Alqalam Journal of Medical and Applied Sciences. 2025;8(4):2761-2764
https://doi.org/10.54361/ajmas.258497

Original article

Prevalence of Oral Habits (Finger Sucking) Among Preschool Children in Zliten, Libya

Amal Aljedaemi[1], Rema Hwas[2*], Salimah Himeer[1], Alkhansa Ghabasa[2]

[1]*Department of Orthodontics, Pedodontics, and Prevention, Faculty of Dentistry, Alasmarya University, Zliten, Libya*
[2]*Department of Orthodontics, Faculty of Dentistry, University of Zawia, Zawiya, Libya*
Corresponding Email. *r.hawas@zu.edu.ly*

Abstract
Non-nutritive sucking habits (NNSH), particularly finger sucking, are common repetitive behaviors in childhood. While often self-limiting, prolonged habits can lead to significant dentoalveolar malocclusions, such as anterior open bite and posterior crossbite. The severity of these complications depends on the frequency, intensity, and duration of the habit. This study aimed to determine the prevalence of finger-sucking habits among preschool children in Zliten, Libya, and to assess the relationship between the habit and demographic factors such as age and gender. A cross-sectional study was conducted involving 1,025 children (507 boys and 518 girls) aged 3 to 6 years enrolled in public kindergartens in Zliten city during the 2022–2023 academic year. Data were collected using questionnaires distributed to mothers, obtaining information on demographics and specific sucking behaviors. Data were analyzed using SPSS (version 21), utilizing the Chi-square test to determine statistical significance ($P<0.05$). The overall prevalence of finger sucking in the study population was 11.4%. Among those with the habit, the thumb was the most frequently involved digit (67.5%). No statistically significant association was found between gender and finger sucking ($P>0.05$). However, a statistically significant relationship was observed regarding age ($P<0.001$), with the prevalence of the habit decreasing as children grew older (50% in 3-year-olds vs. 7.4% in 6-year-olds). The prevalence of finger sucking in Zliten is lower than that reported in several international studies, but it remains a clinical concern for the minority of children who persist in the habit. Early detection and parental education regarding the potential risks of malocclusion are essential to encourage cessation of the habit before the eruption of permanent dentition.
Keywords. Finger Sucking, Non-nutritive Sucking Habits, Prevalence, Preschool Children, Malocclusion, Oral Habits.

Introduction

A repetitive action produced automatically is referred to as a habit. This habit may be either helpful or harmful. During the infantile period, repetitive behaviors are common, and most of them are started and finished spontaneously. One of the most common repetitive behaviors in this period is hand sucking [1].
Hand sucking is naturally developed in 89% of infants in the second month and in 100% of them in the first year of age [2]. Oral sucking habits are categorized as nutritive habits, such as breastfeeding and bottle sucking, that are used for feeding children, and non-nutritive habits such as thumb sucking, finger sucking, or pacifier use, which are often used to comfort and calm infants [3]. Non-nutritive oral habits have a very complex nature; they are associated with sleep, hunger, anger, fear, and tooth eruption, also some children even display these habits for the release of mental tension. These habits can result in damage to dentoalveolar structure [4]. Children from a high socioeconomic group demonstrated finger-sucking habits more frequently than children from a low socioeconomic class, while dummy-sucking was more prevalent in the lower socioeconomic group [5]. There is a relationship between the child's nutrition, the level of education of parents, and the sucking habit [6].
Sucking habits are variable environmental factors that affect the tongue, the jaw, and facial soft tissues [7]. The chronic, prolonged habit of finger-sucking can result in malocclusion in both primary and mixed dentition [8]. The severity of finger-habit depends upon the frequency (number of times per day), intensity (How vigorously it is practiced), and duration (Total number of years/months/weeks/days since the habit is being performed) for which the habit is practiced. The severity of changes in dentition due to finger sucking is related to the time of making the habit and the duration of the habit; also, dental arches, the position of the finger in the mouth, and the child's health affect the severity of malocclusion [9]. The main cause behind the development of finger- sucking is the prolonged presence of the finger in the mouth, which creates pressure against the developing jaw and teeth. This may interfere with the process of tooth eruption, leading to delayed or abrupt eruption events and malformations [10]. The severity of malocclusion is significantly associated with the chronicity and period of finger-sucking habits. Other forms of occlusions secondary to finger- sucking include: anterior open bite [11], exaggerated overjet [9], posterior cross bite [12].
The child who uses the finger- sucking has a lower position of the tongue that may lead to widening of the mandible and decreased maxillary oral influence. That will disturb the balance of pressure between tongue and perioral musculature and enhance the mandible to rotate clockwise, resulting in a cusp-to-cusp relationship, impeding incisor contact, and promoting anterior open bite [13]. Finger defects are also side effects of finger -sucking, Eczema of the finger due to alternating dryness and moisture that occurs, and even angulations of the finger [14].

Received*: 30-09-2025 -* ***Accepted****: 31-11-2025 -* ***Published****: 07-12-2025*

Dentists play a crucial role in giving necessary information to parents. This information includes relevant changes in the dentoalveolar structure and the method to stop oral habits. Also, a dentist is required to treat the existing malocclusion [4]. Correct diagnosis and treatment before the development of malocclusion should be done. There are various treatments available, out of which the thumb-home concept, based on animism, is the recent one where a child is asked to place his/her thumb in a bag tied on the wrist and explained that like a child, the thumb will also go to sleep in its home. The objectives of this survey were to determine the prevalence of sucking habits in preschool children in our society and explain the effect of the habits on their parents.

Methods

The sample consisted of 1025 Libyan children (507 boys, 518 girls), aged 3-6 years, enrolled at public kindergartens in Zlitan city. First, ethical approval was obtained to enter these public kindergartens.
We used a questionnaire to obtain data in the present study. The children's mothers received questionnaires through the principals. Parental informed consent for the child's participation is included in the questionnaires.
The children included in the study were in the complete deciduous dentition phase with no history of systemic disease. The questionnaire contained information regarding the child' name, age, sex, mother's age, mother's educational status, finger sucking, type and number of finger sucking, dummy sucking.
Questionnaire collected, Excel sheets were used for data processing, and a descriptive analysis of the results was performed. Data were statistically analyzed using SPSS (version 21). Chi-square was used for inferential data analysis. Significance set at $P<0.05$.

Results

The study sample consisted of 1,025 children selected from public kindergartens in Zliten during the 2022–2023 academic year. The statistical analysis of the sample data is presented below. Table 1 illustrates the distribution of the study sample according to gender. Females constituted a slight majority, accounting for 50.5% of the sample, while males accounted for 49.5%

Table 1. Gender Distribution

Sex	Number	%
Male	507	49.5%
Female	518	50.5%
The total	1025	100.0%

Age Distribution

Table 2 present the age distribution of the participants. The largest age group was 6-year-olds, representing 53.8% of the sample. The smallest group consisted of 3-year-olds at 2.7%.

Table 2. Distribution of the study sample by age

Age	Number	%
Three years	28	2.7%
Four years	110	10.7%
Five years	334	32.6%
Six years	551	53.8%
Missing data	2	0.2%
The total	1025	100.0%

Prevalence of Finger sucking

Table 3 reveals the prevalence of finger sucking among the study sample. The majority of children (88.6%) did not exhibit finger sucking behavior, while 11.4% were identified as finger sucker. Based on a 95% confidence interval, the estimated prevalence of finger sucking in the population (children aged 3–6 years) ranges between 9.5% and 13.4%.

Table (3). Frequency and percentage of finger sucking behavior

Condition bite	Number	%
No	908	88.6
Yes	117	11.4
the total	1025	100.0

Characteristics of Finger sucking Behavior according to the Site

Received*: 30-09-2025 -* ***Accepted****: 31-11-2025 -* ***Published****: 07-12-2025*

Table 4 details the specific fingers involved. The thumb was the most frequently sucking finger, accounting for 67.5%.

Table (4). Distribution of finger sucking according to the site

Finger	Number	%
Little finger	1	0.9
Middle finger	3	2.6
Index finger	22	18.8
Thumb	79	67.5
Middle and ring finger	2	1.7
Index and middle finger	4	3.3
Middle and thumb	1	0.9
Thumb and index finger	2	1.7
Thumb, index, and middle finger	1	0.9
All five fingers	2	1.7
The total	117	100.0

Correlations and Inferential Statistics

Relationship between Gender and Finger sucking: A Chi-square test of independence was conducted to examine the relationship between gender and finger biting. As shown in (Table 5), the results indicate no statistically significant relationship between gender and the condition of finger sucking.

Table 5. Chi-square test results for the relationship between gender and finger sucking

Sex	The condition		Chi-square value.	Total	Significance level
	No	Yes			
Female	443	64	1.449	507	0.229
Male	465	53		518	
Total	908	117		1025	

Relationship between Age and Finger sucking

A Chi-square test was performed to investigate the relationship between age and finger sucking. As shown in (Table 6), there is a statistically significant relationship between age and finger sucking behavior ($p<0.001$), with the prevalence of the habit decreasing as age increases (dropping from 50.0% at age 3 to 7.4% at age 6).

Table (6). Chi-square test results for the relationship between age and finger sucking

Age	The condition		Total	Chi-square value.	Significance level
	Yes (n/%)	No (n/%)			
Three years	14(50.0%)	14 (50.0%)	28	59.977	< 0.001*
Four years	23(20.9%)	87 (79.1%)	110		
Five years	38(11.4%)	296 (88.6%)	334		
Six years	41 (7.4%)	510 (92.6%)	551		
Total	116	907	1023		

**Significant at the 0.05 level. ** Note: The total sample size for this analysis is 1,023 due to the exclusion of 2 participants with missing age data.*

Discussion

Most of the oral habits produce harmful effects on the development of dentition and the maxillofacial apparatus, leading to unbalanced pressure expressed on the immature alveolar ridges and potential changes in the position of the teeth and occlusion. The sample was selected randomly from different public kindergartens in Zliten city, and was representative of 3- to 6-year-olds.

Sucking habits are the most prevalent oral habits among infants, toddlers, and children. In our study, we selected an age group of 3-6 years, as these ages of children spend a considerable amount of time in school. Hence, preschool and school teachers, especially primary school teachers, can play an important role in developing health habits in their students. Some authors suggested that non-nutritive sucking habits discontinued at 3 to 5 years of age may still lead to malocclusion in certain cases. Thus, in order to prevent more malocclusion caused by non-nutritive sucking habits, recommendations should be revised to advocate cessation of the habit prior to 3 years of age and emphasise that the earlier the habit is ceased after age 3, the less the risk for development of malocclusion due to the habit itself [Warren et al., 2005[15].

Received*: 30-09-2025 -* ***Accepted****: 31-11-2025 -* ***Published****: 07-12-2025*

The present study showed no gender difference was observed; this finding is in accordance with the study of Munad J.ALDuliamy 2020 [16], and Alves et al 2016. [17]. And disagree with the study of Chitra P et al 2015[18] and Percival et al 2017 [19]. Prevalence of thumb sucking in our study was 11.4%, which this considered low in comparison with Munad J.ALDuliamy 2020[16], and Percival et al 2017[19]. Those were 63% and 50% respectively. And near to result finding by Ngom et al 2008 [20], which was 16%. These differences in the findings may be due to differences in the age group. Sample size and ethnic origin of the study's sample.

Conclusion

The prevalence of finger sucking in Zliten is lower than that reported in several international studies, but it remains a clinical concern for the minority of children who persist in the habit. Early detection and parental education regarding the potential risks of malocclusion are essential to encourage cessation of the habit before the eruption of permanent dentition.

Conflict of interest. Nil

References

1. Maguire JA. The evaluation and treatment of pediatric oral habits. Dent Clin North Am. 2000 Jul;44(3):659-69.
2. Rani MS. Synopsis of orthodontics. 2nd ed. Delhi: All India Publisher and Distributors; 1998. p. 179-200.
3. Moimaz SA, Zina LG, Saliba NA, Saliba O. Association between breast-feeding practices and sucking habits: a cross-sectional study of children in their first year of life. J Indian Soc Pedod Prev Dent. 2008 Jul-Sep;26(3):102-6.
4. Shahraki N, Yassaei S, Moghadam MG. Abnormal oral habits: a review. J Dent Oral Hyg. 2012;4(2):12–5.
5. Calisti LJ, Cohen MM, Fales MH. Correlation between malocclusion, oral habits, and socio-economic level of preschool children. J Dent Res. 1960 May-Jun;39:450-4.
6. Farsi NM, Salama FS. Sucking habits in Saudi children: prevalence, contributing factors and effects on the primary dentition. Pediatr Dent. 1997 Jan-Feb;19(1):28-33.
7. Peres KG, Barros AJ, Peres MA, Victora CG. Effects of breastfeeding and sucking habits on malocclusion in a birth cohort study. Rev Saude Publica. 2007 Jun;41(3):343-50.
8. Franco Varas V, Gorritxo Gil B. Pacifier sucking and associated dental changes. Importance of early diagnosis. An Pediatr (Barc). 2012 Dec;77(6):374-80.
9. Yemitan TA, daCosta OO, Sanu OO, Isiekwe MC. Effects of digit sucking on dental arch dimensions in the primary dentition. Afr J Med Med Sci. 2010 Mar;39(1):55-61.
10. Ahmed ZN, Hussin AM, Alanazi AF, Alhuraish AM, Abomelha SA, Tulbah TH, et al. Etiology of thumb sucking habit and its effect on developing malocclusion. *Intern Jour Of Community Medicine And Public Health* .2021, *8*(2), 905–909..
11. Josell SD. Habits affecting dental and maxillofacial growth and development. Dent Clin North Am. 1995 Oct;39(4):851-60.
12. Warren JJ, Bishara SE. Duration of nutritive and nonnutritive sucking behaviors and their effects on the dental arches in the primary dentition. Am J Orthod Dentofacial Orthop. 2002 Apr;121(4):347-56.
13. Rijpstra C, Lisson JA. Etiology of anterior open bite: a review. J Orofac Orthop. 2016 Jul;77(4):281-6.
14. Vogel LD. When children put their fingers in their mouths, should parents and dentists care? N Y State Dent J. 1998 Feb;64(2):48-53.
15. 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 Nov-Dec;27(6):445-50.
16. Al-Duliamy MJ. Impact of two non-nutritive sucking patterns on the development of anterior open bite in children of two kindergartens in Baghdad city. J Bagh Coll Dent [Internet]. 2020;32(4):12-6.
17. Alves FB, Wambier DS, Alvarez JH, da Rocha JC, Kummer TR, de Castro VC, et al. Children using day nurseries' facilities can be associated with more risk to nonnutritive sucking habits. J Contemp Dent Pract. 2016 Sep 1;17(9):721-7.
18. Chitra P, Vishnupriya P. Estimate the prevalence of non-nutritive sucking among the pre-school children in selected schools at Ernakulam. Int J Nurs Educ. 2015 Jul-Sep;7(3):197-202.
19. Percival TM. Prevalence of oral habits in a child population in Trinidad, West Indies. Pediatr Dent J. 2017;27(3):121-7.
20. Ngom PI, Diagne F, Diouf JS, Ndiaye A, Hennequin M. Prévalence et facteurs associés aux habitudes de succion non nutritive. Étude transversale chez des enfants sénégalais âgés de 5/6 ans. Orthod Fr. 2008 Jun;79(2):99-106

Received: *30-09-2025* - ***Accepted***: *31-11-2025* - ***Published***: *07-12-2025*