



## Non-carious cervical lesions in patients aged 19 to 59 years

Lesiones cervicales no cariosas en pacientes de 19 a 59 años

Ivis Elianys Gómez-Hernández<sup>1</sup> , Ileana Maria Yero-Mier<sup>2</sup>  , Maritza Zoila Mursuli-Sosa<sup>3</sup> , Jorge Luis de Castro-Yero<sup>2</sup> , Lilian Joaquina Vilvey-Pardillo<sup>2</sup> , Marisel Garcia-Rodríguez<sup>3</sup> 

<sup>1</sup>University of Medical Sciences of Sancti Spíritus.. Municipal Teaching Stomatology Clinic. Sancti Spíritus. Sancti Spíritus, Cuba.

<sup>2</sup>University of Medical Sciences of Sancti Spíritus.. "Justo Ortelio Pestana Lorenzo" Provincial Teaching Stomatologic Clinic. Sancti Spíritus. Sancti Spíritus, Cuba.

<sup>3</sup>University of Medical Sciences of Sancti Spíritus.. Sancti Spíritus, Cuba.

**Received:** July 28, 2022

**Accepted:** January 23, 2023

**Published:** April 30, 2023

**Citar como:** Gómez-Hernández IE, Yero-Mier IM, Mursuli-Sosa MZ, de Castro-Yero JL, Vilvey-Pardillo LJ, Garcia-Rodríguez M. Lesiones cervicales no cariosas en pacientes de 19 a 59 años. Rev Ciencias Médicas [Internet]. 2023 [citado: fecha de acceso]; 27(2023): e5733. Disponible en: <http://revcmpinar.sld.cu/index.php/publicaciones/article/view/5733>

### ABSTRACT

**Introduction:** non-carious cervical lesions are the pathological loss of the dental structure located in the amelo-cementary limit, which do not respond to a bacterial causal agent.

**Objective:** to describe the non-carious cervical lesions in the clinical histories of patients attended at the Periodontics Service of the Clínica Estomatológica Docente Municipal from 19 to 59 years old.

**Methods:** a retrospective descriptive observational research was carried out from January to December 2019. The population was constituted by all the Clinical Histories of patients from 19 to 59 years old, amounting to 1063 that attended the Periodontics service, the sample was conformed by 233 Clinical Histories that had a diagnosis of non-carious cervical lesions in that period. The variables used were: age, sex, non-carious cervical lesions, risk factors, injurious habits, traumatic brushing, acid diet, stress, bruxism and dental groups. Results. The most representative age group was 50 to 59 years and female sex with 51,1 %, abrasion with 40,3 %. The premolar tooth groups predominated with 45,5 % and the risk factors of traumatic brushing and bruxism with 30,0 % and 18,9 % respectively.

**Conclusions:** the age group 50 to 59 years and the female sex predominated. The most affected dental group was the premolars. Of the types of non-cariou cervical lesions, the most frequent was abrasion and traumatic brushing was the risk factor of greatest occurrence.

**Keywords:** Abrasion; Erosion; Attrition.

## RESUMEN

**Introducción:** las lesiones cervicales no cariosas, son la pérdida patológica de la estructura dentaria localizada en el límite amelo-cementario, que no responden a un agente causal bacteriano.

**Objetivo:** describir las lesiones cervicales no cariosas en Historias Clínicas de pacientes atendidos en el servicio de Periodoncia de La Clínica Estomatológica Docente Municipal de 19 a 59 años.

**Métodos:** se realizó una investigación observacional descriptivo retrospectivo en el período de enero a diciembre del 2019. La población estuvo constituida por todas las Historias Clínicas de pacientes de 19 a 59 años ascendente a 1063 que acudieron al servicio de Periodoncia, la muestra quedó conformada por 233 Historias Clínicas que tenían diagnóstico de Lesiones cervicales no cariosas en ese período. Las variables que se utilizaron fueron: la edad, sexo, lesiones cervicales no cariosas, factores de riesgo, hábitos lesivos, cepillado traumático, dieta ácida, estrés, bruxismo y grupos dentarios.

**Resultados:** el grupo de edad más representativo fue el de 50 a 59 años y el sexo femenino con 51,1%, la abrasión con un 40,3 %. Predominaron los grupos dentarios de los premolares con un 45,5 % y los factores de riesgo de cepillado traumático y el bruxismo con el 30,0 % y 18,9 % respectivamente.

**Conclusiones:** predominó el grupo etario de 50 a 59 años y el sexo femenino. El grupo dentario más afectados fueron los premolares. De los tipos de lesiones cervicales no cariosas la más frecuente fue la abrasión y el cepillado traumático fue el factor de riesgo de mayor aparición.

**Palabras claves:** Abrasión, Erosión, Atrición.

## INTRODUCTION

Cervical non carious lesions (CNCL) are defined as a pathological loss of dental tissues that are located at the amelo-cementary border, do not respond to bacterial causes (dental caries) and occur in an infinite variety of forms, with or without dentin sensitivity and can involve the dental pulp.<sup>(1)</sup>

It is usually observed in the cervico-vestibular region of anterior and posterior teeth. In some cases, the wear process is slow and remains asymptomatic for a long time; in others, it progresses rapidly and produces hypersensitivity phenomena.<sup>(2)</sup>

Non-carious cervical lesions affect people all over the world, regardless of ethnic origin, sex or age groups. They are currently among the most frequent stomatologic conditions and constitute the fourth most common cause of deterioration of the esthetics, functionality and longevity of the dentition, after acute trauma, dental caries and periodontal diseases. Their occurrence is associated with increased longevity of the population and modern lifestyle. They are considered a growing problem in stomatology, often underestimated by professionals.<sup>(3)</sup>

These lesions were first proposed by Miller in 1907 and comprise a set of processes characterized by the loss or pathological wear of the hard tissues of the tooth and are classified as: abrasion, erosion, abfraction and their multiple combinations, which has aroused interest in the search for more effective treatments.<sup>(4)</sup>

In the bibliographies reviewed, there is little quantitative information on the epidemiological behavior of non-carious cervical lesions in the last five years.

Hernandez-Reyes B et al.,<sup>(1)</sup> in their research refers that in Brazil NCCL are of multifactorial cause and that between 5% and 85% of the population suffers from it.

In Lima, Peru, in the research conducted by Macas Morán,<sup>(5)</sup> the results indicated a high prevalence of 82.5% of non-carious cervical lesions.

In Ecuador in 2020 Molina Alvarado M A, et al,<sup>(4)</sup> showed in their study of 362 patients that the prevalence of NCCL was 72,4 %, mostly in the female sex (46,1 %). The highest rate of NCCL was registered in the 55-64 years age group.

In Cuba, in a study carried out in the Siboney Stomatological Clinic about non-carious dental lesions in patients attended, it was found that 102 of the 876 patients examined were carriers of non-carious dental lesions for 11,4 %; of which 42,1 % presented a single type of lesion; 50 patients showed two types of lesions, for 49,0 %.<sup>(6)</sup>

Peraza Gutiérrez L, et al,<sup>(3)</sup> in their research report that non-carious cervical lesions are frequent causes of pain, esthetic damage and failure of restorations and they are associated with dietary, hygienic and behavioral habits, lifestyles, age and lack of knowledge of the causal agent. The non-carious cervical lesions do not have a symbology in the Individual Clinical History of Stomatological Care, they are currently represented as dental caries, sometimes giving us an erroneous prevalence of the same, in the research the information of the Clinical History of Periodontics was used for the collection of data where these lesions are indicated.

A large number of patients affected and worried about these conditions come daily to the General Comprehensive Stomatology office of the Sancti Spiritus Municipal Teaching Clinic. It can be observed that there are insufficient studies in the country and particularly in the province and in the municipality, there is no evidence of research that provides data related to the behavior of non-carious cervical lesions and research that shows a symbology for the identification of these lesions in the dentigram. Therefore, the prevalence of non-carious cervical lesions in the population from 19 to 59 years old in the municipal teaching clinic of Sancti Spiritus is unknown, and there is no classic symbology for their identification in the dentigram of the Individual Clinical History of the Integral Stomatological Care.

Taking into account the above mentioned and the insufficient research approach to the problem in the territory, it was proposed to identify the non-carious cervical lesions in the Clinical Histories of patients attended in the Periodontics service of the Municipal Teaching Stomatology Clinic from 19 to 59 years old.

## METHODS

A retrospective cross-sectional descriptive observational retrospective study was carried out in the period from January to December 2019, which covered all the Clinical Histories of patients from 19 to 59 years of age who attended the Periodontics Service of the Clínica Docente Municipal de Sancti Spíritus, with the objective of describing the non-carious cervical lesions. The population consisted of 1063 Clinical Histories of patients from 19 to 59 years old who attended the Periodontics Service of the Clínica Docente Municipal in 2019 and the sample consisted of 233 Clinical Histories that had a diagnosis of non-carious cervical lesions.

The variables used were: age, sex, non-carious cervical lesions (abrasion, erosion, attrition), risk factors (traumatic brushing, acid diet, gastroesophageal disorders, harmful habits, stress, bruxism), dental groups (incisors, canines, bicuspid, molars). The sources for obtaining the information were secondary. With the prior informed consent of the center's management, information was taken from the period from January to December 2019 from the period of Periodontics clinical histories, where the pertinent information was taken for the study. The data collection model was used to collect the information: teeth affected by non-carious cervical lesions, as well as the different diagnoses in each case. In this same document, through the review of periodontal clinical histories, the presence of the different risk factors present in them, traumatic brushing, acid diet, harmful habits, bruxism, stress, gastroesophageal disorders were collected.

The statistical analysis was performed with the IBM SPSS Statistics 19.0.1 - December 2010 for Windows. The fundamental statistical procedures used were percentage calculation and tables, as well as absolute and relative frequency distribution, and a database was created in SPSS version 11,5 for Windows. The prevalence of patients affected by non-carious cervical lesions was determined according to age and sex.

### Ethical aspects

The ethics committee of the entity was informed of the development of the research. The documentary nature of the data collection as well as the aggregate form of the data allows the individuality of the patients to be respected; moreover, the main results will only be used for scientific purposes.

## RESULTS

Of the 233 patients diagnosed with NCCL, there was a predominance of the female sex with 51,1 % in relation to the male sex; the group aged 30 to 39 years was predominant in the female sex and 50 to 59 years in the male sex (Table 1).

**Table 1.** Patients with LCNC according to age and sex. 2019

Age	Sex				Total	
	Male		Female			
	n°	%	n°	%	n°	%
19-29	20	46,5	23	53,5	43	18,4
30-39	25	45,5	30	54,5	55	23,6
40-49	30	49,2	31	50,8	61	26,2
50-59	39	52,7	35	47,3	74	31,8
TOTAL	114	48,9	119	51,1	233	100

Source. Periodontics Clinical History

The most frequent non-carious cervical lesions was dental abrasion represented by 94 patients for 40,3 %, in the age group 40-49 years was the most affected for 57,4 %.(Table No 2).

**Table 2.** Types of NCCL according to age.

Age	Non-carious cervical lesions.					
	Attrition		Erosion		Abrasion	
	no	%	no	%	no	%
19-29	11	25,6	13	30,2	19	44,2
30-39	16	29,1	21	38,2	18	32,7
40-49	8	13,1	18	29,5	35	57,4
50-59	39	52,7	13	17,6	22	29,7
TOTAL	74	31,8	65	27,9	94	40,3

Source. Periodontics Clinical History

Among the risk factors associated with LCNC, higher percentages were found in relation to traumatic brushing with 30 % in abrasion followed by bruxism with 18,9 % in attrition (Table 3).

**Table 3.** Risk factors according to LCNC.

Risk Factors	Non-carious cervical lesions.						Total	
	Attrition		Erosion		Abrasion			
	no	%	no	%	no	%	no	%
Traumatic brushing	2	2,7	1	1,5	67	76,6	70	30
Acid diet	0	0	35	53,8	0	0	35	15
Bruxism	41	55,4	0	0	3	3,2	44	18,9
Gastrointestinal Disorders	0	0	30	46,2	0	0	30	12,9
Occupational Habits	4	5,4	0	0	19	20,2	23	9,9
Stress	28	28,4	0	0	0	0	28	12

Source. Periodontics Clinical History

The premolars were the most affected dental group in the sample with 45,5 %, followed by the molars with 33,9 % (Table 4). (Table 4).

**Table 4.** Tooth groups affected according to age of the population.

Ages	Grupos dentarios							
	Incisors		Canines		Bicuspid		Molars.	
	No	%	No	%	No	%	No	%
19-29	12	27,9	9	20,9	13	30,2	11	25,6
30-39	16	29,1	11	20	25	45,5	16	64,0
40-49	15	24,6	11	18,0	32	52,5	22	36,1
50-59	17	23,0	22	29,7	36	48,6	30	40,5
Total	60	25,8	53	22,7	106	45,5	79	33,9

Source. Periodontics Clinical History.

## DISCUSSION

In the research, the female sex predominated with LCNC, coinciding with the studies of Navarrete Matías,<sup>(7)</sup> Hernández Reyes B, et al,<sup>(1)</sup> where the female sex prevailed. As well as Sepúlveda Amar, et al,<sup>(8)</sup> with 56,6 % belonging to females and with the research of Barbosa, et al,<sup>(9)</sup> in their article Clinical and epidemiological characteristics of non-carious cervical lesions in which 62 % were women, as well as the research of Bajaña Rivadeneira<sup>(10)</sup> in which only 29 % of the male sex was affected by these lesions.

The results differ from the research of Ramírez Abal,<sup>(11)</sup> in that 70,8 % of the sample were male. In the authors' opinion, there is no significant difference in relation to gender; in the study the female sex predominated.

This may be due to the fact that non-carious cervical lesions mostly affect esthetics, being located in the dental neck, and this in most cases is of greater concern to the female sex, who attend stomatological consultations more frequently.

The most affected age group was 50 to 59 years, which differs from the research of Ceballos Rojas, et al,<sup>(12)</sup> with a predominance of 30 to 44 years of age, as well as the study of Hernandez Reyes,<sup>(1)</sup> in which the age range of 34 to 48 years prevailed.

There is similarity with the studies of Martínez Jiménez,<sup>(13)</sup> Macas Moran,<sup>(5)</sup> and Astudillo Ortiz,<sup>(14)</sup> where the age group of 50-59 years was the most representative.

According to the authors, non-carious cervical lesions are very frequent at older ages, and there is a greater possibility of dental abrasions appearing, with deterioration increasing with age and becoming a reduction and loss of dental structure.

In the present study dental abrasion was the most common, which coincides with other authors such as Hidalgo Neira<sup>(15)</sup> in which the majority of patients presented this lesion with 53%, as in the study by Bartlett DW.<sup>(16)</sup>

Other studies,<sup>(7,12,17,18)</sup> show that abrasion is the most frequent non-carious lesion.

Vallejos Santa Cruz,<sup>(19)</sup> differs in that in his study attrition prevailed with 60.3% of the sample studied.

In the opinion of the authors the age of 50-59 years there is a predominance of attrition, this may be because dental attrition increases with age due to physiological attrition, in addition this age group is the most representative in the study.

Tooth brushing in abrasion together with bruxism in attrition and an acidic diet in erosion turned out to be the most frequent risk factors in the sample studied.

Although toothbrushing plays a fundamental role in the control of dental plaque and in maintaining good oral hygiene, it can also have a negative effect on the teeth, when it is carried out with traumatic brushing that causes wear and tear of the dental structures.

Bruxism is a risk factor for non-carious cervical lesions due to the transmission of harmful forces to the tooth and the esthetic affectation caused by the wear of the dental structure for the patient. On the other hand, the acidic diet. These results are similar to the research of Ceballos Rojas,<sup>(12)</sup> Navarrete Matías,<sup>(7)</sup> and Cruz SET, et al.<sup>(20)</sup>

They differ from the research of Urista García LG, et al,<sup>(21)</sup> in which he refers that there is evidence of its relation with daily habits, malocclusion.

The authors consider that toothbrushing is a necessity for maintaining good oral hygiene, although on occasions it can have a negative impact on the teeth when it is done incorrectly, this happens because there are large gaps in knowledge about toothbrushing practices, This happens because there are large gaps in knowledge about dental brushing practices, which belongs to the social determinant of lifestyles and lifestyles, in addition to the fact that patients do not go frequently to the stomatology office due to lack of time or the psychological factor of fear, which shows that the stomatology personnel do not work directly with the risk factors, which affects the quality of life of the patients.

The most affected dental groups in the research were the premolars, similar to the research of Barbosa, J. de S, et al,<sup>(9)</sup> in the study Clinical and epidemiological characteristics of non-carious cervical lesions.

It differs from the research of Ortuño D,<sup>(22)</sup> where the most prevalent dental group was the incisors and in the research of Moreno León,<sup>(23)</sup> Prevalence of carious and non-carious cervical lesions in patients attending the third level clinic of the dentistry faculty of the Central University of Ecuador where the canines were the most affected dental group. The finding of non-carious cervical lesions is very frequent, with a higher percentage in the premolar dental group; this may be a direct consequence of the risk factors present in these non-carious cervical lesions, as was found, the one that prevailed was traumatic brushing, acting more in the premolar area.

The limitations of the study are that it was carried out based on information from secondary sources, which prevented us from observing the lesions directly in the patients, not including the abfractions as non-carious cervical lesions in the research because they were not evidenced in the Periodontics Clinical Histories. Considering at the same time an initial step forward in the province of Sancti Spiritus because there is no research on the subject.

## CONCLUSIONS

In the research carried out, there was no significant difference in gender, predominating the age group from 50 to 59 years old. The most affected dental group were the premolars. The most frequent non-cariious cervical lesions were abrasions and traumatic brushing was the most frequent risk factor.

## Recommendations

It is recommended to design a symbology for the identification of non-cariious cervical lesions in the dentigram, so that they will no longer constitute a hidden morbidity.

## Conflict of Interest

The authors declare that there is no conflict of interest.

## Authors' Contribution

All authors participated in the conceptualization, formal analysis, project management, writing - original draft, writing - revision, editing and approval of the final manuscript.

## Additional material

Additional material to this article can be consulted in its electronic version available at: [www.revcmpinar.sld.cu/index.php/publicaciones/rt/suppFiles/5733](http://www.revcmpinar.sld.cu/index.php/publicaciones/rt/suppFiles/5733)

## BIBLIOGRAPHIC REFERENCE

1. Hernández-Reyes B, Lazo-Nodarse R, Pacheco-Leyva J, Quiroz-Aliuja Y, Domenech-La-Rosa L. Caracterización de lesiones cervicales no cariosas en pacientes bruxópatas. AMC [Internet]. 2021 Feb [citado 20/07/2022]; 25(1): e7729. Disponible en: [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1025-02552021000100004&lng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1025-02552021000100004&lng=es)
2. Gutiérrez-Reina Y, Lazo-Nodarse R, Martínez-Sosa L, Hernández-Reyes B, Escobar-Peña A, Sanfort-Ricardo M. Comportamiento de las lesiones cervicales no cariosas en pacientes de la clínica estomatológica de Jimaguayú. AMC [Internet]. 2021 Dic [citado 20/07/2022]; 25(6): e8335. Disponible en: [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1025-02552021000600004&lng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1025-02552021000600004&lng=es)
3. Peraza Gutiérrez L, Gutiérrez Martorell S. Características clinicoetiológicas y terapéuticas en dientes con lesiones cervicales no cariosas e indicadores epidemiológicos. MediCiego [Internet]. 2020 [citado 20/07/2022]; 26(3): e1215. Disponible en: <http://www.revmediciego.sld.cu/index.php/mediciego/article/view/1215>
4. Molina Alvarado M, Pesántez Ibarra MJ, Tamariz Ordoñez P E. Prevalencia de lesiones cervicales no cariosas en el Ecuador. Una revisión de la literatura. Oactiva [Internet]. 12 may 2021 [citado 18/07/2022]; 6(2): 37-2. Disponible en: <file:///C:/Users/mariaelena/Downloads/evillavicencioc,+Art.3.V6.pdf>



5. Macas Morán GA. Cambios no cariosos en dientes anteriores y sus formas de tratamiento [Internet]. Universidad de Guayaquil Facultad de Odontología; 2018 [Citado 28/07/2022]. Disponible en: <http://repositorio.ug.edu.ec/bitstream/redug/29566/1/2512MACASadriana.pdf>
6. Ruiz Candina HJ, Herrera Batista AJ, Gamboa Sosa J. Lesiones dentales no cariosas en pacientes atendidos en la Clínica Estomatológica Siboney. Rev Cubana InvestBioméd [Internet]. 2018 Jun [citado 28/07/2022]; 37(2): 46-53. Disponible en: [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S0864-03002018000200006&lng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-03002018000200006&lng=es)
7. Navarrete Matías MJ. Etiopatogenia de lesiones cervicales no cariosas [Internet]. Universidad de Guayaquil Facultad de Odontología; 2020 [Citado 28/07/2022]. Disponible en: <http://repositorio.ug.edu.ec/bitstream/redug/49712/1/3492NAVARRETEmaria.pdf>
8. Sepúlveda Amar SG, Balseca Ibarra EG. Prevalencia de lesiones cervicales no cariosas en pacientes de la clínica 7mp semestre de la de la Facultad de Odontología [Internet]. Universidad Central del Ecuador. Quito. Ecuador 2017 [citado 28/07/2022]. Disponible en: <http://www.dspace.uce.edu.ec/handle/25000/9098>
9. Barbosa J de S, de Sousa Silva MJ, Montero D, Tuzzolo Neto H, Alves Ribeiro R, Costa C. Características clínicas y epidemiológicas de lesiones cervicales no cariosas. Revista Odontología [Internet]. 2020 [citado 28/07/2022]; 22(1): 36-54. Disponible en: <https://revistadigital.uce.edu.ec/index.php/odontologia/article/view/2119>
10. Bajaña Rivadeneira MN. Prevalencia de lesiones cervicales no cariosas y presencia de hipersensibilidad. UCSG, semestre b-2019 [Internet]. La Universidad Católica de Santiago de Guayaquil Facultad de Ciencias Médicas Carrera de Odontología; 2020 [citado 28/07/2022]. Disponible en: <http://repositorio.ucsg.edu.ec/bitstream/3317/14250/1/T-UCSG-PRE-MED-ODON-511.pdf>
11. Ramírez Abal PE. Prevalencia de hipersensibilidad dentinaria en pacientes con lesiones cervicales no cariosas que acuden al hospital militar central lima 2019 [Internet]. La Universidad de Huánuco Facultad de Ciencias de la Salud Escuela académico profesional de odontología; 2019 [Citado 10/01/2020]. Disponible en: <http://repositorio.udh.edu.pe/handle/123456789/2277;jsessionid=FB7EB8A21E02B40BF04F84475584689A>
12. Ceballos Rojas MA, Abad Sastre AM. Prevalencia de las lesiones no cariosas cervicales en pacientes atendidos en la Clínica Estomatológica "Juan Manuel Márquez". Rev 16 de Abril [Internet]. 2019 [citado 07/07/2022]; 58(273): 73-76. Disponible en: <https://www.medigraphic.com/pdfs/abril/abr-019/abr19273e.pdf>
13. Martínez Jiménez J. Prevalencia de lesiones cervicales no cariosas en pacientes adultos que acudieron al servicio odontológico de la clínica UAN, sede Armenia en 2018 – 2019 [Internet]. La Universidad Antonio Nariño Sede Armenia Facultad de Odontología; 2020 [citado 08/12/2020]. Disponible en: <http://repositorio.uan.edu.co/bitstream/123456789/2704/6/2020HamiltonMartinezJimenez.pdf>
14. Astudillo Ortiz J, Lafebre Carrasco F, Ortiz Segarra J. Factores de riesgo de la atrición dental severa: un estudio de casos y controle. Acta Odontológica Colombiana [Internet]. Junio 2019 [citado 07/10/2021]; 9(1): 9-23. Disponible en: <https://revistas.unal.edu.co/index.php/actaodontocol/article/view/76506/pdf>

15. Hidalgo Neira RM. Prevalencia de lesiones cervicales no cariosas en pacientes de la Clínica UCSG semestre A-2017 [Internet]. La Universidad Católica de Santiago de Guayaquil Facultad de Ciencias Médicas Carrera de Odontología; 2017 [citado 08/12/2020]. Disponible en: <http://repositorio.ucsg.edu.ec/handle/3317/8888>
16. Bartlett DW, Shah P. A critical review of non-cariou cervical (wear) lesions and the role of abfraction, erosion, and abrasion. J Dent Res [Internet]. 2006 [citado 18/01/2023]; 85(4): 306-12. Disponible en: <https://pubmed.ncbi.nlm.nih.gov/16567549/>
17. Mayta Pérez DA. Prevalencia de lesiones abfractivas y su relación con los niveles de ansiedad [Internet]. La Universidad Inca Garcilaso de la vega Facultad de estomatología, Lima Perú; 2018 [citado 08/12/2020]. Disponible en: [http://repositorio.uigv.edu.pe/bitstream/handle/20.500.11818/2669/TESIS\\_David%20Arturo%2C%20MAYTA%20PEREZ.pdf?sequence=5&isAllowed=y](http://repositorio.uigv.edu.pe/bitstream/handle/20.500.11818/2669/TESIS_David%20Arturo%2C%20MAYTA%20PEREZ.pdf?sequence=5&isAllowed=y)
18. Bustinza B. "Factores asociados a lesiones cervicales no cariosas en pacientes gestantes atendidas en el servicio dental del Centro de Salud de Parcona - Ica, año 2017 [Internet]. La Universidad Nacional "San Luis Gonzaga" de Ica Facultad de odontología; 2017 [citado 08/12/2020]. Disponible en: <http://repositorio.unica.edu.pe/handle/20.500.13028/3040>
19. Vallejos Santa Cruz DC. Prevalencia de lesiones no cariosas en la población adulta del pueblo joven Santa Rosa Baja del distrito de Cayaltí – región Lambayeque, 2017 [Internet]. Universidad Alas Peruanas; 2018 [citado 08/12/2020]. Disponible en: <http://repositorio.uap.edu.pe/handle/uap/8350>
20. Cruz SET, Gadelha VR, Gadelha VM. Lesiones cervicales no cariosas: consideraciones etiológicas, clínicas y terapéuticas. Rev Cubana Estomatol [Internet]. 2019 [citado 28/07/2022]; 56(4): e1998. Disponible en: <https://www.medigraphic.com/pdfs/revcubest/esc-2019/esc194j.pdf>
21. Urista García LG, De La Garza Kalife RM. Lesiones cervicales: sus causas y tratamientos. Revista Mexicana de Estomatología [Internet]. 2018 [citado 19/01/2023]; 5(1): 38-39. Disponible en: <https://www.remexesto.com/index.php/remexesto/article/view/197/379>
22. Ortuño D, Mellado B, Prado S, Vargas JP, Rada G. Restauraciones de lesiones cervicales no cariosas: un protocolo de revisión sistemática para la práctica clínica. Rev de Ciencias Médicas [Internet]. 2018 Dic [citado 20/07/2022]; 43(2): 33-41. Disponible en: <https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1022877>
23. Moreno León KE. Prevalencia de las lesiones cervicales Cariosas y no cariosas en pacientes que acuden a la clínica de tercer nivel de la facultad de odontología de la Universidad central del Ecuador [Internet]. Universidad Central del Ecuador. Facultad de Odontología Carrera de Odontología; 2017 [citado 28/07/2022]. Disponible en: <http://www.dspace.uce.edu.ec/handle/25000/12514>