



Prevalence of Finger Sucking at Preschool Children in Bitola

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Abstract

The aim of the study was to establish the prevalence of the habit, finger sucking at pre school children in Bitola. observational cross-sectional study conducted and 1607 children from 3 to 5 years old were included. The following methods were applied: psychological testing (Test of Chaturik), clinical pediatric examination, interview with the parents and survey Child Behavior Checklist-Achenbach, 1981. The results shows that the prevalence of the habit finger sucking at the examinees was 24.77%. The statistical analyses has shown that this habit is significantly more often met at 3 year old children, who live in rural area, who do not have their own room at home, ones who live in larger families, ones that do not use computer and ones who watch television many hours during the day ($p < 0.01$). Children whose parents have lower education degree, work in the agriculture and have lower incomes in the family, significantly more often demonstrate this habit ($p < 0.01$ and $p < 0.05$). in conclusions we can say that Finger sucking has a high prevalence at pre school children in Bitola. Paediatricians and children's dentists should work together at prevention, early diagnosis and treatment of this habit in cooperation with other specialists, the child and parents.

Keywords: Finger sucking, living conditions, pre school children, prevention.

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1. Introduction

During its development the child passes through different development periods that have certain characteristics. The manner of bringing up and educating the children even in the nurturing period and in the early pre school years is important for their health and development. In the last 50 years in the world literature more significant place take studies for development problems of the children. In many epidemiological studies it is analyzed the influence of the family and social conditions on the appearance of certain disorders in the behaviour of the pre school children. The disorders can appear in any phase in the development of the child and they could be considered as indicators for the disorders in the wider environment [1]. Finger sucking is one of the most frequent oral habits, which represents mutual and very important problem of the paediatricians and children's dentists [2-4]. Endurance of this habit influences on the dental characteristics of the child and represents a great risk for developing different anomalies [5-8]. In many studies it is emphasized that if the finger sucking is long term and it is longer than 48 months age of the child, it can cause changes in the dental development and later it can cause disorders in the development of the speech [9-11]. Children that have this habit have significantly more chances (to 8 times), for development of the frontal open bite and malocclusion [12, 13]. Also finger sucking can damage mouth structure and it can cause spreading of infectious diseases [14]. Authors emphasize vigilance and following of the children with this habit as well as conducting appropriate treatment if the one persist after the second year up until the fifth and sixth year of the child's life [7, 15].

The main aim of this study was to establish the prevalence of the habit, finger sucking at pre school children in Bitola and to quantify the possible association with their age, gender, the length of breast feeding, family factors and social economic conditions in which the children have lived (the number of the family members, order of child birth, place of living, whether the child has or does not have its own room at home, parents' education and incomes of the family), as well as the long hours of computer use and watching television during the day.

2. Methodology

The study was conducted in the Health Care Institution in Bitola in the Ward of preventive health care of children from 0 to 6 years old. In the observational and cross-sectional were included in total 1607 children at the age of 3 and 5 years that were brought for regular general check up in the period from May 2009 to June 2011. The study included children born with normal perinatal period (more than 37 weeks gestational age, birth weight more than 2500gr.) and with normal psycho-physical development. Children born with any kind of risk, the ones where by psychological tests was established that the psycho-motional development is not adequate to their age, as well as the children whose parents inappropriately and incompletely have filled in the questionnaires were excluded from the study. During the research were applied the following methods: clinical paediatric check up, psychological testing (Chaturiktest), aim structured questionnaire for the research needs and questionnaire for children behaviour, Child Behavior Checklist-Achenbach, 1981. The test of Chaturik is standardized test about the children's psycho-motional development, at early age (until they are 5 years old). Child Behavior Checklist-Achenbach is multicentric, empirically based set of statements for evaluation of children's behavior, by their parents. It contains a list of 113 statements which depict children's characteristics in previous two months. The questionnaire contains characteristics that describe internal and external child

behavior. The results acquired were statistically processed using the following methods: distribution of the quality data was presented in absolute and relative numbers and for testing the significance in the differences in the appearance of the finger sucking, regarding the parameters analyzed was used non parameter statistics (Pearson chi-square и Yates chi-square test). The significance or importance was determined for the level of $p < 0.05$ and $p < 0.01$. For quantifying of the relation of certain factors and presence of the habit of finger sucking was used the method of Logistic regression analyses.

3. Results

In the two year long period that was analyzed, 1980 children were invited for regular general medical examination. After psychological testing and analysis of Child Behavior Checklist, the group of examinees were 1607 children with normal psycho-motional development and behavior adequate for their age. Of all the examinees 772 were at the age of three and 835 at the age of five, 50.65% male and 49.35% female. From all of the respondents the habit of finger sucking have 398 or 24.77%.

In table 1 are presented the results for the presence of the habit finger sucking, regarding the age and gender of the children, breast feeding, place of living, weather the child has or does not have its own room, using of the computer and television.

The results acquired have shown that from the total number of the examinees the habit of finger sucking was significantly more often registered with children at the age of three in respect of the children at the age of five ($p < 0.01$). The gender of the children as well the length of the breast feeding did not show any significance in the appearance of this habit, beside the more frequent manifestation at females and at those that have not been breast feeded at all, ($p > 0.05$). The place and living conditions have significant influence on the appearance of the habit, finger sucking. Children from the rural areas and the ones that did not have their own room at home significantly more often have manifested this habit, ($p < 0.01$). After testing the differences, for the presence of the habit finger sucking at children and using of the computer and watching television for longer hours, statistically significant this habit was more present at children who were not using computer and were watching television many hours during the day ($p < 0.01$).

The results acquired from the research for appearance of the habit, finger sucking at children, regarding the structure of the family (number of the family members, order of the child birth and parents education), are shown at table 2.

Distribution in respect of number of the family members, shows that children who have lived in families with greater number of members where both parents had lower education statistically significant, more frequent have manifested this habit, ($p < 0.01$). Regarding the order of child birth, children born as third, fourth etc, not significantly most frequently suck finger in respect to first born, ($p > 0.05$).

At table 3 are shown the results for presence of the habit, finger sucking at children, in respect to parents employment and the incomes of the family.

Table 1. Finger-sucking habit of children in relation to age, gender, length of the breast feeding, place of residence, own room, uses computer and television.

Variable	Finger-sucking habit		p-level
	Yes	No	
Age			
3 years	255 (33.03%)	517 (66.97%)	*0.000
5years	143 (17.13%)	692 (82.87%)	
Sex			
Male (814)	196 (24.08%)	618 (75.92%)	0.52
Female (793)	202 (25.47%)	591 (74.53%)	
Length of breastfeeding			
> 12 months	74 (22.16%)	260 (77.84%)	0.17
7 - 12 months	126 (22.91%)	424 (77.09%)	
Up to 6 months	154 (27.21%)	412 (72.79%)	
No breastfed	44 (28.03%)	113 (71.97%)	
Place of residence			
City	210 (19.94%)	843 (80.06%)	*0.000
Village	188 (33.94%)	366 (66.06%)	
Has own room			
Yes	117 (18.66%)	510 (81.34%)	*0.000
No	281 (28.67%)	699 (71.33%)	
Uses computer			
Yes	132 (19.56%)	543 (80.44%)	*0.000
No	266 (28.54%)	666 (71.46%)	
Watches TV			
Yes	269 (27.42%)	712 (72.58%)	*0.002
No	129 (20.61%)	497 (79.39%)	

Table 2. Finger-sucking habit of children in terms of number of the family members, birth order and parents' education.

Variable	Finger-sucking habit		p-level
	Yes	No	
Family members			
Up to 3 members	45 (23.81%)	144 (76.19%)	*0.009
4 members	109 (20.04%)	425 (79.59%)	
> 4 members	244 (27.60%)	640 (72.40%)	

Birth order			
First	194 (24.04%)	613 (75.96%)	0.47
Second	176 (24.93%)	530 (75.07%)	
Third, fourth etc	28 (29.79%)	66 (70.21%)	
Education of the father			
Higher	27 (13.17%)	178 (86.83%)	*0.000
Secondary	247 (23.70%)	795 (76.30%)	
Primary	119 (34.10%)	230 (65.90%)	
No education	5 (45.45%)	6 (54.55%)	
Education of the mother			
Higher	47 (14.60%)	275 (85.40%)	*0.000
Secondary	194 (22.93%)	652 (77.07%)	
Primary	151 (36.65%)	261 (63.35%)	
No education	6 (22.22%)	21 (77.78%)	

Table 3. Finger-sucking habit of children in respect to parents employment and the incomes of the family

Variable	Finger-sucking habit		p-level
	да	не	
Parents' employment			
Father	171 (24.12%)	538 (75.88%)	*0.000
Mother	30 (31.25%)	66 (68.75%)	
Both	86 (17.41%)	408 (82.59%)	
No one	35 (29.66%)	83 (70.34%)	
Farmers	76 (40.00%)	114 (60.00%)	
Incomes of the family			
Social welfare	35 (29.91%)	82 (70.09%)	*0.002
Minimal	120 (31.09%)	266 (68.91%)	
Average	192 (22.40%)	665 (77.60%)	
Above average	51 (20.65%)	196 (79.35%)	

The results presented have shown that the habit finger sucking was significantly more often registered at examinees whose parents were agriculturists ($p < 0.01$), as well as children from families with minimal incomes and beneficiaries of social welfare, ($p < 0.01$).

At table 4 are presented results from the Logistic regression analyses of the risk factors, that have predictive role, i.e. influence on the habit finger sucking at children at the age of five.

Table 4. Logistic binary regression

Variable	Sig.	Exp(B)	OR 95% CL	
			Lower	Upper
Age- 3 years				
5 years	*0.000	0.419	0.331	0.530
Gender - male				
Female	0,517	1,078	0,859	1,352
Place of residence - city				
Village	*0.000	2.062	1.635	2.800
Has own room				
No	*0.000	1.752	1.373	2.237
Family members - 3 members				
4 members	0.327	0.821	0.553	1.219
>4 members	0.287	1.220	0.846	1.759
Education of the mother - higher				
Secondary	*0.002	1.741	1.229	2.467
Primary	*0.000	3.385	2.341	4.894
No education	0.293	1.672	0.641	4.360
Education of the father - higher				
Secondary	*0.001	2.048	1.333	3.146
Primary	*0.000	3.411	2.150	5.410
No education	*0.008	5.494	1.568	19.251
Parents' employment - both				
Father	*0.005	1.508	1.129	2.014
Mother	*0.002	2.156	1.321	3.521
Farmers	*0.000	3.163	2.180	4.588
No one	*0.003	2.001	1.265	3.164
Material incomes - above average				
Average	0.557	1.110	0.784	1.571
Minimal	*0.004	1.734	1.190	2.525
Social welfare	0.053	1.640	0.993	2.709
No use				
Computer	*0.000	0.609	0.480	0.772
TV	*0.002	1.456	1.146	1.849

The unique analyses as significant risk factors for appearance of the habit finger sucking at children has been confirmed by: the age of child up to 3 years, rural area, not having their own room in the home, lower parents

education, parents agriculturists, lower incomes, not using computer and watching television many hours during the day.

In table 5 are presented results of the Multi variant Logistic regression analyses.

Table 5. Multi variant Logistic regression analyses

Variable	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. forExp(B)	
							Lower	Upper
<i>Age - 5 years</i>	-0.802	0.123	42.285	1	*0.000	0.448	0.352	0.571
<i>Education - mother</i>			20804	3	*0.000			
Secondary	0.447	0.188	5.642	1	*0.018	1.564	1.081	2.262
Primary	0.927	0.216	18.368	1	*0.000	2.526	1.654	3.860
No education	0.226	0.532	0.180	1	0.671	1.254	0.442	3.558
<i>Own room -no</i>	0.335	0.136	6.098	1	*0.014	1.399	1.072	1.825
<i>TV - use</i>	0.482	0.128	14.088	1	*0.000	1.619	1.259	2.082
<i>Parents' employment - both</i>			11.737	4	*0.019			
Father	0.028	0.164	0.029	1	0.865	1.028	0.745	1.419
Mother	0.626	0.261	5.777	1	*0.016	1.871	1.123	3.118
Farmers	0.478	0.221	4.686	1	*0.030	1.612	1.046	2.484
No one	0.264	0.269	0.962	1	0.327	1.302	0.769	2.205
Constant	-1.907	0.212	81.119	1	0.000	0.148		

Multi variant model of Logistic regression analyses, as independent significant factors or predictions of the manifestation sucking at children has been confirmed by the age of child, mother's education, not having their own room in the home, watching television many hours during the day and working parents.

4. Discussion

The results acquired in the study have shown that oral habits have high prevalence at 5 year old children. From total of 1607 examinees, 398 children or 24.77 % have the habit of finger sucking. In the literature in the most studies it is presented different percentage of children with this habit Quashie-Williams, the authors in [16] in a study conducted in Nigeria on 928 children at the age of 4 to 15 years old it was found that 34.5% of the

examinees had oral habits, most often finger sucking [16]. In another study in Sweden it is presented a high prevalence of the habit finger sucking of 60% at 457 children at the age of three [17]. According to [18] from total of 540 children, 32% were sucking the finger.

The results analyses acquired in the study, for the presence of the habit finger sucking regarding the children gender did not show any statistical significance although it had a high appearance at females. Similar results are shown in [19], the study conducted on 1100 children at the age of 4 up to 11 in Spain were the prevalence of oral habits was 53% and there was no difference between the children's gender [19]. In the epidemiologic study in Croatia were included 1025 children and it was established that 33.37% of the children had oral habits (nail biting, finger sucking) but there was no statistically significant difference between the genders and age groups [20]. But in the study, that included 1190 children at the age of 3 up to 5 years old in Brazil [21], emphasized that 12.5% of the children were sucking finger and more frequently females and younger children [21]. The prevalence of the oral habits at 563 children at the age of 3 up to 5 years old in Nigeria was 13.14% with significant difference between the genders and only about the habit finger sucking which was more frequent at females [22]. In general it is presented a higher prevalence of the oral habits at females compared to males [23].

Regarding the breast feeding and its length the study results have shown that finger sucking at children was not significantly associated with the breast feeding, but it was the most common at children who were not breast fed. Also by increasing the length of breast feeding it was decreased the manifestation of the habit finger sucking

In the most studies in the literature it is pointed to the importance of the long term breast feeding of the children regarding the appearance of the oral habits and their influence on the dental development. A study [24] that was conducted in Brazil analyzed 551 children at the age of 3 to 6 years old and they concluded that the prevalence of finger sucking statistically significantly is decreased at children who were breastfed longer than 9 months. The breast feeding and the length of the breast feeding contribute for prevention of the oral habits and malocclusion at children [25-27].

In the most studies it is extinguished significant association between this habit and malocclusion problems at children at the age of 3 to 4 years old [28-30]. The authors in [31] have emphasized that using the baby bottle even at the children who were breastfed could have negative effect on the oral development.

In the study was analyzed the appearance of the habit finger sucking regarding the living conditions of the children. The results have shown statistical significance only for the presence of the habit finger sucking at children from the rural areas, children not having their own room in the home, or living in families with many members, but not regarding the order of child birth. On the other hand in other studies it was confirmed that number of the family members, position of the child in it, or the order of the child birth did not have significant effect on the presence of the habit finger sucking [32, 33].

The results of the analyses have shown that the habit finger sucking at children, was significantly more frequent at children whose parents have lower education, children whose parents were agriculturists, or the mother was

only working in the family. The authors in [21] have pointed out that this habit with 5 year old children was associated with the level of parents' education. But, other authors in their studies have not found significant association of this kind, but they emphasize significance between the appearance of this habit at children and the great number of obligations i.e. the busy mother [32-34]. Regarding the finances in the family in some studies it is not presented a significant association between the prevalence of the oral habits at children and social-economic situation in their families [35].

In the study was analyzed the presence of finger sucking at children regarding the using computer and watching television for long hours during the day. The results have shown have shown significance only in the habit of finger sucking regarding not using the computer and watching television for long hours during the day.

5. Conclusion

The study has established a high prevalence of 24.77% of finger sucking at children until age of 5 in Bitola. It is confirmed a significant relation between existence of this habit at children with family factors and social-economic conditions while children were brought up. The reasons for existing of this habit should be sought in the family, education of the parents, and proper upbringing of the children. The finger sucking can influence on the development of the or official system. The podiatrists and children's dentists have an obligation and task to diagnose this habit at children as soon as possible, and in cooperation with other specialists to apply appropriate treatment on time. In this manner they can prevent development of certain anomalies. In the treatment is necessary more serious inclusion of the health care workers from the ward of preventive health care for children, in cooperation with the child and its family. In the treatment most commonly are applied behaviorist and psychoanalyst methods.

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