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PSYCHOSOCIAL AND ECONOMIC STATUS OF THE PARENTS WITH CHILDREN WITH AND WITHOUT TOOTH TRAUMA

Željko Verzak[1], Nataša Ivančić Jokić[2], Vesna Erika Modrić[3], Danko Bakarčić[2], Zoran Karlović[4], Zlatko Ulovec[5] & Dubravka Negovetić Vranić[1]

[1]*Department of Paediatric Dentistry, School of Dental Medicine, University of Zagreb, Zagreb, Croatia*
[2]*Department of Paediatric Dentistry and Orthodontics, School of Dental Medicine, Medical University of Rijeka, Clinic of Dental Medicine at Clinical Centar Rijeka, Rijeka, Croatia*
[3]*Dental Policlinic Zagreb, Zagreb, Croatia*
[4]*Department for Endodontics and Restorative Dentistry, University of Zagreb, Zagreb, Croatia*
[5]*Social Medicine and Epidemiology at School of Dental Medicine University of Zagreb, Zagreb, Croatia*

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SUMMARY

Background: *The main goal of this research is to try and understand influence of psychological and social factors in children with tendencies to repeat tooth trauma.*

Subjects and methods: *Research included 147 patients, children of preschool and school age (88 boys and 59 girls). In the research patients were divided in two age groups: 5-8 and 9-12 years. In both groups there were 49 patients with no experience of dental trauma and 69 patients with experience of one dental trauma and 29 patients with repeated dental trauma. All patients that were involved in the study had previous experience with dental and medical treatment. Study included evaluation of dental anxiety and also factors that caused dental phobia previous their visit to the office in the children with no dental trauma compared to repeat dental trauma patients. On the whole study group differences considering sex, age and psychosocial status in the level of dental anxiety and dental fear were also measured.*

Results: *Categories of children without trauma and with one or multiple trauma showed that it is a similar sex division in the categories. In the no trauma group participation of the boys is lower (46.9%) while in the group with repeated trauma their participation is significantly higher (79.3%). Based on that the risk of repeated dental trauma is characteristic of boys.*

Conclusions: *Results of this study show that tested psychosocial variables do not differentiate participants according to the tested groups or in other words there is no difference between tested groups in their psychosocial standing.*

Key words: *psychosocial status – anxiety - dental trauma*

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INTRODUCTION

Psychosocial status of the patient is the big factor in application of preventive procedures. The assumption is that the children from the families with higher psychosocial and socioeconomic status have substantially better oral health and more pronounced need for going to the dentist and have restorations done. These types of patients also use more of the dental services. They are better educated and have better knowledge of the procedures needed for keeping the good oral health. Part of the parents from lower psychosocial and economic status, primary meaning on lower educated, simply don't know or do not try to learn about all medical needs of the child (Zarevski et al. 2005).

Socioeconomic factor and level of education have significant influence in prevalence of dental anxiety. In the literature is found that in the adolescents anxiety is universally proportional to their parent's level of education (Skaret et al. 1998).

For the better understanding of the child's behavior while undergoing dental treatment we should try to understand child's feelings which could influence child's behavior, or his cooperation with the dentist and dental team (Sihonhara et al. 2005).

The main goal of this research is to try and understand influence of psychological and social factors in children with tendencies to repeat tooth trauma so we could in the perspective prevent such happenings on time. In the children with multiple dental traumas with monitoring of their behavior and pain control we need to insure that they receive quality treatment that will not be stressful and painful will prevent anxiety in such patients.

Aims of the study:

- Estimate if the children with lower psychosocial and economic standing have higher anxiety scores of dental treatment.
- Estimate if the children with lower psychosocial and economic standing have higher score in repeating dental trauma.

SUBJECT AND METHODS

Research included 147 patients, children of preschool and school age (88 boys and 59 girls). Tested children were regular patients of the Department of paediatric dentistry University of Zagreb and Department of paediatric dentistry and orthodontics, Dental School of Medical University in Rijeka.

In the research patients were divided in two age groups: 5-8 and 9-12 years. In both groups there were 49 patients with no experience of dental trauma and 69 patients with experience of one dental trauma and 29 patients with repeated dental trauma.

All patients that were involved in the study had previous experience with dental and medical treatment (examinations, receiving medical treatment and dental treatment). Study was conducted in the dental office after they received dental examination.

Study included evaluation of dental anxiety and also factors that caused dental phobia previous their visit to the office in the children with no dental trauma compared to repeat dental trauma patients. The evaluation of the previous negative medical or dental experience was also taken. On the whole study group differences considering sex, age and socioeconomic status in the level of dental anxiety and dental fear were also measured.

The study has been approved by Ethics Committee of the institution and it conforms to the provisions of the Declaration of Helsinki in 1995 (as revised in Edinburgh 2000). The investigations include statement that the subject gave informed consent and patient anonymity will be preserved according to the ethic rules. Patients were informed in the beginning of the study of the study they participated in and of the possibility not to participate at any time if they choose to do so. Each patient was examined in the dental office during which time general information about the patient was obtained (name, last name, age and sex) and the dental status was noted as a factor in a patients oral health (caries index, extractions or tooth restorations). The type of tooth trauma and the number of affected teeth was also noted.

Dental trauma was classified using the Andreasen classification which is also accepted by the World Health Organization in the International classification of the Dental Diseases (Skrinjaric 1988).

Classification of the tooth trauma was necessary because of obtaining the data about intensity of the injury but also of a possibility of a repeat injury because the assumption was that repeat of the dental trauma is in a correlation with dental anxiety in a dental clinical practice.

In the purpose of determining socioeconomic factor Hollingshead Two Factor Index of Social Position (ISP) was used which objectively determines social score of an individual family. Individual index for each parent is calculated so the occupation index is multiplied with factor index 7, and educational index is multiplied with factor index 4. Resulted values are than added final result is obtained. Values for mother and father are added and the result is final index of socioeconomic status. Family with higher socioeconomic index belongs to lower social grade and vice versa. If it is a single parent family as a final value is counted index of a socioeconomic standing of a single parent (Majstorovic 2005, Arnrup et al. 2003).

Statistical Analyses

The collected data were subjected to a thorough statistical analysis. Being part of a group of nominal variables, those that can take on only discrete values, the methods of analysis were taken from the area of nonparametric statistics, those methods that are based on the frequency of certain discrete values of these variables are in their ranks, such as χ^2-test. Continuous variables and hypotheses related to them were analyzed in the field of parametric tests such as the t-test. Scale dependence of the groups, age groups and sex of the model was tested triple factorial analysis of variance. From multivariate methods for the analysis of data a factor analysis was used. Gender difference was tested by canonical discriminant analysis. Reliability of psychological instruments (tests) to determine the child's dental anxiety was examined Chrombach α coefficient based on the inner consistency of the measuring instrument.

Data analysis was performed on a personal computer software package for statistical analysis STATISTICA for Windows, Release 5.5 A and SPSS for Windows, Release 7.5.

RESULTS

Categories of children without trauma and with one or multiple trauma shown that it is a similar sex division in the categories. In the no trauma group participation of the boys is lower (46.9%) while in the group with repeated trauma their participation is significantly higher (79.3%). Based on that the risk of repeated dental trauma is characteristic of boys.

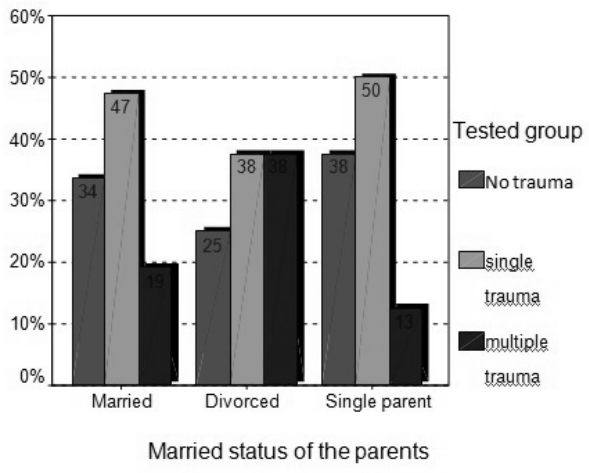

Figure 1. Relative frequencies of the tested groups with no trauma, single trauma or multiple trauma patients in the relation to the married status of the patients parents (N=147)

In results section of the paper significant results of the analysis of the socioeconomic status of the parents are evaluated based first on the education, job and employment, than married status and number of family

members as well as health status of examined child. General social standing of the family is added and evaluated using Hollingshead Two Factor Index of Social Position. Married status of the parents was not statistically significant by any of the above mentioned variables used to determine socioeconomic status of the evaluated child and his family. From the examined children most of them live in a family with two parents (89.8%), and 5.4% lives with a single parent and the same percent of children lives with and unmarried mother. This family structure is equally present in all tested groups. As shown in Figure 1. All types of family units show average of trauma free children varies from 25% to 38% while single trauma average varies from 38% to 50% and multiple trauma average is from 13% to 38%.

Number of family members does not influence variable for description of socioeconomic standing. In Figure 2. Average size of the family is shown measured by number of children and family members for each tested group. It is visible that groups are about the same in the relation to children and family members. Number of children in the no trauma group equals two and in the other two groups insignificantly more. Average number of family members equals the average for the number of children, of course added for two parents. Level of parent's education measured in the categories of low (primary), medium (high school) and high or higher (College or University). Education is also independent from other categories in socioeconomic standing. Level of education of mother and father are statistically related. As are shown in the results of χ^2–test listed in Table 1. Level of education of the father follows the level education of the mother. Dominant level of education is middle in father and mother 65.3% or 58.5%). Employment status of fathers and mothers of the tested patients did not statistically differ in none of the rest of the socioeconomic variables and they were equally divided in all three tested groups (no trauma, single trauma and multiple traumas): As is shown in Table 2, in 75.5% of the families both parents are working, in 6.1% father is unemployed and in 17.0% mother is unemployed, and in only 1.4% both parents are unemployed.

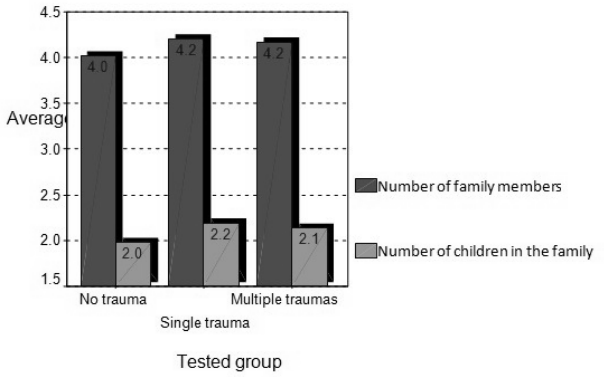

Figure 2. Average of the number of family members and number of the children in the family in regard to no trauma, single trauma and multiple trauma patients (N=147)

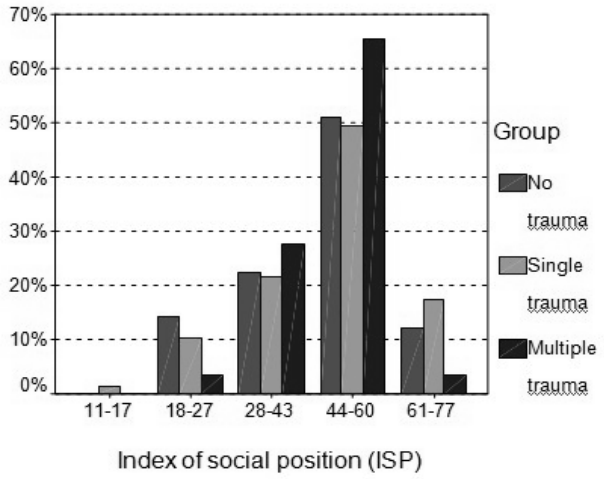

Figure 3. Average of the social position index father, mother and their average in regard to no trauma, single trauma and multiple trauma patients (N=147)

Table 1. Contingency table of level of education for mother and father and the result of χ^2-test

Education of the father		Education of the mother			Total
		Low	Middle	Higher or High	
Low	n[a]	7	4		11
	hp[b]	63.6%	36.4%		100.0%
	vp[c]	46.7%	4.7%		7.5%
Middle	n	8	69	19	96
	hp	8.3%	71.9%	19.8%	100.0%
	vp	53.3%	80.2%	41.3%	65.3%
Higher or High	n		13	27	40
	hp		32.5%	67.5%	100.0%
	vp		15.1%	58.7%	27.2%
Total	n	15	86	46	147
	hp	10.2%	58.5%	31.3%	100.0%
χ^2-test		χ^2=67.924		df=4	*p<0.001*

[a] number of cases; [b] average in relation to horizontal sum; [c] average in relation to vertical sum

Table 2. Contingency table of employment of father vs. employment of mother

Employment father		Employment mother		Total
		Yes	No	
Yes	n[a]	111	25	136
	hp[b]	81.6%	18.4%	100.0%
	vp[c]	92.5%	92.6%	92.5%
	tp[d]	75.5%	17.0%	
No	n	9	2	11
	hp	81.8%	18.2%	100.0%
	vp	7.5%	7.4%	7.5%
	tp	6.1%	1.4%	
Total	n	120	27	147
	hp	81.6%	18.4%	100.0%

[a] number of cases; [b] average in relation to horizontal sum; [c] average in relation to vertical sum; [d] average in relation to total sum

Table 3. Relative frequencies of the patients with serious condition and their taking of medication according to tested groups (N=147)

Group		Yes	No
No trauma	Has child had some serious illness before?	22.4%	77.6%
	Does child has some serious illness now?	4.1%	95.9%
	Does child takes medications regulary?	6.1%	93.9%
Single trauma	Has child had some serious illness before?	33.3%	66.7%
	Does child has some serious illness now?	4.3%	95.7%
	Does child takes medications regulary?	8.8%	91.2%
Multiple trauma	Has child had some serious illness before?	27.6%	72.4%
	Does child has some serious illness now?	6.9%	93.1%
	Does child takes medications regulary?	10.3%	89.7%

Occupation of the parents is categorized in seven categories. Variables of the occupation together with the educational degree (six levels) are parameters of Hollingshead Two Factor Index of Social Position for fathers, mothers and families, and are categorized in five categories from those well off to those of poor social standing. Index of the social position is also non dependant to the rest of the variables that are used in describing socioeconomic status of the family which is in relation to the random sample of the tested groups. In the Figure 3. Average values of the index of social position for the father, mother and the family are shown according to the tested groups without trauma, with one and repeated trauma. It is visible that for the mother social standing is lower.

Medical condition had 22.4% children in no trauma group, 33.3% in single trauma group and 27.6% with repeated trauma. During the study seriously ill were approximately 4 to 7% participants in the study. On medication were 6.1% no trauma group, 8.8% single trauma and 10.3% with repeated trauma (Table 3). It is important to mention that these variables are not statistically significantly related to the rest of the variables used to determine social position of the tested groups.

DISCUSSION

Odoi states that the children with problems in the family also have bigger frequency of the tooth trauma and this is also confirmed in the research of Nicolau and associates (Odoi et al. 2002, Nicolau et al. 2003).

Children of the mothers with higher education have higher frequency of trauma than those of the mothers with lower education. Level of the education of the father and the degree of business of the parents is not a factor in a statistical correlation with occurrence of dental trauma. Also according to certain papers level of parental education is not connected with tooth trauma, and that the boys from lower standing have bigger frequency of tooth trauma (Traebert et al. 2003a, Soriano et al 2004).

Higher frequency of non treated tooth trauma is noted amongst the kids with lower socioeconomic standing (Marcenes et al. 2001). According to these findings tooth trauma represent serious Public Health issue amongst the children from deprived surroundings (Marcenes et al. 2000, Traebert et al. 2003b). For determining of socioeconomic position of Hollingshead Two Factor Index of Social Position was used (ISP). All the tests were taken by participants which included groups divided by their exposure to trauma and their parents. In socioeconomic position of the parents evaluated was their level of education, employment, married state, size of the family and their child's health condition. These variables were put in correlation to growth of the fear of dental treatment and dental anxiety in children with single tooth trauma or with repeated tooth traumas. It was also taken into consideration how important is

socioeconomic status in relation to predisposition to occurrence of tooth trauma. Results of this study show that tested socioeconomic variables do not differentiate participants according to the tested groups or in other words there is no difference between tested groups in their socioeconomic standing. In the groups of children with no trauma, single trauma or multiple traumas married status of the parents is equally divided to married parents, divorced and single parents. Also there is equal division in groups in regard to number of family members. Not one of these variables influence appearance of dental fear, dental anxiety or disposition to trauma in tested participants. Nicolau and associates in their study argue that the children whose parents are divorced have larger prevalence of tooth trauma than those who live with both or single parents (Nicolau et al. 2003, Guarnizo-Herreño et al. 2014). Level of education and employment of both parents is also equally divided in all groups of participants and does not affect occurrence of dental fear, dental anxiety or repeating of tooth trauma in children who were participating in the study. That is also in accordance to the studies of several authors who state that socioeconomic position does not significantly influence prevalence of tooth trauma and is not related to developing dental anxiety (Marcenes & Murry 2001, Fuks et al. 1993, Vijaykumar et al. 2014). Some authors put in correlation degree of oral health and socioeconomic status claiming that lower socioeconomic status is related to lower state of oral health (Van Nieuwenhuysen et al. 2000, Gillcrist et al. 2001) and with higher frequency of dental anxiety (Arnrup et al. 2002). Ragnarsson in his study claims that the fear in higher percentage occurs in rural rather than in urban population. Serious medical condition or the regular intake of medication of the patient according to the same study are not significantly important in dental anxiety or higher risk factors for dental trauma (Ragnarsson 1998, Storjord et al. 2014).

CONCLUSIONS

Child assessment based on its behavior is one of the most important skills that pedodontic dentist should learn during the clinical practice since it is a very well known fact that the patients who show signs of anxiety or fear during the dental treatment also show uncooperative behavior during the treatment.

According to the results of the study following conclusions can be stated:

Socioeconomic standing does not have significant influence on a developing dental anxiety in a child or on tendency of a child for occurrence of tooth trauma.

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Conflict of interest: None to declare.

Contribution of individual authors:

Željko Verzak: design of the study, literature searches and analyses, statistical analyses, interpretation of data;
Nataša Ivančić Jokić: design of the study, literature searches and analyses, statistical analyses, interpretation of data;
Vesna Erika Modrić: design of the study, literature searches and analyses, statistical analyses, interpretation of data;
Danko Bakarčić: design of the study, literature searches and analyses, statistical analyses, interpretation of data;
Zoran Karlović: design of the study, literature searches and analyses, statistical analyses, interpretation of data;
Zlatko Ulovec: design of the study, literature searches and analyses, statistical analyses, interpretation of data;
Dubravka Negovetić Vranić: design of the study, literature searches and analyses, statistical analyses, interpretation of data.

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Correspondence:
Associated professor Željko Verzak, DDM, PhD
Department of Paediatric Dentistry, School of Dental Medicine, University of Zagreb
Gunduliceva 5, 10000 Zagreb, Croatia
E-mail: verzak@sfzg.hr