

Associations Among Dental Anxiety, Pain Perception, and Cooperative Behavior in Children Receiving Dental Care: A Systematic Review

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ABSTRACT

A child's experience receiving dental care is influenced by cooperative behavior, pain perception, and dental anxiety. However, the interpretation of the connections between these factors is complicated by differences in research designs and data collection techniques. Examining quantitative data about the relationships between dental anxiety, pain perception, and cooperative behavior in kids receiving dental care is the aim of this systematic review. The PubMed, Scopus, and Cochrane Library databases were searched for pertinent articles that were published between 2020 and October 15, 2026. Studies that present quantifiable correlations between at least two of the variables being studied were included in the review. The Joanna Briggs Institute's relevant critical evaluation instruments were used to evaluate methodological quality, and the results were narratively summarized. Five studies involving 1,486 children were included. Higher dental anxiety was generally associated with poorer clinical cooperation or more treatment-interfering behaviors. A higher reported experience of pain was linked to uncooperative conduct in one study (RR = 2.39; 95% CI: 1.23–4.64). There is still a small and inconsistent corpus of research on dental anxiety and pain perception, especially when possible confounding variables are considered. Overall, the conclusiveness of these results is limited by the variation in the definition of outcomes, measuring tools, and research methodologies.

Keywords: dental anxiety; pain perception; cooperative behavior; pediatric dentistry

INTRODUCTION

A prevalent problem in pediatric dentistry is anxiety over dental care, which can make it difficult for a child to accept and receive dental treatment [1]. The unfamiliar setting of a dentist clinic, the presence of dental instruments and syringes, and the expectation of pain during the process can all cause dread and discomfort in children [2]. Additionally, this fear may cause patients to put off or completely avoid dental appointments, which makes treatment more difficult for both the patient and the dentist [3,4].

A child's willingness to participate may be hampered by procedures such as local anesthetic injections, tooth preparation, pulp treatments, or tooth extractions that cause pain or suffering [5]. One of the main oral health problems among Indonesian children is dental caries, which can cause toothaches and make dental treatment more difficult [6]. Additionally, toothache is linked to psychological responses in the Indonesian population, including tension and despair, indicating that it is more than just a sensory experience [7].

Since anxiety and pain can affect each other during dental treatment, the link between dental anxiety and pain is very important in children [8].

Additionally, dental anxiety is associated with the dread of pain during dental care; this implies that the expectation of a painful experience might contribute to the development of anxiety in the setting of dental treatment [9]. Furthermore, a child's reaction to unpleasant treatments might be impacted by fear and anxiety associated with dental care, especially during interventions like the injection of local anesthesia [2].

Another crucial component of dental care for kids is cooperative conduct, since successful treatment depends on the kids' ability to tolerate and react to dental operations [5]. Crying, physical resistance, certain facial expressions, and trouble settling down are examples of behaviors that might occur during dental treatment, particularly when the kid is nervous or uncomfortable [2]. Because children who experience anxiety or fear typically find it more difficult to tolerate dental procedures, dental anxiety can therefore have therapeutic implications for cooperative behavior [1].

The nature of the relationship between dental anxiety, pain, and cooperative conduct varies depending on the child and the particular dental operation, but they are all separate occurrences [2,8]. Therefore, the purpose of this systematic review is to

compile the available data on the connection between children's cooperative conduct during dental treatment, pain perception, and dental anxiety.

Materials and Methods
Review Design

The 2020 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards were followed in conducting this systematic review (10). The review's goal is to compile quantitative data on three relationships: (1) dental anxiety and pain perception; (2) dental anxiety and cooperative behavior; and (3) pain perception and cooperative behavior in kids receiving dental care. The research question and eligibility criteria were structured using the Population, Exposure, Comparison, Outcome, and Study Design (PECOS) framework. Studies were eligible if they quantitatively examined at least one of these associations. The PECOS framework and eligibility criteria are presented in Tables 1 and 2, respectively.

Research question

What is known about the connections between children's cooperative behavior and pain perception during dental treatment, dental anxiety and pain perception, and dental anxiety and cooperative behavior?

Eligibility Criteria

A study is deemed to meet the requirements if it involves children between the ages of 3 and 16 who are receiving dental care in a clinical setting and if it

quantitatively examines at least one of the following associations: (1) dental anxiety or fear and the perception of pain or general discomfort, (2) dental anxiety or fear and cooperative behavior, or (3) the perception of pain or general discomfort and cooperative behavior.

Clearly defined, quantitative assessment tools should be used to evaluate cooperative behavior, pain perception, anxiety or fear during dental treatment, and overall discomfort, including validated questionnaires, clinical rating scales, or structured observational measures. Although it is separated from pain perception during the data extraction and synthesis process, general discomfort is included as an additional outcome measure related to pain.

Primary quantitative research that reports a statistical relationship between at least two variables under examination meets the requirements. Research done outside of a clinical dentistry environment, studies that fail to show pertinent quantitative relationships, and studies involving children with certain developmental abnormalities or genetic diseases are all omitted. Reviews, case reports, editorials, conference papers, and research with inadequate clinical data are also not included. Only English-language, peer-reviewed publications from 2020 to 2026 are taken into account.

Table 2 provides specific inclusion and exclusion criteria.

TABLE 1: PECOS Framework.

PECOS component	Criteria
P: Population	Children aged 3–16 years receiving clinical dental care.
E: Exposure	Dental anxiety/fear, pain perception, or cooperative behavior
C: Comparison	Different levels or categories of variables of interest, where applicable
O: Outcome	Quantitative associations between at least one pair of the three variables
S: Study design	Original quantitative studies reporting relevant observational or analytical associations.

TABLE 2: Inclusion and Exclusion Criteria.

Inclusion criteria	Exclusion criteria
Human subjects aged 3-16 years	Participants outside the specified age range without separate extractable data
Children undergoing dental examination or dental treatment in a clinical dental setting or without moderate sedation	Studies involving dental examination or treatment performed under moderate sedation
Studies assessing at least two relevant variables: dental anxiety/fear, pain perception, general discomfort, or cooperative behavior	Studies not assessing at least two relevant variables.
Variables assessed using clearly defined quantitative instruments, including questionnaires, rating scales, or structured observational measures.	Studies without clearly defined or extractable quantitative measurements

Inclusion criteria	Exclusion criteria
Studies reporting a quantitative association between at least one eligible pair of variables	Studies reporting only descriptive findings or intervention effectiveness without relevant association analyses
Studies reporting a quantitative association between at least one eligible pair of variables	Studies reporting only descriptive findings or intervention effectiveness without relevant association analyses
Primary quantitative studies reporting observational or analytical associations	Reviews, case reports, editorials, letters, conference abstracts, or insufficient clinical data
Published from 2020 to 2026	Published before 2020
Full text available in English, published in a peer-reviewed journal	Non-English publications, unavailable full texts, or non-peer-reviewed publications
General pediatric population	Studies involving children with specific conditions, such as autism spectrum disorder, intellectual disabilities, or genetic syndromes.

Search Strategy and Study Selection

To find studies addressing dental anxiety in children in relation to their perception of pain or cooperative behavior during dental treatment, a thorough literature search was carried out in the PubMed, Scopus, and Cochrane Library databases. Boolean operators (AND/OR) were used in the search technique to mix MeSH terms with free-text phrases. The main search concepts included dental anxiety, pediatric population, dental care, and pain perception or cooperative behavior: (("Dental Anxiety"[MeSH Terms] OR "dental anxiety"[Title/Abstract] OR "dental fear"[Title/Abstract] OR "dental phobia" [Title/Abstract]) AND ("Child" [MeSH Terms] OR "Child, Preschool" [MeSH Terms] OR "Adolescent" [MeSH Terms] OR child* [Title/Abstract] OR pediatric* [Title/Abstract] OR paediatric* [Title/Abstract]) AND ("Dental Care" [MeSH Terms] OR "Dental Care for Children" [MeSH Terms] OR "Pediatric Dentistry" [MeSH Terms] OR "dental treatment" [Title/Abstract] OR "dental care" [Title/Abstract]) AND ("Pain" [MeSH Terms] OR "Pain Perception" [MeSH Terms] OR "Pain Measurement" [MeSH Terms] OR pain [Title/Abstract] OR "Cooperative Behavior" [MeSH Terms] OR "Child Behavior" [MeSH Terms] OR cooperat* [Title/Abstract] OR behavior [Title/Abstract] OR behaviour [Title/Abstract])). The search strategy was adapted to each database. The final search was conducted on 15 October 2026.

Data Extraction

The first author and year of publication, country, study design, sample size, participant age, type of dental examination or treatment, and the measurement tools used to gauge dental anxiety or fear, pain perception, overall discomfort, and cooperative behavior were all taken from each included study. Additionally, when applicable, physiological measurements were noted.

For each study, data on the associations between the variables of interest were extracted, including the variables examined, direction of association, reported effect estimates (such as correlation coefficients, odds ratios, or relative risks), confidence intervals, and

statistical significance, where available. Usually, the impression of pain and discomfort is documented as a separate outcome parameter. In addition, a qualitative synthesis is supported by documentation of the main conclusions and limits of the pertinent investigations.

Risk of Bias Assessment

The methodological quality and risk of bias of the included studies were assessed using the Joanna Briggs Institute (JBI) critical appraisal tools selected according to the actual study design. Studies with an analytical cross-sectional design are subject to the "JBI Critical Appraisal Checklist"; studies involving the longitudinal observation of the same participants are subject to the "JBI Critical Appraisal Checklist" for cohort studies, when applicable.

According to the applicable JBI checklist, each evaluation item is categorized as "Yes," "No," "Unclear," or "Not applicable." The evaluation includes the acceptability of the statistical analyses, the identification and management of potential confounding variables, the measurement of exposures and outcomes, and the appropriateness of participant selection, depending on the particular study design. Instead of depending only on a total numerical score, the results are summarized by individual evaluation domains.

Outcome Definition and Synthesis

This review looks at a number of factors, such as children's cooperative conduct during dental care, pain perception, general discomfort, and anxiety or fear related to dental treatment. A child's or their parents' completed questionnaires are used to measure anxiety or dread of dental care, which is defined as an emotional reaction related to dental examinations or operations. Pain perception was defined as the subjective experience of pain during or following dental procedures, assessed using self-reported pain scales. General discomfort was included as an additional pain-related outcome but was considered distinct from pain perception because it may reflect broader unpleasant physical or psychological experiences during treatment.

Cooperative behavior was defined as children's behavioral responses during dental care, assessed using clinical behavior rating scales or structured observational measures of treatment-interfering behavior.

Eligible studies were required to quantitatively examine at least one of the following associations: (1) dental anxiety or fear and pain perception or general discomfort, (2) dental anxiety or fear and cooperative behavior, or (3) pain perception or general discomfort and cooperative behavior. Studies that assessed the variables independently without reporting a relevant quantitative association were excluded.

RESULTS

Study Selection

The database searches conducted in PubMed, Scopus, and the Cochrane Library identified a total of 1,758 records. 1,042 records were examined using their titles and abstracts after 716 duplicates were eliminated; 1,017 of these records were eliminated. Three of the 25 reports that were later sought after could not be found. After that, the eligibility of the remaining 22 full-text reports was evaluated. Of these, 17 reports were eliminated for the following reasons: the dental treatment was administered under moderate sedation ($n = 1$), the study design did not fit the criteria ($n = 1$), the participants were outside the allowed age range ($n = 1$), and the study endpoints were irrelevant to the review's research question ($n = 14$). In the end, five studies were included in the qualitative synthesis since they satisfied the eligibility requirements. The study selection process is illustrated in the PRISMA 2020 flow diagram (Figure 1).

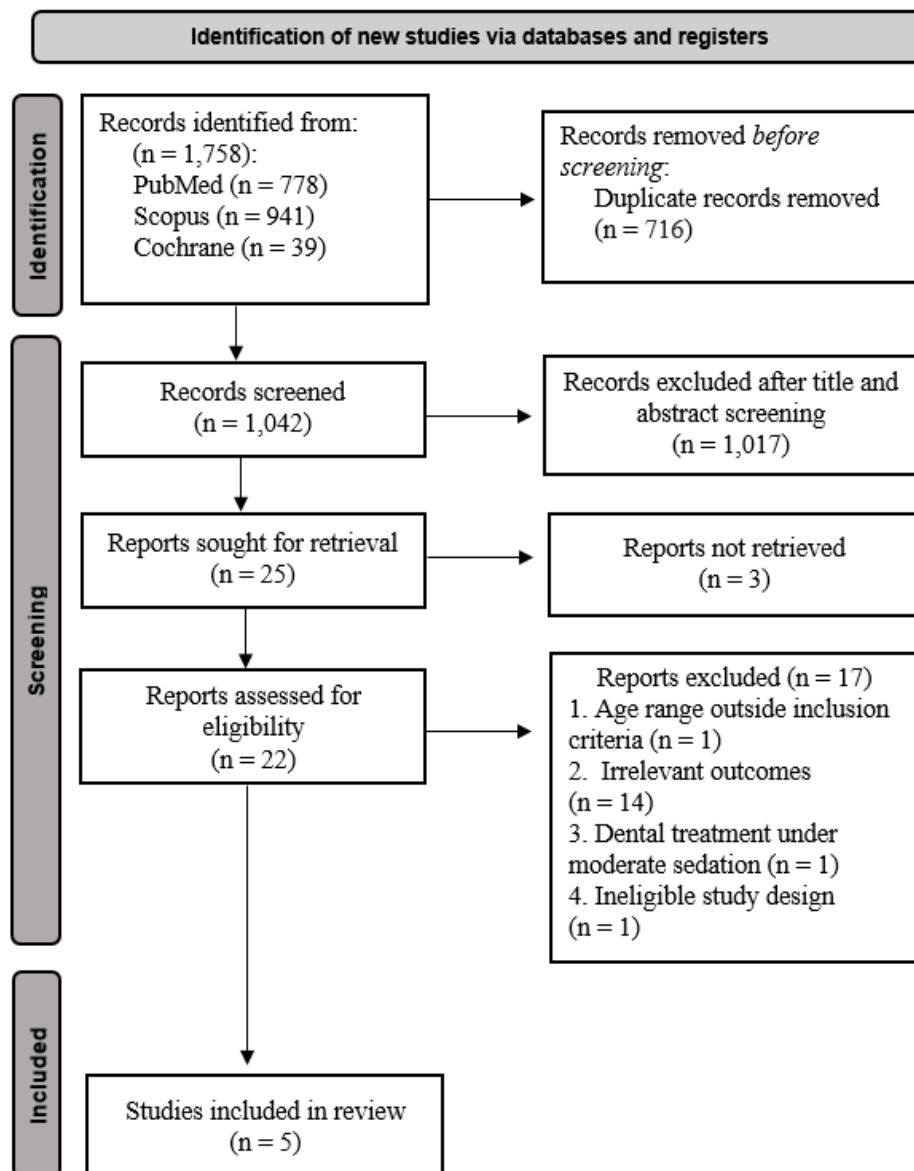


FIGURE 1: PRISMA 2020 flow diagram.

Characteristics of Included Studies

The five included studies involved a total of 1,486 children from Brazil, the United Arab Emirates, China, Iran, and the United States. These studies, which had sample sizes ranging from 37 to 1,061 people, were published between 2020 and 2026. The subjects, who ranged in age from five to sixteen, underwent a variety of dental treatments and clinical assessments.

The clinical practices, evaluation tools, and research designs of the included studies differed. Dental anxiety or fear was assessed using questionnaires, whereas cooperative behavior was evaluated using the Frankl Behavior Rating.

Scale or structured observational measures. A pain scale (based on self-reporting) was used to measure pain perception, and a visual analog scale was used to measure general discomfort independently. Mehdipour et al. (2026) also gathered psychophysiological measures such as galvanic skin response and heart rate variability.

The characteristics of the included studies, including participant demographics, dental procedures, assessment instruments, and principal findings, are summarized in Table 3.

TABLE 3: Characteristics of Included Studies.

Study	Country	Study design	Sample (n)	Age (years)	Dental procedures	Assessment instruments	Main findings
Mathias et al. (2020)	Brazil	Cross-sectional	192	6–13	Dental procedures of varying complexity	Dental Anxiety Question (DAQ); Faces Pain Scale–Revised (FPS-R); Frankl Behavior Rating Scale	Non-cooperative behavior was associated with higher reported pain. Dental anxiety was associated with pain in bivariate analysis but was not retained as an independent predictor in the adjusted model.
AlGharebi et al. (2021)	United Arab Emirates	Cross-sectional	156	7–16	Dental examination, injections, restorations, and extractions	Modified Child Dental Anxiety Scale–faces version (MCDAS-f); Frankl Behavior Rating Scale	Higher dental anxiety was associated with poorer cooperative behavior.
Gao et al. (2021)	China	Repeated cross-sectional survey over 10 years	1,061	5–12	Dental examination	Children’s Fear Survey Schedule–Dental Subscale (CFSS-DS); Frankl Behavior Rating Scale	Higher dental fear scores were associated with less cooperative behavior.
Bocklage et al. (2025)	United States	Observational association and instrument-validation analysis using data from a prospective controlled trial	37	7–14	Local anesthetic injections, restorative procedures, and extractions	MCDAS; CFSS-DS; Wong–Baker FACES Pain Rating Scale; Pediatric Dental Pain, Anxiety, and Fear Coding Approach (PAFCA)	Higher anxiety, fear, and pain scores were associated with selected observed treatment-related behaviors. Anxiety and fear were also positively correlated with pain scores.
Mehdipour et al. (2026)	Iran	Exploratory cross-sectional analytical study	40	7–10	Dental fillings and other routine procedures	Visual Analogue Scale (VAS) for general discomfort; Frankl Behavior Rating Scale; psychophysiological measures	Changes in general discomfort differed across behavioral categories, with the largest reported increase in the negative behavior group.

Total sample: 1,486 children.

Abbreviations: DAQ, Dental Anxiety Question; FPS-R, Faces Pain Scale–Revised; MCDAS-f, Modified Child Dental Anxiety Scale–faces; CFSS-DS, Children’s Fear Survey Schedule–Dental Subscale; VAS, visual analogue scale; HRV, heart rate variability; GSR, galvanic skin response; PAFCA, observational coding of pain, anxiety, fear and treatment-interfering behavior.

TABLE 4: Associations Examined Across the Included Studies.

Study	Anxiety–Pain	Anxiety–Cooperation	Pain–Cooperation	Discomfort–Cooperation
Mathias et al. (2020)	✓*	—	✓	—
AlGharebi et al. (2021)	—	✓	—	—
Gao et al. (2021)	—	✓	—	—
Mehdipour et al. (2026)	—	—	—	✓
Bocklage et al. (2025)	✓	✓†	✓†	—

Notes: ✓ indicates that a quantitative association was examined or reported; it does not necessarily indicate statistical significance. — indicates that the association was not reported.; *Mathias et al. (2020): The anxiety–pain association was reported in bivariate analysis but was not independently significant after adjustment; † Bocklage et al. (2025): Behavioral outcomes were assessed using observational coding of treatment-interfering behaviors rather than the Frankl Behavior Rating Scale. General discomfort was considered separately from pain perception.

Dental Anxiety and Cooperative Behavior

Three studies examined associations between dental anxiety or fear and children's behavioral responses during dental care [11–13]. AlGharebi et al. (2021) reported a statistically significant negative correlation between dental anxiety scores and Frankl Behaviour Rating Scale scores ($p < 0.001$), indicating that higher anxiety was associated with lower levels of clinical cooperation [11]. In a similar vein, Gao et al. (2021) found a negative correlation between behavioral ratings based on the Frankl scale and scores on the Children's Fear Survey Schedule–Dental Subscale (CFSS-DS); this suggests that children with higher levels of dental anxiety typically behave less cooperatively during dental treatment [12]. Using an observation-based coding system, Bocklage et al. (2025) examined dental anxiety, fear of dental treatments, and actions that impede treatment [13]. Unlike the research by AlGharebi et al. and Gao et al., which used the Frankl scale to measure the overall degree of collaboration, Bocklage et al. examined particular behavioral responses as they happened during treatment. Therefore, although these studies provide evidence of associations between dental anxiety or fear and behavioral responses, their findings are not directly comparable because of differences in behavioral outcome measures.

Pain-Related Outcomes and Cooperative Behavior

Three studies examined associations between pain-related outcomes and children's behavioral responses during dental treatment [11,13,14]. Uncooperative behavior is linked to a greater chance of having more severe pain after treatment (RR = 2.39; 95% CI: 1.23–4.64), according to Mathias et al. (2020) [14]. Bocklage et al. (2025) examined the connection between actions that interfere with therapy and patient-reported pain using an observation-based coding system [13]. In contrast, Mehdipour et al. (2026) assessed general discomfort rather than pain perception and reported differences in changes in visual analogue scale (VAS) scores across Frankl behavior categories, with the greatest increase observed in children classified as exhibiting negative behavior [15]. Although these studies examined related pain or discomfort

outcomes and behavioral responses, direct comparisons were limited by differences in outcome definitions and behavioral assessment methods.

Dental Anxiety and Pain Perception

Two studies examined the association between dental anxiety and pain perception in children receiving dental treatment [13,14]. Mathias et al. (2020) reported a statistically significant association between dental anxiety and post-treatment pain in the bivariate analysis ($p = 0.03$); however, this association was not statistically significant after adjustment for other variables in the multivariable analysis [14]. Bocklage et al. (2025) investigated the relationship between dental anxiety, dental fear, and self-reported pain during dental treatment using standardized assessment instruments [13]. Direct comparisons of these research findings are limited by the differences in their measurement strategies and analytical techniques.

Risk of Bias in Included Studies

Using the Joanna Briggs Institute's (JBI) "Analytical Cross-Sectional Checklist," the methodological quality of the five included studies was evaluated, with an emphasis on examining the connections pertinent to this study. The identified relationships between anxiety and behavior were based on assessments made during single points of contact rather than a conventional cohort follow-up, despite the fact that Gao et al. referred to their work as a longitudinal study.

Four studies did not demonstrate adequate adjustment for potential confounding in the relevant association analyses, whereas Mathias et al. employed adjusted Poisson regression. The limited behavioral variability in the study by Bocklage et al., the inadequate reporting of statistical analyzes regarding the relationship between anxiety and behavior in the study by Gao et al., and the possible selection bias resulting from the exclusion of children who displayed stress-related movements from the study by Mehdipour et al. are additional methodological issues. The results of the narrative synthesis were interpreted with these restrictions in mind.

TABLE 5: Risk of Bias in Included Studies.

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
AlGharebi et al.(2021)	Y	Y	Y	Y	Y	N	Y	Y
Mathias et al. (2020)	Y	Y	Y	Y	Y	Y	Y	Y
Gao et al. (2021)	Y	Y	Y	Y	Y	N	Y	U
Bocklage et al. (2025)	Y	Y	Y	Y	Y	N	Y	Y
Mehdipour et al. (2026)	Y	Y	Y	Y	Y	N	U	Y

Y = Yes; N = No; U = Unclear; NA = Not applicable. Judgments are based on the information reported in the available full texts; U denotes insufficient reporting for confident judgment.

JB1 item definitions: Q1 Clearly defined inclusion criteria; Q2 Study subjects and setting described; Q3 Exposure measured validly and reliably; Q4 Objective, standard criteria for the condition; Q5 Confounding factors identified; Q6 Strategies to deal with confounding; Q7 Outcomes measured validly and reliably; Q8 Appropriate statistical analysis.

DISCUSSION

The results of five studies that look at the connection between children's conduct during dental care, pain-related outcomes, and dental anxiety or fear of dental treatment are compiled in this systematic review. Overall, the findings imply that less desirable behavior is linked to higher levels of dental anxiety or fear; additionally, a child's behavior during dental treatment may also be influenced by their experience of pain and discomfort. However, the consistency of the results pertaining to these correlations varies, which can be explained by variations in the definition of the parameters, the tools utilized for evaluation, and the analytical techniques employed.

Three studies have examined the connection between cooperative conduct and anxiety or dread related to dental treatment [11–13]. Gao et al. found an inverse link between dental dread and clinical collaboration, while AlGharebi et al. found a strong negative correlation between dental anxiety and behavioral assessment based on the Frankl scale [11,12]. According to Bocklage et al., there is a positive association between dental dread and total vocalization ($p = 0.4208$; $p = 0.0095$) and between post-procedure dental anxiety and total vocalization (Spearman's rank correlation coefficient $\rho = 0.3731$; $p = 0.0229$) [13]. Although these findings indicate relationships between anxiety or fear and behavioral responses, the observed vocalizations assessed by Bocklage et al. should not be interpreted as equivalent to overall cooperative behavior measured using the Frankl scale. Therefore, the direct comparison of these outcomes is limited by variations in the methods utilized to evaluate behavior.

Additionally, the relationship between the children's behavioral responses and pain-related outcomes was investigated. Mathias et al. reported that non-cooperative behavior was independently associated with higher post-treatment pain (RR = 2.39; 95% CI: 1.23–4.64) [14]. Bocklage et al. found a positive correlation between pain scores following local anesthetic injection and upper-body movements ($\rho = 0.3329$; $p = 0.0441$), suggesting a relationship between perceived pain and specific observable behaviors [13]. Mehdipour et al. assessed general

discomfort rather than pain perception and reported an increase in discomfort among children classified as exhibiting negative behavior [15]. Although these findings indicate that pain-related experiences and behavioral responses may be associated, the different constructs and measurement approaches prevent them from being interpreted as directly equivalent. Moreover, the observational nature of these associations does not establish their direction or causality.

Evidence regarding the association between dental anxiety and pain perception was available from two studies [13,14]. Bocklage et al. reported positive correlations between dental anxiety measured before treatment and pain scores assessed before treatment ($\rho = 0.4207$; $p = 0.0095$) and after treatment ($\rho = 0.4118$; $p = 0.0113$) [13]. In contrast, Mathias et al. identified a significant association between dental anxiety and pain perception in bivariate analysis ($p = 0.03$), but the association was not retained in the adjusted multivariable model [14]. These findings suggest a possible relationship between dental anxiety and pain perception, although evidence for an independent association remains limited. The variance in current findings may be partially explained by variations in the populations examined, the scheduling of evaluations, and the management of confounding variables.

Additionally, a child's experience and behavioral reaction can be influenced by traits that are directly related to the treatment. According to Mathias et al., higher levels of pain perception after treatment were linked to the use of local anesthesia (RR = 2.36; 95% CI: 1.31–4.27) and the occurrence of toothache in the four weeks prior (RR = 1.60; 95% CI: 1.04–2.47) [14]. Furthermore, children who had a tooth extracted had higher levels of dental anxiety, according to AlGharebi et al. [11]. These results highlight how crucial it is to take into account the type of dental operation as well as past pain experiences when assessing a child's fear, pain perception, and behavior. The association with local anesthesia should be viewed cautiously, though, since its usage may be a sign of the procedure's intricacy or invasiveness rather than a direct cause of the discomfort.

From a clinical standpoint, these results highlight the significance of evaluating dental-related anxiety, traumatic experiences in the past, and behavioral reactions as related but separate facets of children's dental care. In addition to keeping an eye out for any indications of pain or discomfort during therapy, a tailored assessment can assist practitioners in choosing behavior management and communication techniques that are suitable for a child's developmental stage. However, the research included did not show that certain behavior management treatments were effective. Prospective study designs, validated and standardized evaluation instruments, and statistical analyzes that suitably take potential confounders into account should all be used in future research. Additionally, making a clear distinction between specific observable actions and general clinical cooperation, as well as between pain perception and general discomfort, would enhance the comparability of other investigations.

Limitations

A very small number of included papers, methodological variability, and uneven assessment of potential confounding factors are some of the shortcomings of this systematic review. Direct comparisons and quantitative synthesis are made more difficult by variations in data collection techniques. Additionally, the findings' generalizability and the capacity to infer causality are limited by the use of small or selective samples in conjunction with a body of evidence primarily derived from observational studies. Future prospective studies using standardized measuring tools are required to bolster the current body of evidence.

CONCLUSION

This comprehensive study shows that children's less cooperative behavior during dental operations is correlated with higher degrees of anxiety or worry surrounding dental treatment. Although the connection between dental anxiety and pain perception is yet unknown, general sensations of pain and discomfort may potentially be connected to behavioral reactions. Further prospective studies employing standardized measurement tools are necessary to elucidate these associations and to support the implementation of behavior management guidelines customized to the unique needs of children in pediatric dentistry due to methodological heterogeneity and limited evidence.

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