



Assessment of certain socio-demographic and other factors for the need of orthodontic treatment among 7-18 years old children from Plovdiv, Bulgaria

Yulia B. Peeva

Medical University of Plovdiv, Bulgaria, Faculty of Public Health, Department of Social Medicine and Public Health. Corresponding author

ABSTRACT

Aim: The aim of the study is to determine the socio-demographic and other factors that influence the need of orthodontic treatment. Discussion about orthodontic treatment stresses on the importance of timely information of parents and children. The treatment depends on the clinical assessment of the dentition and a number of factors, the most important of which being health motivation and awareness. The appropriate time for first consultation with a specialist is also of importance. **Materials and methods:** In this study we have randomly selected children (n=258) and their parents (n=214) from Plovdiv. A cross-sectional study was provided as sociological investigation to evaluate the most common factors influence the need of orthodontic treatment. A questionnaire with 17 questions, divided into five subcategories was distributed among 7- 18 years children. The improvement of the oral health and psycho-social status through timely information and motivation are the benefits sought by the orthodontic treatment.

KEYWORDS

socio-demographic factors, awareness, motivation

Introduction:

Most of orthodontic patients are children and adolescents. Their parents play a big role in the initiation of treatment and maintenance of child motivation (Lewit & Virolinen, 1968). The social importance of parental awareness is huge (Baldwin, 1965). The children's tooth-jaws discrepancies are often found by the parents (Artun J, 2002). Based on this fact, parents sometimes identify themselves with their children by default (Bos, 2005). Discussed is the problem whether these same factors will make a tension and compromise the orthodontic treatment (Bergstrom, 1998 & Cash, 2000).

Peeva (2010) raised questions about the dentist's role in orthodontic prophylactics. The solution of orthodontic problems has its social significance even if just by education of kind of food and hygiene habits during the time of mixed dentition. There is an agreement in the functional state of periodontium improved from orthodontic care. The type of periodontal disease, the efficiency of oral hygiene, regular visits and preventive programs determine the length of orthodontic treatment (Inglehart, 2002). The new opportunities, including Er: YAG-Laser, demonstrate the new possibilities to enhance the same process as a whole, by the opinion of Krasteva *et al.* (2013).

Aim:

The aim of the present study is to determine the socio-demographic and other factors that influence the need of orthodontic treatment.

Materials and methods:

In this study we have randomly selected children (n=258) and their parents (n=214) from Plovdiv. The inquiry contains questions designed to provide socio-demographic characteristics of Bulgarian family on one hand; health and hygiene education, awareness and motivation for orthodontic treatment, on the other. Data have been processed with nonparametric, alternative and graphical analyses using software (SPSS v.13). The required number of observational units is calculated by using the two-phase method of Stein. The formula for calculation the number of units of observation is applied in variation variables with $P(u) = 0.95$, $S_x = 3.45$, and maximum error $\Delta = 0.5$. The estimated number of units required for children, to obtain a 95% confidence of the results was 182.89. The study has included 258 children.

Results:

Socio-demographic characteristics of the children presented in Table 1 provide information on gender and age. The study implicated 259 children from 7 to 18 - years old with an average age of 12.56 ± 3.14 . For the boys the average age is 12.38 ± 3.22 , and for the girls - 12.69 ± 3.07 , $P > 0.05$. Besides age, it shows the distribution of the relative parts by gender: 53.28 ± 3.11% for girls and 46.72 ± 3.11% for boys.

Table 1. Age-gender distribution of children

Age (years)	Gender						Total	%	Sp
	Boys (n)	%	Sp	Girls (n)	%	Sp			
7	6	5.00	1.99	5	3.68	1.61	11	4.26	1.26
8	7	5.83	2.14	5	3.68	1.61	12	4.65	1.31
9	18	15.00	3.26	14	10.29	2.61	32	12.40	2.05
10	17	14.17	3.18	21	15.44	3.10	38	14.73	2.21
11	7	5.30	2.14	13	9.56	2.52	20	7.75	1.66
12	1	0.83	0.83	9	6.52	2.10	10	3.88	1.20
13	7	5.83	2.14	4	2.90	1.43	12	4.26	1.26
14	17	14.17	3.18	19	13.97	2.97	36	13.95	2.16
15	20	16.67	3.40	20	13.97	2.97	40	15.12	2.23
16	8	6.67	2.28	14	10.29	2.61	22	8.53	1.74
17	6	5.00	1.99	8	5.88	2.02	14	5.43	1.41
18	6	5.00	1.99	7	4.41	1.76	13	4.65	1.31
Total	121	46.72	3.11	138	53.28	3.11	259	100.00	-

The highest percentage has been observed in girls at the age of 10-year-olds ($15.44 \pm 3.1\%$), for boys it is the age of 15 years olds ($16.67 \pm 3.4\%$), $P < 0.05$ ($\chi^2 = 12.22$). This result allows discussion that the age and gender are determinants of skeletal growth of children. There are variations in individual development, but the choice of these two relative shares is based on sexual development, which is related to facial and skeletal growth. At age 10 began sexual development in girls and age 15 to expect its finalization in boys. A statistically significant difference in both shares, gives reason to conclude that the sampled children fall at the peak of maxillofacial growth and awareness of them improves the chances for optimal treatment. The results of the study of children in Plovdiv have confirmed data from foreign literature that age signifi-

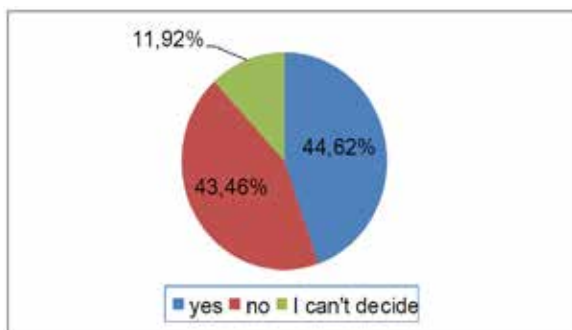
cantly affects the success in orthodontic treatment.

For the lack of statistically significant difference in gender, $P > 0.05$ ($\chi^2 = 0.29$), it may be concluded that dental aesthetics is equally important for girls and boys. The literature finding discussed mostly dissatisfaction rather than a perfect dental vision. The latter fact is based only on clinical evaluation.

1. Hygiene education provision for children

Health habits formed in the family also have certain influence on the length and number of visits to the dental office for one calendar year. The observational method has been used in dental practice to determine the basic participation of parents in the upbringing of the child's hygiene habits. Personal example as seen by the child in the family is of utmost importance for the child's consent about the upcoming treatment. However, the notion to require more of the child than from the parent shows a positive example. Adopted negative attitude towards dental treatment is outlined long-term time trend, as high percentage still exists of children who do not like going to the dentist. The results obtained in response to the question "Do you like going to the dentist?" are presented in Figure 1:

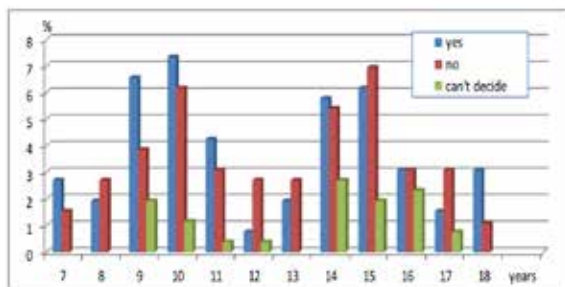
Figure 1. Distribution of children in relation to the positive attitudes of visiting dentist



The attitude to visit dentist is related to shown and commented by the parent's previous fear, which further exacerbates this problem and the expectation of pain in the child. On the other hand, family approach for habits and behavior of child visiting the dentist remains hidden. The positive expectations are shown by $44.62 \pm 3.08\%$ from all of the children. The relative part of children said "No" is $43.46 \pm 3.07\%$. The respondents who "can't decide" are $11.92 \pm 2.01\%$. Therefore, the objective of this study from a particular interest is the response of the child to the question "Do you like to see your dentist?".

Data on children by age and acceptance of how they visit their doctors are presented graphically (Figure 2):

Figure 2. Distribution of children by age for the willingness to visit their dentist



It is worth noting the warm attitude of the child to the dentist at the age of 9-10 years, before starting changes associated with puberty. This is the group of children with the greatest confidence in the dentist. There is a positive attitude of 14-15 year olds also. It is possible to explain the positive thinking of children with accelerative changes but the association with the word "pain" gives reason to accept their negative attitude when the factor is dominant. This is the group of 12-13-year olds. It is obvious that the educative role of the family weakens and the parents began to lose their positions - the child is able to make its own assessment for everything. The child is intends to make decisions even for orthodontic treatment and outcomes. But it is faster and more explicit in the presence of pain.

Children with positive attitudes for dental visit are presented by $44.62 \pm 3.08\%$. According to data in the literature, the parents of these children have taken calmly and with confidence about dental treatment. However, other oral health researchers have sought a specific link between the choice to treat tooth-jaws discrepancy and orthodontic past of parents. Some authors have focused on maintaining children's motivation, not only for the initiation of orthodontic treatment. This concept has been initially advocated by Lewit & Virolinen (1968).

Conclusions:

1. A significant difference of how children, by different age groups, visit their dentist was founded in the survey - $P = 0.015$, $df = 2$ ($\chi^2 = 8.38$). The children's gender is not a factor for the positive attitudes towards their dentist $P > 0.05$ ($u=1.48$), despite the popular perception that boys seems more frightened at dental office.
2. Mothers who have had a previous orthodontics experience are factor for awareness and motivation of their children at the beginning of treatment. Fathers are a factor for the financial provision of the treatment through its professional training and better remuneration of their labor, although one third of them are unemployed $P < 0.05$.
4. It was found a statistically significant difference by gender of parents who are not treated in their childhood for the expected benefits of orthodontic treatment of their children $P < 0.05$ ($u=7.52$).

REFERENCES

1. Artun, J. (2002). The role of minimal intervention in orthodontics, International Conference of minimal intervention approach for dental treatment, Kuwait. Medical Principles and Practice, 11 (1), 7-15. | 2. Baldwin, D., Barnes, M. (1965). Psychosocial factors motivating orthodontic treatment. IADR, p. 461. | 3. Bos, A., Hoogstraten J., Andersen B. (2005). Attitudes towards orthodontic treatment: a comparison of treated and untreated subjects, European Journal of Orthodontics, 27, 148-154. | 4. Bergstrom, K., Halling A., Wilde B. (1998). Orthodontic care from the patient's perspective: perceptions of 27-year-olds. European Journal of Orthodontics, 20, 319-329. | 5. Cash, T., Fleming, E. (2000). Body image and social relations, NY: Guilford, 277-86. | 6. Inglehart, M., Bagramian R. (2002). Oral health related quality of life: An introduction. Oral Health Related Quality of Life Chicago: quintessence publishing, p. 1-6. | 7. Krasteva, S., Krasteva, St., Boeva T., Tomov G. (2013 October 31). Possibilities of Er:YAG-Laser of orthodontic treatment. 2013 Scientific researchers of the Union of Scientist in Bulgaria-Plovdiv, series G. Medicine, Pharmacy and Dental medicine, Vol. XV, ISSN 13119427. | 8. Lewit, D., Virolinen, K. (1968) Conformity and independence in adolescents' motivation for orthodontic treatment. Journal of Child Development, 39(4), 1189-1200 | 9. Peeva, Yu. (2010). An orthodontic manpower for 10-years period in Plovdiv region. Public health and health care in Greece and Bulgaria: The Challenge of the cross-border collaboration, pp.127-137. |