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Discrepancies in Orthodontic Awareness among Parents and Their Children from Plovdiv, Bulgaria

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Abstract The information originating by orthodontist and proposed to the patient may be filled in writing and in oral form. The contemporary world requires that it can occurs on-line, too. The evaluation of the awareness is necessary to prevent the differences in expectations for orthodontics outcome. One of the most common words in today's on-line world is "social media". Social media has a huge role in communication and the patient can not only be informed. The practicing orthodontists provide information on what is going on in vivo but there are continuous attacks by the media. Upon opening the page in Facebook, a large number of windows and advertising calls follow "Like us on Facebook", "follow us on Twitter", "visit our website", "Watch us on YouTube". Statistics shows and convinces orthodontists that practice has no future without own blog or ubiquitous media presence. The primary information is verified, coded and entered into the computer database for further interpretation and summary of results. The data were analyzed with SPSS 13.0 for Windows and the following statistical analysis - analysis of the frequency distribution; with Kolmogorov – Smirnov's test the variation is checked for normality of distribution (Gauss - Laplace); nonparametric analysis was used to assess (or denied) the hypotheses; Regression analysis - α-factor Kronbah - for internal consistency; Graphical analysis - visualization of the results is used EXCEL 2007.

Keywords: *orthodontic treatment, discrepancies, awareness, social media*

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1. Introduction

The informed consent as a form of cooperation in health care became popular for the first time after the Nuremberg Code, enacted in 1948. After Trials of War Criminals and based on philanthropy, it's become a subject of research in the scientific community. Another concept for informed consent, defines it as "the degree to which the patient's behavior (in terms of taking drugs, the diet or the necessary qualitative changes in lifestyle) coincides with medical or health advice" [4]. Many researchers argue that the term "agreement" builds the image of the patient as a passive and submissive personality, unable to make a choice and therefore prefer alternative conditions (as well as adherence to certain rules already), coordination or cooperation [2,7] and especially consent, based on awareness. These terms are placing greater emphasis on the role of patient choice and suggest more active cooperation to achieve therapeutic success [6]. A qualitative new model of strategy in the education of the patient is a search for the connection between health awareness and creating healthy habits. The practical model is presented at Figure 1:

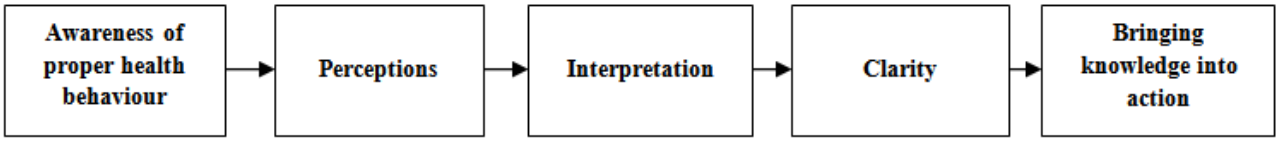

Figure 1. Continuum of health awareness in habits

As a part of participative model the communication must meet the following requirements:

- The information takes place in both directions – from doctor to patient and vice versa;
- Both partners in the conversation (doctor and patient) are aware of different options in terms of treatment;
- Both partners are equal in decision making;
- The decision for a certain therapy belongs to both partners, and they are in equal responsibility for it

2. Aim

The aim of the study is to elaborate the discrepancies of children and parents in the process of defining their awareness and motivation for orthodontic treatment.

3. Materials and Methods

We have randomly selected parents (n=214) and their children (n=258) from Plovdiv who want to be informed about orthodontic treatment. The inquiry contains questions designed to provide socio-demographic characteristics, the role of orthodontist and both importance of social media for the awareness in orthodontics. 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, Sx = 3.45, and the maximum error Δ=0,5. The estimated number of units required for children, to obtain a 95% confidence of the results was 183. The study has comprised 258 children [3].

4. Results

Alignment of time series shows a decreasing trend with children of mild deformity (y_t= -0.247x+9.27, r^2 =0.03) and with children of moderate deformation (y_t = -0.373x +9.46, r^2 = 0.087). The family health habits have an influence on the length and number of visits to the dental office in the term of one year. Perceived negative attitude has outlined long time trend, since still there exists a high enough percentage of children who do not like to visit the dentist (43.30 ± 3.07%). The children's motivation for seeking orthodontic treatment should be defined before the incoming procedures in the mean of mutual satisfaction results in both dentist and child [2]. The opinion about awareness and their expectations for the outcomes of orthodontic treatment was studied among children from 7 to 18 years old. The questions are subordinated on the impact of improved oral health through the everyday life of the patient [6].

Modern reading requires information about the products and services they consume. The items on the card would be limited to the following questions, If the study was conducted in 2000:

12. Do you accept the dentist as a friend?

13. Are you worried of asking questions to the physician?

14. Who is responsible for your own oral health?

Today, the matters relating to the patient's awareness look like this:

16. Do you use the Internet to get informed about orthodontic treatment?

17. What well known media do you use to get informed about dental problems?

18. Was this information useful to you?, and for parents:

52. Are you worried to ask your dentist about issues concerning your personal health?

53. Do you receive timely and sufficient health information from your dentist?

54. Have you ever filled informed consent in the dental office?

The relationships between dentist and patient always have to be in the center of the dental practice, but if the patient is a child – these relationships are specific for both sides. Communications will be at the required level if each side understands the expectations of the other. Therefore, the results of interest are posed to the child's question: *"Are you worried to ask your dentist?"*. The distribution of relative shares and how they responded to children's attitudes are graphically presented at Figure 2:

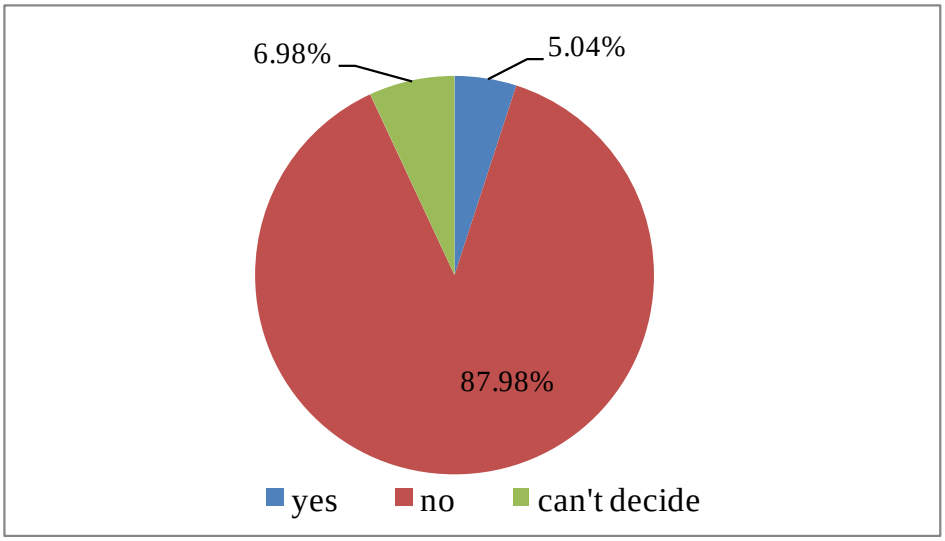

Figure 2. Distribution of the children's relative shares for the questions "Are you worried to ask the dentist about your oral health?"

It is better that a large number of children (87.98 ± 2.02%) do not bother to ask questions to the doctors about their health and everything that excites them in the dental office [1,8]. The patients, who embarrassed to ask are only 5.04 ± 1.36% but 6.98 ± 1.59% "can't decide how to answer to this question. The ease of analyzing the children to ask their questions to the dentist suggested graphically at Figure 3:

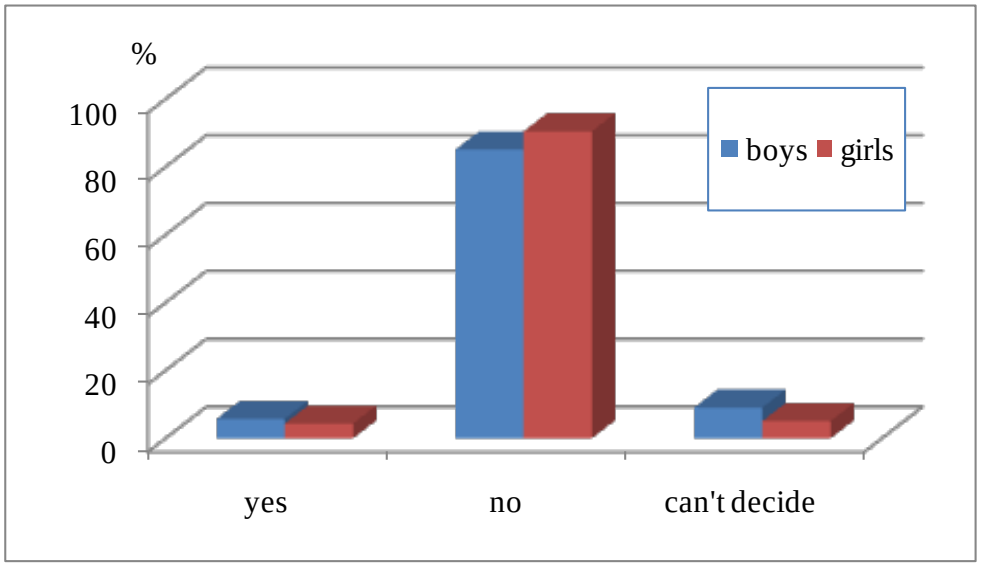

Figure 3. Distribution of the children's relative shares by gender for the inconvenience to ask dentist

When the boys (85.12 ± 3.24%) and also the girls (90.51 ± 2.50%) become in the different situation as that in the dental office they do not feel any discomfort to ask dentist for their oral health. There is no statistically significant difference by gender (P> 0.05; χ^2= 16.15, df = 22).

The dentist's responsibilities often go beyond what is obvious for the patients. The work of orthodontists with children and teenagers depends on their emotions and desire to increase the levels of their health culture. Rather it creates an opportunity for positive emotions during treatment, which may be unexpected for dentists and office personnel. Communications with patients can lead to modeling of personality and have an impact on the life of the child [2,7]. It is assumed the doctor creates a sense of satisfaction and self-confidence of the patient both verbally and through personal example. Clinical and educational matters determine the behavior of the physician. Who is responsible for the children's oral health is the question asked for all of them participated in the survey? The answers are presented visually at Figure 4:

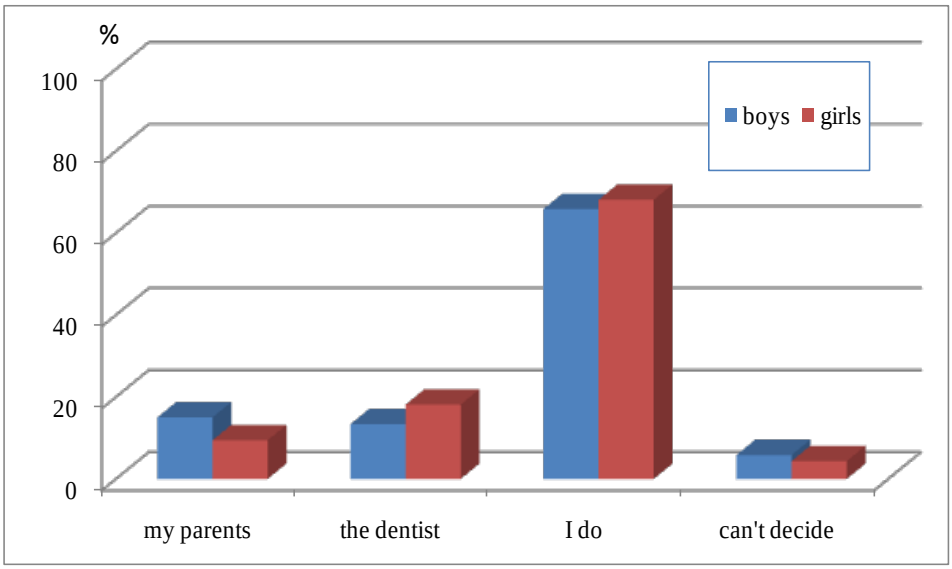

Figure 4. The distribution of answers to the question: "Who is responsible of my oral health?"

There are distinct opinions in the literature about the positive example of dentist's personality, and in particular – of orthodontist [4,8]. They are given to the patient by the physician's everyday behavior. The doctor brings hygiene, educational, cultural and many other habits to his/her patients.

The data, presented by Figure 4 are from specific interest for this study. They show us the children's opinion about personal responsibility for oral health. For boys these are 65.83 ± 4.33%, and for the girls - 68.12 ± 3.97%. This result allows assessing the levels of health awareness and consciousness for oral health among children as high. There is a statistically significant difference for both genders (P = 0.40; χ^2 = 2.92, df = 3) in terms of their perception for shared responsibility in orthodontic treatment. Dentist's responsibilities (18.12 ± 3.28%) are higher than parent's one (9.42 ± 2.49%), according to the girl's opinion. The boys think that the dentist brings almost equal responsibility for the state of their oral health (13.33 ± 3.110%) with parents (15.00 ±

3.26%). The children, who can't decide how to answer, are presented by 5.83 ± 2.14% of boys and 4.35 ± 1.74% of the girls.

The awareness of parents and their responsibility in initiating and providing treatment has been also analyzed. According to the parents, informed consent is done only by 22.07 ± 2.84% of them. This form has not been offered to the other respondents (77.93 ± 2.84%) which give grounds to conclude that dentists and patients do not know their rights and/or do not want to be informed. The gender distribution of respondent's relative shares to a completed form of informed consent is presented graphically on Figure 5:

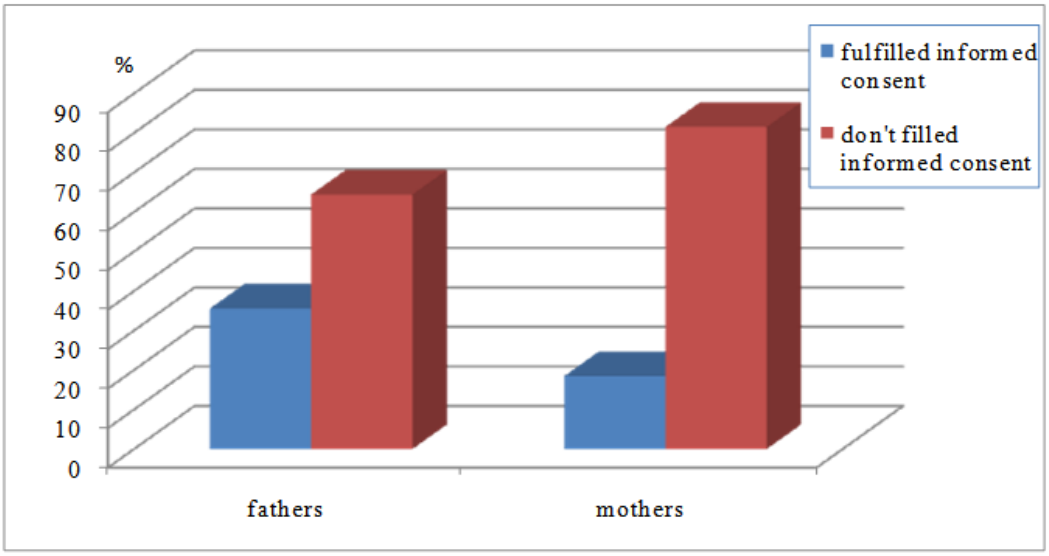

Figure 5. Obtaining informed consent from parents

As can be seen in Figure 5, a large proportion of parents did not filled out a form of informed consent. For fathers, the relative parts are 64.44 ± 7.14%, similar are these data for mothers - 81.55 ± 2.99%. Evaluating compliance with orthodontic treatment, gender difference was found significant for respondents signed informed consent. According to recent data, mothers more often than fathers give their conduct (P = 0.014; χ^2 = 6.04, df = 1). The result also takes into account a negative attitude of the dental practitioners to neglect the declaration of informed consent. Usually, this information can be submitted orally to the patient. It has been compared to the useful information that patient founded in different social networks or Internet (P = 0.65; χ^2= 4.23, df = 6) (Figure 6). The study has yielded that patient who seeks for more information has enough time to do so. On other side, the dentists are overwhelmed with work, but they delivered very concentrated information to their patients.

The use of social networks to improve orthodontic awareness of the patients is accounted when the respondents have been asked to assess the most popular of them [6]. The data were plotted at Figure 6:

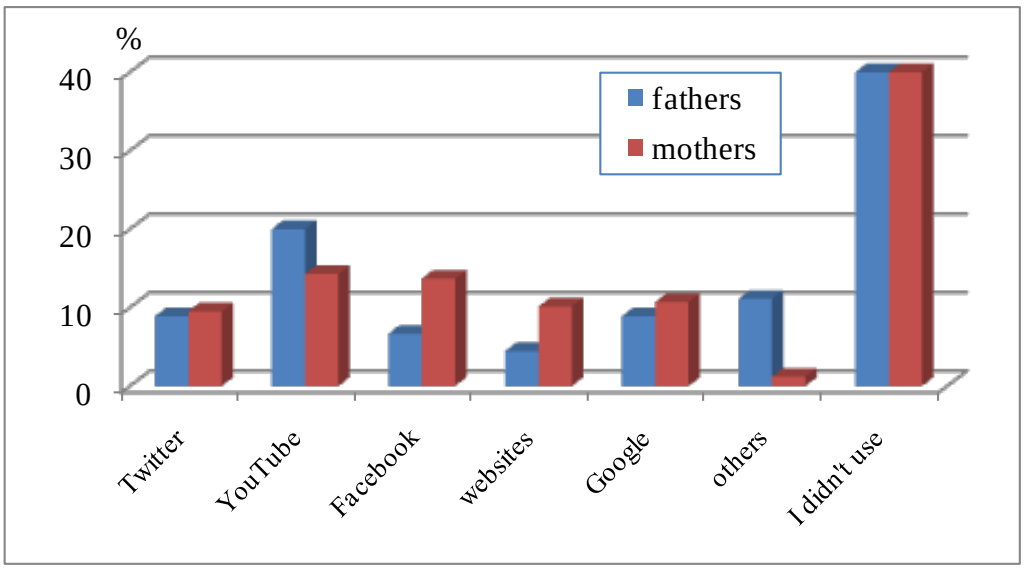

Figure 6. The use of social network and parents awareness

The parents have used Internet to obtain more information about upcoming treatment are presented by high relative shares for both genders. For men, the proportion of those who said "I didn't use" is 40.00 ± 7.30%, and for the women - 40.48 ± 3.79%. The relative parts of men have been used "Twitter" are 8.89 ± 4.24%, and for the women - 9.52 ± 2.26% [5,9]. Video sharing and information obtained through the "YouTube" is the

preferred way to awareness 20.00 ± 5.96% of men, compared with women - 14.29 ± 2.70%. Women (13.69 ± 2.65%) find more detailed information in "Facebook", than men - 6.67 ± 3.72%. Less interest is shown for blogs, web sites, Google and other networks where patients could receive additional information. It is known that the Internet outlines span between sexes "blurred" due to excessive and shared awareness [5,9]. In this sample, the null hypothesis (Ho) is not accepted because of the variety of social communications. It means that both genders define differ preferences of using social network P = 0.027 (χ^2 = 14.23, df = 6).

Dependencies between the need to improve oral aesthetics within the meaning of imitation *("Do you know children who wear apparatus")* and children's awareness were tested. The Spearman's correlation is significant (P <0.01) and the results are presented at Table 1:

Table 1. The correlations between imitation as a factor for conducting orthodontic treatment and information via the Internet

Indicators	Browsing the Internet	The most commonly used Internet sources	Find useful information
Browsing the Internet		0.84	0.69
The most commonly used Internet sources	0.84		0.55
Find useful information	0.69	0.55	

The relationship between the use of the Internet and the choice of social media (as significant r_s = 0.84) is presented at Table 1. It is assumed that this is a normal manifestation of the possibility to achieve more information by using the Internet. The possibility any found information to be helpful for the child is from a big interest for this study. This relationship is positive and significant - r_s = 0.69. In defining of Internet sources, the found useful information shows less dependence, but still remains significant - r_s = 0.55 (P <0.01). This fact gives grounds to assume that children who participated in the study tend to rely more on information they find on the Internet.

5. Conclusions

1. Gender is not a factor for the parents awareness on the qualifications and skills of orthodontists (P>0.05; χ^2 = 4.71, df=3).
2. Patient consent may be helpful to anticipate the problems that might arise during treatment.
3. The cooperation of the patient is the only significant factor that orthodontists comply. Even pain, discomfort and fear can be managed and depend on treatment skills orthodontists.
4. The benefits of orthodontic treatment are complex and diverse, of according to the perceptions of parents (P <0.05; χ^2 = 29.60, df = 1).
5. Mothers have a greater awareness than fathers (P = 0.027; χ^2 = 14.23, df = 6), but fathers take significant involvement in the payment of orthodontic services.
6. Most of the parents and children in this study improve their awareness of orthodontic treatment by using Internet – based social media sites. The participants of this study feel themselves more confident when they do this.

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