ONLINE VERSION: ISSN 1028-4818

RPNS-1853

Multimed 2025; 29:e3107

Original article

Deforming oral habits associated with malocclusion

Disfiguring oral habits associated with malocclusion

Disfiguring oral habits associated with occlusion

Valia María Moreno Rodríguez I https://orcid.org/0000-0003-2712-8621

Susel de los Angeles Virelles Reyes I http://orcid.org/0009-0002-6839-3229

Sirley Roca Ramírez I https://orcid.org/0000-0002-6288-3158

Town Hall of the Cruz Torres Alcolea I https://orcid.org/0009-0008-2705-3678

Suyenni Laura Cabrera Zamora II https://orcid.org/0000-0002-5676-9439

[Yo]Granma University of Medical Sciences. Manuel Cedeño Dental Specialties Clinic. Bayamo. Granma, Cuba.

[II]Bayamo West Teaching Polyclinic. Granma, Cuba.

[*]Corresponding author:valiamaria89@gmail.com

SUMMARY

Malocclusions are oral alterations of multiple etiologies. These not only affect oral functionality and aesthetics, but also have an influence on the psychosocial aspect, which has a negative impact on their quality of life. With the objective of determining the association of mouth breathing, onychophagia, and cheilophagia in the appearance of malocclusion in 3rd grade students at the Orlando Lara School in Bayamo, Granma during

2022, a cross-sectional analytical epidemiological study was carried out in which the universe consisted of 149 students. Data collection was using the primary method through the clinical examination of each patient. The variables studied were malocclusion, mouth breathing, onychophagia, and cheilophagia. The risk factors that had statistical significance (p≤0.05) were mouth breathing (p=0.012) and onychophagia (p=0.0001). The population studied was generally characterized by the predominance of malocclusion.

Keywords: Malocclusion; Mouth breathing; Onychophagia; Cheilophagia; Habit.

ABSTRACT

Malocclusions are oral alterations of multiple etiology. These will not only affect the oral functionality and aesthetics of people, but will also have an influence on the psychosocial aspect, bringing with it a negative impact on their quality of life. With the aim of determining the association of mouth breathing, onychophagia and cheilophagia in the appearance of malocclusion in 3rd grade students of the Orlando Lara school in Bayamo, Granma during the year 2022, an analytical epidemiological study of the cross-sectional type was carried out where the universe consisted of 149 students, the data collection was by the primary method through the clinical examination of each patient, the variables malocclusion, mouth breathing, onychophagia and cheilophagia were studied. The risk factors that had statistical significance (p≤0.05) were mouth breathing (p=0.012) and onychophagia (p=0.0001). The population studied was generally characterized by the predominance of malocclusion.

Keywords: Malocclusion; Mouth breathing; Onychophagia; Cheilophagy; Habit.

SUMMARY

As more occlusions are altered orais of multiple etiology. This will not only affect the oral functionality and aesthetics of people, but will also influence the psychosocial aspect, which has a negative impact on their quality of life. With the objective of determining the

ONLINE VERSION: ISSN 1028-4818

RPNS-1853

association of oral respiration, onychophagia and cheilophagia in the absence of more occlusion in students of the 3rd series of Orlando Lara School in Bayamo, Granma, during the year of 2022, a cross-sectional analytical epidemiological study was carried out in which the universe was constituted by 149 students. Given this was the primary method through the clinical examination of each patient, forms studied as varied as occlusion, mouth breathing, onychophagia and cheilophagia. The risk factors statistically significant ($p \leq 0.05$) for oral respiration ($p=0.012$) and onychophagia ($p=0.0001$). The studied population was generally characterized by a predominance of more occlusion.

Keywords: More occlusion; Mouth breathing; Onychophagia; Cheilophagy Habit.

Received: 7/01/2025

Approved: 3/03/2025

Introduction

Aesthetics has always been a source of concern for individuals. For humans, communication and smiling are the gateway to human relationships, so oral care and dental positioning are especially important. (1)

Currently, some authors propose that malocclusion is defined as any alteration in the bone growth of the maxilla or mandible and/or the position of the teeth that prevents the correct function of the masticatory apparatus and also entails an aesthetic alteration for the patient. (1,2)

The presence of deforming oral habits is one of the etiological causes of malocclusions. The deforming oral habits considered for this study include:

Mouth breathing is a consequence of the obstacles that appear when performing nasal breathing, which forces the tongue to adopt a downward position that allows the passage

of air flow, which causes an imbalance of the muscles with the disappearance of the internal support of the upper posterior teeth. (3-5)

This habit can cause a narrow jaw, posterior crossbite, class two malocclusion, lingualization and crowding of the lower incisors, loss of contact with the upper incisors, the presence of the lower lip interposes itself in the anterior area, generating a more pronounced curve of Spee, vestibuloversion of the upper anterior teeth and incisal hyperdachia, high-arched palate, unilateral or bilateral posterior crossbite, retrognathism of the lower jaw. (3-5)

Cheilophagia is the habit of biting the lips. This habit occurs in malocclusions accompanied by a large incisor protrusion, although it can also appear as a variant or replacement of digital sucking. In most cases, the lower lip is involved, although upper lip biting has been observed. (6-8)

Onychophagia, known as the habit of biting or chewing one's nails, is associated with emotional or stressful factors or elements, generating behavior that is difficult to control or stop. Some authors suggest that this habit helps release tension and negative emotional states. It is characterized by repeated injuries and is self-destructive and aggressive. (9-11)

At the oral level, crowding, rotation, wear, fractures at the edges of the teeth, gum lesions, protrusion of upper incisors, periodontal destruction of the anterior area, root resorption, and stomach problems may be found. (9,10,11)

Taking into consideration the above, it was decided to conduct this research with the objective of determining the possible association between malocclusions and deforming oral habits in 3rd grade students at the Orlando Lara School in Bayamo.

Methods

An epidemiological study was carried outcross-sectional analytical, to identify the

association of mouth breathing, cheilophagia and onychophagia in the appearance of malocclusion in 3rd grade children at the Orlando Lara school in the municipality of Bayamo, Granma in 2023. The universe was taken as the 149 3rd grade students of the school. Data collection was performed using the primary method, through the clinical examination of each patient. The variables studied were malocclusion, mouth breathing, onychophagia and cheilophagia.

Inclusion criteria: Third-grade students from Orlando Lara School, from Bayamo. Students with malocclusion and the presence or absence of deforming oral habits.

Exclusion criteria: School children who are undergoing or have received orthodontic treatment. School children without consent to participate in the research.

Bibliographic reviews of updated articles and publications were conducted to obtain information through various digital platforms.

The clinical examination was performed by the researchers at the school with the patients seated, using a depressor and artificial and natural light sources. The data was processed in an Excel database, and the results are displayed in tables for easier understanding and analysis.

Results

Table 1 shows the association between mouth breathing and the presence of malocclusion. The habit was present in 71 patients (47.65%), of whom 54 (76.06%) had malocclusion. A p-value of 0.012 and an OR of 2.455 were obtained, demonstrating a significant causal association. The Chi-square hypothesis test was 6.357, with a confidence interval between 1.212 and 5.969.

Table 1. Association of mouth breathing with malocclusion.

	Without malocclusion	With malocclusion	Total

Mouth Breathing	No.	%	No.	%	No.	%
Yeah	17	23.94	54	76.06	71	47.65
No	34	43.59	44	56.41	78	52.35
Total	51	34.23	98	65.77	149	100.00
Chi-square: 6.357	p-value: 0.012	OR:2,455	IC (1,212-4,969)			

Table 2 showed that 62 students (41.61%) of the total studied presented the habit and of them 52 (83.87%) presented malocclusion. The statistical study showed a p-value of 0.0001; with a confidence interval of 2.0887–10.2840, the OR was 4.6347. The chi-square test was applied, with a value of 15.4508.

Table 2. Association of the studied population according to onychophagia according to malocclusion.

Onychophagia	Without Malocclusion		With Malocclusion		Total	
	No.	%	No.	%	No.	%
Yeah	10	16.13	52	83.87	62	41.61
No	41	47.13	46	52.87	87	58.39
Total	51	34.23	98	65.77	149	100.00
Chi-square: 15.4508	p-value: 0.0001	OR:4.6347	IC (2.0887-10.2840)			

Table 3, the possible association between malocclusion and cheilophagia is presented. Of 63 students (42.28%) who presented this habit, 38 (60.32%) of them had the disease. The statistical calculation yielded a p value = 0.229 and a Chi-square value = 1.442. There is no statistical association.

Table 3. Association of cheilophagia with malocclusions.

Cheilophagy	Without Malocclusion	With Malocclusion	Total

	No.	%	No.	%	No.	%
Yeah	25	39.68	38	60,.32	63	42.28
No	26	30.23	60	69.77	86	57.72
Total	51	34.23	98	65.77	149	100.00
Chi-square: 1.442	p-value: 0.229					

Discussion

Of a total of 71 students with mouth breathing habits, 54 had malocclusion, representing 76.06%. The analysis showed a statistical association between the two variables. The study showed that the probability of a mouth-breathing student having malocclusion is almost twice as high as that of a student who does not have this habit (Odds Ratio 2.455).

These results coincide with studies carried out by Fernanda Steffany, (12) who found that 52.63% of those examined with malocclusion presented mouth breathing. Similarly, Baez Pupo (13) obtained 34.21%; in contrast to Iza Molina, (14) who reported that mouth breathing was present in only 13.60% of those examined.

The above results coincide with studies conducted by Fernanda Steffany, (12) who states that 52.63% of those examined with malocclusion breathed through their mouths. Similar studies were obtained by Baez Pupo, (13) who presented 34.21% with the same characteristic; this last one does not coincide with the study by Iza Molina, (14) in which mouth breathing was manifested in only 13.60% of those examined.

This habit is considered a risk factor strongly associated with the development of malocclusions in the study population, based on the statistical analysis conducted, which supports the validation of the study's hypothesis. It is common practice in the field of dentistry for this habit to be detected in dental consultations when patients and their families come seeking a solution for misaligned teeth.

42.28% of the students presented the habit of cheilophagia, the p value was 0.229. It can

be said that in the population studied there is no association of this habit with the appearance of malocclusion. A similar result was obtained by González Martin, (15) who states that despite being a common habit, it did not indicate a strong statistical association with malocclusions, what is common is to find this habit accompanied by other habits that are harmful. The studies by González Martin, (15) and Suarez Hernández, (16) there was no association only 9.30% and 23.80% respectively of the total patients presented it.

The study conducted by Meneses-Gómez, (17) states that cheilophagia occurred in only 18.30% of his patients and was the second least common habit. He obtained a p-value of 0.3600, so no statistical significance was demonstrated; this corresponds to the results of the research. Similar results were obtained by Iza Molina, (14) who states that cheilophagia occurred in only 18.20%, without demonstrating a statistical association.

Cheilophagy alone is not capable of producing significant alterations in the stomatognathic system; the lesions found in the study corresponded to traumatic injuries of the oral mucosa.

Of the 149 students, 62 of them manifested the habit. The inferential statistical analysis showed significant results in correspondence with malocclusions with a P value = 0.0001; it coincides with the study by Suarez Hernandez, (16) and Báez Pupo, (13) in which this habit was one of those most associated with malocclusion.

These results do not coincide with those of Iza Molina (14), which states that 13.60% practiced the habit without significant results when associating it with malocclusions. It was suggested that the synergistic action of several deforming habits, among which was onychophagia, did show a strong relationship with malocclusion in the study by Suarez Hernandez (16).

When this habit occurs, it alone can cause changes in occlusion, mainly depending on the frequency and intensity of its practice, just as it does when associated with another habit. The statistical probability of having malocclusion in the population was 4.634.

ONLINE VERSION: ISSN 1028-4818

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Conclusions

The study population was generally characterized by a predominance of malocclusion. Mouth breathing and nail biting were the most frequently reported habits in the study, and were most strongly associated with causing malocclusion. The association between malocclusions and deforming oral habits was determined: mouth breathing and nail biting, but not cheilophagia.

Bibliographic references

1. Sant Joan de Déu. Causes of malocclusion, prevention, and treatment [Internet]. Barcelona: SJD; 2024 [cited 17/11/2024]. Available at:https://escolasalut.sjdhospitalbarcelona.org/es/consejos-salud/seguridad/causas-maloclusion-prevencion-tratamiento.

2. Ochoa Monreal CM. Malocclusion and its psychosocial impact on adolescents aged 11-15 years in a secondary school in San Luis Potosí [Thesis]. San Luis Potosí: Autonomous University of San Luis de Potosí; 2020 [cited 01/08/2021]. Available at:https://repositorioinstitucional.uaslp.mx/xmlui/bitstream/handle/i/6143/TesisM.FEN.2020.Maloclusion.Ochoa.pdf?sequence=1&isAllowed=y.

3. Torres Orihuela LM, Guidotti Rodriguez AU. Pernicious oral habits associated with dentomaxillary malocclusions in students from a state educational institution in Pampas-2022 [Thesis]. Huancayo, Peru: Peruvian University of Los Andes; 2022 [cited 12/4/2021]. Available at:https://repositorio.upla.edu.pe/bitstream/handle/20.500.12848/5471/T037_70780655_72939511_T.pdf?sequence=1&isAllowed=y.

4. Crespo MC, Carrasco Aulestia JG. Ramires Velazquez MC. Chicaiza Sánchez HJ. Prevalence of oral habits and their dentomaxillary consequences. Rev Killkana Salud y bienestar. 2020; 4(2): 1-6.

5. Meza EY, Olivera PB, Rosende MN, Peláez AN. Functional malocclusions and their relationship with oral habits in children with mixed dentition. Rev Asoc Odontol Argent. 2021; 109(3): 171-6.

6. Argüello Vélez P. Oral Habits: An Interdisciplinary Approach [Internet]. Colombia: Santiago de Cali University; 2020 [cited 01/07/2021]. Available at: https://libros.usc.edu.co/index.php/usc/catalog/view/102/178/2534.

7. Hernández-Mingui S, García-Speck EL, Hernández-Rodríguez A, Hernández-Heredia R, Naranjo Rodríguez A. Risk factors for dental malocclusion in adolescents. Gac Med Est. 2021; 2(2): e120.

8. González-Caballero D, Aguilar-Guerrero K, Raventos-Purón A. Deforming oral habits and self-esteem in schoolchildren aged nine to 12 years. Progaleno. 2021; 4(1): 6–18.

9. Silva Rivera L, Esquivel V, García Muñoz A, Espinoza Chico JC. Habits that promote malocclusions in infants. Latin American Journal of Orthodontics and Pediatric Dentistry [Internet]. 2019 [cited 08/01/2021]; 12. Available at:https://www.ortodoncia.ws/publicaciones/2019/art-12/ .

10. Figueroa Cayetano M. Oral habits and dental malocclusion [Thesis]. Guayaquil, Ecuador: University of Guayaquil; 2020. [cited 01/07/2021]. Available at:http://repositorio.ug.edu.ec/bitstream/redug/49785/1/3441FIGUEROAmauro.pdf.

11. Sosa Rosales M. Epidemiological indicators. En. Author groups. Practical guides to dentistry. 2nd ed. [Internet]. Havana: Ciencias Médicas; 2003. pp. 517-57. [cited 10/7/2023]. Available at:http://bvs.sld.cu/libros_texto/guias_practicas_de_estomatologia/gpest08.pdf.

12. Fernanda Steffany AJ. Dental Malocclusions in Students Playing the Clarinet at the National Conservatory of Music, November 2015–January 2016. [Thesis]. Quito: Central

University of Ecuador; 2016 [cited 8/08/2021]. Available at:https://www.dspace.uce.edu.ec/server/api/core/bitstreams/a36faeef-5bd0-453b-8dba-753f817939c3/content .

13. Baez Pupo Y. Malocclusions in adolescents in the Cesar Fornet Banes health area 2018-2020 [Thesis]. Holguín: Holguín University of Medical Sciences; 2020 [cited 8/08/2021]. Available at:file:///C:/Users/Comunicador/Downloads/TESIS%20DR%20YORDANIS%20BAEZ%20PUPO.%20MALOCLUSIONES%20EN%20ADOLESCENTES%20DEL%20AREA%20DE%20SALUD%20CESAR%20FORNET%20BANES%202018%202020%20.pdf.

14. Iza Molina JE. "Prevalence of dental malocclusions in relation to non-physiological oral habits in schoolchildren aged 5 to 9 years old from the Pastocalle Educational Unit of the Pastocalle parish of the Latacunga canton, during the period from June to July 2017." [Thesis]. Quito: Central University of Ecuador; 2017. [cited 08/08/2021]; https://www.dspace.uce.edu.ec/server/api/core/bitstreams/7f6be538-cb3d-471e-9419-5dc2bc984460/content.

15. González Martin B, Mesa Fernández N, Gómez Abraham L, Masó Galan MZ. Deforming habits in children aged 5-12 years from the Antonio Maceo primary school. In. International Congress on Stomatology 2020 (Virtual) Faculty of Stomatology "Raúl González Sánchez" University of Medical Sciences of Havana [Internet]. Cotorro: University of Medical Sciences of Havana; 2020. [cited 8/08/2021]. Available at:http://www.estomatologia2020.sld.cu/index.php/estomatologia/2020/paper/viewPaper/779 .

16.Suárez Hernández M. Pausa Carmenate M. Raimundo Padrón E., Pérez Samper E. Altered occlusion and deforming oral habits. Jesús Menéndez School. Havana. 2018. Virtual Congress of Stomatology 2020 [Internet]. Havana: University of Medical Sciences; 2020. [cited 8/8/2021]. Available at:http://www.estomatologia2020.sld.cu/index.php/estomatologia/2020/paper/view/16/

171.

17. Meneses-Gómez EJ, Vivares-Builes A, Rodríguez MJ. Epidemiological profile of static occlusion and oral habits in a group of schoolchildren from Medellín. National Journal of Dentistry. 2016; 12(22), 67-77.

Conflict of interest

The authors declare no conflict of interest.

Authorship contribution

Conceptualization, data curation, formal analysis, research, methodology, writing of the original draft, review and final editing of the manuscript,used software for statistical analysis:Valia María Moreno Rodríguez.

Formal analysis, statistical processing performed by Susel de los Angeles Virelles Reyes.

The following people were selected for the study sample and participated in the data collection and bibliographic searches, validation, and verification of the results: Aymet de la Cruz Torres Alcolea and Susel de los Angeles Virelles.

Development and design of the methodology, creation of data collection models and participation consent forms, supervision, and leadership in the planning and execution of research activities, including external mentoring of the core team: Aymet de la Cruz Torres Alcolea.

Visualization, preparation, creation, and/or presentation of published work, specifically data visualization/presentation: Suyeni Laura Cabrera Zamora and Sirley Roca Ramírez.