

Influence of Oral Hygiene Knowledge and Habits on Dental Fear in Croatian Preschool Children

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ABSTRACT

Preschool age is defined as the time from age 3 to age 6. This period in a child's life is when important attitudes and oral hygiene habits are developed and dental fear can be a severely limiting factor in dental health maintenance. The purpose of this research was to collect data on oral hygiene habits and the quality of dental fear with respect to preschool aged children, and to try to define statistically significant differences, with respect to age, sex and geographical background. The research was conducted by questionnaire method on 796 preschool aged children, ages 3–6, in two big cities located in different geographical areas (Split-coast area and Zagreb-continental area). Statistical data processing was conducted by implementing the χ^2 – test. Statistical analysis showed that there is a difference in oral hygiene habits between children in Zagreb and Split, and also among children of different ages and gender: the older the children are, the less the parents participate in maintaining their children's oral hygiene. By the gender girls show better oral hygiene habits. Furthermore, dental fear isn't necessarily related to past dental experiences. This study demonstrated that children mostly afraid of the dental drill.

Key words: preschool age children, dental fear, oral hygiene habits, dental drill

Introduction

The term preschool age or late childhood refers to the child's 3th to 6th year of life. This is a period of intense growth and mental and social development, when opinions and habits are formed, which manifest later, at an older age. One of the most important opinions a child forms at this time involves understanding oral health and oral hygiene, and this depends upon the parents. Preschool aged children begin to seek role models within their families, which they imitate, and with whom they identify (same-sex parent, brothers and sisters). Outside the home, in the company of their peers, children play games in which they assume certain roles (e.g. mother, father, doctor)¹. The child overcomes fear and accepts reality through playing games. Parents educate their children, and the children acquire knowledge, perceived patterns and fears, such as dental anxiety in general².

Anxiety is fear that emerges from an inner impulse, without an obvious external source or explanation. Both, fear and anxiety are normal elements in a child's development, as long as they don't occur too often and interfere

with regular activities^{1,2}. Dental fear can be a significant limiting factor in maintaining oral health. Dental fear leads to postponing dental appointments, which leads to unsatisfactory oral health. This only serves to amplify the expression of dental fear and creates a vicious circle³.

Research has shown that 50–85% of those afraid of the dentist had a negative dental experience at some time during their childhood. It is important to mention the impact stories coming from the environment have on the patient. These are often embellished and false, and leave a deep mark on the listener⁴. However, dental fear and high incidence of dental caries are the greatest problems facing children's oral health in Croatia.

The American Dental Association recommends oral hygiene commencement within days after a child is born. It's helpful for children and parents to brush their teeth together when children are old enough to brush their own teeth, since they like to imitate them. This facilitates the development and acceptance of oral hygiene habits. Parent should assist the child in tooth brushing up until age 6,

and should supervise the quality of the brushing until the child reaches the age of 11⁵.

The aim of this study was to accumulate data on oral hygiene habits and the quality of dental fear in preschoolers in two biggest cities in Croatia, the Zagreb and Split areas, as well as to compare the data and to attempt to establish any statistically significant differences in the results obtained for each age group, sex and geographical area.

Research was conducted under the following hypotheses:

1. There is a difference in the oral hygiene habits of children from Zagreb and from Split.
2. There is a difference in the oral hygiene habits of boys and girls.
3. There is a difference in the oral hygiene habits of children of different ages.
4. Dental fear is related to past experiences at dental practices.
5. Children who brush their teeth with their parents are less afraid of the dentist.
6. Children are most frightened by dental drills.

Subjects and Methods

Present study was carried out via questionnaire and was conducted on 796 preschool aged children (391 boys and 405 girls). The children were divided into 4 age groups: three-year-olds (70 children), four-year-olds (174 children), five-year-olds (260 children) and 6 year-olds (291 children). The study was done in two biggest cities of Croatia in two different geographical areas: the city of Zagreb (Zagreb City County-continental north area) and the city of Split (Split-Dalmatia County-coast south area). There were 135 children from Split and 661 children from Zagreb.

Research was conducted as part of a workshop on oral health and oral hygiene, and the data were collected in a questionnaire filled out at the workshops which took place within day-care and kindergarten facilities. All children included in the study get informing consent form and it was signed by their parents. Present study gets also approval from the Ethical Committee of School of Dental Medicine, University of Zagreb, Croatia. Statistical processing was conducted in the MedCalc χ^2 -test (chi-square test) program, version 10 (MedCalc Inc. Mariakerke). A difference of $\alpha = 0.05$ was considered statistically significant.

Results

The results followed these hypotheses:

There is a difference between the oral hygiene habits of children from Zagreb and from Split.

Of the 796 children who participated in the study, 661 (83%) of them were from Zagreb, and 135 (17%) of them were from Split. A total of 79.3% of them ($p = 0.0379$) had seen a dentist (Figure 1). Children who visit the dentist when in pain made up 46.9% of the children from Zagreb and 54.8% of those from Split. In the Zagreb group 53.1% see the dentist regardless of whether they are in pain or not, and 45.2% of the Split group do the same ($p=0.143$) (Figure 2). Of the total number of children, 84.8% brush daily. In Zagreb, 86.6% brush daily, in Split 75.6% brush daily ($p = 0.001$). Parents assist 18.7% of children in Zagreb and 26.9% of children in Split ($p=0.03$).

Of all the children questioned 64.6% are not afraid of the dentist, and 35.4% of them are. In Zagreb 66.5% are not afraid of the dentist, and 33.5% of them are. In Split

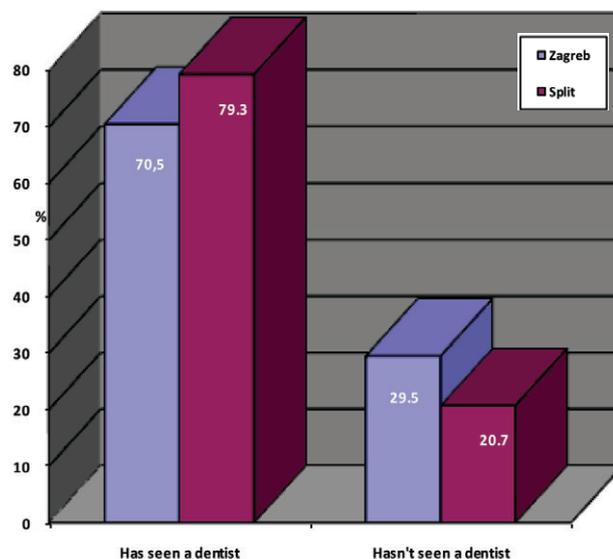


Fig. 1. Distribution of children who have seen the dentist.

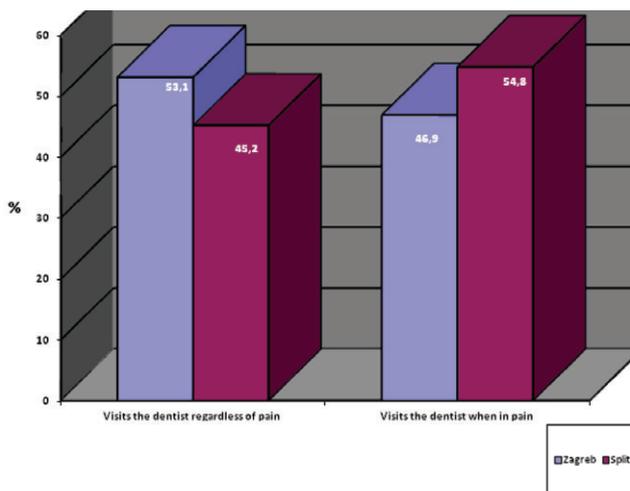


Fig. 2. Reasons for visiting the dentist.

55.3% of the children participating were not afraid of the dentist, and 44.7% of them were (p=0.014) (Figure 3).

There is a difference in boys' and girls' oral hygiene habits.

Percentages for daily tooth brushing habits also favour the girls: 81.5% of the boys brush their teeth daily and 87.9% of the girls do the same (p=0.013). After every meal 12.8% of the boys and 16.7% of the girls brush their teeth. In the morning and before bed 41% of the boys and 49.1% of the girls brush their teeth. Distribution by the gender was: 62.8% of the boys and 66.3% of the girls are not afraid of the dentist (p=0.308).

There is a difference in children's oral hygiene habits with respect to age.

First dental check-up in percentage had: 48.6% of three-year olds, 63.8% of four-year-olds, 75.8% of five-year-olds, and 79% of six-year-olds. Daily tooth-brushing age: 88.6% of three-year-olds, 90.2% of four-year-olds, 82.5% of five-year-olds and 82.5% of six-year-olds (p=0.077).

Percentages of children who brush their teeth with parental assistance by age: 46.4% of three-year-olds, 29.3% of four-year-olds, 12.4% of five-year-olds and 15.1% of six-year-olds (p<0.0001). It is obvious that parental assistance decrease by age. Children whose parents check their teeth after brushing also depends, with high statistical significance, also to the age: 58% of three-year-olds, 79.9% of four-year-olds, 39.4% five-year-olds and 33% of six-year-olds. The highest difference were found between 4 and 6 year old children (p<0.0001). Age distribution of children afraid of the dentist: 64.2% of three-year-olds, 54.5% of four-year-olds, 64.6% of five-year-olds and 70.6% of six-year-olds (p=0.0074) (Figure 4).

Fear relates to past experience at the dentist's.

A total of 570 children had been to the dentist's, and 65.8% of them were not afraid of the dentist, 8.9% were always afraid of the dentist. A total of 206 children still

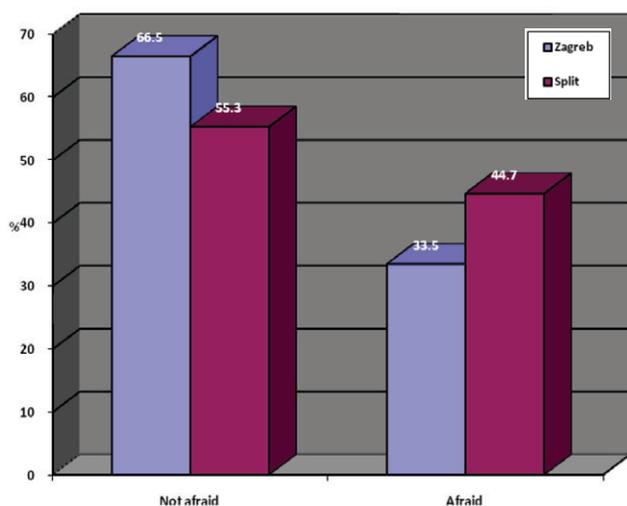


Fig. 3. Distribution of children afraid of the dentist.

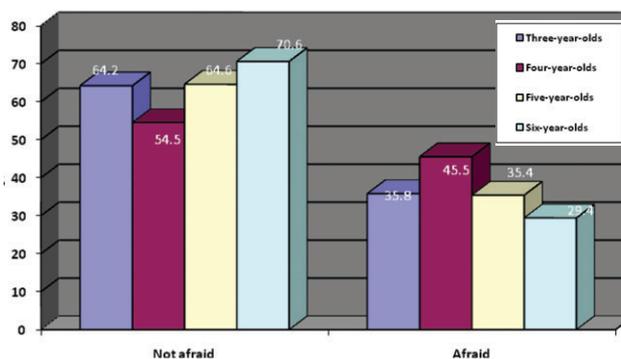


Fig. 4. Children's age distribution according to existing fear of the dentist.

hadn't been to the dentist's for their first check-up, and 61.2% of these were not afraid of the dentist, whereas 38.8% of them were afraid to go (p=0.222) (Figure 5).

Children find dental drills the most frightening.

Of all examinees, 50.9% who are afraid of the dentist are afraid of dental drills (rotating hand-pieces), 31.4% of them don't know what scares them, exactly, whereas 16.2% cite »something else«: a needle prick, tooth extraction, pain, (p<0.0001). (Figure 6). That is very interesting result which explain base of dental fear in Croatian preschoolers.

Discussion

Previous research has shown that people with a greater level of dental fear visit the dentist less frequently, which leads to a vicious circle involving dental check-ups, the quality of maintaining oral hygiene and dental fear⁶. The results of present research indicates that 28.1% of the children participating hadn't had their first dental check-

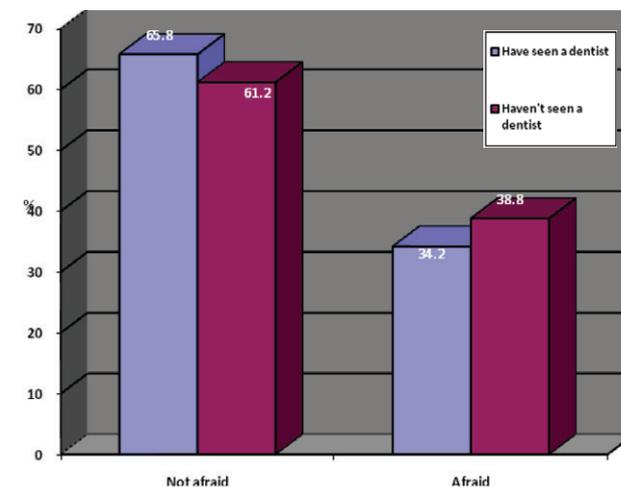


Fig. 5. Distribution of children with dental fear related to past experience.

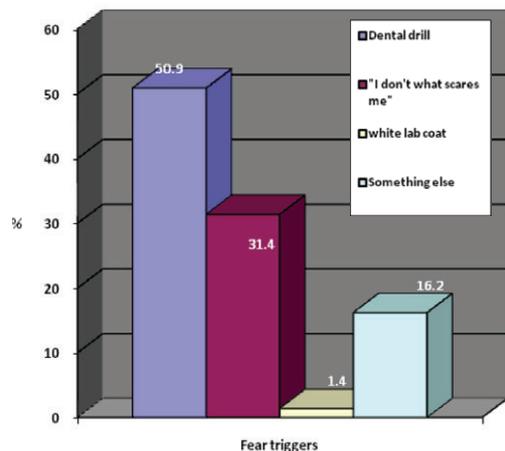


Fig. 6. Dental fear triggers.

up, which is very bad result and suggest were we must improve our health care and preventive system. From these children 61.2% were not afraid of the dentist. Also 65.8% of the children who had been to the dentist's were not afraid of the dentist. This research failed to prove a statistically significant difference in the number of children who were afraid of dentist with respect to whether or not they had, indeed, been to the dentist's ($p=0.222$). Similar results to ours reveal also some other studies^{6,7}.

The present study demonstrates that 35.4% of the children participating experience dental fear. There was no statistically significant difference in the number of boys and girls who experience dental fear ($p=0.308$), and that correspondent with results of some other study⁸. Statistically significant difference were found in the number of children who experience dental fear in Zagreb and in Split ($p=0.014$). Dental fear decreases according to age, with the exception of the four-year-old age group which demonstrates the largest percentage of children with dental fear (45.5%). Research in Sweden has confirmed the decreasing trend in dental fear according to age⁹. The most important difference between Scandinavian countries and the population included in our research was the object of dental fear. Scandinavian children cited tooth extraction as their most feared element in dental visits, whereas the children questioned in our study mentioned dental drills as the object of their dental fear in 50.9% of cases. This research has shown that 3.6% of children are afraid of tooth extraction, 3.2% are afraid of needle pricks (administration of local anesthetic by injection). This indicates a difference in the type of dental procedures that are fear

triggers, which results from a difference in the oral hygiene habits of populations living in different social environment – in this case this is the difference between Scandinavian and South-eastern European countries⁹⁻¹¹.

The results of age-distribution analysis demonstrate a decreasing trend in regular tooth brushing, parental supervision of tooth brushing and dental fear according to age.

Four-year-olds are the exception in such trends: 90.2% of them brush their teeth every day, which makes them the age group with the most consistent oral hygiene habits. This group also does the least amount of tooth brushing alone (90.5%) and also demonstrates the highest level of dental fear (45.5%).

Conclusion

This research has proven the level of oral hygiene and oral health awareness of preschoolers in the Republic of Croatia to be unsatisfactory. From the acquired data, we would like to emphasize the following:

There is a difference in the oral hygiene habits of children in Split and Zagreb. More children brush their teeth consistently in Zagreb, while parents in Split participate more actively in maintaining their children's oral hygiene.

There is a difference in the oral hygiene habits of boys and girls. The ratio of girls to boys who brush their teeth daily is in the girls favor. Girls also brush their teeth often in the course of one day than boys do.

It was found a positive trend in dental check-ups when viewed by age. However, we regard the results for the three-year-olds (48.6%) absolutely unacceptable, which necessitates raising awareness among parents about taking their children to see the dentist as early in life as possible.

It was found a decreasing trend in parental participation in maintaining children's oral hygiene according to age. It is necessary to educate parents about the importance of their supervision of their children's oral hygiene until puberty.

Dental fear needn't be related to prior experience, since there are many children with dental fear who have never even been to the dentist's. We attribute this to negative feedback from the social environment, which we believe to be the consequence of inadequate educational methods.

Children are mostly afraid of dental drills, which we attribute to a belated first dental check-up, which means that the child will often require invasive treatment at the very first visit.

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UTJECAJ ZNANJA I ORALNO HIGIJENSKIH NAVIKA NA POJAVNOST DENTALNOG STRAHA KOD PREDŠKOLSKE DJECE U HRVATSKOJ

SAŽETAK

Predškolska dob definirana je kao vrijeme koje obuhvaća treću do šestu godinu života djeteta. To je razdoblje stvaranja važnih stavova i oralno higijenskih navika uključujući i dentalni strah koji može biti značajan ograničavajući čimbenik u održavanju oralnog zdravlja. Svrha ovog istraživanja bila je prikupiti podatke o navikama održavanja oralne higijene i kvaliteti dentalnog straha kod djece predškolskog uzrasta s obzirom na dob, spol i zemljopisno područje. Istraživanje je provedeno metodom upitnika na 796 djece predškolskog uzrasta, u dobi 3, 4, 5 i 6 godina na dva različita zemljopisna područja (Split, Zagreb). Statistička obrada podataka napravljena je χ^2 -testom. Statistički je dokazano da postoji razlika u oralno-higijenskim navikama u Splitu i Zagrebu; u oralno-higijenskim navikama s obzirom na dob i spol; da se s godinama ispitanika smanjuje sudjelovanje roditelja u održavanju oralne higijene njihove djece te da strah od stomatologa ne mora povezan s prijašnjim iskustvom. Što se tiče spola djevojčice su pokazale kako imaju bolje oralno higijenske navike u odnosu na dječake. Istraživanje je pokazalo da se djeca najviše boje stomatološke bušilice.