

CORRELATION BETWEEN MALOCCLUSION – ORAL HABITS – AND SOCIO-ECONOMIC FACTORS

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ABSTRACT. Objectives: The purpose was to investigate the prevalence and the association between socioeconomic factors and the children malocclusions and oral habits. **Materials and methods:** The population for this study comprised 30 children (17 girls and 13 boys) from Bucharest and rural area near Bucharest. The dental examination was carried out using criteria identifying the presence and type of malocclusion and a face-to-face structured interview conducted with children's mothers or guardians. **Results:** Investigating the prevalence of malocclusion we observed that 66.66% (20 patients) were class II, 20% (6 patients) were Class I malocclusion, 13.33% (4 patients) class III malocclusion. From class II malocclusion - class II div. 1 (40%) and class II div.2 (26.66%). Among patients with class II div. 1-75% had oral habits. Most parents were NOT prepared to pay for their children's orthodontic treatment (60%). **Conclusions:** Class II malocclusion is the most frequent, especially class II div.1. There is a strong relation between malocclusion and oral habits- 75%. From the socioeconomic point of view: low income is frequently associated with malocclusion.

Keywords: malocclusion, oral habits, socio-economic factors

OBJECTIVES AND METHOD

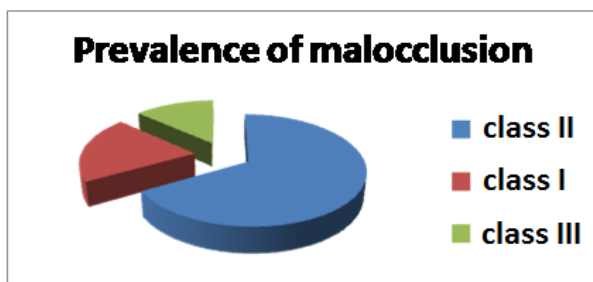
The purpose was to investigate the prevalence and the association between the socioeconomic factor and the children malocclusions and oral habits. The population for this study comprised 30 children (17 girls 56.66% and 13 boys 43.34%) from Bucharest and rural area near Bucharest. The patients from rural area represented 12 children (40%) and 18 from urban area (60%). Their age ranges between 6-14 years old. The dental examination was carried out using criteria

identifying the presence and type of malocclusion and a face-to-face structured interview conducted with children's mothers or guardians.

RESULTS

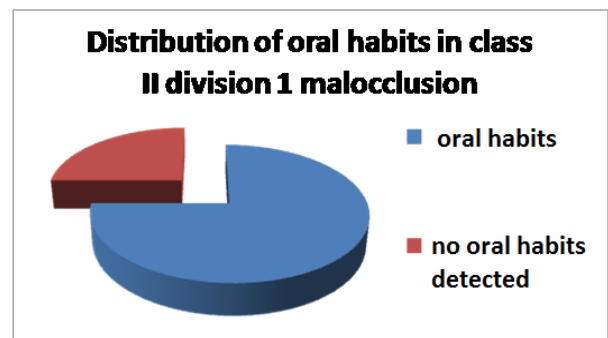
Investigating the prevalence of malocclusion we observed that 66.66% (20 patients) were class II, 20% (6 patients) were Class I malocclusion, 13.33% (4 patients) class III malocclusion as it can be seen in the lower table:

	Malocclusion prevalence			Gender		Place of living	
	Class I	Class II	Class III	Girls	Boys	Urban	Rural
%	20	66.66	13.33	56.66	43.34	60	40



From class II malocclusion - 12 patients were class II div. 1 (40%) and 8 patients class II div. 2 (26.66%).

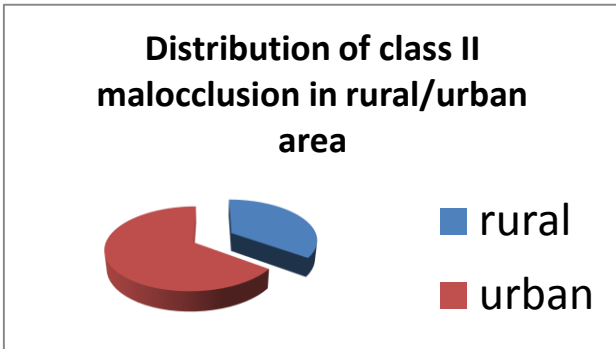
Among patients with class II div. 1 - 9 patients had oral habits (75%) distributed as follows: 55.55% girls and 44.44% boys.



Among the oral habits 44.44% push their tongue against the upper incisors, 11.11% position the tongue between the arches in frontal area, 11.11% display thumb sucking and 33.33% are mouth breathing.

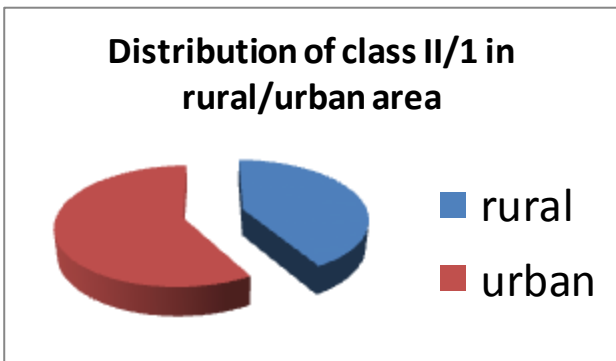
From the total of 30 patients with malocclusions 60% are from urban area and 40% from rural area.

Analyzing each malocclusion, class II malocclusion (20 patients) represented 35% (7 patients) in rural and 65% (13 patients) in urban areas.

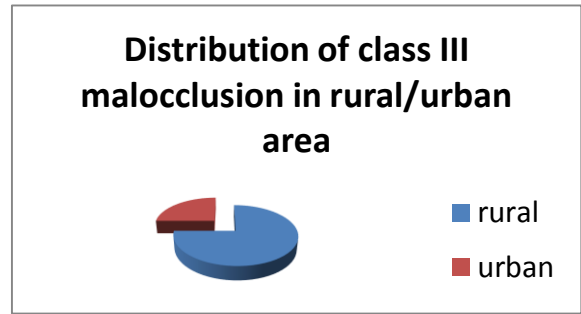
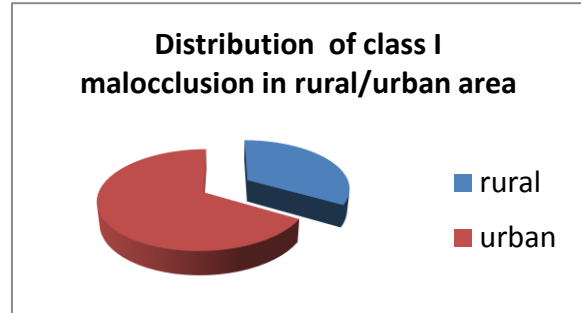
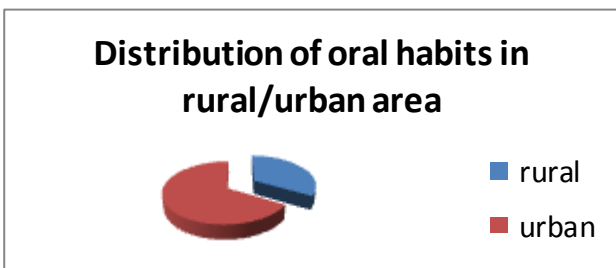


The distribution of class II div.1 malocclusion (12 patients) among rural and urban areas is as follows:

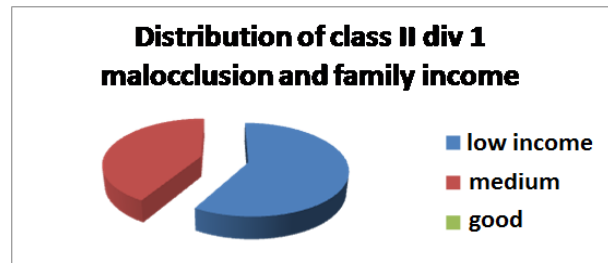
Rural area - 5 patients (41.66%), urban area - 7 patients (58.33%).



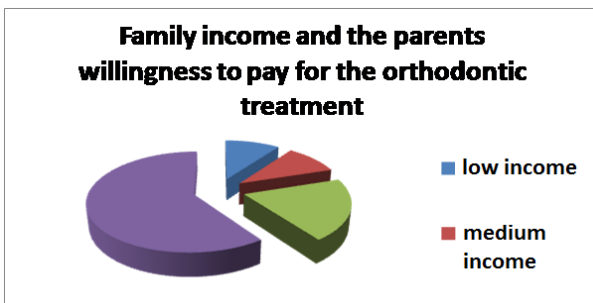
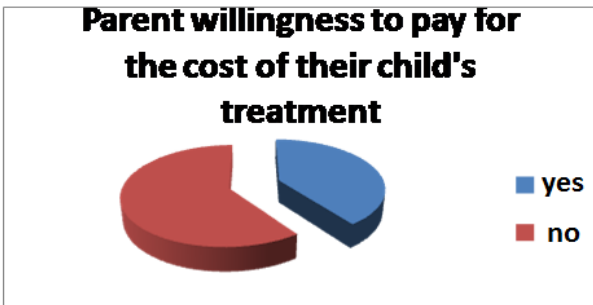
Nine patients have oral habits (33.33% from rural and 66.66% from urban area); class I malocclusion (6 patients): 2 patients (33.33%) rural and 4 patients (66.66%) urban area; class III malocclusion- (4 patients): 3 patients (75%) rural and 1 patient (25%) urban area.



From the socioeconomic point of view, analyzing the family income (low, medium and good) we observed: from all 30 children - 12 patients (40%) had low income, 11 patients (36.66%) had medium income and 7 patients (23.33%) had good income. From class II div.1 (12 patients), 7 patients (58.33%) were with low income and 5 patients (41.66%) with medium income.

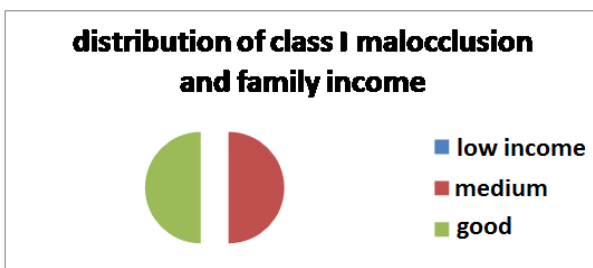


When asking if they (parents) would pay for an orthodontic treatment for their children, from all 30 patients only few answered YES as follows: those with low income (3 patients) 10%, medium income (3 patients) 10%, good income (6 patients) 20%. From all 30 patients they answered YES 40 % (12 patients) and NO 60 % (18 patients). Most parents were NOT prepared to pay for their children's orthodontic treatment.

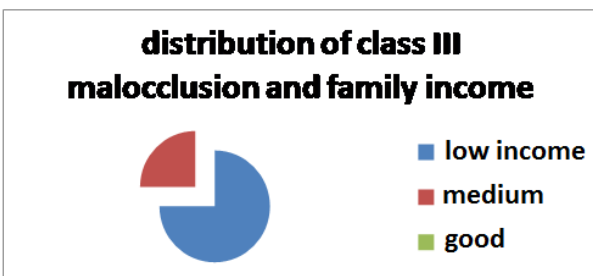


Analyzing the relationship between parents' income and the type of malocclusion the following results appeared:

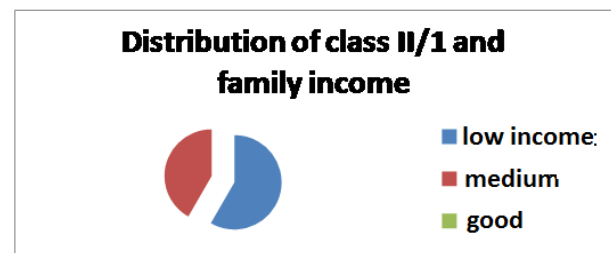
- For class I malocclusion: -good income: 3 patients; medium income: 3 patients; low income: 0 patients



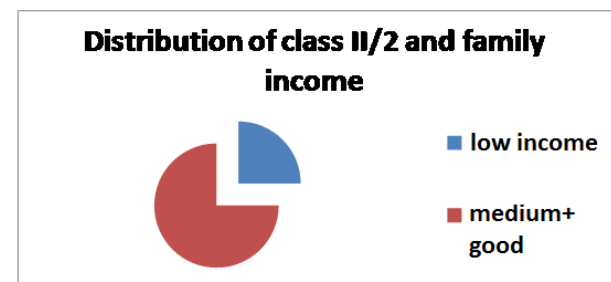
- For class III malocclusion: - good income: 0 patients; medium income: 1 patient (25%), low income: 3 patients (75%)



- For class II div. 1 : - good income=0 patients; medium income= 5 patients (41.66%), low income= 7 patients (58.33%)



- For class II div.2: good income= 4 patients; medium income=2 patients. Both represent together 6 patients (75%) and low income= 2 patients (25%)



DISCUSSIONS

Class II malocclusion is the most frequent, especially class II div. 1 (especially in urban area).

There is a strong relation between malocclusion and oral habits- 75%. Oral habits are frequent in girls, in urban area, in low income family. The most frequent is tongue thrust, then mouth breathing, and then thumb sucking.

The malocclusions are frequent in urban area. Class I malocclusion is frequent in urban area, and class III malocclusion in rural area.

From the socioeconomic point of view, analyzing the relation income-malocclusion: low income is frequently associated with malocclusion. In class II div. 1 low income is frequent and there is no one with good income. In class II div. 2 good and medium income together are frequent. Class III malocclusion is frequent in low income, and class I malocclusion is frequent in good and medium incomes and there is no one with low income.

Most parents were NOT prepared to pay for their children's orthodontic treatment (60%).

Dental treatment cost is either free or partly funded by state or private insurance. Therefore, if it is not free, orthodontic treatment will depend upon the patient's willingness to pay for the cost of the treatment. It can be noticed the inequality in the access to dental/orthodontic treatment as well as the lack of knowledge, awareness of parents regarding the malocclusions and consequences of not treating the dental disease, and adding to this the low income.

There is a lack of awareness about orthodontic treatment among parents and their children (Hirst L., 1990). Poor socioeconomic standings and poor dental status have a negative impact on COHRQoL; reducing

health inequalities may demand dental programmes and policies targeting deprived population (Chaiana Piovesan et al, 2010)

In the Danish study was observed a slightly higher frequency of malocclusion in the low socioeconomic group (Rölling, S., 1982)

It has been found that orthodontic treatment is much more frequent in higher income groups (Dugoni AA, 1986; Proffit WR et al, 1998).

Bergstrom K et al. found that there was a greater degree of tolerance towards malocclusion in individuals residing in rural areas than those in urban areas

Females are frequently less satisfied with their dental appearance (Holmes A, 1992) body image (Lew KK, 1993) and have higher interest in physical attractiveness than males (Shaw WC, 1981). In addition, social and appearance values are more important to women than men (Bennett ME et al, 1997). Therefore, they receive more treatment than males (Tayer BH et al, 1981; Egermark I et al, 2003).

Availability of the Service

The resources available for orthodontic treatment are related to the influences of the dental professions and the availability of the services and cultural attitudes. (Jenny J., 1970). It has been hypothesized that the greater the availability of treatment the greater the demand (Gravely J.F., 1990; Espeland LV et al, 1993).

In contrast, Tulloch et al (Tulloch JF, 1984) did not confirm this hypothesis among British and American children. This may be related to different norms which have an effect on the acceptance of the treatment (Espeland LV et al, 1993).

Environmental factors, such as the presence of deleterious oral habits as well as social class, play an important role in identifying children with open and/or crossbite (Sandra Regina Faccioli Hebling et al, 2008).

If thumb/finger habit persists beyond the time that the permanent teeth begin to erupt, malocclusion develops. The resultant malocclusion is characterized by spaced and proclined maxillary anterior, retroclination of lower anterior teeth, anterior open bite, and a narrow maxillary arch. The damage which may be caused by thumb sucking includes: anterior open bite, posterior crossbite, exaggerated overjet, temporomandibular joint problems, diastema, and retrusive position of the mandible. It was also reported a positive correlation between the distal occlusion and cross bite due to finger sucking habit. In the study (Singh S.P et al., 2008) a positive correlation was founded between Class II division 1 and thumb and finger sucking habit.

Oral habits such as digital sucking, tongue thrust can affect jaw morphology, occlusion and dentition. Most patients with maxillary protrusion breathe through their mouths with their lips apart. Maxillary protrusion and open bite in childhood are related to abnormal habits of digital sucking, tongue thrust,

mouth breathing, lip licking, lip sucking etc. Since these habits differ in frequency, amount of pressure, duration, and method, the way that malocclusion develops varies from one individual to another. Resultant morphological abnormalities depend on the effects of dysfunction and abnormal posture. The three factors of morphology, function, and posture influence each other, contributing greatly to the continued growth and development of normal occlusion an a balanced face. Forces that maintain a well-balanced occlusion are generated through normal morphology, normal function, and natural posture. These factors interact to maintain a normal occlusion and a pleasing facial profile. The three factors are as closely interrelated as a tripod. (Hideharu Yamaguchi et al., 2003).

Health status is influenced by individual characteristics and behavioural patterns (lifestyles) but continues to be significantly determined by the different social, economic and environmental circumstances of individuals and populations (Kraus et al., 2004; Hart et al., 2002; Lin et al., 2007; Seabra et al., 2008). Recent epidemiological analysis of health, disease and disability in the populations of most countries confirms the role of social, economic and environmental factors in determining increased risk of disease and adverse outcomes from disease. Societal inequality is a main public health issue in Germany and other Western industrialized nations, as part of this problem, children and adolescents with a low social background suffer more from health problems (Kraus et al., 2004). In the industrialized countries an unparalleled increase in health and prosperity could be noticed in the last century, which manifests itself e.g. in a reduced child mortality rate and an increased life expectancy, however a clear polarisation in the distribution of health, health risks, morbidity and mortality can be diagnosed, which is essentially associated with socio-economic variables (Olshansky et al., 2005). Inequalities in socio-economic status have been shown to be of key importance to the health of adults and younger children (Marmot et al., 1991). From a research perspective, differences in socio-economic status have been shown to have both a direct and an indirect impact on health (Adler et al., 1994). On the level of oral health, socio-economic inequality was clearly associated with polarisation of caries prevalence, as despite of the dramatic decline in caries in the last two decades, there are sections of the population who have relatively high caries rates (Marthaler, 1996). Dental caries has been considered a social class disease (Gratrix and Holloway, 1994). In the developed and increasingly also in developing countries studies have shown that the burden of dental caries and the need for dental care is highest among the poor and disadvantaged populations (Petersen, 2005). The higher levels of caries in low socio-economic groups suggest that they may be exposed to multiple risk groups and numerous adverse social and economic

conditions therefore they are likely to have other health problems (Fröhlich et al., 2008).

CONCLUSIONS

Class II malocclusion is the most frequent, especially class II div. 1.

There is a strong relation between malocclusion and oral habits - 75%.

From the socioeconomic point of view, analyzing the relation income-malocclusion: low income is frequently associated with malocclusion.

Most parents were NOT prepared to pay for their children's orthodontic treatment (60%).

It can be noticed the inequality in the access to dental/ orthodontic treatment as well as the lack of knowledge, awareness of parents regarding the malocclusions and consequences of not treating the dental disease, and adding to this the low income.

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