

## Impact of Children Dental Fear on Quality of Life Among Urban and Peri Urban School Children

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### Abstract

Dental fear is the most expressed feeling by children during dental visit and can arise through observation of an unpleasant object and is instinctively avoided by children in an attempt to protect themselves from harm. This consequently often be a reason to ignore dental visit. Quality of life has been generally used to describe the impact of oral health conditions and dental care on children. The differences of environmental characteristics between urban and periurban can contribute to oral health or quality of life related to oral health. To assess the impact of children dental fear on quality of life among urban and peri urban school children.

This cross-sectional study was carried out among 278 children aged 8-10 years old who came from urban and periurban elementary school. Children dental fear was assessed using Children's Fear Survey Schedule-Dental Subscale (CFSS-DS) and quality of life was assessed using Child Perceptions Questionnaire (CPQ8-10). Data were analysed using SPSS Version 25.0 and descriptive statistics and linear regression were used ( $P < 0.05$ ). Statistical test results showed that children dental fear have significant impact on all domains quality of life that are oral symptoms, functional limitations, emotional well being, and social well being, both in urban and periurban school children with  $P$  value  $< 0.001$ . Children dental fear have significant impact on quality of life among urban and periurban school children.

Clinical article (J Int Dent Med Res 2018; 11(3): 971-975)

**Keywords:** Dental fear, Quality of life, Children, 8-10 years old.

**Received date:** 17 April 2018

**Accept date:** 30 May 2018

### Introduction

Dental and oral health problems in children is one of problems that can interfere activities, frequency of school attendance, interfere learning concentration, and affect nutritional intake of children so that it can affect the development and academic achievement.<sup>1,2</sup>

Dental and oral health problems experienced by children are usually resolved by parents by taking their children to the dentist. However, most children are less cooperative during dental treatment that makes dentists have difficulty in undertaking dental treatment in children. Difficulties in undertaking dental

treatment in children are not only related to the treatment process, but also are influenced by the children emotional. Dental anxiety and fear are the most common feeling expressed by children during dental treatment.<sup>3</sup> The prevalence of dental fear in children ranges from 5-20% in different countries, with some cases are considered to be dental phobia.<sup>4</sup> Another study reported that 6-15% of children avoid dental treatment due to dental fear or phobia. Irregular or lack dental visits have negative impact on oral health.<sup>5</sup>

Dental fear can be described as worry and discomfort feeling. Generally, dental fear can arise from dental treatment experience during childhood and has an important role in the practice of dentists. Dental fear and anxiety that usually experienced by children and adults offer a special challenge for a dentist. Children's dental fear has been identified as a factor associated with behavioral management problems during dental treatment. Therefore, it should be noted that the prevention of dental fear should be

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started at early stage.<sup>2,6</sup>

Dental fear that was experienced by children is the emotional feeling arises along with the process of children development. This feeling can arise through observation of an unpleasant object and is instinctively avoided by children in an attempt to protect themselves from harm. This is consequently often being a reason to ignore dental visit.<sup>6</sup>

Quality of life is a multidimensional construct consisted of subjective assessments of oral health, emotional and functional ability also self-confidence. Quality of life has been generally used to describe the impact of oral health conditions and treatment on children. A better understanding of the quality of life and its effects as well as clinical factors in children is important to provide optimal oral health care and improve oral health.<sup>2</sup>

Urban environment has different environmental characteristics compared to the periurban environment. These differences may either contribute to better oral hygiene or the quality of life associated with oral health. For example, children who are living in an urban environment may have been accustomed to receive dental treatment or often visit dentist for treatment, while this may be different for children who are living in periurban environment. Therefore, this study was carried out with the aim to assess the effect of children dental fear on quality of life among urban and periurban school children.

### Materials and methods

This study was analytic observational with cross-sectional design which was conducted in Mamajang II and Inpres Bontoa elementary school, Makassar City, Indonesia, in December 2017.

Sampling was carried out with simple random sampling. Inclusion criteria of this study were students aged 8-10 years old and enrolled in Mamajang II and Inpres Bontoa elementary school and also were willing to participate in this study. The exclusion criteria of this study was students who did not complete the questionnaire.

Assessment of children dental fear was conducted using the Children's Fear Survey Schedule-Dental Subscale (CFSS-DS) consisting of 15 items of questions related to different types of dental treatment. Each question is rated on a

Likert scale with scores ranging from 1 = "not afraid", 2 = "a little afraid", 3 = "fairly afraid", 4 = "quite afraid" or 5 = "very afraid". The total score of all questions is summed and varies from a minimum score of 15 to a maximum of 75. A higher score indicates a higher dental fear. The total score of CFSS-DS  $\geq 38$  group children in the fear category.

Children quality of life was assessed using Child Perceptions Questionnaire (CPQ<sub>8-10</sub>). The questionnaire consists of 25 question items covering 4 health domains: oral symptoms, functional limitations, emotional well being, and social well being. This questionnaire has 5 response categories to choose with a score of 0 = "Never", 1 = "Once or twice", 2 = "Sometimes", 3 = "Often", 4 = "Every day or almost every day". The total score ranges from a minimum score of 0 to a maximum of 100, and the higher the score indicates the worse the quality of life.<sup>8</sup>

Data were analyzed using SPSS Version 25.0 with Mann-Whitney and Kruskal Wallis test to assess difference of dental fear scores based on sample characteristics, and linear regression test to assess the impact of children dental fear on quality of life among urban and periurban school children. The result was presented in tabulation form.

### Results

This study about the impact of children dental fear on quality of life among urban and periurban school children at Mamajang II and Inpres Bontoa elementary school has been carried out. Sampling was done by using simple random sampling method with total sample was 278 participants, with the number of male samples was 135 participants (48.6%) and the number of female samples was 143 participants (51.4%). Based on CFSS-DS scores there were 136 participants (48.9%) who were afraid of dental treatment and 142 participants (51.1%) who were not afraid of dental treatment.

The mean CFSS-DS scores in male was higher at 2.42 while for female was 2.38, indicating that the average of every boy and girl chose answer point 2 in CFSS-DS questionnaire, which means a little afraid with dental treatment. Based on school, this study found significant difference mean of CFSS-DS scores between periurban and urban school. In periurban school, the average CPQ scores was 2.06 with the CFSS

DS scores of 2.52 compared with CPQ scores in urban school was 1.82 with CFSS-DS score of 2.27.

Characteristics	Elementary school				Total	
	Inpres Bontoa		Mamajang II		n	%
	N	%	n	%		
Gender						
Male	72	49.0	63	48.1	135	48.6
Female	75	51.0	68	51.9	143	51.4
Age						
8 years old	39	26.5	38	29.0	77	27.7
9 years old	76	51.7	38	29.0	114	41.0
10 years old	32	21.8	55	42.0	87	31.3
CFSS DS						
Fear	83	56.5	53	40.5	136	48.9
Not fear	64	43.5	78	59.5	142	51.1
Total	147	100.0	131	100.0	278	100.0

**Table 1.** Characteristics of Participants by Age, Gender and Dental Fear.

Children dental fear has a significant impact on quality of life with *P* value <0.001 both in urban and periurban school children. In addition, children dental fear also has a significant influence on all domains of quality of life that is oral oral symptoms, functional limitations, emotional well being, and social well being with *P* value < 0.001.

### Discussion

Dental fear is a major problem experienced by almost all children.<sup>9</sup> Dental fear usually refers to an unpleasant, normal emotional reaction to a stimulus that occurs in conditions associated with dental treatment.<sup>10,11</sup>

The prevalence of fear to visit dentists in children ranges from 5-20% in different countries, with some cases considered to be dental phobia.<sup>4</sup> Children with fear and anxiety to the dentist are usually uncooperative during a dental visit. Therefore, treatment is difficult to be performed. Such attitudes can affect the results of treatment that cause stressful work on dental staff and are usually the cause of problems between the dentist and the patient or the patient's parents.<sup>4,12</sup>

Children who are afraid usually try different ways to avoid or delay treatment, causing oral health problems. In addition to its impact on dental care, fear and anxiety can also cause sleep disturbances, affect daily life and have a negative impact on one's psychosocial function. The fear that children have could

remain into adulthood and is a major cause to avoid dental visits in adulthood.<sup>4</sup>

This study found that the mean score of fear scores in boys is higher than girls, however the mean score of dental fear between boys and girls is not significantly different. This is in line with research conducted by Suprabha et al. about the children dental fear in India, which also found the same thing that there was no significant fear scores difference between boys and girls.<sup>13</sup>

Based on children dental fear, there is a significant difference in mean scores of children dental fear among urban and periurban school children. This may be due to several factors related to the onset of fear, because fear is a multifactorial phenomenon and is associated with three main causes, especially: the child's own personal character, previous experience from the parents, and factors that can be caused by the child siblings and dentists. Parents or siblings can naturally express fear experiences to children that may affect children to be afraid of dentist.<sup>14</sup> In addition, other factors that can affect fear include: the sight or feelings of dental services, the setting of the dental tools that is less favored by the children, the coercion of going to the dentist, the previous thought about the dental procedures, and socioeconomic factors<sup>15,16</sup>

A similar study conducted by Yi-Ling et al. found that there were significant differences in fear scores between children with low socioeconomic and high socioeconomic families, where children with low socioeconomic families had higher scores of dental fear.<sup>5,18</sup>

In this study, children dental fear has a significant impact on all domains of quality of life, including oral symptoms, functional limitations, emotional well being, and social well being. Therefore, children dental fear has a significant impact on the quality of life. This is in line with the study conducted by Goyal A et al. about the impact of dental fear on the quality of life of in school and non-school children in the city of Udaipur, which found that all domains of quality of life were significantly associated with dental fear both in school and non-school children.<sup>6</sup> In addition, other similar studies conducted by Leena et al. reported fear was a strong and significant predictor of quality of life. This can be explained by fear-related risk factors, such as irregular dental visits and number of caries.<sup>2</sup>

Previous studies conducted in adults in Sweden found that the level of dental fear was associated with irregular dental care and low quality of life.<sup>17</sup> In addition, fearful children aged 4-11 years and fearful preschoolers were reported to have caries experience and more avoidance patterns than those who were not afraid. Therefore, early recognition and treatment of children dental fear is essential to provide effective dental treatment, reducing avoidance of dental treatment and behavioral management and improving overall oral health and quality of life.

### Conclusions

This study concluded that children dental fear has a significant impact on the quality of life, both in urban and periurban school children as well as there was a significant difference in dental fear between urban and periurban school children.

### Declaration of Interest

The authors report no conflict of interest and the article is not funded or supported by any research grant.

Characteristics	CFSS DS Mean±SD	CPQ Mean±SD	CPQ Domains			
			Oral symptoms Mean±SD	Emotional well being Mean±SD	Functional limitation Mean±SD	Social well being Mean±SD
Gender						
Male	2.42±0.79	1.94±0.81	2.05±0.86	2.15±0.91	1.26±1.18	2.06±1.09
Female	2.38±0.77	1.95±0.79	1.98±0.83	2.19±0.92	1.45±1.19	2.07±1.12
<i>P-value</i>	0.630 <sup>a</sup>	0.818 <sup>a</sup>				
Age						
8 years old	2.29±0.71	1.80±0.80	1.85±0.82	2.00±0.77	1.20±1.13	1.97±1.04
9 years old	2.41±0.78	1.98±0.77	2.03±0.78	2.18±1.03	1.45±1.19	2.09±1.16
10 years old	2.48±0.83	2.03±0.83	2.12±0.94	2.30±0.86	1.36±1.24	2.11±1.08
<i>P-value</i>	0.239 <sup>b</sup>	0.163 <sup>b</sup>				
School						
Periurban	2.52±0.79	2.06±0.81	2.02±0.73	2.34±0.93	1.63±1.23	2.22±1.19
Urban	2.27±0.75	1.82±0.77	2.00±0.97	1.98±0.86	1.05±1.06	1.89±0.96
<i>P-value</i>	0.007 <sup>*a</sup>	0.010 <sup>*a</sup>				
Total	2.40±0.78	1.95±0.80	2.01±0.85	2.17±0.92	1.36±1.19	2.06±1.10

**Table 2.** Differences Mean Scores of CFSS-DS and CPQ by Gender, Age, and School. a. Mann Whitney test; b. Kruskal Wallis test; \*sig<0.05.

Dental Fear (CFSS-DS)	Oral symptoms	Emotional well being	Functional limitation	Social well being	CPQ
Peri urban	B value 0.531	0.321	0.203	0.493	1.550
	<i>P-value</i> <0.001 <sup>a*</sup>	<0.001 <sup>a*</sup>	<0.001 <sup>a*</sup>	<0.001 <sup>a*</sup>	<0.001 <sup>a*</sup>
Urban	B value 0.755	0.318	0.044	0.435	1.552
	<i>P-value</i> <0.001 <sup>a*</sup>	<0.001 <sup>a*</sup>	<0.001 <sup>a*</sup>	<0.001 <sup>a*</sup>	<0.001 <sup>a*</sup>

**Table 3.** The Impact of Children Dental Fear on Quality of Life among Urban and Peri Urban School Children; \*sig<0.05.

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