

**ORIGINAL RESEARCH**

# Child, Adolescent, And Dentist Perspectives In A Three-Way Analysis Of Pain In Pedodontics

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**ABSTRACT**

**Objectives:** In order to better understand dentists' understanding of and attitudes towards pain management, it is important to examine how children and teenagers experience general, oral, and dental treatment pain. **Materials and Methods:** The 40-item CPI answers from 390 kids and teenagers (aged 8 to 19) were studied. Exploratory Factor Analysis was used to assess the most typical CPI pain scenarios in order to shorten the questionnaire. For the DDQ study, 190 children with disabilities (12–18 years old) and their paired controls were involved. The attitudes and expertise of 390 dentists regarding pain management were evaluated. **Results:** Invasive dental procedures like "dental injection," "tooth drilling," and "tooth extraction" were painful for about 50% of the children and teenagers who underwent them. Higher dental anxiety, a disability, being under 14 years old, being female, or being older or older multiplied the amount of discomfort you felt. (female). Despite similar dental health in both groups, disabled children and teenagers scored significantly higher on the DDQ than controls. Female dentists and/or dentists with more professional experience used superior pain management techniques. **Conclusion:** It is important to acknowledge that children, whether they have a disability or not, who have greater dental anxiety are more sensitive to pain. During invasive dentistry procedures, these patients should receive special attention as well as pain medication. All toddlers should receive pain-free dental care, according to dentists.

**Keywords:** Adolescent, Child, Dental, Dentist, Disability, Pain, Questionnaire

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**INTRODUCTION**

Dental care can be painful and uncomfortable, which can cause dread and anxiety, especially in children who need treatment. The young patient's fear of pain could make the scenario more complicated. This makes oral healthcare a difficult issue. These unpleasant experiences could make an already challenging circumstance worse for a young patient with a disability.

According to the prevailing scientific theory at a given moment, the definition of pain has evolved over time. In the 1960s, the predominant perspective on pain was that it was a subjective, multifactorial experience with sensory, cognitive, and emotional aspects. According to McCaffery, "whatever the experiencing person says that pain is, existing whenever and wherever the person says it does" is what pain is. Although the intention is good—to

encourage patients to define their own pain with the aid of self-reporting—children with developmental intellectual disabilities—who may not be completely or at all capable of expressing their experiences—are still excluded.

The current paradigm asserts that children, children with cerebral disabilities (such as Down syndrome), and adolescents are more sensitive to pain than adults due to the immature processing of the nervous system.<sup>1-4</sup> These findings have an effect on dental health care because they enable the dentist, using the patient's personal pain history, to recognise and treat each person's unique pain susceptibility. It has been debated whether frequent exposure to painful stimuli results in a raised (sensitization), decreased (desensitization), or unchanged (sensitization) pain tolerance. According to data, younger children and neonates are anticipated to experience peripheral or

central sensitization more frequently than adolescents.<sup>5,6</sup>

Dental Fear and Anxiety (DFA), which is not a precisely defined entity, is made up of Dental Fear (DF) and Dental Anxiety (DA). Traumatic dental treatment received as a young kid may influence the development of DFA as well as the patient's perspective on dental care as they get older.<sup>7-10</sup> The frequency of DFA is also influenced by the child's age and sex. Young toddlers are increasingly reporting pain more frequently. The temperament, society, and family history of the child may also play a role in the development of DFA. The erratic nature of the DFA-initiating factors demonstrates the complexity of anxiety and dread. A dentist's professional practise may be influenced by his or her understanding of and approach towards children's pain perception (DKA-CPP). For example, a dentist is not allowed to inquire about the patient's discomfort level or suggest pain relief. According to Murtomaa et al., half of dentists did not regularly inquire about the young patient's pain-related concerns.<sup>11</sup>

The Children's Pain Inventory (CPI) and Dental distress Questionnaire are tools for quantifying pain and distress. (DDQ). McGrath first proposed the CPI, a self-report that offers fictitious pain scenarios for kids in place of the graded degrees of experimental pain used in adults. The CPI included a summary of 25 circumstances that are typically thought to cause pain, as well as five circumstances that are typically thought to not cause pain.<sup>12</sup> DDQ was created to identify child conduct that parent had noticed was indicative of toothache in children. A person's eating, chewing, and sleeping habits may alter negatively as a result of decayed teeth, or they may develop personally upsetting habits. Parents of children with toothaches and cavities were questioned. Eight questions were included in the DDQ as a result of the

D1	moderate to severe intellectual disability (IQ = 49)	Age 8-12
D2a	mild intellectual disability (IQ 50 – 70)	Age 12-14
D2b	mild intellectual disability (IQ 50 – 70)	Age 15-18
D3	Physical disability	Age 12-18

Additionally, there was a dental study club. (Group IV). All general dentists employed by the hospital were asked; the age ranges were as follows: younger than 25, between 25 and 35, between 36 and 45, between 46 and 55, and older than 55.

Three questionnaires—the DDQ, the DKA-CCP, and the CPI initial form—were utilised. The CPI and VAS were used to measure the level of pain. (Group I-II). Two different lists that McGrath originally used to describe the Children's Pain Inventory (CPI) were modified. Four items from the "acute treatment-related pains" list and the 23-item CPI list for "acute trauma/disease pain" were also used<sup>12</sup>. The item "vaccination" was also included in the modified CPI because it was thought to be a major cause of distress for both children and teenagers. Ten more items connected with dental care were also introduced.<sup>15</sup>

information collected. The age span of the groups includes toddlers who are preverbal as well as children with learning disabilities (6 to 13 years old)<sup>13</sup>. The DDQ can be thought of as a substitute report for kids who are unable to properly express their dental discomfort. On the other side, the Anxiety Scale (DAS) gauges fear. It is a self-report tool that assesses DFA. DAS primarily targets both adults and children and addresses general dental anxiety. It has a total score range of 4–20 and four hypothetical dental scenarios with five response options each scoring 1–5. For dental fear, a DAS cut-off number of 15.0 has been proposed.<sup>14</sup> The study's objectives were to investigate young children's and teenagers' (with and without disabilities) experiences of general, oral, and dental treatment pain as well as to learn more about dentists' knowledge and views regarding pain management.

## METHODS

Children and adolescents without disabilities (Groups I–II), III (control group), Children and adolescents with disabilities (Group III), and Dentists at Private Hospital in India (Group IV) were the groups we investigated. A total of 390 healthy children and adolescents (aged 8–19 years) who were "without disability" were invited to join in the study group for children and adolescents. (Group I). They had been consecutive hospital attendants and frequent patients. The exclusion factors were young age or language barriers in Hindi or English. The collected information from here was also used for additional investigation. (Group II).

80 girls and 110 boys (aged 12 to 18) from the study group of children and teenagers with disabilities (Group III) were divided into four groups based on their intellectual and physical disabilities:

The modified CPI therefore had 40 components. The respondent was told to choose from the options of yes, no, or don't know. If "yes," they were then asked to specify whether the experience had been painful, selecting one of the options: "yes always," "yes occasionally," "no never," or "don't remember." If the response was "yes always" or "yes occasionally," the level of pain was recorded on a 100 millimetre Visual Analogue Scale (VAS), with 0 denoting no pain and 100 denoting the most intense pain.

Four fictitious dental treatment-related scenarios were used to measure fear and anxiety (DFA) in a group of children without disabilities using the DAS (Group I). The range of total scores was 4 to 20.<sup>14</sup> Using the DDQ (Group III), pain and discomfort experienced by children and teenagers with disabilities and their matched controls were recorded. The total score for

this measure ranges from 0 to 24 and is based on twelve items with response choices of never (0), occasionally (1), or frequently (2). Dental records were used to gather information on dental caries in the permanent teeth (DMFT). A record of the most recent oral condition was acquired. The radiographs weren't evaluated.

For Groups I-IV, the Statistical Package for the Social Sciences (SPSS) was used. In each article, descriptive statistics were compiled, and the data type and variable distributional properties were assessed. This was taken into consideration when deciding whether to use parametric or non-parametric statistical techniques for the studies.

## RESULTS

Regarding whether or not the CPI's everyday and dental treatment pain circumstances had been experienced, there were notable differences between participants among children and teenagers without disabilities (Group I, II). The CPI items "Fallen and scraped the skin" (N = 356), "Had a cold" (N = 350), and "Bitten tongue" (N = 352) were the most commonly experienced ones. Dental X-rays and having the teeth probe-checked were the dental treatment items that were most commonly experienced (N = 346; 94%) and (N = 307; 83%, respectively). The entry "Tooth extracted" (N = 135; 37%) was the least frequent.

The painful experience was described in various ways by the children and teenagers. "Headache" and "Stomach ache" were the two most commonly reported pains (> 90%) among the everyday situations. Both girls and boys frequently described the most typical daily circumstances as painful. Dental injections were the dental procedure that people reported feeling discomfort in the most frequently.

Compared to the younger group, the older group (14–19-year-olds) reported experiencing more discomfort. (8-13- year-olds). Pain intensity was typically rated higher by the younger cohort. Girls tended to express

distress more frequently when confronted with CPI situations in general. It was found that there were statistically significant differences between boys and girls for some of the less typical daily occurrences. These incidents were typically defined by a cut through the epidermis or mucosa or blunt trauma. The only dental treatment scenario in which girls reported pain more commonly than boys was "dental injection." The VAS generally indicated greater pain intensity ratings for everyday situations than for dental treatment situations. In general, girls reported more severe discomfort in all circumstances. There was a statistically significant difference for a few of the circumstances, including "Headache," "Vaccination," and "Bitten tongue." Both boys and girls ranked the same dental treatment situations as having the most intense pain. Children and teenagers in the High dental anxiety group generally experienced more intense degrees of pain. A total of 190 kids and teenagers with disabilities (D group), aged 12 to 18 (mean age 14.6 years), consented to take part. 140 questionnaires were examined because some were not full. 130/190 of the sex- and age-matched controls without a handicap (C group) could be examined for the same reasons. The main oral problems in the D group were items representing 'Chewing', 'Biting off' and 'Brushing the teeth'.

50% of the doctors were under the age of 45. The dentists had an average of 18.3 years of professional expertise. Treatment of juvenile patients took up 0–25% of the working time for more than 50% of male dentists and 26–50% of the time for female dentists. Knowledge and Attitudes of Dentists to Child Pain Perception measures differences in attitudes and knowledge linked to the dentists' age, gender, and years of professional experience. (DKA-CPP). It was more probable that the young patient's pain would be treated by a dentist who was either 46 years old, a woman, or had 17 years of experience. In Table 1, examples of items with statistically significant differences related to the dentist's age, gender, or level of expertise are shown.

**Table 1: Item A1. Children usually tolerate pain better than adults**

Age	n	Mean SD	P
< 46 years	200	4.3 ± 1	0.0001
>46 years	190	4.6 ± 0.8	
Total	390	4.5 ± 0.9	

**Item B1. Untreated pain prolongs the time of healing/recovery until the onset of pain relief**

Experience	n	Mean SD	P
< 17 years	190	4.1 ± 0.9	0.0001
>17 years	200	4.4 ± 0.9	
Total	390	4.2 ± 0.8	

**Item C4. Usually, the child's pain experience diminishes when a parent is present**

Gender	n	Mean SD	P
Male	270	3.6 ± 1.2	0.0001
Female	120	3.2 ± 1.2	
Total	390	3.4 ± 1.2	

## DISCUSSION

This research found that younger children, kids with DFA, and girls more frequently reported both routine pain and pain from dental procedures. Compared to their matched controls, children with disabilities (D) experienced statistically considerably more oral discomfort and pain. (C). Additionally, it was discovered that female dentists and/or dentists with extensive professional experience had more understanding of pain management. These dentists can provide greater assistance in managing children's pain. When taken as a whole, the studies show how important it is for both the dentist and the child to be able to identify pain in dental situations. The findings imply that dentists should actively attempt to identify the patients who are most susceptible to experiencing pain, and practise pain control.

The respondents' age range of 11 years was most likely reflected in the findings. (8-19 years). More than 92% of the toddlers who participated in the study claimed to have felt "headache" and "stomach ache." Some common ailments could be the cause of the rise in psychosomatic issues among children and teenagers. (Manifesting as tiredness, loss of appetite, emotional distress or depression). The frequency in the reports varies depending on how the queries were created. For instance, more than 50% of school-age toddlers reported experiencing headaches and/or abdominal pain "a few times a month."

Children frequently experience pain phobia when receiving oral care. There are, however, surprisingly few studies that look at which oral procedures kids and teens find painful. Between 55% and 67% of the children and teenagers who participated in the study said that getting their teeth removed, drilled, restored, or given a dental injection hurt. The kid who feels pain during dental treatment may later develop DFA, begin to put off dental visits, and have poor dental health. The possibility of this undesirable outcome highlights the value of painless oral care. Topical analgesia must be used prior to giving anaesthetic in order to guarantee this result. The fact that kids described restorative care as painful may be a sign of inadequate management.

The kid may experience any oral intervention as painful under the wrong conditions, including the CPI dental treatment methods that were the subject of the study. Due to this, dentists must be skilled in both intrusive and non-invasive procedures. Dentists who work with young children frequently handle adolescents as well as preschoolers. As a result, they must take into account the traits of kids' different cognitive and socioemotional developmental levels. Additionally, the dentist must be knowledgeable about how to deal with children's stressors like DFA, soreness, or pain. The CPI data additionally demonstrate that age affects the frequency and intensity. Even though they had less CPI scenarios than the older kids did, the younger kids described them as being more painful. This variation may be

explained by the children's varying degrees of intellectual development and capacity for categorising and expressing pain. The CPI results suggest that when introducing uncomfortable dental procedures, dentists should make an accurate assessment of the child's intellectual and emotional level and satisfy his or her individual capability. Indirectly, the CPI results also call for a precise evaluation of child pain. A successful treatment would necessitate appropriate pain management, which is also warranted by such an assessment.

Dentists' understanding and Attitudes to Children's Pain Perception (DKA-CPP) self-report questionnaire responses revealed that having at least 17 years of professional experience was associated with better understanding of pain management. Age of the dentist who responded was also correlated with greater understanding of children's pain. This must be because they set aside time to put their information and experience to practise. The research also indicated that female dentists had more expertise in paediatric pain management.

## CONCLUSION

According to the CPI, younger children, girls, and kids (8–19 years old) with higher dental anxiety reported experiencing daily discomfort more frequently and sporadically with greater intensity. Both the 40-question original CPI and the 14-question version were found to be similarly helpful. Despite having excellent dental health in both the D and C groups, children with an intellectual or physical disability (D) reported oral discomfort and pain (DDQ) more frequently than their matched controls (C) (12–18-year-olds). Older dentists, female dentists, and dentists with more experience all employed superior pain management techniques.

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