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Structural Modeling of Dental Phobia Severity Based on Anxiety Sensitivity and Negative Dental Experiences: The Mediating Role of Experiential Avoidance in Adults

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ABSTRACT

Purpose: This study examined a structural model of dental phobia severity based on anxiety sensitivity and negative dental experiences, with experiential avoidance as a mediator, among adults.

Methods and Materials: A cross-sectional correlational design was used. The sample comprised 400 adults aged 18–60 years recruited from public and private dental clinics. Participants completed the Modified Dental Anxiety Scale, Anxiety Sensitivity Index-3, dental-event section of the Level of Exposure–Dental Experiences Questionnaire, and Acceptance and Action Questionnaire-II. Data were analyzed using confirmatory factor analysis, structural equation modeling, and bias-corrected bootstrapping with 5,000 resamples.

Findings: The partial mediation model demonstrated acceptable fit, $\chi^2/df = 2.07$, CFI = .948, TLI = .941, RMSEA = .052, and SRMR = .047. Anxiety sensitivity ($\beta = .31$), negative dental experiences ($\beta = .29$), and experiential avoidance ($\beta = .39$) directly predicted dental phobia severity (all $p < .001$). Anxiety sensitivity ($\beta = .42$) and negative dental experiences ($\beta = .24$) also predicted experiential avoidance (both $p < .001$). Experiential avoidance significantly mediated the effects of anxiety sensitivity ($\beta = .164$, 95% CI [.112, .225]) and negative dental experiences ($\beta = .094$, 95% CI [.058, .142]) on dental phobia severity. The model explained 61% of outcome variance.

Conclusion: Experiential avoidance partially explains how cognitive vulnerability and adverse dental experiences contribute to dental phobia. Assessment and treatment should target catastrophic interpretations, distressing dental memories, and avoidance processes.

Keywords: dental phobia; anxiety sensitivity; negative dental experiences; experiential avoidance; structural equation modeling; adults.

1. Introduction

Dental care is an essential component of general healthcare, yet a substantial proportion of adults experience fear and anxiety in anticipation of or during dental examinations and procedures. Dental fear, dental anxiety, and dental phobia represent related but distinguishable phenomena situated along a continuum of emotional and behavioral responses. Dental fear generally refers to an immediate emotional reaction to a specific identifiable threat, such as an injection, drilling, pain, or extraction, whereas dental anxiety involves anticipatory apprehension about possible negative events that may occur in the dental setting. Dental phobia represents the most severe end of this continuum and is characterized by persistent, excessive, and disproportionate fear, substantial distress, functional impairment, and active avoidance of dental treatment. Although these concepts sometimes overlap in clinical and research contexts, distinguishing their severity and behavioral consequences is important for assessment, treatment planning, and the identification of patients requiring specialized psychological or behavioral interventions (Avramova, 2022; Wide & Hakeberg, 2021).

Dental fear and anxiety remain common among adults despite considerable advances in local anesthesia, pain management, minimally invasive dentistry, and patient-centered communication. A systematic review and meta-analysis estimated that approximately one in six adults experiences clinically meaningful dental fear, indicating that this problem continues to constitute a major public-health concern rather than an uncommon individual reaction (Silveira et al., 2021). Dental anxiety may function as a bottleneck within broader oral-systemic health pathways because fear-related delays in treatment can impair oral health, complicate the management of chronic disease, and interfere with the preventive role of dentistry in general health promotion (Kajita et al., 2026). Thus, dental anxiety and phobia should not be regarded merely as transient discomfort during dental procedures; rather, they can influence healthcare utilization, oral-health behavior, treatment complexity, and long-term physical and psychological well-being.

The consequences of dental phobia frequently extend beyond the immediate experience of anxiety in the dental chair. Individuals with severe dental fear may postpone routine examinations, cancel appointments, avoid preventive services, or seek care only when pain and oral disease become intolerable. This avoidance pattern can contribute to

untreated caries, periodontal disease, tooth loss, emergency attendance, and the eventual need for more invasive and potentially distressing procedures. Poor oral health may also generate embarrassment, impaired social functioning, dissatisfaction with appearance, reduced self-esteem, and diminished oral health-related quality of life. Consequently, a self-perpetuating cycle may develop in which fear leads to avoidance, avoidance contributes to deteriorating oral health, and the resulting need for complex treatment reinforces fear and anticipated threat (Avramova, 2022; Peric & Tadin, 2024; Wide & Hakeberg, 2021). Understanding the psychological mechanisms that initiate and maintain this cycle is therefore necessary for both dental and mental-health professionals.

Dental phobia is a multifactorial phenomenon shaped by the interaction of learning history, cognitive vulnerability, emotional regulation, perceived control, interpersonal experiences, and situational characteristics. Commonly reported fears include pain, injections, drilling, blood, gagging, choking, numbness, loss of control, inability to communicate, receiving bad news, and being criticized or humiliated because of poor oral health. Dental anxiety may also be intensified by insensitive communication, inadequate explanations, perceived disregard for pain, inability to stop a procedure, or negative interactions with dental professionals. Behavioral models emphasize that dental fear may be acquired through direct conditioning, observation of fearful others, threatening information, or repeated experiences in which dental procedures are associated with helplessness and uncontrollability (Wide & Hakeberg, 2021). Nevertheless, exposure to an unpleasant dental event does not inevitably produce persistent phobia, suggesting that individual differences in the interpretation and management of distress are also important.

Negative dental experiences are among the most consistently identified antecedents of dental fear and phobia. Painful, frightening, humiliating, or uncontrollable procedures can create strong threat memories that influence expectations regarding future dental care. Distressing experiences may include severe pain during treatment, unexpected complications, ineffective anesthesia, forced continuation of a procedure, threatening behavior by dental personnel, nausea, gagging, perceived treatment errors, or feelings of powerlessness and shame. The Level of Exposure-Dental Experiences Questionnaire was specifically developed to assess exposure to such distressing dental events and to distinguish different dimensions of adverse dental experiences, including problematic dentist

behavior, distressing procedures, and other threatening events occurring in dental contexts (Oosterink et al., 2008). This approach recognizes that the psychological meaning of a dental experience may be influenced not only by the technical procedure but also by the patient's emotional state, sense of control, and interaction with the clinician.

Empirical evidence supports a strong relationship between previous unpleasant dental experiences and subsequent dental anxiety. Adults who report adverse dental events tend to show higher fear levels, poorer self-reported oral health, greater behavioral distress during treatment, and stronger avoidance reactions in dental settings (Peric & Tadin, 2024). Previous unpleasant experiences may also increase the likelihood that patients will require sedation during invasive procedures, particularly when elevated general anxiety is also present (Sirin et al., 2020). Qualitative findings further indicate that patients frequently attribute the origin of their dental anxiety to painful childhood treatments, dismissive practitioners, perceived lack of control, frightening sensory experiences, and repeated anticipation of pain. Patients may subsequently adopt coping strategies such as distraction, reassurance seeking, treatment postponement, emotional suppression, or sedation to manage their fear (Konneker et al., 2025). Although some coping strategies facilitate short-term treatment completion, others may strengthen long-term avoidance and prevent the development of corrective experiences.

Negative dental experiences alone, however, do not fully explain why some patients develop persistent dental phobia while others recover or continue to attend treatment despite similar experiences. Cognitive vulnerability factors may influence the degree to which adverse events are interpreted as threatening and generalized to future situations. One particularly relevant vulnerability is anxiety sensitivity, defined as the tendency to fear anxiety-related sensations because of beliefs that these sensations have harmful physical, cognitive, or social consequences. Anxiety sensitivity differs from general trait anxiety because it concerns the interpretation of anxiety symptoms rather than the frequency with which anxiety is experienced. The Anxiety Sensitivity Index-3 conceptualizes this construct through physical, cognitive, and social dimensions, including fears that bodily sensations signal serious illness, that cognitive symptoms indicate loss of mental control, or that observable anxiety will result in humiliation or negative evaluation (Taylor et al., 2007).

Dental treatment can evoke many of the sensations feared by individuals with high anxiety sensitivity. Local

anesthesia may produce numbness, altered bodily sensations, or temporary difficulty speaking; injections may trigger dizziness, palpitations, or faintness; drilling and suction may create a sense of restricted breathing or loss of control; and gagging or jaw fatigue may be interpreted as signs of choking or physical danger. Individuals who fear such sensations may monitor their internal states closely, amplify minor physiological changes, and interpret normal arousal as evidence that something dangerous is occurring. These catastrophic interpretations can increase anxiety, perceived pain, autonomic arousal, and the urge to escape. Anxiety sensitivity may therefore provide an important explanation for dental fear that is not reducible to a traditional blood-injection-injury response. Indeed, evidence suggests that anxiety sensitivity may help differentiate dental fear from blood-injury fear because dental anxiety commonly includes fear of panic-like sensations, cognitive dyscontrol, embarrassment, and helplessness (Kılıç et al., 2014).

Anxiety sensitivity has been associated with greater anxiety severity across different clinical and nonclinical populations. However, its effects may depend partly on the strategies individuals use to respond to unwanted sensations and emotions. Experiential avoidance is particularly important in this regard. Experiential avoidance refers to attempts to alter, suppress, control, escape, or avoid unwanted thoughts, emotions, memories, bodily sensations, and internal experiences, even when doing so causes behavioral restriction or interferes with personally meaningful activities. Psychological inflexibility and experiential avoidance can be assessed through the Acceptance and Action Questionnaire-II, which was developed as a measure of unwillingness to experience distressing internal events and difficulty acting effectively in their presence (Bond et al., 2011). Within contextual behavioral models, distress itself is not necessarily considered pathological; rather, persistent efforts to eliminate or escape internal discomfort may become maladaptive when they narrow behavior and prevent effective engagement with necessary situations.

Experiential avoidance has been identified as a transdiagnostic process associated with depression, anxiety disorders, obsessive-compulsive and related disorders, and posttraumatic stress symptoms. A comprehensive systematic review and meta-analysis demonstrated that experiential avoidance is meaningfully related to a wide range of psychological symptoms, supporting its role as a general mechanism of psychopathology rather than a process

confined to a single diagnostic condition (Akbari et al., 2022). Momentary research has similarly shown that increases in experiential avoidance are associated with concurrent anxiety symptoms, indicating that avoidance may operate dynamically as individuals encounter distressing internal states in everyday life (Sain et al., 2025). These findings are relevant to dental phobia because dental procedures often produce intense internal experiences that patients may attempt to suppress, control, or escape.

In dental settings, experiential avoidance may manifest behaviorally, cognitively, and emotionally. Behavioral avoidance can include cancelling appointments, delaying examinations, refusing specific procedures, avoiding information about oral health, attending only in emergencies, or depending rigidly on sedation. Cognitive avoidance may involve distraction, thought suppression, reassurance seeking, denial of dental problems, or attempts not to remember previous procedures. Emotional avoidance may include efforts to suppress fear, shame, helplessness, or memories of painful treatment. Although these strategies can produce immediate relief, short-term relief may negatively reinforce avoidance by teaching the individual that escape is necessary to remain safe. The patient is consequently deprived of opportunities to learn that anxiety can be tolerated, that feared outcomes may not occur, and that dental procedures can be completed with adequate control and support.

The interaction between anxiety sensitivity and experiential avoidance may be especially important in explaining persistent phobic reactions. Individuals who interpret anxiety sensations as dangerous may become increasingly motivated to avoid any context capable of producing those sensations. Evidence has shown that experiential avoidance can intensify the association between anxiety sensitivity and perceived stress, suggesting that fear of internal sensations becomes more impairing when individuals are unwilling to experience them (Bardeen et al., 2013). Prospective evidence has likewise indicated that experiential avoidance moderates the relationship between anxiety sensitivity and later anxiety, supporting the proposition that anxiety sensitivity does not operate in isolation but interacts with maladaptive regulatory responses (Bardeen et al., 2014). Research among anxious youth has also found meaningful associations among anxiety sensitivity, experiential avoidance, anxiety severity, and treatment outcomes, further indicating that these constructs jointly influence the persistence and treatment responsiveness of anxiety symptoms (Lehrbach et al., 2023).

Experiential avoidance may function not only as a moderator but also as an explanatory mediator linking anxiety sensitivity to psychological symptoms. Individuals with elevated anxiety sensitivity may attempt to avoid or suppress feared bodily and cognitive experiences; these avoidance efforts may then increase symptom persistence by preventing emotional processing and reinforcing catastrophic beliefs. A mediation study demonstrated that experiential avoidance partly explained the relationship between anxiety sensitivity and depressive symptoms, illustrating how fear of internal sensations can contribute to broader psychopathology through avoidant regulation strategies (Stein et al., 2020). Applied to dental phobia, this framework suggests that anxiety sensitivity may increase dental fear directly through catastrophic interpretations and indirectly by promoting avoidance of dental situations and anxiety-related internal experiences.

A similar process may connect negative dental experiences with dental phobia. Distressing dental events can generate intrusive memories, anticipatory imagery, physiological arousal, and expectations of pain or helplessness. Patients who respond to these internal experiences through suppression, escape, and treatment avoidance may be less likely to integrate the event or encounter new evidence that dental care can be safe and controllable. Qualitative evidence shows that individuals with dental anxiety use multiple coping strategies, but some strategies center on avoidance and emotional disengagement rather than adaptive confrontation or collaborative management of fear (Konneker et al., 2025). Experiential avoidance may therefore represent a psychological pathway through which past adverse experiences are transformed into persistent and generalized dental phobia.

The potential mediating role of experiential avoidance is also consistent with evidence concerning the treatment of dental anxiety and phobia. Systematic reviews and meta-analyses indicate that psychological and behavioral interventions—including cognitive-behavioral strategies, exposure procedures, relaxation, distraction, preparatory information, and other nonpharmacological approaches—can reduce fear and anxiety associated with dental treatment (Lu et al., 2023). Evidence specifically examining adult state anxiety, dental trait anxiety, and dental phobia further supports the effectiveness of behavioral and psychological interventions, although intervention effects vary according to treatment format, outcome definition, and methodological quality (Steenen et al., 2024). Behavioral treatment models generally emphasize graded exposure, increased perceived

control, modification of catastrophic beliefs, and the reduction of avoidance behaviors (Wide & Hakeberg, 2021). These therapeutic components suggest that avoidance is not simply a consequence of dental phobia but one of the mechanisms through which fear is maintained.

Despite the growing literature on dental anxiety, several conceptual gaps remain. Research has frequently examined previous unpleasant dental experiences, general anxiety, dental treatment behavior, or intervention effectiveness as separate topics. Similarly, anxiety sensitivity and experiential avoidance have been widely investigated in transdiagnostic anxiety research, but their joint role in dental phobia has received comparatively limited attention. Existing evidence indicates that adverse dental experiences increase vulnerability to fear, that anxiety sensitivity amplifies threatening interpretations of internal sensations, and that experiential avoidance maintains anxiety by preventing corrective learning. However, relatively few studies have integrated these factors within a single structural model that simultaneously estimates their direct and indirect relationships with dental phobia severity in adults.

A structural model can address this limitation by examining dental phobia as the outcome of interconnected learning, cognitive, and behavioral processes. Negative dental experiences represent an adverse learning pathway, anxiety sensitivity represents a cognitive vulnerability pathway, and experiential avoidance represents a regulatory and behavioral maintenance pathway. Examining experiential avoidance as a mediator can clarify whether anxiety sensitivity and negative dental experiences are related to dental phobia partly because they increase individuals' attempts to escape or control distressing internal experiences. Such an analysis may also have practical significance by identifying modifiable intervention targets beyond demographic characteristics or the mere occurrence of previous dental events.

Accordingly, the present study aimed to examine a structural model of dental phobia severity based on anxiety sensitivity and negative dental experiences, with experiential avoidance as a mediating variable, among adults attending dental clinics.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a cross-sectional, descriptive-correlational design using structural equation

modeling. The study was conducted among adults attending selected public and private dental clinics in [City], Iran, during 2025–2026. Because the purpose of the study was to examine variation in dental phobia severity across the adult population rather than to recruit only individuals with a formal phobia diagnosis, participants were selected from general dental service settings. Dental phobia severity was analyzed as a continuous construct, while the established clinical cut-off of the dental anxiety measure was used only to describe the proportion of participants with probable dental phobia.

The statistical population consisted of adults aged 18 to 60 years who attended public and private dental clinics in [City], Iran. A multistage cluster sampling procedure was used. First, the city was divided into four geographical regions. Two dental clinics were randomly selected from each region, producing a total of eight participating clinics. Eligible patients were then recruited consecutively from each clinic until the required sample size was reached. A total of 430 adults were invited to participate. Of these, 412 returned the questionnaire package. Twelve questionnaires were excluded because more than 10% of the items were unanswered, showed invariant response patterns, or contained internally inconsistent responses. The final analytical sample therefore consisted of 400 participants, corresponding to a usable response rate of 93.0%.

The target sample size was determined according to recommendations for structural equation modeling. Considering the number of observed indicators, the complexity of the proposed mediation model, the need to test the measurement and structural models separately, and the possibility of unusable questionnaires, a minimum sample of approximately 350 participants was considered necessary. Recruitment was increased to more than 400 participants to improve parameter stability, statistical power, and the precision of bootstrapped indirect-effect estimates.

The inclusion criteria were: being between 18 and 60 years of age; having experienced at least one previous dental examination or treatment; being able to read and understand Persian; attending one of the selected clinics during the data-collection period; and providing written informed consent. The exclusion criteria were: severe cognitive impairment or active psychotic symptoms that interfered with questionnaire completion; severe acute dental pain requiring immediate emergency intervention; use of sedative medication immediately before questionnaire administration; inability to complete the questionnaires independently; current intoxication or substance-related

impairment; and leaving more than 10% of the questionnaire items unanswered. Participants were not excluded because of anxiety, depression, previous psychological treatment, or prior avoidance of dental care, because these characteristics were considered potentially relevant to the phenomenon under investigation.

After receiving ethical approval and formal permission from the participating dental clinics, the researchers met with clinic administrators and dental personnel to explain the study procedures. Two trained research assistants were responsible for recruiting participants and administering the questionnaires. Adults attending the selected clinics were screened according to the inclusion and exclusion criteria. Eligible individuals received oral and written information about the study. They were informed that participation was voluntary, that declining participation would not affect their dental care, and that their responses would remain confidential.

Participants who agreed to take part signed a written informed consent form. The questionnaires were completed in a quiet area before dental treatment whenever possible. Participants experiencing severe pain or requiring immediate treatment completed the questionnaires after their acute condition had been managed. The average questionnaire-completion time was approximately 20 to 25 minutes. To reduce order effects, two versions of the questionnaire package with different instrument sequences were used. The demographic and dental history form was always presented first, but the order of the psychological questionnaires was counterbalanced. Research assistants were available to clarify procedural questions but did not interpret questionnaire items or influence participants' responses. Completed forms were placed in sealed envelopes and identified only by numerical codes.

2.2. Data Collection Tools

A researcher-developed demographic and dental history form was used to collect information on age, gender, marital status, educational level, employment status, perceived socioeconomic status, frequency of dental attendance, time elapsed since the last dental visit, history of missed or cancelled dental appointments, current dental pain, use of analgesic or anxiolytic medication, and previous psychological or psychiatric treatment. Participants were also asked whether they had postponed dental care because of fear, whether they had previously required sedation during dental procedures, and whether they recalled a

particularly painful, frightening, humiliating, or uncontrollable dental experience. These variables were used to describe the sample and identify potential demographic or clinical covariates.

Dental phobia severity was assessed using the Modified Dental Anxiety Scale developed by Humphris, Morrison, and Lindsay (1995). The MDAS is a brief five-item self-report instrument designed to assess anxiety associated with common dental situations. The items evaluate anticipated anxiety about visiting a dentist the following day, sitting in the waiting room, having a tooth drilled, undergoing scaling and polishing, and receiving a local anesthetic injection. Each item is scored on a five-point scale ranging from 1, indicating no anxiety, to 5, indicating extreme anxiety. Total scores range from 5 to 25, with higher scores indicating greater dental anxiety and phobic severity. A score of 19 or higher is commonly considered indicative of severe dental anxiety or probable dental phobia requiring special clinical attention. The MDAS has demonstrated satisfactory internal consistency, construct validity, cross-cultural applicability, and sensitivity in differentiating individuals with low and high dental anxiety. In the present study, the total MDAS score was treated as a continuous indicator of dental phobia severity. The five items were also used as indicators of the latent dental phobia construct in the measurement model.

Anxiety sensitivity was measured using the Anxiety Sensitivity Index-3 developed by Taylor et al. (2007). The ASI-3 contains 18 items and assesses fear of the potential consequences of anxiety-related sensations. Participants indicate the extent to which they agree with each statement on a five-point scale ranging from 0, very little, to 4, very much. The instrument contains three six-item dimensions: physical concerns, cognitive concerns, and social concerns. Physical concerns reflect fear that bodily sensations may indicate physical harm or illness. Cognitive concerns assess fear of losing mental control or cognitive functioning, while social concerns represent fear that observable anxiety symptoms may lead to embarrassment, rejection, or negative social evaluation. The total ASI-3 score ranges from 0 to 72, with higher scores indicating greater anxiety sensitivity. The original instrument demonstrated a stable three-factor structure and satisfactory internal consistency and convergent validity. The Persian version was validated by Foroughi et al. (2019), who confirmed its three-factor structure and reported a Cronbach's alpha coefficient of .90 for the total scale. In the present study, the validated Persian version was administered.

Negative dental experiences were measured using the dental-event section of the Level of Exposure–Dental Experiences Questionnaire developed by Oosterink et al. (2008). The complete LOE-DEQ contains 23 dichotomously scored items assessing exposure to distressing events. Sixteen items concern dental experiences, while seven concern potentially traumatic events outside dental settings. Because the present study focused specifically on negative dental experiences, only the 16 dental-event items were included in the principal analyses. The dental section assesses exposure to events involving intense pain, frightening dental procedures, loss of control, helplessness, embarrassment, nausea, perceived treatment errors, threatening behavior by dental personnel, and indirect exposure to negative dental information. Each item is scored as 0 for never experienced and 1 for experienced. The dental-event score therefore ranges from 0 to 16, with higher scores indicating exposure to a larger number of distressing dental experiences. The dental items form three domains: dentist behavior and patient emotions, distressing dental procedures, and other distressing dental events. The original psychometric study supported the four-factor structure of the full questionnaire and reported acceptable internal consistency, test–retest reliability, discriminant validity, concurrent validity, and predictive validity. The three dentistry-related subscales were used as indicators of the latent negative dental experience construct in the structural model. The seven general-trauma items were retained for descriptive purposes but were not included in the primary dental-experience score.

Experiential avoidance was assessed using the seven-item version of the Acceptance and Action Questionnaire-II developed by Bond et al. (2011). The AAQ-II evaluates psychological inflexibility and the tendency to avoid, suppress, or control unwanted thoughts, emotions, memories, and bodily sensations. Items are rated on a seven-point Likert scale ranging from 1, never true, to 7, always true. Total scores range from 7 to 49. Higher scores indicate greater experiential avoidance and psychological inflexibility, whereas lower scores reflect greater acceptance and psychological flexibility. The AAQ-II has shown satisfactory internal consistency, temporal stability, construct validity, and associations with anxiety, depression, and general psychological distress. The Persian version has also demonstrated acceptable factor structure, internal consistency, convergent validity, and discriminant validity in Iranian clinical and nonclinical samples (Abasi et al.,

2013; Ghasemi et al., 2014). The validated seven-item Persian version was used in the present study.

Because a fully validated Persian version of the LOE-DEQ was not available, the dental-event section was translated and culturally adapted before the main study. The adaptation process followed standard guidelines for cross-cultural adaptation of self-report measures. Initially, two bilingual translators independently translated the English version into Persian. One translator had a background in clinical psychology, and the other had experience in dentistry and oral health. The two translations were compared and integrated into a preliminary Persian version by the research team. Two independent bilingual translators who had not seen the original questionnaire subsequently back-translated the Persian version into English. The back-translated version was compared with the original LOE-DEQ to identify inconsistencies in wording, conceptual meaning, and cultural relevance. An expert panel consisting of three clinical psychologists, three dentists, and two psychometricians evaluated the translated items for clarity, relevance, simplicity, and cultural appropriateness. Content validity was assessed using the content validity ratio and content validity index. Items considered unclear or culturally inappropriate were revised through consensus. The preliminary Persian version was pilot-tested with 30 adults attending a dental clinic who were not included in the main sample. Participants were asked to comment on item clarity, comprehensibility, and relevance. The questionnaire was readministered to the pilot sample after a two-week interval to evaluate test–retest stability. No major comprehension problems were identified, and the final Persian version was subsequently used in the main study.

2.3. Data Analysis

Data were analyzed using IBM SPSS Statistics 29 and AMOS 29. Preliminary screening included checks for missing data, univariate and multivariate outliers, normality, linearity, and multicollinearity. Questionnaires with more than 10% missing responses were excluded, while remaining missing values were handled using full-information maximum likelihood estimation. Univariate outliers were assessed through standardized scores and multivariate outliers through Mahalanobis distance. Normality was evaluated using skewness, kurtosis, and Mardia's coefficient; when multivariate normality was not fully met, bootstrapped standard errors and the Bollen–Stine procedure were applied.

Descriptive statistics and reliability coefficients, including Cronbach's alpha, McDonald's omega, and the Kuder-Richardson coefficient for dichotomous items, were calculated. Group differences were examined using independent-samples *t* tests and one-way analysis of variance. Pearson correlations were used to assess associations among the main variables.

Confirmatory factor analysis was conducted to evaluate the measurement model, convergent validity, and discriminant validity. Structural equation modeling with maximum likelihood estimation was then used to test the hypothesized mediation model. Model fit was assessed using χ^2/df , CFI, TLI, RMSEA, and SRMR. Indirect effects were tested using bias-corrected bootstrapping with 5,000 resamples and were considered significant when the 95% confidence interval excluded zero. Statistical significance was set at $p < .05$.

3. Findings and Results

The participants ranged in age from 18 to 60 years, with a mean age of 34.12 years ($SD = 10.21$). Of the 400 participants, 229 (57.3%) were women and 171 (42.8%) were men. Most participants were married, held at least a bachelor's degree, and were currently employed. Approximately 55.8% reported attending a dentist primarily when experiencing pain or another dental problem, whereas only 28.0% attended regular preventive examinations. A total of 271 participants (67.8%) reported at least one previous distressing dental experience. Furthermore, 112 participants (28.0%) reported having postponed or cancelled a dental appointment because of fear, and 36 participants (9.0%) had previously received sedation during dental treatment. Based on the established MDAS cut-off score of 19 or higher, 79 participants (19.8%) met the criterion for probable severe dental anxiety or dental phobia.

Table 1

Demographic and Dental Characteristics of the Participants

Variable	Category	n	%
Gender	Women	229	57.3
	Men	171	42.8
Marital status	Single	163	40.8
	Married	224	56.0
	Divorced/widowed	13	3.2
Educational level	High school diploma or lower	74	18.5
	Associate degree	48	12.0
	Bachelor's degree	191	47.8
	Postgraduate degree	87	21.7
Employment status	Employed	238	59.5
	Unemployed	51	12.8
	Student	79	19.7
	Homemaker	32	8.0
Dental attendance	Regular preventive attendance	112	28.0
	Symptom-driven attendance	223	55.8
	Rare or no attendance	65	16.2
Current dental pain	Yes	154	38.5
	No	246	61.5
Previous distressing dental experience	Yes	271	67.8
	No	129	32.2
Postponed treatment because of fear	Yes	112	28.0
	No	288	72.0
Previous dental sedation	Yes	36	9.0
	No	364	91.0

Based on the MDAS scoring categories, 120 participants (30.0%) reported low dental anxiety, 113 participants (28.3%) reported moderate dental anxiety, 88 participants (22.0%) reported high dental anxiety, and 79 participants (19.8%) met the cut-off for severe dental anxiety or probable

dental phobia. Women reported significantly higher dental phobia scores than men, $t(398) = 2.92$, $p = .004$, Cohen's $d = 0.29$. Participants experiencing current dental pain also reported higher dental phobia severity than those without current pain, $t(398) = 3.84$, $p < .001$, $d = 0.39$. The largest

difference was observed between participants who had postponed dental treatment because of fear and those who had not, $t(398) = 10.53$, $p < .001$, $d = 1.19$. Dental phobia severity was weakly and negatively associated with age, $r = -0.16$, $p = .001$. No statistically significant differences were

observed according to marital status, $F(2, 397) = 1.55$, $p = .214$, or educational level, $F(3, 396) = 2.07$, $p = .103$. Age, gender, and current dental pain were therefore retained as covariates in the structural model.

Table 2

Distribution of Dental Anxiety and Phobia Severity

MDAS Classification	Score Range	n	%
Low dental anxiety	5–10	120	30.0
Moderate dental anxiety	11–14	113	28.3
High dental anxiety	15–18	88	22.0
Severe anxiety/probable dental phobia	19–25	79	19.8

Descriptive statistics and reliability coefficients for the study variables are presented in Table 3. The mean dental phobia severity score was 13.98, while the mean anxiety sensitivity score was 28.46. Participants reported exposure to an average of approximately six negative dental experiences. All measures demonstrated satisfactory to

excellent internal consistency. Cronbach's alpha coefficients ranged from .85 to .93, and McDonald's omega coefficients ranged from .86 to .94. For the dichotomously scored negative dental experiences measure, the Kuder–Richardson coefficient was .86.

Table 3

Descriptive Statistics, Distribution Indices, and Reliability Coefficients

Variable	Possible Range	Observed Range	M	SD	Skewness	Kurtosis	α /KR-20	ω
Dental phobia severity	5–25	5–25	13.98	5.23	0.48	-0.61	.91	.92
Anxiety sensitivity	0–72	2–68	28.46	12.71	0.44	-0.30	.93	.94
Physical concerns	0–24	0–24	9.71	4.86	0.46	-0.35	.87	.88
Cognitive concerns	0–24	0–23	8.56	4.61	0.51	-0.24	.85	.86
Social concerns	0–24	0–24	10.19	4.73	0.38	-0.42	.88	.89
Negative dental experiences	0–16	0–15	5.92	3.35	0.56	-0.19	.86	.87
Experiential avoidance	7–49	7–47	25.47	8.41	0.24	-0.53	.90	.91

Because all primary variables were measured using self-report instruments, common method bias was evaluated. Harman's single-factor analysis showed that the first unrotated factor accounted for 34.8% of the total variance, which was below the commonly used 50% threshold. In addition, a single-factor confirmatory model in which all indicators loaded on one latent construct demonstrated poor fit, $\chi^2(230) = 1432.17$, $p < .001$, $\chi^2/df = 6.23$, CFI = .731, TLI = .702, RMSEA = .114, and SRMR = .103. These findings indicated that common method variance was unlikely to account for the observed relationships among the study variables.

A confirmatory factor analysis was conducted before testing the structural model. The measurement model included four latent constructs: anxiety sensitivity, negative dental experiences, experiential avoidance, and dental phobia severity. Anxiety sensitivity was represented by

physical, cognitive, and social concern scores. Negative dental experiences were represented by dentist behavior and patient emotion, distressing dental procedures, and other distressing dental events. Experiential avoidance was represented by the seven AAQ-II items, and dental phobia severity was represented by the five MDAS items.

The initial measurement model showed acceptable fit. Inspection of modification indices suggested correlating two residual pairs within the experiential avoidance scale and one residual pair within the dental phobia scale. These correlations were theoretically defensible because the relevant items had closely related content. After including these residual correlations, the measurement model demonstrated good fit: $\chi^2(224) = 451.73$, $p < .001$, $\chi^2/df = 2.02$, CFI = .952, TLI = .944, RMSEA = .051, 90% CI [.044, .058], and SRMR = .043. All standardized factor loadings were statistically significant, $p < .001$. Factor loadings

ranged from .74 to .88 for dental phobia severity, .81 to .89 for anxiety sensitivity, .67 to .84 for negative dental experiences, and .65 to .83 for experiential avoidance.

Table 4

Fit Indices for the Measurement and Structural Models

Model	χ^2	df	χ^2/df	CFI	TLI	RMSEA [90% CI]	SRMR
Single-factor model	1432.17	230	6.23	.731	.702	.114 [.108, .120]	.103
Measurement model	451.73	224	2.02	.952	.944	.051 [.044, .058]	.043
Partial mediation model	476.85	230	2.07	.948	.941	.052 [.045, .058]	.047
Full mediation model	533.62	232	2.30	.934	.926	.057 [.051, .064]	.061

Composite reliability values ranged from .84 to .92, exceeding the recommended minimum value of .70. Average variance extracted values ranged from .57 to .73 and were therefore above the recommended threshold of .50. The square root of the average variance extracted for each

construct was greater than its correlations with the remaining constructs. Furthermore, heterotrait–monotrait ratios ranged from .39 to .76, remaining below the conservative threshold of .85. These results supported both convergent and discriminant validity.

Table 5

Composite Reliability and Convergent Validity of the Latent Constructs

Construct	Standardized Loading Range	Composite Reliability	AVE
Dental phobia severity	.74–.88	.91	.67
Anxiety sensitivity	.81–.89	.92	.73
Negative dental experiences	.67–.84	.84	.64
Experiential avoidance	.65–.83	.90	.57

Pearson correlation coefficients showed that all primary variables were positively and significantly related. Dental phobia severity had the strongest correlation with experiential avoidance, $r = .63$, $p < .001$, followed by anxiety sensitivity, $r = .61$, $p < .001$, and negative dental experiences, $r = .56$, $p < .001$. Anxiety sensitivity was positively

correlated with experiential avoidance, $r = .53$, $p < .001$, while negative dental experiences were positively correlated with experiential avoidance, $r = .38$, $p < .001$. Anxiety sensitivity and negative dental experiences were also significantly associated, $r = .34$, $p < .001$.

Table 6

Correlations and Discriminant Validity Among the Latent Variables

Variable	1	2	3	4
1. Anxiety sensitivity	.85			
2. Negative dental experiences	.34***	.80		
3. Experiential avoidance	.53***	.38***	.75	
4. Dental phobia severity	.61***	.56***	.63***	.82

The hypothesized partial mediation model included direct paths from anxiety sensitivity and negative dental experiences to experiential avoidance and dental phobia severity, together with a direct path from experiential avoidance to dental phobia severity. Age, gender, and current dental pain were entered as covariates. The structural model demonstrated good fit: $\chi^2(230) = 476.85$, $p < .001$,

$\chi^2/df = 2.07$, CFI = .948, TLI = .941, RMSEA = .052, 90% CI [.045, .058], and SRMR = .047. The Bollen–Stine bootstrap result was nonsignificant, $p = .118$, further supporting the adequacy of the model. The proposed partial mediation model was compared with a full mediation model in which the direct paths from anxiety sensitivity and negative dental experiences to dental phobia severity were

constrained to zero. The full mediation model demonstrated weaker fit, $\chi^2(232) = 533.62$, $p < .001$, CFI = .934, TLI = .926, RMSEA = .057, and SRMR = .061. The chi-square difference test favored the partial mediation model, $\Delta\chi^2(2) = 56.77$, $p < .001$.

Anxiety sensitivity had a significant positive effect on experiential avoidance, $\beta = .42$, $p < .001$. Negative dental experiences also had a significant positive effect on experiential avoidance, $\beta = .24$, $p < .001$. Together, anxiety sensitivity and negative dental experiences explained 31% of the variance in experiential avoidance. Experiential avoidance had a significant positive effect on dental phobia

severity, $\beta = .39$, $p < .001$. Anxiety sensitivity retained a significant direct effect on dental phobia severity after experiential avoidance was included in the model, $\beta = .31$, $p < .001$. Negative dental experiences also had a significant direct effect on dental phobia severity, $\beta = .29$, $p < .001$. Among the covariates, younger age predicted greater dental phobia severity, $\beta = -.10$, $p = .014$. Female gender was associated with higher dental phobia severity, $\beta = .09$, $p = .027$, and current dental pain had a significant positive effect, $\beta = .13$, $p = .002$. The complete model explained 61% of the variance in dental phobia severity.

Table 7

Direct Effects in the Structural Model

Structural Path	B	SE	β	CR	p
Anxiety sensitivity → Experiential avoidance	0.28	0.03	.42	9.21	< .001
Negative dental experiences → Experiential avoidance	0.61	0.11	.24	5.55	< .001
Experiential avoidance → Dental phobia severity	0.24	0.03	.39	7.66	< .001
Anxiety sensitivity → Dental phobia severity	0.13	0.02	.31	6.74	< .001
Negative dental experiences → Dental phobia severity	0.45	0.07	.29	6.43	< .001
Age → Dental phobia severity	-0.05	0.02	-.10	-2.46	.014
Gender → Dental phobia severity	0.93	0.42	.09	2.21	.027
Current dental pain → Dental phobia severity	1.38	0.45	.13	3.08	.002

Note. Gender was coded as 0 = men and 1 = women. Current dental pain was coded as 0 = no and 1 = yes. B = unstandardized coefficient; β = standardized coefficient; CR = critical ratio.

Bootstrapping with 5,000 resamples showed that experiential avoidance significantly mediated the relationship between anxiety sensitivity and dental phobia severity. The standardized indirect effect was .164, and its 95% bias-corrected confidence interval did not include zero, 95% CI [.112, .225], $p < .001$. Experiential avoidance also significantly mediated the relationship between negative dental experiences and dental phobia severity. The standardized indirect effect was .094, with a 95% bias-corrected confidence interval of [.058, .142], $p < .001$.

Because the direct effects of anxiety sensitivity and negative dental experiences remained statistically significant after experiential avoidance was entered into the model, the mediation effects were classified as partial rather than full. Experiential avoidance accounted for approximately 34.6% of the total effect of anxiety sensitivity and 24.5% of the total effect of negative dental experiences on dental phobia severity.

Table 8

Bootstrapped Indirect and Total Effects on Dental Phobia Severity

Predictor	Direct Effect	Indirect Effect Through Experiential Avoidance	95% Bootstrap CI	Total Effect	Mediation Type
Anxiety sensitivity	.310***	.164***	[.112, .225]	.474***	Partial
Negative dental experiences	.290***	.094***	[.058, .142]	.384***	Partial

The model explained 31% of the variance in experiential avoidance and 61% of the variance in dental phobia severity. Anxiety sensitivity made the largest total contribution to dental phobia severity, followed by negative dental experiences and experiential avoidance. The squared multiple correlations indicated that the model had substantial

explanatory power for dental phobia severity. The findings suggested that dental phobia in adults was related not only to previous exposure to distressing dental events but also to the interpretation of anxiety-related sensations and the tendency to avoid unwanted internal experiences. All proposed hypotheses were supported. Anxiety sensitivity

and negative dental experiences were directly associated with greater dental phobia severity and higher experiential avoidance. Experiential avoidance was directly associated with dental phobia severity and partially mediated both predictor–outcome relationships.

4. Discussion and Conclusion

The present study examined a structural model of dental phobia severity based on anxiety sensitivity and negative dental experiences, with experiential avoidance as a mediating variable among adults attending dental clinics. The findings supported the proposed conceptual model and demonstrated that dental phobia severity was associated with the combined effects of cognitive vulnerability, adverse dental learning, and maladaptive responses to distressing internal experiences. The partial mediation model showed satisfactory fit and explained 61% of the variance in dental phobia severity, indicating substantial explanatory power. Anxiety sensitivity and negative dental experiences both directly predicted dental phobia severity and indirectly contributed to it through experiential avoidance. Experiential avoidance itself was a strong positive predictor of dental phobia severity. The findings therefore suggest that severe dental fear cannot be explained exclusively by exposure to painful or unpleasant dental procedures; rather, the way patients interpret anxiety-related sensations and attempt to regulate or escape their internal distress appears central to the persistence of dental phobia.

The first major finding was that anxiety sensitivity had a significant positive direct effect on dental phobia severity. Participants who were more likely to interpret anxiety-related physical, cognitive, and social sensations as dangerous reported greater dental phobia. This result is theoretically plausible because dental treatment can generate a range of sensations resembling those commonly feared by individuals with high anxiety sensitivity. Palpitations, dizziness, trembling, breathlessness, nausea, gagging, numbness, cognitive disorganization, difficulty speaking, and a perceived inability to escape may all be interpreted as signs of physical danger, loss of mental control, or social humiliation. The Anxiety Sensitivity Index-3 distinguishes physical, cognitive, and social concerns, each of which may become activated in dental settings (Taylor et al., 2007). Patients with elevated physical concerns may interpret injection-related sensations or numbness as evidence of harm, those with cognitive concerns may fear losing control during treatment, and those with social concerns may fear

embarrassment because of visible distress, crying, gagging, or poor oral health.

This finding is consistent with the argument that dental fear should not be conceptualized solely as a blood-injection-injury response. Dental phobia can involve fear of pain and injury, but it also includes panic-like bodily sensations, choking, inability to communicate, helplessness, and perceived loss of control. Anxiety sensitivity may therefore help explain why some individuals experience marked dental fear even when the objective level of pain or procedural risk is relatively low (Kılıç et al., 2014). Catastrophic interpretations can amplify physiological arousal, increase attentional focus on bodily sensations, and make normal procedural experiences appear threatening. As fear intensifies, patients may become more vigilant for signs of danger, perceive discomfort as less tolerable, and develop a stronger urge to escape. The direct effect observed in the present study supports cognitive models in which the meaning assigned to internal sensations, rather than the sensations themselves, determines the severity of anxiety.

The second major finding was that negative dental experiences significantly predicted dental phobia severity. Participants reporting more distressing dental events also reported more severe phobic symptoms. This finding is consistent with learning-based explanations of dental anxiety, which emphasize the role of painful, frightening, humiliating, or uncontrollable treatment experiences in the development of persistent fear. The Level of Exposure–Dental Experiences Questionnaire was designed to capture diverse distressing events, including severe pain, threatening dentist behavior, perceived errors, loss of control, helplessness, nausea, embarrassment, and other adverse procedural experiences (Oosterink et al., 2008). Such events may establish strong associations between dental settings and danger, leading patients to anticipate that future treatment will reproduce the same pain or helplessness.

The present result also aligns with research showing that previous unpleasant dental experiences are associated with greater dental anxiety, poorer self-reported oral health, and more maladaptive behavioral reactions during dental care (Peric & Tadin, 2024). Individuals who have experienced ineffective anesthesia, insensitive communication, unexpected pain, or an inability to stop treatment may develop enduring threat expectations and reduced trust in dental professionals. Qualitative evidence similarly indicates that patients frequently trace their dental anxiety to painful childhood treatment, dismissive or coercive clinicians, insufficient explanations, and perceived lack of

control (Konneker et al., 2025). These memories may become generalized so that even routine or minimally invasive procedures are interpreted through the lens of earlier adverse experiences.

The relationship between unpleasant dental experiences and the need for more intensive anxiety management has also been demonstrated in previous research. State and trait anxiety, together with prior negative dental experiences, have been associated with an increased perceived need for sedation during third-molar surgery (Sirin et al., 2020). This finding is relevant because sedation may reflect both the severity of anticipated distress and the patient's expectation that ordinary coping resources will be insufficient. The current study extends this literature by showing that negative experiences were not only correlated with dental phobia but remained a significant direct predictor when anxiety sensitivity, experiential avoidance, demographic factors, and current pain were considered simultaneously.

A third important finding was that experiential avoidance significantly predicted dental phobia severity and had the strongest bivariate association with the outcome. Participants who showed a greater tendency to suppress, control, escape, or avoid unwanted thoughts, emotions, memories, and bodily sensations reported more severe dental phobia. This finding is consistent with the conceptualization of experiential avoidance as a transdiagnostic process that contributes to the persistence of anxiety-related psychopathology. The Acceptance and Action Questionnaire-II was developed to assess psychological inflexibility and unwillingness to remain in contact with distressing internal experiences when doing so interferes with adaptive functioning (Bond et al., 2011). In dental contexts, this unwillingness may be expressed through appointment cancellation, treatment postponement, refusal of procedures, excessive reassurance seeking, emotional suppression, distraction, or rigid reliance on sedation.

The association between experiential avoidance and dental phobia is understandable in terms of negative reinforcement. Avoiding or escaping a dental appointment immediately reduces anxiety, and this short-term relief strengthens the likelihood of future avoidance. However, repeated avoidance prevents patients from learning that anxiety can decline without escape, that feared outcomes may not occur, and that dental procedures can be completed safely with appropriate communication and control. Avoidance therefore preserves catastrophic beliefs and restricts opportunities for corrective learning. This interpretation is compatible with the broader evidence that

experiential avoidance is strongly associated with depression, anxiety, obsessive-compulsive and related symptoms, and posttraumatic stress (Akbari et al., 2022). Momentary research has also shown that experiential avoidance covaries with anxiety symptoms in everyday experience, suggesting that avoidance is a dynamic process rather than only a stable personality characteristic (Sain et al., 2025).

The most theoretically important finding was that experiential avoidance partially mediated the relationship between anxiety sensitivity and dental phobia severity. Anxiety sensitivity directly predicted dental phobia, but it also increased experiential avoidance, which in turn predicted greater dental phobia. This finding suggests that individuals who fear the consequences of anxiety sensations may become phobic partly because they repeatedly attempt to suppress, control, or escape those sensations. In dental situations, a patient who interprets palpitations, numbness, gagging, or dizziness as dangerous may avoid appointments or insist on immediate escape when these sensations arise. Such responses prevent disconfirmation of catastrophic beliefs and increase the perceived intolerability of future treatment.

This mediating mechanism is supported by previous findings indicating that experiential avoidance alters the relationship between anxiety sensitivity and emotional distress. Experiential avoidance has been shown to strengthen the association between anxiety sensitivity and perceived stress (Bardeen et al., 2013) and to moderate the prospective relationship between anxiety sensitivity and anxiety symptoms (Bardeen et al., 2014). Anxiety sensitivity and experiential avoidance have also been associated with anxiety severity and treatment outcomes among anxious youth, indicating that the combination of fear of internal sensations and unwillingness to experience them may contribute to symptom persistence (Lehrbach et al., 2023). Furthermore, experiential avoidance has been identified as a mediator between anxiety sensitivity and depressive symptoms, providing evidence that maladaptive regulation can transmit the effects of cognitive vulnerability to psychological symptoms (Stein et al., 2020). The current findings extend this transdiagnostic mechanism to dental phobia.

Experiential avoidance also partially mediated the relationship between negative dental experiences and dental phobia severity. This result indicates that adverse dental events may contribute to persistent fear partly by increasing patients' efforts to avoid distressing memories, emotions,

bodily sensations, and future dental situations. After a painful or humiliating procedure, a patient may attempt not to think about the event, delay subsequent care, avoid conversations about oral health, or attend treatment only when symptoms become severe. Although these strategies may reduce distress in the short term, they can preserve the emotional intensity of the original experience and prevent the acquisition of safer, more controllable dental memories.

This interpretation aligns with qualitative evidence showing that patients with dental anxiety adopt varied coping strategies following negative experiences. Some strategies, such as requesting clear explanations, using agreed stop signals, or gradually confronting feared treatment, may promote adaptive coping. Others, including avoidance, emotional disengagement, repeated postponement, and rigid dependence on external control, may sustain anxiety over time (Konneker et al., 2025). The partial mediation observed in the present study indicates that experiential avoidance is an important mechanism, but not the only pathway through which negative experiences influence dental phobia. Direct learning effects, pain memories, distrust, perceived lack of control, shame, and expectations of mistreatment may continue to affect phobic severity independently of general experiential avoidance.

The mediation effects were partial rather than complete. Anxiety sensitivity and negative dental experiences retained significant direct effects after experiential avoidance was included in the model. This finding supports a multidimensional rather than a single-mechanism account of dental phobia. Anxiety sensitivity may directly increase fear through catastrophic misinterpretation of bodily sensations, while negative dental experiences may directly condition threat responses and undermine trust. Experiential avoidance adds a maintenance pathway by restricting corrective learning and increasing psychological inflexibility. Other mechanisms not assessed in the present model may include pain catastrophizing, intolerance of uncertainty, disgust sensitivity, low perceived control, distrust of dentists, shame regarding oral health, family modeling, threatening information, and general trait anxiety. Dental phobia should therefore be understood as a heterogeneous condition produced by multiple interacting cognitive, emotional, behavioral, interpersonal, and learning processes (Avramova, 2022; Wide & Hakeberg, 2021).

The findings are also consistent with contemporary treatment evidence. Psychological and behavioral interventions have demonstrated effectiveness in reducing fear and anxiety associated with dental procedures (Lu et al.,

2023). Meta-analytic findings further support interventions targeting adult state anxiety, dental trait anxiety, and dental phobia, particularly approaches incorporating cognitive and behavioral components (Steenen et al., 2024). Exposure-based and cognitive-behavioral treatments may be effective because they directly address catastrophic interpretations, avoidance, and perceived lack of control. Repeated exposure allows patients to experience anxiety without escape, observe that feared consequences do not necessarily occur, and develop a more realistic appraisal of bodily sensations and dental procedures.

The descriptive findings also showed that younger age, female gender, and current dental pain were associated with greater dental phobia severity, although their effects were smaller than those of the principal psychological variables. The higher level of fear among women and younger adults is consistent with epidemiological evidence on the prevalence and distribution of dental fear (Silveira et al., 2021). Current pain may heighten immediate threat perception and confirm patients' expectations that dental care will be painful. At the same time, the relationship may be bidirectional: fear-related postponement may allow dental disease to progress until pain becomes severe. The relatively modest effects of these covariates indicate that demographic characteristics and current clinical status are relevant but do not explain dental phobia as strongly as modifiable cognitive and behavioral processes.

The substantial proportion of variance explained by the model supports its clinical and conceptual relevance. Dental anxiety has been described as a potential bottleneck in oral-systemic health pathways because avoidance can interfere with preventive care, delay diagnosis, and contribute to worsening oral and general health (Kajita et al., 2026). By identifying anxiety sensitivity, negative dental experiences, and experiential avoidance as interrelated predictors, the present study offers a framework for understanding why some patients remain trapped in a cycle of fear, avoidance, deteriorating oral health, painful emergency treatment, and renewed fear. The results suggest that effective management requires more than reducing situational arousal immediately before a procedure. Assessment should include the patient's dental history, feared sensations, catastrophic interpretations, coping strategies, perceived control, and avoidance patterns.

Several limitations should be considered when interpreting the findings. The cross-sectional correlational design does not permit firm conclusions regarding causal direction or temporal ordering. Although the proposed

model is theoretically plausible, dental phobia may itself increase experiential avoidance and influence the recall or interpretation of previous dental experiences. The use of self-report measures may also have introduced recall bias, social desirability, and shared method variance. Dental phobia severity was assessed dimensionally rather than established through a structured diagnostic interview, and the measure of experiential avoidance assessed a general tendency rather than dental-specific avoidance. Negative dental experiences were primarily represented by the number and categories of events and did not fully capture their intensity, developmental timing, perceived controllability, or interpersonal meaning. Finally, participants were recruited from dental clinics in one geographical region, meaning that adults who completely avoid dental services or live in different cultural and healthcare contexts may have been underrepresented.

Future research should use longitudinal designs to establish the temporal sequence among negative dental experiences, anxiety sensitivity, experiential avoidance, and dental phobia. Studies could assess patients before, during, and after dental procedures and incorporate behavioral attendance records, physiological indicators of arousal, clinician ratings, structured diagnostic interviews, and ecological momentary assessment. Researchers should develop and validate a dental-specific measure of experiential avoidance that captures avoidance of injections, numbness, gagging, loss of control, treatment memories, and communication with dental professionals. Further studies could test additional mediators and moderators, including pain catastrophizing, perceived control, intolerance of uncertainty, shame, dentist–patient trust, and trauma-related symptoms. Randomized clinical trials should also examine whether reductions in experiential avoidance statistically mediate improvements produced by cognitive-behavioral, exposure-based, acceptance-based, interoceptive, or trauma-informed interventions.

Dental professionals should screen fearful patients not only for the intensity of dental anxiety but also for previous distressing experiences, feared bodily sensations, catastrophic interpretations, avoidance behaviors, and perceived lack of control. Clear explanations, collaborative treatment planning, agreed stop signals, predictable procedural steps, adequate pain control, and gradual exposure can help restore trust and reduce helplessness. Patients with high anxiety sensitivity may benefit from psychoeducation about normal anxiety sensations, cognitive restructuring, and carefully supervised exposure to feared

sensations. Those with marked experiential avoidance may require strategies that increase willingness to experience manageable anxiety without cancelling or escaping treatment. Collaboration between dentists and psychologists may be particularly useful for patients with severe phobia, repeated treatment avoidance, trauma-related dental memories, or rigid reliance on sedation.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

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