

ПРИЛОЗИ
CONTRIBUTIONS

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**THE SECOND SEMINAR
FOR MAGNETIC RESONANCE IMAGING
IN THE REPUBLIC OF MACEDONIA**

Ohrid, Macedonia, June 15-18, 2011

**ВТОР МЕЃУНАРОДЕН СЕМИНАР
ЗА ИМИЏИНГ СО МАГНЕТНА РЕЗОНАНСА
ВО РЕПУБЛИКА МАКЕДОНИЈА**

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Упатство за авторите

Instructions for Authors

ORAL HABITS AMONG PRE-ELEMENTARY CHILDREN IN BITOLA

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Abstract: *Aim:* The purpose of this study was to determine the prevalence of oral habits (nail biting, finger sucking) among the pre-elementary children in Bitola.

Methods: In the observational average, (cross-sectional) study were covered 890 children 3 and 5 years old, who came to regular medical checkups during the period from January to December 2009, in the Health Centre in Bitola. During the research the following methods were applied: psychological testing (Chaturik Test), clinical paediatric examination, interview with the parents and applying the Questionnaire on Children's Behaviour, Child Behaviour Checklist-Achenbach, 1981, in Hill R., & Castrol E. (2002): Getting rid of Ritalin, Hampton Roads Publishing Company, Inc. Results: The research included 890 children, of whom 401 were three years old and 489 five years old, and 51.6% male and 48.4% female. The prevalence of oral habits among the subjects was 35.39%. Statistical analyses showed that these habits can be found ($p < 0.05$) among 3-year-old children, but the tested difference concerning the gender was statistically insignificant ($p > 0.05$). Children who live in a rural environment, who do not have their own room and do not use a computer, statistically significantly manifested oral habits more often ($p < 0.05$). Tested differences in the frequency of oral habits according to the number of family members were statistically insignificant ($p > 0.05$). Children whose parents have primary education and whose mothers are working and have minimal incomes manifested a significantly more frequent presence of oral habits for the level of $p < 0.01$ and $p < 0.05$.

Conclusion: These oral habits have a prevalence of 35.39% among the pre-elementary children in Bitola and should be viewed as a major public health problem. Because of their influence on the development of the orofacial system, the responsibility primarily of paediatric and children's dentists is great for their prevention, early diagnosis and treatment in collaboration with other specialists, the child and parents.

Key words: pre-elementary children, oral habits, living conditions, socioeconomic conditions, prevention.

Introduction

In the contemporary health care of children, growing importance is given to mental health and prevention of its disorders. The full development and maturation of the human being occurs under the influence of genetic factors in interaction with external factors. The factors are polygenetical and have a significant role in increasing the propensity toward behavioural disorders in relation to family, social and cultural factors [1]. Behavioral disorders are a form of altered behaviour which is a consequence of difficulties during the period of adjustment of the child in the family, school, the environment and the wider community. During its development the child spends different developmental periods that have certain characteristics. The pre-elementary years in child development are characterized by significant physical growth, emotional and cognitive development [2]. The prevalence of distortions in behaviour based on data from literature is difficult to determine, but the general conclusion is that it is in constant growth and depends on the child's age, sex, place of residence, time, and certainly the methods used during the evaluation [3, 4]. According to Flouri et al. (2000) the rate of non-adjustment for children ranges from 6–25% [5].

In The International Classification of Diseases (ICD–10), the distortions in behaviour and emotions that usually begin in childhood and adolescence are classified in Chapter V, and oral habits are formulated in F 98 as Other Disorders of the relationships and emotions which usually start in childhood and adolescence (nail biting, nose picking, thumb sucking).

The oral habits are a very common and important problem of paediatricians and children's dentists [6–8]. The authors in most studies in the literature express their concern about the etiology of oral habits which may have an important role in the development of some anomalies and harmful effects upon the oral-facial system [9–12]. Thumb sucking and nail biting can damage the structure of the mouth and can easily allow the spread of infectious diseases [13]. In a study in Turkey, in 2007, the authors confirmed statistically significant difference in the prevalence of *Escherichia coli* and *Enterobacteria* among children with such oral habits in relation to children without such habits. They were microbiologically confirmed in the saliva among 76% of the children who bite nail, as opposed to 26.5% of children who had no such habit [14]. The most common age for the manifestation of these habits is 3–4 years, after which the frequency decreases [15].

Goals

The main objective of this study was to determine the prevalence of oral habits (nail biting, finger sucking) among pre-elementary children in the city of Bitola, in relation to: sex, age, family and socio-economic conditions of living (city, village, owning a separate room or not, family members, number of children in the family, birth order of the child, education of parents and family income) as well as certain habits of the children such as using a mobile phone, computer, television.

Participants and methods

The study was conducted at the Health Centre in Bitola. In an observational average, (cross-sectional) study 890 children of 3 and 5 years old who had come to the counselling service for regular medical checkups during the period from January to December 2009 were covered. The study included children born with a normal perinatal period, and with a normal psychophysical development. Children who were born with any risk according to risk criteria for children and children in whom it was found with a psychological test that their psychomotor development did not correspond to their age were excluded. Also, questionnaires that were not properly and completely filled in by parents were not analysed. During the investigation the following methods were applied: Psychological testing (Chaturikj Test), paediatric examination, Method of interviews with parents, Questionnaire for the children's behaviour, Child Behavior Checklist-Achenbach, 1981, in Hill R., & Castrol E. (2002): Getting rid of Ritalin, Hampton Roads, Publishing company, Inc. The development test according to Chaturikj is a standardized test for testing psychomotor development in early childhood. The second questionnaire is a list of statements that describe certain characteristics of the child, which allows assessment of the development of children of 2-5 years old. From this questionnaire only data concerning the presence or absence of oral habits among the children were analyzed. The questionnaire was filled by parents during their visit to the doctor and the psychologist.

The gathered results were statistically processed, during which the following methods were used: the distribution of qualitative data is shown in absolute and relative numbers, and for testing the significance of the differences in the occurrence of oral habits in terms of the analysed parameter, non-parametrical statistics were used (Pearson chi-square test and Yates chi-square test). Significance or importance is determined by the levels of $p < 0.05$ and $p < 0.01$. For quantifying the connection of certain factors and the presence of oral habits, the method of Logistic regressive analysis was used.

Results

During the research after the psychological testing (Chaturikj Test), appropriate paediatric reviews and the completed questionnaire (Child Behavior Checklist-Achenbach), 890 children of 3 and 5 years old were analysed. 401 of them were three years old and 489 were five years old. In terms of gender distribution, 51.6% of children were male and 48.4% were female.

Table 1 shows the results for the presence of oral habits of children in relation to age, sex, place of residence, own room, use of computers, mobile and television.

Table 1

Oral habits of children in relation to age, sex, place of residence, own room, use of computers, mobile and television

Variable	Oral habits		p-level
	Yes	No	
<i>Age</i>			
3 years	159 (39.6%)	242 (60.4%)	0.016
5 years	156 (31.9%)	333 (68.1%)	
<i>Sex</i>			
Male (459)	157 (34.2%)	302 (65.8%)	0.44
Female (431)	158 (36.7%)	273 (63.3%)	
<i>Place of residence</i>			
City	192 (32%)	408 (68%)	0.002
Village	123 (42.4%)	167 (57.6%)	
<i>Has own room</i>			
Yes	113 (30.9%)	253 (69.1)	0.018
No	202 (38.5%)	322 (61.5%)	
<i>Uses computer</i>			
Yes	107 (29.7%)	253 (70.3%)	0.004
No	208 (39.3%)	322 (60.7%)	
<i>Watches TV</i>			
Yes	313 (35.4%)	572 (64.6%)	0.76
No	2 (40%)	3 (60%)	
<i>Uses mobile</i>			
Yes	147 (35.4%)	415 (64.6%)	0.99
No	168 (35.4%)	307 (64.6%)	

The results showed that a total number of 315 respondents or 35.39% had oral habits. Oral habits were recorded in 159 (39.6%) children of 3 years old and 156 (31.9%) children of 5 years old. Statistical analysis showed that

significantly more oral habits ($p < 0.05$) were found among children who are 3 years old compared to children who are 5 years old. The tested difference in the presence and absence of oral habits according to children's gender is statistically insignificant ($p > 0.05$).

The distribution in terms of place of residence shows that 192 (32%) children from an urban environment had oral habits, versus 123 (42.4%) children from a rural environment. The tested difference in frequency of absence and presence of oral habits among children in the city and the village is highly statistically significant ($p < 0.01$), i.e. oral habits are found highly significantly more often among children from rural areas. Children who do not have their own room manifest oral habits statistically significantly more often ($p < 0.05$) than children with their own space in the house.

Regarding the use of a mobile phone, computer and television, after tested differences, the statistical significance was only determined in terms of using computers ($p = 0.004$) as a result of significantly more frequent registration of oral habits among children who do not use a computer (107 vs 208).

The results for the presence of oral habits in terms of number of children in the family, birth order as well as incomes in the family are shown in Table 2.

Table 2

Oral habits of children in terms of number of children in the family, birth order as well as incomes in the family

Variable	Oral habits		p-level
	Yes	No	
<i>Children in the family</i>			
One	72 (33.9%)	140 (66.1%)	0.62
> One	243 (35.8%)	435 (64.2%)	
<i>Birth order</i>			
First	157 (35.1%)	290 (64.9%)	0.018
Second	131 (34.1%)	253 (65.9%)	
Third	20 (39.2%)	31 (60.8%)	
> Third	7 (87.5%)	1 (12.5%)	
<i>Material incomes</i>			
Social welfare	31 (43.0%)	41 (57%)	0.001
Minimal	96 (44.8%)	118 (55.2%)	
Average	152 (31.7%)	327 (68.3%)	
Above average	36 (28.8%)	89 (71.2%)	

The distribution in terms of family structure and number of the children in the family shows that 23.8% of the children were the only child in the family,

and the rest of them, 76.2%, were more than one. The tested differences in the frequency of presence or absence of oral habits corresponding with the number of children in the family, are not sufficient to be statistically confirmed.

In terms of the birth, 157 (35.1%) subjects with oral habits and 290 (64.9%) without oral habits were born as the first child in the family, 131 (34.1%) with oral habits and 253 (65.9%) without oral habits were born as the second child, 20 (39.2%) subjects with oral habits and 31 (60.8%) without such habits were born as the third child, while 7 (87.5%) children with and only one without oral habits were the fourth, fifth, etc. child born in the family. Crosstabulation of the frequency of presence and absence of oral habits and the birth number was statistically significant ($p < 0.05$).

Table 3 shows the results of the presence of oral habits in relation to parents' education and employment.

Table 3

Children's oral habits in relation to parents' education and employment.

Variable	Oral habits		p-level
	Yes	No	
<i>Education of the father</i>			
Higher	24 (20.9%)	91 (71.1%)	0.0000
Secondary	190 (33.8%)	372 (66.2%)	
Primary	96 (47.3%)	107 (52.7%)	
No education	5 (50.0%)	5 (50.0%)	
<i>Education of the mother</i>			
Higher	46 (27%)	124 (73%)	0.024
Secondary	148 (31.9%)	316 (68.1%)	
Primary	114 (48.3%)	122 (51.7%)	
No education	7 (35%)	13 (65%)	
<i>Parents' employment</i>			
Father	125 (32.1%)	265 (67.9%)	0.003
Mother	27 (48.2%)	29 (51.8%)	
Both	84 (31.1%)	186 (68.9%)	
No one	32 (42.7%)	43 (57.3%)	
Farmers	47 (47.5%)	52 (52.5%)	

The distribution presented in Table 3 shows that children often come from families where parents have secondary education; oral habits are the most manifested among the children in families where parents have primary education (47.3% and 48.3%). The tested difference for the frequency of presence and absence of oral habits depending on the parents' education are statistically sig-

nificant. Oral habits are less manifested among children whose parents have higher education and that significance, when the distribution relating to the education of the father was tested, is a highly statistically significant level of $p < 0.01$, while the same is significant for level $p < 0.05$ when distribution relating to the education of the mother was tested.

From the analysed results it can be concluded that the biggest representation of oral habits were recorded in subjects whose mothers are employed, as well as farmers' families (48.2 and 47.5). Statistical analysis of differences showed a high level of statistical conclusions regarding both parameters, the values of $p = 0.003$ and $p = 0.000$.

Table 4 shows the results from Logistic regression analysis for quantifying the connection of certain factors and oral habits among the children of 3 and 5 years old.

Table 4

Logistic binary regression

Variable	OR (crude) 95% CL	OR (adjusted for age) 95% CL
Age	1.04 (1.064–1.848)	
Place of residence city / village	1.565 (1.172–2.09)	1.459 (1.08–1.973)
<i>Mother's education – higher</i>		
Secondary	1.263 (0.854–1.868)	1.27 (0.859–1.879)
Primary	2.52 (1.649–3.849)	2.465 (1.605–3.758)
Without education	1.452 (0.545–3.864)	1.405 (0.527–3.751)
<i>Father's education – higher</i>		
Secondary	1.937 (1.195–3.138)	1.914 (1.18–3.104)
Primary	3.366 (1.986–5.707)	3.225 (1.898–5.48)
Without education	3.792 (1.014–14.175)	3.396 (0.902–12.778)
Personal room	1.405 (1.058–1.864)	1.344 (1.009–1.79)
Use computer	1.517 (1.14–2.018)	1.425 (1.062–1.912)
<i>Birth order – first</i>		
Second	0.956 (0.718–1.274)	0.943 (0.707–1.257)
Third	1.192 (0.657–2.16)	1.168 (0.643–2.122)
> Third	12.93 (1.577–106.04)	11.788 (1.432–97.032)
<i>Material incomes – Social welfare</i>		
Minimal	1.076 (0.628–1.844)	1.1(0.641–1.844)
Average	0.615 (0.371–1.018)	0.64 (0.385–1.062)
Above average	0.535 (0.292–0.981)	0.562 (0.306–1.034)

The children of 3 years old have a 1.04 times significantly higher risk of oral habits in comparison with the children who are 5 years old. The risk of

oral habits was significantly associated with: living in rural areas by 1.5 times, having no personal room 1.3 times and using a computer 1.4 times. The children whose mothers have only primary education have a 2.5 times significantly higher risk of recurrence of oral habits, compared to children whose mothers have higher education. Children whose fathers have only primary education have a 3.2 times greater risk, and those children whose fathers have secondary education have a 1.9 times greater risk of manifestation of oral habits compared with children whose fathers have higher education. Children born into families as fourth, fifth and so on. have an 11.8 times significantly higher risk of recurrence of the oral habits.

Discussion

The study aimed to determine the prevalence of oral habits among pre-elementary children in Bitola, and to show the possible connection with certain parameters: age and sex; living conditions of children and socio-economic situation in their families. During the year 2009 in the Counselling Office at the Health Centre in Bitola, 926 children of 3 or 5 years old came under regular systematic review. After psychological testing, pediatric review and appropriate completed questionnaires, 890 children were included in the study. 401 of these were 3 years old and 489 were 5 years old. Of the total number of children 315, or 35.39%, had oral habits (nail biting, finger sucking). In the literature, most studies show a different percentage of children with such habits. In the epidemiological study conducted on 4590 children in Mangalor, India in 1998, it was found that 29.7% of respondents had oral habits [16]. The prevalence of oral habits conducted among 112 children aged 5–6 years in Brazil, presented in a study from the year 2002, was 34.8% [17]. Quashie-Williams R, da Costa & Isiekwe MC (2010) in their study made in Nigeria which included 928 children, found that 34.5% of them had oral habits [18]. Concerning the age of the participants in the study, the analysis showed greater representation of oral habits among children who are three years compared to those who are five years old, so the differences were statistically significant. This is understandable and expected, because with the child's development and maturation his behavior matures also, and the oral habits are less manifested. These results match the results shown in the literature. Foster LG (1998) in his study in the United States which covered 132 children of 3–6 years old, concluded that oral habits among children are reduced over age [19]. Shetty SR & Munshi AK (1998) in their study in India found that sucking and biting nail fingers are more common among children who are 3 and 6 years old [16]. According to gender, 51.6% of the respondents in the study were male and 48.4% were female. The analysis did not show a statistical significance in the presence of oral habits in relation to

the sex of the children. Similar results were shown in a study conducted in Spain in 2005 of 1,100 children aged 4–11 years. The prevalence of oral habits was 53%, and there was no difference regarding the sex of the children [20]. Bosnjak A et al. (2002) in epidemiological studies in Croatia, which covered 1,025 children, found that 33.37% of children had oral habits, but there were no statistically significant difference between the sexes [21]. In the year 2003, a study which was conducted on 5554 children between 5 and 13 years in Delhi, India showed that the prevalence of oral habits among children was 25.5%, and there was no significant difference between male and female children, except regarding certain habits [22]. However, in world literature in most studies a statistical significance is noted in relation to the sex of the children and the presence of oral habits. Overall, the prevalence of oral habits was higher among girls compared to boys, which was noted in a study conducted in Israel in 2000 [23]. Onyeaso CO&Sote EO (2001) researched the prevalence of oral habits among 563 preschool children between 3–5 years, in Nigeria. The result was 13.14%, with a significant difference between the sexes [24]. The occurrence of oral habits in relation to the living conditions of children was analysed in the study. The results showed a statistical significance for the presence of oral habits among children who lived in rural areas and those who did not have a personal room in their homes, in relation to children who lived in an urban environment and had their own rooms.

The researches of the prevalence of oral habits among children who a used mobile phone, computer and watched television more than an hour a day, showed statistical significance only in relation to computer use, and the presence of oral habits among children who did not use a computer was more frequent. In terms of family structure, results from the study showed no statistical significance in terms of the number of members and children in the family, but a significant presence of oral habits in children who were first-born was found. Bayardo RE et al. (1996) in a study that covered 1600 children in Mexico, found oral habits in 56% of them, with a significant predisposition among female children and first-born children [25]. In the study the prevalence of oral habits in relation to the incomes in the family, education and employment of the parents was analysed. In all cases the analysis of the results showed a statistical significance. Prevalence is highest among children in families where both parents have only primary education, the mother is employed, and have minimal incomes. So, socio-economic factors and conditions in the family are very important for the manifestation of these habits among children. The etiology should be sought in the family and it includes anxiety, stress, loneliness, abandonment, imitation of other family members and so on. Sometimes, the specific children's behaviours help them to cope with stress, dissatisfaction and misunderstanding. On the other hand, the education of the mother, her growing involvement in providing material resources in the family, decline in the social stan-

dard and family crises have an influence on the upbringing of the child, the understanding of his views and demands, and an increased occurrence of oral habits. World literature shows different results on these parameters. In 1990 in the mountain villages in Japan, 802 children between 3 and 11 years old were analysed in relation to oral habits. It was found that certain habits are represented differently in terms of sex and age, and were more common among children whose mothers were not employed [15]. Santos SA et al. (2009), monitoring 1190 children of 3–5 years old in Brazil, found a high prevalence, 40.2% of oral habits (finger sucking), pointing out that the younger groups of children who have parents with secondary education, are important associative factors. In another study conducted in 2004, in Nigeria, 493 children were monitored and the results showed no significant association between the prevalence of oral habits in children and the socio-economic situation of their families [27].

Conclusion

This study showed that oral habits have a prevalence of 35.39% among the pre-elementary children in Bitola. The significant correlation between the existence of this habit among children, family factors and the socio-economic conditions in which the children live, was determined. Hence, the reasons for their existence should be sought in the family, which requires vigilance in relation to the psychological basis of each child of the conditions under which habits appear and to reveal their emotional problems. It is very important for parents to be aware of the existence of these habits among their children, to recognize the reasons for their existence and the harmful consequences that may arise, and to seek assistance from appropriate professionals. The treatment usually applied behavioural techniques and psychoanalytic methods. Oral habits can affect the development of the orofacial system. Paediatricians and children's dentists have an obligation and task to diagnose oral habits among the children as early as possible, and in collaboration with other specialists to implement timely and appropriate treatment, thereby preventing the development of certain anomalies. The treatment takes seriously the inclusion of health workers from children's preventive care, in cooperation with the children and their families.

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Резиме

ОРАЛНИ НАВИКИ КАЈ ПРЕДУЧИЛИШНИТЕ ДЕЦА ВО БИТОЛА

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Цел: Целта на студијата беше да се утврди преваленцата на оралните навики (гризење нокти, цицање прст) кај предучилишните деца во Битола.

Методи: Во опсервациона, пресечна (cross-sectional) студија беа опфатени вкупно 890 деца на возраст од 3 и 5 години, кои дошле на редовни систематски прегледи во периодот од јануари до декември 2009 година, во Здрав-

ствениот дом во Битола. Во истражувањето беа применети следните методи: психолошко тестирање (Тест според Чутуриќ), педијатриски преглед, интервју со родителите и примена на Прашалникот за поведението на децата, Child Behavior Checklist-Achenbach, 1981, in Hill R., & Castrol E. (2002): Getting rid of Ritalin, Hampton Roads, Publishing company, Inc.

Резултати: Истражувањето опфати вкупно 890 деца, 401 на тригодишна, 489 на петгодишна возраст, односно 51,6% машки, и 48,4% женски. Преваленцата на оралните навики кај испитаниците беше 35,39%. Статистичката анализа покажа дека сигнификантно почесто ($p < 0,05$) овие навики се среќаваат кај децата на 3-годишна возраст, но тестираната разлика во однос на полот беше статистички несигнификантна ($p > 0,05$). Децата кои живеат во рурална средина, немаат своја соба во домот и не користат компјутер, статистички сигнификантно почесто манифестираат орални навики ($p < 0,05$). Тестираните разлики во фреквенцијата на присутни и отсутни орални навики во зависност од бројот на деца во семејството, беа статистички незначителни ($p > 0,05$). Кај децата кои се родени како четврто, петто итн. дете во семејството значително повеќе се констатираат орални навики ($p < 0,05$). Децата чишто родители имаат основно образование, чишто мајки се единствени вработени, и имаат минимални материјални приходи во семејствата, значително повеќе манифестираат орални навики, за ниво на $p < 0,01$ и $p < 0,05$.

Заклучок: Оралните навики имаат преваленција 35,39% кај предучилишните деца во Битола и треба да се разгледуваат како голем здравствен проблем. Заради нивното влијание врз развојот на орофацијалниот систем голема е одговорноста на педијатрите и детските стоматолози, за нивно превенирање, рана дијагноза и третман во соработка со други специјалисти, детето и родителите.

Клучни зборови: предучилишна возраст, гризење нокти, цицање прст, услови на живеење, социо-економски услови, превенција.

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