

ORIGINAL ARTICLE

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## Parafunctional oral habits and its relationship with family structure in a mexican preschoolers group, 2013.

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**Abstract:** Introduction. Habit is any act acquired through experience and performed regularly and unconsciously. Parafunctional habits are resulting from the perversion of a normal function, acquired by repeated practice of an act that is not functional or necessary, may be signs of adjustment problems or inappropriate emotional expression. Its importance lies in the fact that they can interfere with the development of dental occlusion. Objective. To evaluate the prevalence of parafunctional oral habits and their possible association with the type of family, in a group of preschool children from eastern Mexico City. Methodology. Observational, descriptive and cross-sectional study was carrying on. Preschool children group and their parents were surveyed before an examiner calibration ( $k=0.87$ ,  $p=0.001$ ). The detection of different parafunctional habits was conducted in two stages: 1) application of a parent questionnaire and 2) clinical assessment of the child. Results and discussion. 57.7% of the studied population had at least one parafunctional oral habit. Onychophagia habit was the most prevalent. The relationship between prevalence of parafunctional habits with family type was significant ( $X^2=87.439$ ,  $p=0.0001$ ). Conclusions. The prevalence of parafunctional habits was high which was associated with family type also the most frequent parafunctional habit onychophagia. **Keywords:** Prevalence Studies, bruxism, thumb sucking, bottle feeding, sucking behavior.

### Hábitos orales parafuncionales y su relación con la estructura familiar en un grupo de preescolares mexicanos, 2013.

**Resumen:** Introducción. Un hábito es cualquier acto adquirido mediante la experiencia y realizado regular e inconscientemente. Los hábitos bucales parafuncionales son los que resultan de la alteración de una función normal, o los que se adquieren por la práctica repetida de un acto que no es funcional ni necesario, pudiendo ser signos de problemas de adaptación o de expresión emocional inadecuada. Su importancia radica en el hecho de que pueden interferir con el desarrollo de la oclusión dental, razón por la cual el objetivo del presente estudio fue evaluar la prevalencia de hábitos bucales parafuncionales y su posible relación con la estructura familiar, en un grupo de preescolares de un Centro de Desarrollo Infantil del oriente de la Ciudad de México. Metodología. El estudio fue de carácter observacional, descriptivo y transversal, en el que 111 preescolares y sus padres fueron encuestados previa calibración de una examinadora ( $k=0.87$ ,  $p=0.001$ ). La detección de los diferentes hábitos bucales parafuncionales se realizó en dos etapas: 1) aplicación de un cuestionario al padre de familia y 2) valoración clínica del niño. Resultados y discusión. El 57.7% de la población estudiada presentó, al menos un hábito bucal parafuncional. La onicofagia fue el hábito de mayor prevalencia. La relación entre la prevalencia de hábitos parafuncionales con la estructura familiar resultó ser significativa ( $X^2=87.439$ ,  $p=0.0001$ ). Conclusiones. La prevalencia de hábitos bucales parafuncionales fue alta la cual estuvo relacionada con la estructura familiar, asimismo, el hábito parafuncional más frecuente fue la onicofagia. **Palabras clave:** Estudios de prevalencia, bruxismo, succión digital, alimentación con biberón, hábito de chupar.

#### Introduction.

Habits are learned patterns of a highly complex nature. They start as a conditioned reflex during growth and maturation of a subject and are acquired through repetition of the same or similar actions creating instinctive tendencies.<sup>1</sup>

Oral habits could be functional or parafunctional. The first result from repeating a normal function while the second are acquired by practicing a non-functional or unnecessary action.<sup>1-3</sup> Regarding Stomatology, the

importance of diagnosing parafunctional habits lies in the fact that they interfere with the normal growth pattern of the jaws, the development of occlusion in secondary dentition and may cause malocclusion. The parafunctional habits that have been observed with the highest prevalence are finger and lip sucking; biting (objects, onychophagia, cheilophagia and tongue protraction), bruxism and mouth breathing. However, impact could be different depending on their prevalence, intensity, duration and direction.<sup>1-7</sup>

It is known such habits can manifest a child's adjustment problems or inappropriate emotional expression. They evidence a deeply rooted emotional need and become a defense mechanism against the external environment which is hostile for the infant.<sup>6</sup> The environment a child grows in becomes crucial for developing these habits since it could produce a state of well-being and satisfaction.<sup>7</sup> Given that, family structure is not unconnected with this fact considering less stable family environments may promote a child's need to avoid unsafe conditions through the adoption of a parafunctional habit. Two-parent nuclear families (composed of both father and mother) apparently offer the conditions for a child's greater emotional stability compared to one-parent nuclear homes.<sup>8-14</sup>

Prevalence rates of parafunctional habits are extremely variable. Very low percentages (less than 5%) have been reported for certain study populations whereas much higher (more than 50%) for others. As far as types of parafunctional habits, finger sucking and onychophagia have a greater occurrence in the studied groups. Nevertheless, this behavior may change between population groups according to country of origin. Finger sucking is a sensory/motor relationship resulting from stimulus-response, as part of a normal reflex. It is one of the earliest forms of behavior specific in a fetus and newborn, stimulated in the second through smell, taste and temperature changes.

In addition, it is a response to stimuli in the oral or perioral area. Starting during the first year of life, it often continues until three or four years old.<sup>1, 6, 7</sup> Its prevalence is so variable that reported rates range from 8.1% up to 62%.<sup>15-23</sup> On the other hand, onychophagia is the habit of biting nails. It is acquired by many children after they stop sucking their thumb or the pacifier. As with finger sucking, its prevalence is also wide (rates range between 9.8% and 66.3%).<sup>24-28</sup> The other parafunctional oral habits are equally relevant because they can alter the development of dental occlusion; but, as they are not as frequent as bruxism, finger sucking and onychophagia, they are approached mainly to define their distribution among the population.<sup>29-32</sup>

The present study was aimed to measure the prevalence of parafunctional oral habits and their possible association with the family structure in a group of preschoolers from eastern Mexico City.

#### Materials and methods.

It was conducted an observational, descriptive and cross-sectional study in the Centro de Desarrollo Infantil (CDI) "Antonia Nava Catalan", located in the eastern area of Mexico City. A sample of 111 children between the ages of three and five, both sexes, enrolled during 2012 - 2013 and their parents or guardians were

assessed. The scheduled activities were carried out prior authorization from the responsible authorities of the center and the informed consent from the parents or guardians. No conflicts of interest arose during the study which was funded by the investigators. For the epidemiological survey, a dental intern was trained as a calibrated examiner in four sessions ( $Ac=0.92$ ,  $Rc=0.01$ ,  $k=0.87$ ,  $p=0.001$ ). The epidemiological survey took place out on the premises of the center for safety reasons. For the oral exam, it was used a #5 non-magnified flat dental mirror; biosecurity barriers like disposable gloves, gowns and facemasks for both the examiner and preschoolers' protection and polluting waste deposits. Data were recorded in a clinical epidemiological file card previously validated, together with the examiner calibration, through a pilot test. It is particularly important to note the family structure variable was defined as the essential motor for the development of a child who depends on it for survival and growth, a qualitative variable, operationally divided in two categories: two-parent families, when both parents lived with the child, and one-parent families, if only one of the two parents was in charge.<sup>8, 9</sup>

The detection of the presence and type of parafunctional oral habits was done in two stages: 1) A questionnaire was completed by the responsible parent or guardian about the child's conditions related with the manifestation of these habits and the identification of the family type from which the preschoolers came from. 2) A clinical assessment of the child to identify the presence of an oral habit was carried out in two phases. First, a visual extraoral exploration to examine fingers, lips, nose, nails and finger cuticles. Then, an intraoral examination which included the exploration of the tongue at rest position, palate and teeth. The following were the diagnostic and classification criteria:

**Clinical evaluation:** This procedure was used to identify anomalous habits and it was conducted in the school during the time provided by the authorities prior consent from parents. Once the examination and recording were ready, an anamnesis was conducted for each parent or guardian about a set of data to confirm the presence or absence of any parafunctional habit.

The important oral parafunctional habits to be detected in the present study were finger sucking (the habit of interpositioning the thumb or any other finger between maxillaries), lip sucking (the habit of sucking the lips), use of pacifier or bottle, onychophagia (the habit of biting one's nails), cheilophagia (the habit of biting one's lips), biting objects, bruxism (teeth grinding) and mouth breathing (due to nasal obstruction most of the time). The presence of parafunctional habits was clinically discovered and confirmed by the parents

through a questionnaire designed for this purpose.

The external oral examination included a visual study of the following:

- The fingers, to check for cleanliness or presence of calluses.
- The lips, to observe if (a) the upper lip covered two-thirds of the upper incisor teeth, (b) the labial closure was performed smoothly without forcing the lower lip, (c) the lower lip was unchanged in relation to the upper lip and (d) presence of skin irritation near the lower lip.
- The nose, in which there were two conditions observed: (a) nostrils were rounded or flattened and (b) breathing remained normal when manually closing the lips.
- The nails and cuticle of the fingers to find any bite marks, wear as well as any possible inflammation or infection.

The internal oral examination included:

- Tongue at rest position to see if it was (a) central or laterally interposed between arcades and (b) find presence of markings or scarring.
- Shape of the palate.
- The upper incisor teeth showed (a) wear or fractures, (b) diastemas and (c) protrusion. The lower incisors teeth to see whether they a) were lingualized and (b) showed any wear or fractures.

The following conditions were taken into account to classify an oral habit as present:

Finger sucking was considered a bad habit when the parent replied the child sucked their fingers or if they clinically presented the following characteristics: extraorally, clean calloused finger. Intraorally, separated arcades (a) constricted upper jaw and incisives bent forward (protruding) or presence of diastemas. b) Lower incisors tilted backwards (lingualized); also, when the buccinator, orbicularis and mentalis muscles showed hypertonicity.

Mouth breathing was labeled as a bad habit if parents answered the child spent day and night with the mouth open and displayed one of the following characteristics: showing most or all of the labial surface of the upper incisors (short upper lip), altered lip closure (When closing, the lower lip became tense and chin appeared depressed, lower lip interposed between the upper incisors, dry lips, flattened nostrils and when closing the lips, breathing quickened becoming difficult or impossible.)

Regarding onychophagia, the child was seated comfortably and lips were separated to observe teeth, especially the upper and lower anterior, in search of attrition, wear, and altered position. Likewise, nails and cuticles were completely examined to see the

absence or presence of inflammation or infections. Similarly, it was considered a habit when parents stated infants always or often bit their nails.

To detect the habit of cheilophagia, the lip surrounding skin, hypertonicity of the mentalis muscle and the affected lip were assessed. Besides, it was manifested when the parent affirmatively replied the child bite their lip.

As for biting objects, the anterior upper and lower teeth and their position were completely observed. Along with this, it was a present habit if the parent or guardian replied the child always or often bite objects.

With respect to the use of pacifier or bottle, the upper and lower anterior teeth were examined to detect severe decay and lack of occlusion in the anterior teeth area. Additionally, this habit was considered present when the parent or guardian affirmatively replied the child used a pacifier and drank bottle three or more times a day.

In relation to lip sucking, lip dryness, anterior teeth position as well as the hypertonicity of the affected lip and the asymmetry of the buccinator, orbicularis and mentalis muscles were considered. Together with that, the habit was considered present when the parent or guardian affirmatively answered the child sucked their lip.

Statistical data analysis consisted in classifying the epidemiological files according to age and sex using numerical codes to facilitate their use. Afterwards, they were tabulated in an Excel spreadsheet which was exported to SPSS Statistic 19.0, version for Mac. The statistical analysis itself included a calculation of the prevalence and proportions of the habits of interest for this study for both age and gender. Also, in order to measure the possible relationship between the study variables, the value of Pearson's Chi square contingency for tables larger than 2X2 was calculated. When any of the prevalences of the cells was less than or equal to five, the Chi-square likelihood ratio and the value of the Mantel-Haenszel Chi-square for tetrachoric tables were calculated. Finally, tables and charts were designed in Excel and PowerPoint 2010 version for the statistical presentation of the results.

## Results.

A total of 111 preschool-aged children (64 girls and 47 boys) who were enrolled in the Centro de Desarrollo Infantil "Antonia Nava Catalan" belonging to the Chamber of Deputies, Venustiano Carranza Municipality, Mexico City, were examined. According to age, 36.0% of children were under three, 48.6% under four and 15.3% under five years old. Also, 55% of the children came from two-parent households whereas 45% from single-parent homes.

Habit	Prevalence	Percent
Onychophagia	33	29.7
Finger sucking	29	26.1
Use of pacifier or bottle	9	8.1
Mouth breathing	8	7.2
Biting objects	7	6.3
Cheilophagia	4	3.6
Lip sucking	3	2.7
Bruxism	2	1.8

Table 1. Distribution of cases of oral parafunctional habits in preschoolers from Centro de Desarrollo Infantil. "Antonia Nava de Catalán", 2013

Habit		Absent		Present		p-value	
		Freq.	%	Freq.	%		
Finger Sucking	Age	Three	23	20.7	17	15.3	0.005
		Four	47	42.3	7	6.3	
		Five	12	10.8	5	4.5	
	Sex	Female	51	45.9	13	11.7	0.104
		Male	31	27.9	16	14.4	
	Family structure	One-parent	34	30.6	27	24.3	0.0001
Two-parent		48	43.2	2	1.8		
Lip sucking	Age	Three	39	35.1	1	0.9	0.667
		Four	53	47.7	1	0.9	
		Five	16	14.4	1	0.9	
	Sex	Female	61	55.0	3	2.7	0.132
		Male	47	42.3	10	0.0	
	Family structure	One-parent	58	52.3	3	2.7	0.319
Two-parent		50	45.0	0	0.0		
Onychophagia	Age	Three	25	22.5	15	13.5	0.033
		Four	44	39.6	10	9.0	
		Five	9	8.1	8	7.2	
	Sex	Female	41	36.9	23	20.7	0.095
		Male	37	33.3	10	9.0	
	Family structure	One-parent	28	25.2	33	29.7	0.0001
Two-parent		50	45.0	0	0.0		

Table 2. Distribution of cases of finger sucking, lip sucking and onychophagia, according to age, gender and family structure.

As for distribution of parafunctional oral habits in preschoolers, 57% showed at least one of them and 43% did not show any. With regard to frequency, both thumb sucking and onychophagia were more prevalent (29.7% and 26.1% respectively). (Table 1)

The habit of thumb sucking was more frequent in three-year-old children (15.3%) and boys (14.4%). According to family structure, the percentage of cases was higher for children from single-parent families (24.3%) compared with the ones living in two-parent families (1.8%). This difference was highly significant

Habit		Absent		Present		p-value	
		Freq.	%	Freq.	%		
Cheilophagia	Age	Three	37	33.3	3	2.7	0.239
		Four	53	47.7	1	0.9	
		Five	17	15.3	0	0.0	
	Sex	Female	60	54.1	4	3.6	0.081
		Male	47	42.3	0	0.0	
	Family structure	One-parent	57	51.4	4	3.6	0.185
Two-parent		50	45.0	0	0.0		
Biting Objects	Age	Three	33	29.7	7	6.3	0.001
		Four	54	48.6	0	0.0	
		Five	17	15.3	0	0.0	
	Sex	Female	59	53.2	5	4.5	0.446
		Male	45	40.5	2	1.8	
	Family structure	One-parent	55	49.5	6	5.4	0.197
Two-parent		49	44.1	1	0.9		
Use of pacifier or bottle	Age	Three	34	30.6	6	5.4	0.104
		Four	51	45.9	3	2.7	
		Five	17	15.3	0	0.0	
	Sex	Female	58	52.3	6	5.4	0.568
		Male	44	39.6	3	2.7	
	Family structure	One-parent	54	48.6	7	6.3	0.280
Two-parent		48	43.2	2	1.8		

Table 3. Distribution of cases of cheilophagia, biting objects and use of pacifier or bottle, according to age, gender and family structure.

Habit		Absent		Present		p-value	
		Freq.	%	Freq.	%		
Mouth-breathing	Age	Three	39	35.1	1	0.9	0.334
		Four	49	44.1	5	4.5	
		Five	15	15.3	2	1.8	
	Sex	Female	62	55.9	2	1.8	0.118
		Male	41	36.9	6	5.4	
	Family structure	One-parent	53	47.7	8	7.2	0.023
Two-parent		50	45.0	0	0.0		
Bruxism	Age	Three	39	35.1	1	0.9	0.809
		Four	53	47.7	1	0.9	
		Five	17	15.3	0	0.0	
	Sex	Female	63	56.8	1	0.9	0.618
		Male	46	41.4	1	0.9	
	Family structure	One-parent	59	53.2	2	1.8	0.567
Two-parent		50	45.0	0	0.0		

Table 4. Distribution of cases of mouth-breathing and bruxism, according to age, gender and family structure.

( $X^2_{MH}=20.850$ ,  $p=0.0001$ ). (Table 2).

About the lip sucking habit, its prevalence was similar in the three-year-old group (0.9 % for each), but not for gender as 2.7 % were girls. Regarding family structure, the only reported cases were in children from

one-parent families (2.7 %), which was not statistically significant ( $X^2_{MH}=0.994$ ,  $p=0.319$ ). (Table 2)

The habit of onychophagia was similar to thumb sucking as it was more observed in three-year-old children (13.5%) but not for gender since girls showed a higher prevalence (20.7%). According to family structure, those detected involved only children from one-parent families (29.7%), a highly significant condition ( $X^2_{MH}=35,623$ ,  $p=0.0001$ ). (Table 2)

Cheilophagia prevalence was higher in three-year-old children (2.7%) and girls (3.6%). Concerning family structure, the only reported cases were in children from one-parent families (3.6%), which was not statistically significant ( $X^2_{MH}=1.759$ ,  $p=0.185$ ). (Table 3)

The habit of object biting was identified only in three-year-old children (6.3%), and girls (4.5%). Regarding its prevalence according to family structure, the percentage of cases was also higher in children from one-parent families (5.4%) compared with two-parent families (0.9%). The difference was not significant ( $X^2_{MH}=1.668$ ,  $p=0.197$ ). (Table 3)

As for the habit of using a pacifier or bottle, it was higher in three-year-old children (5.4%). According to gender, girls showed a higher prevalence (5.4%). Regarding family structure, the only reported cases were in children from one-parent families (6.3%), a behavior that was not statistically significant ( $X^2_{MH}=1.169$ ,  $p=0.280$ ). (Table 3)

The prevalence of cases of mouth breathing was greater in three-year-old children (9.0%), as observed in other parafunctional habits studied. According to sex, 5.4% of boys had a relatively higher prevalence compared to girls. Regarding family structure, the only reported cases were in children from one-parent families (7.2%), which was statistically significant ( $X^2_{MH}=5.195$ ,  $p=0.023$ ). (Table 4)

Finally, the prevalence of bruxism was equal for three and four year olds (0.9% each), and gender behavior was similar in both boys and girls (0.9%). Regarding family structure, it was only present in children from one-parent families (1.8%). This difference was not statistically significant ( $X^2_{MH}=0.328$ ,  $p=0.567$ ). (Table 4)

#### Discussion.

According to what was observed in the study population, prevalence of parafunctional oral habits is high, similar to that reported by Agurto *et al*<sup>9</sup> However, it must be taken into account their performance and distribution are highly variable. This may be due to the multiple factors participating in their acquisition and development, namely, lifestyle, domestic environment, adjustment process and maturity in different social scenes, for example, school, family; underlying

information on television and movies, etc. Therefore, each subject has a different probability to develop them. As for gender, the prevalence rate was higher among females, similar to that reported by Cepero *et al*.<sup>17</sup>, but not observed by Onyeaso *et al*.<sup>16</sup> who reported a greater number of cases among males. However, although, girls showed these habits more frequently in this study, the difference was not significant in comparison with boys. For this reason, the child's sex was not relevant for this population since both genders had similar probabilities of developing the habits in question.

Considering the prevalence of each of the evaluated parafunctional oral habits, onychophagia was the most prevalent in the study population, contrasting with the findings of other studies where thumb sucking was reported to have higher prevalence.<sup>24-28, 31</sup> It should be taken into account the prevalence was high for both onychophagia and sucking. This behavior may be the result of how family and social environment influence a child in such a manner as to develop any of these two habits to show insecurity and a need for protection or more attention. Then, the need to evade or transmute insecurity is rewarded with both onychophagia and finger sucking. The fact is onychophagia is very difficult habit to stop as it is quite easy to conceal because the child bites their nails secretly. It also helps to satisfy a need similar to that produced by finger sucking.<sup>4</sup> However, regarding finger sucking, it is considered as part of a normal reflex and is likely to provide pleasure or satisfaction to the child until it eventually becomes a rooted habit based on certain circumstances. Persistence of this habit in preschool children may be due to fatigue, sleepiness or boredom; in other words, it becomes a way to adapt to the environment.<sup>19</sup> That is why it is considered a sign of distress and emotional instability in a child.<sup>8</sup> Though most of the reviewed studies reported it as the most prevalent, we should not assume the behavior of any epidemiological event, since it may be differently influenced by multiple factors, manifesting itself in a different way among individual subjects and population groups, without underestimating the harmful effects on oral cavity also depend on their prevalence, duration and intensity.

According to age, the use of bottle or pacifier was more common in the three-year-old age group, similar to that reported by Cepero *et al*. This result is of great importance because there is a clear association between time exposure to risk as it has been estimated it must be present at least two years to have an effect on the maxilla and three years to increase the intercanine mandibular width.<sup>19</sup> The relevance of its presence lies in the way children acquire it in these age range because there are children who reinforce the habit of biting with the pacifier. This habit then progresses to other objects within their reach and that is why it can be

observed in older children. This may be due to cultural differences which have great influence on the development, prevalence and duration of non-nutritive sucking.<sup>16</sup>

Mouth breathing, biting objects and cheilophagia have a lower prevalence than that reported by Agurto et al.<sup>19</sup> and by Murrieta *et al.*<sup>27</sup> The prevalence numbers of mouth breathing were expected, taking into account the ages of the surveyed children. Since, when babies are breastfed for one year, they receive the best stimulus for nasal breathing and their respiratory system may be mature enough for the nasal function in the second year.<sup>1-3</sup> Concerning biting objects, the likely explanation for its presence is based on the fact that babies not only suck the pacifier or their mother's breast, but also bite, especially when the habit exceeds the deciduous dentition period and it becomes mixed. When this natural urge to bite is not treated, another is produced to satisfy them because their need to bite is inherent once the first deciduous teeth are in occlusion and allow it.<sup>18</sup> Children reinforce their biting habit with the pacifier and, then, other objects within their reach. That is why it is still displayed at older ages in some cases. Although cheilophagia is observed to have a very low prevalence in the study population, the identified cases become important as this habit may appear as a variant or substitution for finger sucking. Therefore, preschool population is not free to present it as shown in this study. In fact, it was even more frequent than some other parafunctional oral habits like lip sucking and bruxism.

Finally, the largest number of cases of abnormal habits was observed among children from one-parent families compared with those who came from two-parent households. This outcome was expected because, usually, these habits develop as a response to emotional deprivation due to a sudden change in the family, for example, the birth of a sibling, admission to kindergarten or parents' separation. When the last happens and the family structure is modified, the mother usually has to start working to provide support for the other family members, directly impacting the time dedicated to the children. Hence, children living in one-parent families develop such habits as a result of a psychological disorder because of a deep emotional need or simply as a safety valve when emotional pressures become difficult to bear. Not having a father figure (most common, but not the only condition) and adapting to this absence represents a crucial moment for the child to acquire and develop any of these habits.<sup>8-14</sup> From the stomatological point of view, the importance lies in the fact that parafunctional habits could alter the stomatognathic system development, resulting in deformation, which may cause an imbalance between the

outer (cheek and anterior lip) and internal (tongue) muscular forces. Consequently, they change the future development of occlusion in the secondary dentition.<sup>15, 21, 23, 25</sup> The fact that onychophagia and finger sucking had the highest prevalence and were associated with family structure was not unexpected. Actually, the psychopathological approach states children show frustration, stress or anxiety generated in their home environment through these actions. A family that functions properly promotes the integral development of each of its members and achieves favorable health condition. On the contrary, a dysfunctional family could be a risk factor, affecting, as a result, the emotional and psychological health of one or more of its members. In this particular case, a one-parent family can become an environmental determinant able to produce behaviors that break the biological, psychological and social balance every individual should have for their healthy development. Since, as it was quoted in advance, the load and responsibility in one of the spouses for the children's education and provision of basic needs can result in imbalance, favoring the adoption of certain habits to evade reality or express negative emotions such as those already mentioned.<sup>22,24,27,29</sup>

#### Conclusion.

The results of this study show the prevalence rate of oral parafunctional habits is high considering other reports for populations with similar characteristics; which demonstrates their frequency is variable. With respect to age and gender, three-year-old children and girls showed higher prevalence. Onychophagia and finger sucking were the most frequent habits and were found to be related to family structure, being children from one-parent families the ones who showed a higher prevalence; probably, because their perception of dedicated time and security condition is less favorable compared to those who live with their father and mother. However, this is only a theoretical model which could be worth approaching with a different strategy, for instance, a cohort or Case-Control study, to hold clear evidence of the type and strength of association between these two variables and their possible cause and effect relationship. This proposal could be of great importance if a causal relationship is observed between the prevalence of parafunctional habits and the type of family structure and it would also provide proof of the risk created by this variable to acquire any of these habits. Besides, it would allow suggestions to be made for an individual or collective case study approach in order to prevent children who live in one-parent families from developing any parafunctional habit.

## Referencias.

1. Barbería LE. *Odontopediatría*. 2ª ed. México: Masson; 2002.
2. Ohanian M. *Fundamentos y principios de la Ortopedia dento-maxilofacial*. 2º ed. Colombia: Actualidades Médico Odontológicas Latinoamérica; 2009.
3. Bordoni N, Escobar A, Castillo R. *Odontología pediátrica. La salud bucal del niño y el adolescente en el mundo actual*. Buenos Aires: Médica Panamericana; 2010.
4. Bishara S. *Ortodoncia*. 3ra Ed. Madrid: Ed McGraw Hill; 2003.
5. Barbería LE. *Atlas de odontología infantil para pediatras y odontólogos*. Madrid: Ripano, 2005.
6. Muñoz E. *Odontología pediátrica*. 2a ed. Colombia: Actualidades Médico Odontológicas Latinoamérica; 2004.
7. Canut J. *Ortodoncia clínica y terapéutica*. 2a. ed. Barcelona: MASSON; 2005.
8. Vargas LC, Guzmán LL, Barradas ME. *Integración Familiar: una nueva connotación*. Procedente del Congreso Internacional de Investigación de Academia Journals; 2010 sept 8-10; Tuxtla Gutiérrez, Chiapas. México: chiapas.academiajournals.com; 2010.
9. Arévalo N, Bello A, Carbonell ME, Corredor MM, Peixoto CE, Jaramillo OB, et al. *Familias, cambios y estrategias*. Procedente del Seminario Internacional Familias, Cambios y Estrategias. 2005 octubre 24-27; Bogotá, Colombia: Colección CES; 2010.
10. Calle-Duque J, Garzón NS, Lamus LF. *Caries de la infancia temprana y asociación con factores sociales y biológicos en los hogares comunitarios del ICBF. Zona Zipaquirá*. [tesis Especialidad]. Bogotá (COL): Universidad de la Sabana. 2012.
11. UNICEF- UDELAR. *Nuevas formas de familia; perspectivas nacionales e internacionales*. Universidad de la República. 2003 noviembre; Montevideo, Uruguay; pp.55-141.
12. Luengo RT, Román SJM. *Estructura familiar y satisfacción parental; propuestas para la intervención*. Acciones e investigaciones sociales, Dialnet Universidad de la Rioja; 2006. pp.455-59.
13. González BI. *Las crisis familiares*. *Rev Cubana Med Gen Integr*. 2000;16(3):270-276.
14. Ariza M, Oliveira O. *Regímenes sociodemográficos y estructura familiar: los escenarios cambiantes de los hogares mexicanos; Estudios Sociológicos*. 2ª ed. México: El Colegio De México; 2006;24(70):3-30.
15. Paredes V, Paredes C. *Prevalencia de los hábitos bucales y alteraciones dentarias en escolares valencianos*. *An Pediatr* 2005;62(3):261-5.
16. Onyeaso O, Sote O. *Prevalence of oral habits in 563 Nigerian preschool children age 3-5 years*. *Niger Med J* 2002;9(3):178-9.
17. Cepero SZ, Hidalgo-Gato F, Duque ER, Pérez AQ. *Intervención educativa en escolares de 5 y 6 años con hábitos bucales deformantes*. *Rev Cubana Estomatol* 2007;44(4):1-13.
18. DaCosta O, Orenuga O. *Dentofacial anomalies related to the digit sucking habit in Nigerian children*. *Afr J Med Med Sci* 2003;32(2):167-71.
19. Agurto V, Díaz M, Cádiz D, Bobenrieth K. *Prevalencia de malos hábitos orales y su asociación con el desarrollo de anomalías dentomaxilares en niños de 3 a 6 años del área Oriente de Santiago*. *Rev Chil Pediatr* 1999;70(6):470-482.
20. Alemán SC, González VD, Díaz OL, Delgado DY. *Hábitos bucales deformantes en niños de 3 a 5 años*. *Rev Cubana Estomatol* 2007;44(2):1-4.
21. Blanco CL, Guerra ME, Rodríguez S. *Lactancia materna en la prevención de hábitos orales viciosos de succión y deglución*. *Acta Odontol Venez* 2007;45(1):71-73.
22. Fernández C, Acosta A. *Hábitos deformantes en escolares de primaria*. *Rev Cubana Ortod* 1997;12(2):79-83.
23. Tomita E. *The relationship between oral habits and malocclusion in preschool children*. *Rev Saude Publica*. 2000; 34(3):299-303.
24. Silva BB, Lacerda KR, Ferreira AP, Figueiroa MS. *Prevalência de bruxismo e distúrbio do sono em deficientes visuais*. *Fisioter mov* 2013;26(1):159-166.
25. Rajchanovska D, Zafirova-Ivanovska B. *Oral habits among pre-elementary children in Bitola*. *Prilozi*. 2012;33(1):147-56.
26. Sachan A, Chaturvedi TP. *Onychophagia (Nail biting), anxiety, and malocclusion*. *Indian J Dent Res*. 2012;23(5):680-2.
27. Tanaka OM, Vitral RW, Tanaka GY, Guerrero AP, Camargo ES. *Nailbiting, or onychophagia: a special habit*. *Am J Orthod Dentofacial Orthop*. 2008;134(2):305-8.
28. Soto Llanos Libia, Calero Escobar Jesús Alberto. *Caracterización de hábitos orales en una muestra poblacional de Santiago de Cali, Colombia entre los años 2005 y 2012*. *Rev Gastrohnutp* 2013;15(2):8-12.
29. Luzzi V, Guaragna M, Ierardo G, Saccucci M, Consoli G, Vestri AR, Polimeni A. *Malocclusions and non-nutritive sucking habits: a preliminary study*. *Prog Orthod*. 2011;12(2):114-8.
30. Bishara SE, Warren JJ, Broffitt B, Levy SM. *Changes in the prevalence of nonnutritive sucking patterns in the first 8 years of life*. *Am J Orthod Dentofacial Orthop*. 2006;130(1):31-6.
31. Murrieta JF, Allendelagua BR, Pérez SL, Juárez LL, Linares VC, Meléndez OA. *Prevalencia de hábitos bucales parafuncionales en niños de edad preescolar en Ciudad Nezahualcóyotl, Estado de México, 2009*. *Bol Med Hosp Infant Mex* 2011;68(1):26-33.
32. Warren JJ, Slayton RL, Bishara SE, Levy SM, Yonezu T, Kanellis MJ. *Effects of nonnutritive sucking habits on occlusal characteristics in the mixed dentition*. *Pediatr Dent*. 2005;27(6):445-50.
33. Laboren M., Medina C., Vilorio C, Quiros O, D'Jurisic A, Alcedo C, Molero L, Tedaldi J. *Hábitos Bucles más frecuentes y su relación con maloclusiones en niños con dentición Primaria*. *Revista Latinoamericana de Ortodoncia y Odontopediatría "Ortodoncia.ws"* edición electrónica julio 2010. Obtenible en: [www.ortodoncia.ws](http://www.ortodoncia.ws). Consultada, 27/10/2013.