Dental anxiety among children regarding different dental treatment- modified child dental anxiety scale (mcdas) type of manuscript: research article running title: dental anxiety in children with different treatments vane swetah c.s.

Dr. Mahesh

Abstarct: TOPIC: Dental Anxiety among children regarding different Dental treatment - Modified Child dental anxiety scale (MCDAS)

1. INTRODUCTION:

Dental anxiety and fear focuses on various aspects of the treatment experience and explores the most anxious and frightening parts of the dental procedures. The source of a patient's anxiety might be in relation to choking, fear of injection, strong aversion to the sight of blood or loud noises from the dental unit functioning. By understand the fear to various treatment, such as scaling or extraction, we can offer better treatment and care to the patient. Good communication skills and establishing a positive rapport with the patient are critical in these circumstances as these can even alter the entire outlook of a child towards dental treatments.

AIM:

To understand the levels of anxiety among children for various dental procedures using MCDAS

MATERIALS AND METHODS:

The study was conducted in Saveetha dental college, Chennai with 100 outpatient children who came to the clinics. They were given a questionnaire to fill with the help of Modified Child Anxiety Scale- Faces Version. The results were then tabulated and calculated

RESULTS:

The results also show that children are more anxious about getting injections or having their tooth extracted. On the other end of the spectrum, they appear more composed when the dentist merely cleans their teeth. The results show a decrease in anxiety levels with age.

CONCLUSION:

The MCDAS is a reliable parameter to measure the anxiety levels in children. The study also showed increased levels of fear during invasive procedures such as extraction and getting injections.

- *Graduate student Saveetha Dental College, Saveetha University, Chennai, India*
- *Contact Number: 9444881092 162, Poonamalle High Road*
- *Chennai 600077*

KEY WORDS:

Dental Anxiety, MCDAS, various treatments, faces version, Indian

INTRODUCTION:

Dental fear usually refers to a normal unpleasant emotional reaction which is specific to threatening stimuli occurring in situations associated with dental treatment, while dental anxiety is just an unreasonable negative emotional state experienced by patients. Dental fear and anxiety (which is dental fear and anxiety, DFA) are major problems for a wide proportion of children and adolescents. The incidence rate can vary between countries by 5-20% where in some cases can be called as a dental phobia due to its extreme nature [1, 2,3]. Children and adolescents with DFA are often uncooperative and restless during dental visits, thus rendering treatment difficult or impossible [3] . Such behavior compromises the treatment outcome and can create occupational stress among dental staff, and is often a cause of disconnection between dental professionals and patients or their parents [4]. Due to their anxiety or fear, the children and adolescents may try even possible means to avoid or delay the treatment. This negative behavior correlates to non-attending patterns, which leads to irregular attendance to eventual drop out. This deteriorates their oral heath [4,5,6]. This can also have greater effects on a child's sleep, daily life and can leave a mark on one's normal functioning [7,8]. This can also interfere with their dental visits as an adult [9,10]. Thus, Pinpointing dental anxiety at a young age can help the individual gain a more positive outlook towards dentists. Previous studies into dental anxiety drew predominantly upon quantitative instruments such as questionnaires [3]. These instruments are however largely based on the individual professionals' presumptions and may not capture the entire spectrum of the individual's perceptions and views [11]. These quantitative methods will focus mostly statistics and does not go deeper into uncovering complex mechanisms. Qualitative research is considered an important complement to quantitative methods, especially for an in depth understanding of the human behaviors. Self-reported measures are commonly used in the assessment of dental

anxiety. One significant advantage of self-report measures is the ease of administration, especially in larger case trials, i.e. taking a relatively shorter period of time to complete. They can also assess the response to different aspects of the dental experience in a comparatively shorter duration of time. Corah's Dental Anxiety Scale (CDAS) is one of the most popularly used methods of dental anxiety assessment in adults. When applied to children the wordings of the CDAS is considered too complex and the need for modified or simpler versions of the scale came up [11, 12, 13, 14]. As a result of this, Wong et al [15] came about the Modified Child Dental Anxiety Scale (MCDAS) based on CDAS. The MCDAS includes eight questions to assess the dental anxiety about varied dental procedures. The scale includes a question about local anesthetic, and other dental procedures that commonly stress out the children, such as extraction, dental general anesthesia (DGA), and restorations or 'fillings'[16]. A five-point scale is used to assess dental anxiety with scores from 'relaxed/not worried' (scored as 1) to 'very worried' (scored as 5). The total scores on the MCDAS range from 5 (little or no dental anxiety) to 40 (extreme dental anxiety). The MCDAS has been used and experimented in 8- to 15-yearolds and has been shown to be a reasonable and comparatively reliant measure of child dental anxiety exhibiting good internal consistency and validity according to literature [16, 17,18]. Normative data are available for both English [16] and Greek–Cypriot school children [17]. Although the MCDAS has shown increased rates of success and reliability in comparison to the Children's Fear Survey Schedule-Dental Subscale [CFSS-DS] [16] and other dental scales, Buchanan [18] reported an improved completion rate and accepatbility with the Smiley Faces Program (SFP) which is a computer based face version of the dental anxiety scale; when compared to the previously popularly used CFSS-DS and the MCDAS, which suggests that numeric rating scales are too difficult for anxious or younger children to understand and complete . A numeric rating scale or heavily worded rating scale is usually understood by children who are capable of good cognitive functioning; however, under the potentially anxiety-provoking environment of the dental situation the child may regress and experience a lowering of their cognitive ability [19]. With a reduction in cognitive functioning the MCDAS may be even more difficult for the regressed child to understand due to its dependence on understanding of the various parameters. An important disadvantage of self-report measures and other scales with a numeric rating scale is their unsuitability in the assessment of dental anxiety in the very young, uneducated children and children who are unfamiliar with the given language. In order to overcome these potential difficulties a pictorial version with faces of the MCDAS was developed for use in 7- to 9-year-old children (or even younger individuals), substituting pictorial response scales for the original worded response scale [20]. Very limited information is available for the reliability and validity of the pictorial modification of the CDAS. Other assessments adopting a faces approach include the Facial Image Scale (FIS), the Dental Anxiety 5 Scale and a computerized Smiley Faces Program (SFP). The Facial Image Scale[18] has been validated in the assessment of anxiety in children immediately prior to entering the various dental procedures. The limitation was that it only used a single construct which makes it difficult. The DA5 is a dental anxiety scale designed specifically for use with 5-year-old children [21] where in the responses are noted using a four item face rating scale. Some evidence has been presented for the reliability and validity of the DA5; however, its application is limited to younger children (especially around 5 years of age) . More recently, a four-item computerized SFP has shown good reliability and criterion validity[18] however, this method is very likely to be limited by the fact that the needs to be an access to computer equipment, which is not financially possible in all cases. Therefore, there will always remain a need for a simple and valid method of assessing dental anxiety in the young and/or nervous child. The MCDAS appears to be a comparatively useful measure of dental anxiety in this regard. It is, however, limited by the level of cognitive functioning required by the child to complete the numeric rating scale. It would seem reasonable that the inclusion of faces, based on the above literature, to correspond to the like scale could be useful in assessing dental anxiety in the young as well as the anxious older child. Therefore, there is a need to modify the MCDAS with the addition of a faces analogue scale while anchored above the original numeric form to allow for any decrease in age adequate functioning, understanding related and cognitive function. Similar studies have been conducted in the Iranian [22] and Kuwaiti[23] population. To the author's knowledge, no information on this topic is available for a south Indian population. Thus, the aim of the study understand the levels of anxiety among children for various dental procedures using MCDAS in the South Indian population.

MATERIALS AND METHODS:

A total of 100 children who visited Saveetha Dental College and Hospitals, a private institute in South India, were shown the MCDAS-faces version and asked to mark their responses. Verbal parental consent was procured prior to the interaction.

INCLUSION CRITERIA:

1. Age of 5-18
2. South Indian ethnicity
3. Children who are not physically or mentally challenged
4. No disclosed learning difficulty

EXCLUSION CRITERIA:

1. Other ethnicity.
2. Uncooperative children
3. Children with no prior dental visit history

The participants' gender, age, source of referral and reason for visiting the dentist were recorded. They were then categorized into age groups 5-10 and 10-15. The responses from the questionnaire with response using faces was tabulated and compared.

RESULTS:

The results for visiting a dentist showed increased levels of fear the younger age group(35.19%) compared to the older age group (19.57%). The similar pattern was seen in response to the question of having their teeth looked at wherein increased levels of fear was seen in younger age group(24.07%) compared to the older age group (10.87%).

The results for having teeth polished or cleaned showed increased levels of fear the younger age group (24.07%) compared to the older age group (10.39%). However, the opposite response was noted for the question about getting injections where in the older age group was more anxious (69.57%) than the younger age group (28.26%) and also for getting the tooth pulled out (64.81% as compared to 82.61%). The results for getting a filling showed increased levels of fear the younger age group(35.19%) compared to the older age group (28.26 %).

DISCUSSION:

Dental fear in children has continued to produce numerous interests in pediatric dentistry. This is owing to the fact that there are possibilities of associated complications. It causes stress for many dentists who should manage such children particularly those who have associated behavioral problems. Additionally, the chair time needed to manage these children is lengthy and some specialized training is also required in successful management of these children. None the less, to efficiently manage this problem, it is essential to determine its prevalence in a population to facilitate scheduling of public health services. On the other hand, tools are required to assist diagnosing its presence and the severity in individuals to help modify individual treatment. At last, there is also a need for tools which can measure treatment required and successes of management. This would be facilitated with monitoring and assessing treatment outcomes. When asked about visiting the dentist, a remarkable percent of them reported to be anxious (35.19% for younger children and 19.57%). This stands parallel to the research of Honkala S et al[23] who reported a third of the girls and 6% of boys reported being very much afraid of visiting a dentist. This could stem from the fear of the unknown, negative experiances shared by peers or siblings, the fear of invading their personal space, feeling helpless and constrained, lack of trust, fear of pain and even personal previous dental experience. Thus, communication and establishing a good rapport with the child is important to build a foundation of trust and comfort. When asked about getting their teeth looked at, 24.07% of young children and 10.87% of older children reported feeling anxious. This could stem from invasion of their personal space and feeling restrained in the dental chair. It could also stem from having unknown instruments placed in their mouth for examination. In such cases, a prior explanation will help alleviate the fear of routine examinations. The results to having their teeth cleaning and polished showed the lowest levels of anxiety (18.52% in young children and 17.39% in older children). This starts in accordance to Honkala S et al's reseach as well. This could be due to their association of cleaning with brushing which is a routine activity and not painful, excitement for a cleaner set of teeth and their understanding of the procedure when explained. The results to having injection showed, as expected, a very high levels of anxiety (53.70% in young children and 69.57% in older children). This stands in accordance with Honkala et al who concluded the same. The trypanophobia could arise from negative life experiences or previous trauma brought on by a specific object or situation, relatives who've had phobias (which may be suggesting genetic or learned behavior), a sensitive, inhibitive, or negative temperament, learning about negative information or experiences. This can be managed by not showing the syringe to the child, being honest about the pain levels but not entirely graphic, substituting anesthesia to simpler words for easy communication, keeping or removing the parental figure from the vicinity based on the reaction. By rewarding the child after the procedure, the dentist ensures a positive reinforcement and brings about a more positive outlook towards dental visits. When asked about getting fillings, there was a high level of anxiety as well (35.19% in younger individuals and 28.26% in older individuals). This can be attributed to the invasion of personal spaces, loud sounds from the aerator and compressor, prolonged mouth opening time or uncomfortable mouth opening, and in some cases sensitivity and pain as well. The highest levels of anxiety was associated with dental extraction (64.81% in young children and 82.61% in older children). This is primarily due to involvement of the administration of local anesthesia with a syringe. The other reasons include the inability of the child to differentiate between pain and pressure, the visual pressure of seeing blood, negative experiences as shared by friends and siblings and their own experience with post-operative pain or negative experiences. Thus, to limit this fear, faster, atraumatic extractions should be performed.

CONCLUSION:

Despite the complexity and time constrains, the researches for over nearly 60 years have focused almost exclusively on the endpoints of the paradigm; that is, normative research has tried to identify fear stimuli. Virtually all of the variables between, observable and inferred, have been left unexplored and intact, leaving one with little understanding of fear processes in children. Future research will do well to follow the present literature's hints and look more closely at the unexplored areas identified, such as the possible adaptive values of children's fears, fear-prevention strategies, cognitive self-control variables, and other developmental and influencing factors. In short, we must recognize and test far more complex paradigms of the fear process. And finally, we clearly must identify the ways to counteract this fear in the individuals by a personalized and targeted approach. In conclusion, our study proved that:

1. Younger children are generally more anxious than older children.
2. The highest anxiety levels were reported with getting a tooth pulled out followed by receiving an injection.
3. The lowest anxiety levels were reported with having their teeth cleaned and looked at.
4. MCDAS(faces) is s valid tool for anxiety assessment in the South Indian population

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TABLES:

Responses	Age Group: 5-10	Age group : 11-15
1	24.01%	14.81%
2	5.56%	3.70%
3	9.26%	11.12%
4	25.92%	16.67%
5	35.19%	53.70%

Table 1 shows the response to the question if children are afraid of visiting the dentist

Responses	Age Group: 5-10	Age group: 11-15
1	37.04%	50%
2	9.26%	15.22%
3	7.41%	4.35%
4	22.22%	30.43%
5	24.07%	19.57%

Table 2 shows the responses to question on having the teeth looked at

Responses	Age Groups: 5-10	Age Groups: 11-15
1	37.04%	47.83%
2	14.81%	13.04%
3	12.96%	10.87%
4	16.67%	10.87%
5	18.59%	17.39%

Table 3 shows the responses to the question having your teeth scraped and polished

Responses	Age Groups: 5-10	Age group: 11-15
1	14.81%	10.87%
2	3.70%	2.17%
3	11.12%	13.04%
4	16.7%	4.35%
5	53.70%	60.57%

Table 4 shows the response to the question of receiving an injection

Responses	Age Groups: 5-10	Age groups: 11-15
1	18.52%	32.61%
2	14.81%	10.87%
3	7.41%	15.22%
4	24.07%	13.04%
5	35.19%	28.26%

Table 5 shows the response to the question of having a filling

Responses	Age Group: 5-10	Age Group: 11-15
1	11.11%	8.70%
2	5.56%	4.35%
3	7.41%	2.17%
4	11.11%	2.17%
5	64.81%	82.61%

Table 6 shows the response to having the tooth pulled out

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