of acquiring infection or contagious diseases
7	Based on dental experience of others
8	Afraid of what the dentist will say about the patient's mouth
9	Expensive dental fees
10	Nervousness; Negative attitudes of dentist towards patients
11	Mistakes or errors committed by the dentist; lack of experience
12	Ineffective anesthesia; sensitivity during dental procedure; dentist hands feel heavy

Discussion

The population-based random sampling used and the high response rate of 88% are considered strengths of the study. From the total respondents, 11% had DA, which falls within the prevalence of other population groups [3,5,7,11-16].

This study revealed that the mean age of those with DA was 35 years and a lessening of anxiety with age. This agrees with literature that younger adults, 20-39 years old, were most likely to be dentally anxious [7,9,28,29]. Younger individuals with less dental experience may have more prejudices against dental procedures and lower tolerance for pain [22] than older patients who can stay calm and cope with anxiety [28,29].

Consistent with other works [2,11,15,20,21,25,28,30], this study showed that those with lower levels of education are more dentally anxious. Those with higher levels of education are perhaps more aware of the importance of oral health and are more familiar with dental treatment procedures [22].

In agreement with other studies [8,16,20-22,29], the study revealed that twice more women had DA than men. Literature states that women recall pain, report negative experiences more, and are more vulnerable to anxiety than men. Traditional gender roles allow women to be more expressive of their feelings [21,31,32]. The onset of DA mostly happens during childhood [17,18] and an association exists between parents and child anxiety [19,33]. Dentists should be aware of this relationship as children may acquire or learn their fears, even without experience, from their mothers and thus, become themselves, potential DA patients. Although there is a lower prevalence among men, it is not improbable that they can communicate their fears too.

DA participants who responded that their last dental visit was more than a year ago and had never visited since then, made up a combined total of 71%, which is consistent with literature that DA and dental visits have a negative relationship [15,25]. Persons with DA often delay their dental visits and only do so because of an emergency or when a problem arises [4,30]. In this study, more than half (53%) of those with DA, had symptom-driven dental visits. They reported that they sought treatment in conditions such as feeling discomfort or pain, presence of an abscessed tooth, or when excessive tooth mobility occurs. These ailments could have affected their health and well-being and forced them to seek treatment. Only 13% of the respondents view their oral health as healthy and is congruent with studies where persons with DA have poorer oral health and have higher treatment needs [8,9,20,25].

The etiology of DA is multifactorial, and these involve individual, external, and dental factors [19]. The reasons given by the study participants (Table 1) are similar to those reported in previous studies [17,18,25,34,35] and are considered as dental factors [19]. Lowering DA has been correlated with improving oral health-related QoL [8]. As the dentists and staff better control the dental factors, means should be taken to reduce anxiety to acceptable levels, improve dental behavior, and strive for better dental habits. They must be thoughtful of procedures that involve painful stimuli and communicate, educate, and manage the adult patient accordingly. Several pharmacologic and non-pharmacologic strategies have been recommended [2,18,19,26,36]. Examples of non-pharmacologic measures include giving patients control, establishing rapport, communicating and providing information on dental procedures and care, gradual conditioning by starting with non-threatening treatment procedures, and positive reinforcement. Intuitively and learned through experience, Filipino dentists perhaps use some of the mentioned techniques in dealing with anxious patients. As far as the authors' knowledge, the Philippines' dental curricula do not include the subject matter on DA. The issue has not been given much attention in continuing education programs. There are no dental centers involving cross-disciplinary management that cater to patients with DA. Perhaps it is time that the issue is included in the curricula as well as in the continuing education programs so that dentists are equipped with knowledge in assessing and managing dentally anxious patients at the onset of their practice. However, implementing anxiety management measures may push the cost and accessibility of dental treatment even more out of the reach of the majority of Filipinos.

The need for dental care is universal. The use of screening tools like the DAS is recommended so that patients with DA will be recognized, assessed, and management measures can be taken to deliver quality dental service. Anxiety measuring tools can help dentists address their patient's apprehensions, show concern, build rapport, and improve patient satisfaction [37]. Managing anxious patients is often the responsibility of the attending dentist, and there are no referral pathways for difficult patients.

This study has limitations, among these are (a) no clinical examination was done to confirm the participants' oral health status, (b) statistical analysis was limited to percentages, mean, and mode, and no attempt for causal relations was made, and (c) it is not generalizable for the Filipino adult population.

DA topics for future investigation that may be considered for the Filipino population are having a bigger sample size, the associations of the various variables mentioned in this study, the onset of DA, effects on the oral health-related QoL, experience, attitudes, and effects of DA from the dental practitioners' perspectives. Further investigations will lead to a recognition of the problem among Filipinos to address it, and preventive and institutional measures may be put in place in the education and dental services sectors.

In conclusion, DA and dental avoidance affect a substantial proportion of the residents of Brgy. Cambaog, and is a dental public health problem. Furthermore, the study shows that the respondents with DA are young adults, that there is a lessening of anxiety with age, affect twice more women than men and those with lower levels of education. In addition, dentally anxious individuals were found to have more infrequent dental visits, are symptom-driven, and have poorer self-assessed oral health status.

References

1. Newton JT, Buck DJ. (2000) Anxiety and pain measures in dentistry: A guide to their quality and application. *Journal of the American Dental Association* 131:1449-1457.
2. Berggren U. (2001) Long-term management of the fearful adult patient using behavior modification and other modalities. *Journal of Dental Education* 65(12):1357-1368.
3. Mehrstedt M, Tonnie S, Eisentraut I. (2004) Dental fears, health status, and quality of life. *American Dental Society of Anesthesiology* 51:90-94.
4. Armfield JM, Stewart JF, Spencer AJ. (2007) The vicious cycle of dental fear: Exploring the interplay between oral health, service utilization and dental fear. *BMC Oral Health* 7-1.
5. Kumar S, Bhargav P, Patel A, Bhati M, Balasubramanyam G, Duraiswamy P, Kulkarni S. (2009) Does dental anxiety influence oral-health related quality of life? Observations from a cross-sectional study among adults in Udaipur district, India. *Journal of Oral Science* 51(2):245-254.
6. Gisler V, Bassetti R, Mericske-Stern R, Bayer S, Enkling N. (2012) A cross-sectional analysis of the prevalence of dental anxiety and its relation to the oral health-related quality of life in patients with dental treatment needs at a university clinic in Switzerland. *Gerodontology*. 29(2):290-6.
7. Makri C, Alexias G, Togas C, Chasiotis V. (2020) Evaluation of Dental Anxiety and of its Determinants in a Greek Sample. *International Journal of Caring Sciences*. 13:791-803.
8. Khan SDAA, Alqannass NM, Alwadei MM, Alnajrani MD, Alshahrani ZM, Al Alhareth AY, Alqahtani KM. (2021) Assessment of the Relationship between Dental Anxiety and Oral Health-Related Quality of Life. *J Pharm Bioallied Sci*. 13(Suppl 1):S359-S362.
9. Zinke A, Hannig C, Berth H. Comparing oral health in patients with different levels of dental anxiety. (2018) *Head Face Med*. 20;14(1):25.
10. Smith TA, Heaton LJ. (2003) Fear of dental care: Are we making any progress? *Journal of the American Dental Association* 134:1101-1108.
11. Svensson L, Hakeberg M, Wide Boman U. (2016) Dental anxiety, concomitant factors and change in prevalence over 50 years. *Community Dental Health* 33:121-126.
12. Moore R, Brødsgaard I. (2001) Dentists' perceived stress and its relation to perceptions about anxious patients. *Community Dentistry and Oral Epidemiology* 29:73-80.
13. Morse Z, Takau AF. (2004) Dental Anxiety in Fiji. *Pacific Health Dialog* 11 (1):22-5.
14. Sohn W, Ismail AI. (2005) Regular dental visits and dental anxiety in an adult dentate population. *Jour of the Am Dent Asso* 136:58-66.
15. Nicolas E, Collado V, Faulks D, Bullier B, Hennequin M. (2007) A national cross-sectional survey of dental anxiety in the French adult population. *BMC Oral Health* 7:12.
16. White AM, Giblin L, Boyd LD. (2017) The Prevalence of Dental Anxiety in Dental Practice Settings. *J Dent Hyg* 91(1):30-34.
17. Locker D, Liddell A, Dempster L, Shapiro D. (1999) Age of onset of dental anxiety. *Journal of Dental Research* 78(3):790-796.
18. Appukuttan DP. Strategies to manage patients with dental anxiety and dental phobia: literature review. [2016] *Clin Cosmet Investig Dent*. 10;8:35-50.
19. Wide, U, Hakeberg, M. (2021) Treatment of Dental Anxiety and Phobia - Diagnostic Criteria and Conceptual Model of Behavioural Treatment. *Dent. J.* 9,153.
20. Samorodnitzky GR, Levin L. (2005) Self-assessed dental status, oral behavior, DMF, and dental anxiety. *Journal of Dental Education* 69(12):1385-1389.
21. Heft MW, Meng X, Bradley MM, Lang PJ. (2007) Gender differences in reported dental fear and fear of dental pain. *Community Dentistry and Oral Epidemiology* 35:421-428.

22. Yildirim TT. Evaluating the Relationship of Dental Fear with Dental Health Status and Awareness. (2016) *J Clin Diagn Res*. 10(7):ZC105-9.
23. Tunc EP, Firat D, Onur OD, Sar V. (2005) Reliability and validity of the Modified Dental Anxiety Scale (MDAS) in a Turkish population. *Community Dent Oral Epidemiol*. 33(5):357-62.
24. Haugejorden O, Klock KS. (2000) Avoidance of dental visits: the predictive validity of three dental anxiety scales. *Acta Odontol Scand*. 58(6):255-9.
25. Doerr PA, Lany WP, Nyquist LV, Ronis DL. (1998) Factors Associated with Dental Anxiety. *Jour of the Am Dent Asso* 129(8):1111-1119.
26. Armfield JM, Heaton LJ. (2013) Management of fear and anxiety in the dental clinic: a review. *Aust Dent J*. 58(4):390-407; quiz 531.
27. Corah NL, Gale EN, Illig SJ. (1978) Assessment of a dental anxiety scale. *Jour of the Am Dent Asso* 97:816-819.
28. Pekkan G, Kilicoglu A, Hatipoglu H. (2011) Relationship between dental anxiety, general anxiety level and depression in patients attending a university hospital dental clinic in Turkey. *Community Dent Health*. 28(2):149-53.
29. Singh I, Bhat N, Kaur R, Thakur K, Nandan H, Bhardwaj N. Evaluation of the factors related to dental anxiety in North Indian population: a questionnaire study. (2020) *Int J Community Med Public Health*. 7:2230-2.
30. Elter JR, Strauss RP, Beck JD. (1997) Assessing dental anxiety, dental care use and oral status in older adults. *Jour of the Am Dent Asso* 128:591-597.
31. Grossman M, Wood W. (1993) Sex Differences in Intensity of Emotional Experience: A Social Role Interpretation. *Journal of Personality and Social Psychology* 65(5):1010-22.
32. Costa P, Antonio T, McCrae RR. (2001) Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology* 81(2):322-331.
33. Klingberg G, Berggren U, Carlson SG, Noren JG. (1995) Child dental fear: cause-related factors and clinical effects. *European Journal of Oral Sciences* 103: 405-412.
34. Dionne, RA, Gordon, SM, McCullagh, LM, Phero, JC. (1998) The need for anesthesia and sedation in the general population. *Jour of the Am Dent Asso* 129:167-173.
35. Oosterink FM, de Jongh A, Aartman IH. (2008) What are people afraid of during dental treatment? Anxiety-provoking capacity of 67 stimuli characteristic of the dental setting. *Eur J Oral Sci*. 116(1):44-51.
36. Newton T, Asimakopoulou K, Daly B, Scambler S, Scott S. (2012) The management of dental anxiety: time for a sense of proportion? *Br Dent J*. 213(6):271-274.
37. Heaton LJ, Carlson CR, Smith TA, Baer RA, de Leeuw R. (2007) Predicting anxiety during dental treatment using patients' self-report; Less is more. *Jour of the Am Dent Asso* 38(2):188-195.