



ORIGINAL

Educational intervention on oral cancer in high-risk patients between 35-59 years

Intervención educativa sobre cáncer bucal en pacientes de alto riesgo entre 35-59 años

Yoneisy Abraham-Millán¹  , Rosa María Montano-Silva¹  , Yanelilian Padín-Gómez²  , Douglas Crispin-Rodríguez³  , Lauren Danitza Leyva-Manso¹  , Ana Maura Ortiz-Figueroa¹  

¹Facultad de Ciencias Médicas Isla de la Juventud. Isla de la Juventud, Cuba.

²Facultad de Ciencias Médicas Isla de la Juventud. Clínica Estomatológica Docente “José Lázaro Fonseca López del Castillo”. Isla de la Juventud, Cuba.

³Facultad de Ciencias Médicas Isla de la Juventud. Policlínico Docente Universitario “Orestes Falls Oñate”. Isla de la Juventud, Cuba.

Cite as: Abraham-Millán Y, Montano-Silva RM, Padín-Gómez Y, Crispin-Rodríguez D, Leyva-Manso LD, Ortiz-Figueroa AM. Educational intervention on oral cancer in high-risk patients between 35-59 years. Salud, Ciencia y Tecnología. 2024; 4:816. <https://doi.org/10.56294/saludcyt2024816>

Submitted: 06-09-2023

Revised: 30-11-2023

Accepted: 19-02-2024

Published: 20-02-2024

Editor: Prof. Dr. Javier González Argote 

ABSTRACT

Introduction: mortality from oropharyngeal cancer ranked tenth among cancer types in Cuba in 2020 and 2021.

Objective: to implement an educational intervention on oral cancer in high-risk patients between 35-59 years old.

Method: an educational intervention with a quasi-experimental design, before-after type, was carried out in consulting room 19, La Demajagua, Isla de la Juventud between April-September 2023. The population was 126 patients, the sample being made up of 80 at high risk of oral cancer. Theoretical, empirical and mathematical-statistical methods were used and the variables were used: risk to predict oral cancer, risk factors, oral hygiene, teaching aids and level of knowledge about oral cancer, oral hygiene, risk factors and oral self-examination.

Results: the risk of suffering from oral cancer was high in 63 % of the patients between 35-59 years old in the study office. Before the intervention, bad knowledge predominated, representing 48,7 % of the sample, managing to raise it to good after the intervention by 96,3 % . The Wilcoxon test demonstrated highly significant differences.

Conclusions: the main risk factors were: poor oral hygiene, smoking, consumption of hot or spicy foods and stress. The use of the website contributed to raising knowledge about oral cancer, the main risk factors associated with its appearance and oral self-examination, allowing the transformation of modes of action and the evaluation of the educational intervention implemented in high-risk patients between 35 and 35 years old as satisfactory.

Keywords: Oral Cancer; Risk Factors; Oral Self-examination; Health Promotion; Oral Cancer Prevention.

RESUMEN

Introducción: la mortalidad por cáncer orofaríngeo ocupó el décimo lugar entre los tipos de cáncer en Cuba en 2020 y 2021.

Objetivo: implementar una intervención educativa sobre cáncer bucal en pacientes de alto riesgo entre 35-59 años.

Método: se realizó una intervención educativa con diseño cuasi-experimental, tipo antes-después, en el consultorio 19, La Demajagua, Isla de la Juventud entre abril-septiembre de 2023. La población fue de 126

pacientes, quedando conformada la muestra por 80 con alto riesgo a padecer cáncer bucal. Se utilizaron métodos teóricos, empíricos y matemáticos-estadísticos y las variables: riesgo para predecir cáncer bucal, factores de riesgo, higiene bucal, medios de enseñanza y nivel de conocimiento sobre cáncer bucal, higiene bucal, factores de riesgo y autoexamen bucal.

Resultados: el riesgo a padecer cáncer bucal fue alto en el 63 % de los pacientes entre 35-59 años del consultorio en estudio. Antes de la intervención predominó un conocimiento malo representando el 48,7 % de la muestra, logrando elevarlo a bueno después de la misma en un 96,3 % . La prueba de Wilcoxon demostró diferencias altamente significativas.

Conclusiones: los principales factores de riesgo fueron: mala higiene bucal, tabaquismo, consumo de alimentos calientes o picantes y el estrés. El uso de la página web contribuyó a elevar el conocimiento sobre cáncer bucal, los principales factores de riesgo asociados a su aparición y el autoexamen bucal, permitiendo transformar los modos de actuación y evaluar como satisfactoria la intervención educativa implementada en pacientes de alto riesgo entre 35-59 años.

Palabras clave: Cáncer Bucal; Factores de Riesgo; Autoexamen Bucal; Promoción de Salud; Prevención de Cáncer Bucal.

INTRODUCTION

Oral cancer is considered one of the most transcendental diseases in the life of a human being since it produces permanent sequelae that affect psychologically and have repercussions on the social and family environment of the patient. The word cancer refers to a group of more than 100 diseases with more than 1,000 histopathological varieties. A common characteristic is the abnormal and uncontrolled proliferation of cells that invade nearby and distant tissues and organs, which, if not treated in time, lead to the individual's death.

(1)

One of the anatomical locations of this pathology is the oropharynx, which is why some authors have called oropharyngeal cancer one of the first ten locations of cancer incidence in the world and Cuba. (1) The economic and sanitary consequences make it a significant health problem; in addition, with the increase of risk factors associated with its appearance and the aging population, it is thought that, if control measures are not taken, there will be an increase in its incidence and mortality.

Every year, 9,000,000 people in the world fall ill with cancer, and some 5,000,000 die from it. It is currently estimated that there are about 14 million cancer patients. Among all types of cancer, oral cancer is the sixth most common cause of death in the world. Every year, between 20,000 and 25,000 new cases appear worldwide, of which between 13,000 and 14,000 patients die. (2) According to the Cuban Health Statistical Yearbook, in 2018, 826 deaths from lip, oral cavity, and pharynx cancer were reported;(3) in 2019, there were 893 deaths (4) and in 2020, there were 905 deaths, (5) predominantly among those over 60 years of age and the male sex. In the Isle of Youth 2018, there were eight positives and five deaths; in 2019, four and five, respectively (6); in 2020, seven and four.

In 2021, it was reported that 57 male patients aged 30-44 years suffered from lip, oral cavity, and pharynx cancer for a rate of 5,1 x 100,000 men; in the age group 45-59 years, there were 551 patients for a rate of 41,2 x 100,000 men and no females. That year, there were 899 deaths for a rate of 8,0 per 100,000 inhabitants, 689 deaths in males for 12,4 per 100,000 males, and 210 deaths in females for a rate of 3,7 per 100,000 females. The most affected ages in both sexes were in patients aged 60-79 years, with 354 deaths for a rate of 39,9 % in the case of males and 108 deaths in females for a rate of 10,9 %. (7)

In 2022, 776 deaths from lip, oral cavity, and pharynx cancer were reported in males for a rate of 14.1 x 100,000 males, while in females, there were 191 deaths for a rate of 3,4 x 100,000 females. The most affected age group in both sexes was 60-79 years, with 426 male deaths for a rate of 47,5 % and 111 female deaths for a rate of 11 %. (8)

As a malignant entity, cancer has a high mortality rate because five million people die every year in the world from this disease. If this trend continues, it will be considered the leading cause of death in this century. (9)

The implementation in Cuba of the Oral Cancer Early Detection Program (PDCB) and the established model of Health Care through its three levels, primary, secondary, and tertiary, represented by the Polyclinic, the Hospital, and the Institute, coordinated among themselves and with the mass organizations, have ensured the provision of medical-stomatological services free of charge. In addition, it is characterized by working to achieve the population's health status through comprehensive promotion, education, prevention, diagnosis, healing, and rehabilitation of the individual, family, and community.

In primary health care, health promotion and prevention activities are mainly aimed at guiding oral self-examination and modifying risk factors associated with the appearance of potentially malignant lesions and

oral cancer, especially in patients at high risk for these pathologies. On the other hand, the Guidelines of the Economic and Social Policy of the Party and the Revolution refer to the need to strengthen health actions in the promotion and prevention for the improvement of the lifestyle of the communities with intersectoral participation and to give continuity to the educational improvement and health, as well as to update the training and research programs of the universities, all this in the function of working in correspondence with the real needs of the economic and social development of the country. ⁽¹⁰⁾

The analysis of those above allowed formulate the following scientific problem: How to contribute to increasing the knowledge about oral cancer in order to prevent its appearance in patients between 35-59 years old with high risk in clinic 19, La Demajagua, Isla de la Juventud, in the period April-September 2023?

With the present research results, the following was contributed: a study on the impact of information and communication technologies on oral cancer promotion and prevention activities in high-risk patients between 35-59 years old. This research contributes to strengthening the joint effort to preserve the social conquests in Cuban society's health, education, and informatization. It is proposed as objective: to implement a community intervention on oral cancer in high-risk patients between 35-59 years old of clinic 19, La Demajagua, Isla de la Juventud, in the period April-September 2023.

METHODS

An educational intervention was conducted with a quasi-experimental design, before-after type with a single group, in clinic 19 of the Consejo popular La Demajagua, Isla de la Juventud, in 2023.

Population and sample

The population comprised 126 patients aged 35-59 years from clinic 19. The sample consisted of 80 patients at high risk for oral cancer, all included in an experimental group.

The selection of the clinic was made using the tombola procedure, and the sample was made up of all the patients who were found to be at high risk for oral cancer.

Inclusion criteria

Patients between 35-59 years of age with whom the educational-preventive work could be developed and who consented to participate in the scientific research.

Variables

Dependent: risk for predicting oral cancer, risk factors associated with the occurrence of oral cancer, oral hygiene, level of knowledge about oral cancer, level of knowledge about oral hygiene, level of knowledge about potentially malignant lesions, level of knowledge about risk factors associated with the occurrence of oral cancer.

Independent: teaching media (web page).

Methods

Theoretical methods were used (analytical-synthetic, inductive-deductive, historical-logical analysis and system approach); empirical methods (observation, documentary analysis, survey, and experimental); and mathematical-statistical methods (descriptive and inferential statistics). The results were presented in tables and graphs, expressed in absolute and relative frequencies and percentages. The Wilcoxon nonparametric statistical test was applied to paired samples.

Techniques and procedures

Three very important moments were considered during the research:

- ✓ Diagnosis (of patients at high risk for oral cancer; of learning needs about this pathology).
- ✓ Intervention (implementation of the web page).
- ✓ Evaluation of the results (understanding of the theory and development of appropriate habits).

Bibliographic searches were carried out on the subject of the study in both national and international texts in digital and challenging formats. The sources of information used during the research were an interview form to predict risk scale, an Oral Cancer Knowledge Survey for patients over 15 years of age, and an Individual Clinical History.

With prior informed consent of the patients, a form was applied to them to determine the risk of suffering oral cancer, and the study sample consisted of all the patients who were identified as being at high risk of suffering oral cancer (80). A survey on the level of knowledge about oral cancer was administered to all the patients in the sample before and after the educational intervention. The survey consisted of 10 questions, and the total evaluation was 10 points that were rated as good (7 to 10 correct answers), fair (5 to 6 correct

answers), or wrong (1 to 4 correct answers). The form and the survey were administered to the study sample before and after the educational intervention.

Oral hygiene was measured before and after the intervention during stomatological consultation with the Oral Hygiene Index, which qualified it as good, regular, or wrong. For the total edentulous patients, the presence or absence of dental plaque or dental calculus and the condition of the prostheses were visually evaluated.

An educational web media was implemented on topics related to the promotion and prevention of oral cancer, which was used for six months with two weekly frequencies, allowing the impact of the same to be measured. The web page was implemented during health promotion and education activities and was elaborated using the Auto Play Media Studio 10 Trial program. It contains concepts, risk factors, signs and symptoms, preventive measures, oral self-examination, image gallery, video gallery, and self-evaluation and is intended to create interactivity with the user. The design of each linked page was made through a central page, on which the structure of the directory tree depends directly. It can be accessed by computer or mobile devices.

The evaluation of the data obtained after the intervention through the implementation of the web page was developed in different ways: through the performance of the patients during the participation in the different health promotion and education activities, through the self-evaluation of the web page, in the practical activities to improve the oral hygiene index and with the application of the initial survey once again.

Processing techniques and analysis of the results

The data collected were organized in a database. The results were expressed in graphs. A computer with Windows 10 as an operating system and Microsoft Word and Excel programs were used to prepare the text and graphs. For the analysis and interpretation of the results, percentage analysis was used, and nonparametric statistical tests were applied. The Wilcoxon test was applied to paired samples.

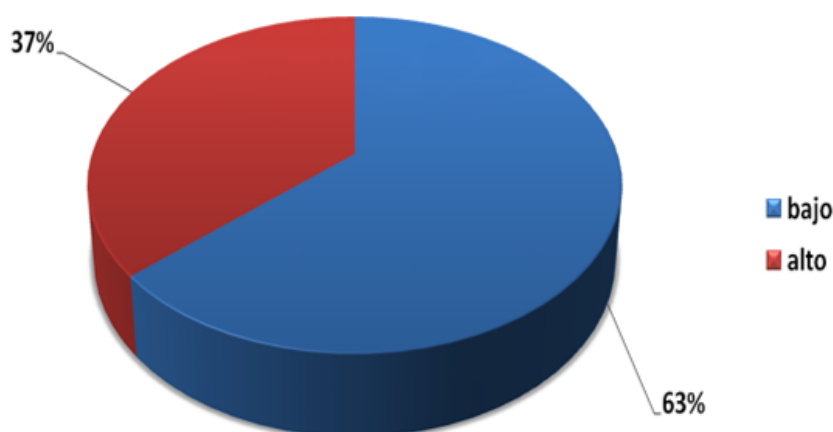
Ethical considerations

The data obtained in the study were used confidentially, showing respect for the principle of autonomy of the international code of bioethics for intervention in human beings. Informed consent was obtained from the patients who participated in the intervention.

RESULTS

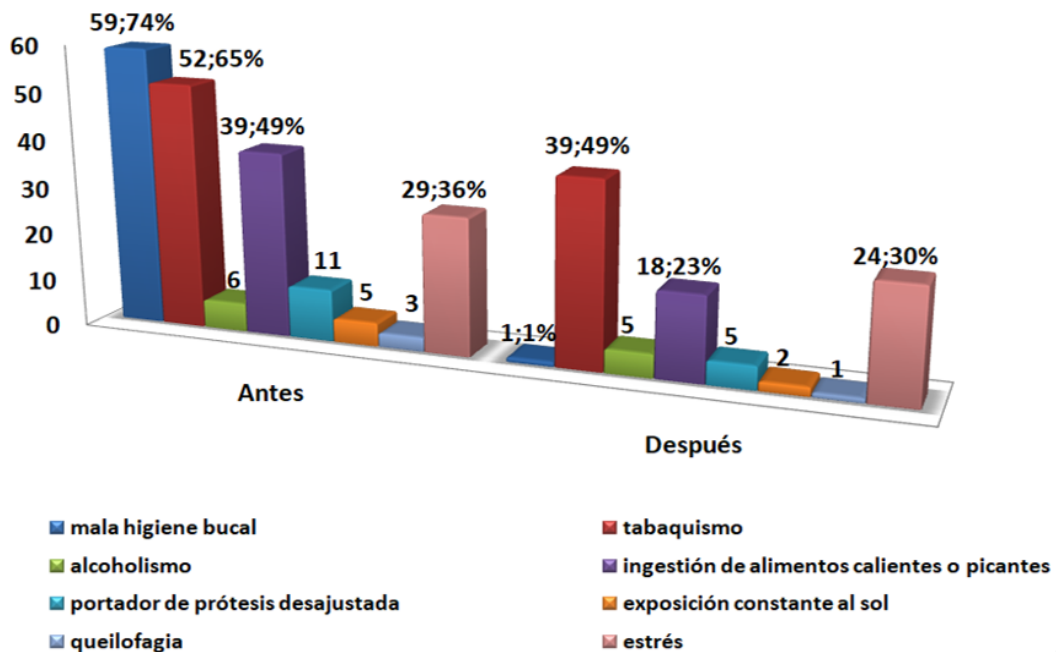
Of a total of 126 patients between 35-59 years of age in Office 19, 80 were at high risk for oral cancer, which represented 63 %; the high risk for this pathology predominated in the study population (Figure 1).

Figura 1. Riesgo para predecir cáncer bucal de la población entre 35-59 años, consultorio 19, La Demajagua, 2023



Before the educational intervention, the main risk factors associated with the development of oral cancer identified in the study sample were poor oral hygiene, smoking, ingestion of hot or spicy foods, and stress. After the intervention was implemented, a significant reduction (more than 15 % for all risk factors, except stress, which was only reduced by 6 %) was observed for all factors, with a highly significant reduction in poor oral hygiene (from 59,74 % to 1,1 %) and ingestion of hot or spicy foods (from 39,49 % to 18,23 %) (Figure 2).

Figura 2. Principales factores de riesgo asociados a la aparición de cáncer bucal identificados en la muestra de estudio



Activar

Concerning the knowledge of oral cancer of patients between 35-59 years of age in Office 19 at high risk, the most significant deficiencies were found about the risk factors that favor the appearance of this pathology, an aspect in which a notable improvement was obtained (Table 3).

Table 3. Level of knowledge about oral cancer in the study sample.

Tabla 3. Nivel de conocimientos sobre cáncer bucal de la muestra de estudio.

Conocimiento	Antes						Después						Wilcoxon
	Bueno		Regular		Malo		Bueno		Regular		Malo		
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
Necesidad de asistir al Estomatólogo	29	36,3	47	58,7	4	5,0	62	77,5	17	21,3	1	1,25	p=0,000
Importancia de curar el cáncer bucal	5	6,3	39	46,2	36	45	42	52,5	33	41,2	5	6,3	p=0,000
Factores de riesgo que favorecen la aparición de cáncer bucal	24	30	6	7,5	50	62,5	76	95	3	3,8	1	1,25	p=0,000
Medida más útil para prevenir cáncer bucal o establecer un diagnóstico oportuno	68	85	5	6,2	7	8,8	79	98,7	0	0	1	1,25	p=0,000

Fuente: Encuesta de nivel de conocimiento para pacientes mayores de 15 años sobre cáncer bucal

Before the educational intervention, 72,5 % of the patients between 35-59 years of age in Office 19 with a high risk of suffering from oral cancer were rated poorly in terms of knowledge about the correct way of brushing. The most significant difficulty was the frequency with which toothbrushing should be performed; out of 80 subjects, 67 were rated poorly for 83,7 %. After the educational intervention with the web page implementation, significant differences were observed in knowledge of the three aspects, with the frequency of brushing increasing to good at 92,5 % and the correct way of brushing at 86,2 % (Table 4).

Table 4. Level of oral hygiene knowledge of the study sample.

Tabla 4. Nivel de conocimiento sobre higiene bucal de la muestra de estudio.

Conocimiento	Antes						Después						Wilcoxon
	Bueno		Regular		Malo		Bueno		Regular		Malo		
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
Forma correcta del cepillado dental	8	10,0	14	17,5	58	72,5	69	86,2	8	10,0	3	3,8	p=0,000
Frecuencia del cepillado dental	10	12,5	3	3,8	67	83,7	74	92,5	0	0	6	7,5	p=0,000
Uso del hilo dental	2	10,5	24	30	54	67,5	50	62,5	27	33,7	3	3,8	p=0,000

Fuente: Encuesta de nivel de conocimiento para pacientes mayores de 15 años sobre cáncer bucal

Before the educational program was applied, only 7,5 % of the patients aged 35-59 years with high risk of oral cancer in Office 19 knew the principal risk factors and how they affect the mucosa of the oral cavity; after the educational intervention was implemented, 82,5 % and 88,7 % were able to identify the risk factors and how they affect the oral cavity correctly (Table 5).

Table 5. Level of knowledge about risk factors associated with the occurrence of oral cancer in the study sample.

Conocimiento	Antes						Después						Wilcoxon
	Bueno		Regular		Malo		Bueno		Regular		Malo		
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
Principales factores de riesgo asociados a aparición de cáncer bucal	6	7,5	34	42,5	40	76,3	66	82,5	12	15,0	2	2,5	p=0,000
Cómo afectan los factores de riesgo la mucosa de la cavidad bucal	6	7,5	13	16,2	61	50,0	71	88,7	6	7,5	3	3,8	p=0,000

Fuente: Encuesta de nivel de conocimiento para pacientes mayores de 15 años sobre cáncer bucal

Analyzing the aspect of oral self-examination, it was observed that before the implementation of the educational intervention, 70,0 % of the patients between 35-59 years of age with high risk in Office 19 did not know which anatomical structures were examined; in addition, 78,7 % of them had poor knowledge of the order in which to examine the masticatory apparatus. After the educational intervention, 87,2 % and 70 % of the patients knew the above aspects well. It is essential to highlight that only 1 and 10 subjects were left with a poor knowledge of the structures being examined and ordered, respectively, representing 1.25 % and 12,5 % of the study sample (Table 6).

At first, oral hygiene was rated poor in 73,7 % of the subjects under study, fair in 20 %, and reasonable in 6,3 %. These results were primarily reversed after implementing the educational intervention, showing statistically significant differences (Table 7).

Overall, the assessment of the level of knowledge about oral cancer of patients aged 35-59 years at high risk for oral cancer in Office 19 was satisfactory, as the excellent category increased from 28,7 % to 96,3 % for a highly significant statistical difference (Table 8).

Table 6. Level of knowledge about oral self-examination of the study sample.

Conocimiento	Antes						Después						Wilcoxon
	Bueno		Regular		Malo		Bueno		Regular		Malo		
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
Estructuras anatómicas que se examinan	9	11,3	15	18,7	56	70,0	70	87,2	9	11,5	1	1,25	p=0,000
Orden en que se examinan las estructuras anatómicas durante el autoexamen	10	12,5	7	8,8	63	78,7	56	70,0	14	17,5	10	12,5	p=0,000

Table 7. Evaluation of the Love Index of the study sample.

Evaluación	Antes		Después		Wilcoxon
	Nº	%	Nº	%	
Buena	5	6,3	65	81,3	p=0,000
Regular	16	20,0	14	17,4	p=0,000
Mala	59	73,7	1	1,25	p=0,000

Table 8. Overall assessment of the level of oral cancer knowledge of the study sample.

Evaluación	Antes		Después		Wilcoxon
	Nº	%	Nº	%	
Bien	23	28,7	77	96,3	p=0,000
Regular	18	22,5	2	2,5	p=0,000
Mal	39	48,7	1	1,5	p=0,000

DISCUSSION

Determining the high-risk patients made it possible to obtain the study sample. Dr. Hermidas Rojas, MD, designed the Risk Scale. Hermidas Rojas, to predict oral cancer, can measure the probability that each individual has of developing this pathology, and at the same time, it is a guide for educational and preventive work in patients. The following investigations carried out in Cuba coincide in the predominance of poor oral hygiene, smoking, ingestion of hot or spicy foods, and stress as risk factors associated with the appearance of oral cancer: Vidiaux,⁽¹¹⁾ Olazabal,⁽¹²⁾ Salazar,⁽¹³⁾ Matos⁽¹⁴⁾ and Hernandez.⁽¹⁵⁾

It was helpful to identify the risk factors to carry out health promotion activities effectively, plan primary preventive measures, and highlight the risk factors that require specific protection in the patient and his or her family or community environment. There are coincidences with the research carried out by Vásquez⁽¹⁶⁾ and Montano⁽¹⁷⁾, where a high risk of oral cancer prevailed due to the influence of several risk factors in their study population at the same time.

The modification of harmful lifestyles to beneficial ones is a challenge for stomatologists. Therefore, the

intervention is satisfactory as it has modified the modes of action of the subjects under study. The presence of a conglomerate of risk factors associated with the appearance of oral cancer is the cause of a high risk of suffering this pathology. ⁽¹⁷⁾ The authors consider that if they specify the probabilities of suffering oral cancer, people can contribute individually to the positive change of lifestyles within the community, with the consequent improvement of their health and quality of life.

Each patient will know the risk factors that influence him/her. At the same time, he/she will be able to perceive the risks for the family and the community, which can, from his/her protagonism, turn him/her into a community health promoter. ⁽¹⁷⁾ In the research, some respondents knew the form and frequency of brushing, although more than $\frac{3}{4}$ of the units of analysis did not know the form and frequency of tooth brushing.

The most significant deficiency found by the authors was that they did not identify the risk factors associated with the appearance of oral cancer, did not know how these factors affect the oral mucosa and, are of even greater relevance, and did not know how to perform oral self-examination.

In a study carried out in Venezuela, ⁽¹⁸⁾ only 34,8 % of the older adults had adequate knowledge before the intervention. In Holguín, a study conducted on 73 workers of a tobacco company ⁽¹⁹⁾, it was concluded that 69,9 % and 90,4 % had inadequate knowledge about risk factors and oral self-examination, respectively. It also coincides with research in Santiago de Cuba ⁽²⁰⁾, where 80 % of those surveyed presented inadequate knowledge. There is a coincidence with results obtained in Nueva Gerona, Isla de la Juventud ^(13,15,17), where there was a predominance of a poor level of knowledge before the intervention, improving the results once the intervention was applied; however, it differs from the study carried out in the same municipality but in La Fe ⁽¹⁴⁾ where the level of regular knowledge predominated.

Education is ideal for raising awareness and risk perception about oral cancer. Primary prevention should firstly motivate people, mainly young adults, through attractive proposals that achieve massive and protagonist participation of patients, urging them not to start practicing inadequate health habits; secondly, those who already practice the habit should be encouraged to abandon it; and, lastly, to modify or reduce these habits. ⁽⁶⁾

The didactic methodology acts directly on the individual's motivation to change and influences the reception and assimilation of the message. It should be emphasized that there are no standard didactic techniques. However, they should be adapted according to the objectives and characteristics of the population group we wish to work with. ⁽⁶⁾ Increased knowledge does not automatically lead to changes in lifestyles, but it is an essential step in this direction.

CONCLUSIONS

There was a predominant high risk of oral cancer in patients between 35-59 years of age in Clinic 19 of La Demajagua in the year 2023. The main risk factors identified were poor oral hygiene, smoking, consumption of hot or spicy foods, and stress. The web page increased the knowledge about oral cancer, the principal risk factors, and oral self-examination, allowing the transformation of the modes of action and evaluation as satisfactory the educational intervention implemented in high-risk patients between 35 and 59 years old.

REFERENCES

1. Murphy GP, Lawrence W, Lenhard R. *Oncología Clínica. Manual de la American Cancer Society*. 2ª ed. Estados Unidos, 1996; 21(7).
2. Torres-Morales Y, Rodríguez-Martín O, Herrera-Paradelo R, Burgos-Reyes GJ, Mesa-Gómez R. Factores pronósticos del cáncer bucal. *Revisión bibliográfica. Mediciego*. 2016; 22(3).
3. Anuario Estadístico de Salud 2018. MINSAP. Dirección de Registros Médicos y Estadísticas de Salud. La Habana, 2019. <https://salud.msp.gob.cu/portfolio/anuario-estadistico/>
4. Anuario Estadístico de Salud 2019. MINSAP. Dirección de Registros Médicos y Estadísticas de Salud. La Habana, 2020. <https://salud.msp.gob.cu/portfolio/anuario-estadistico/>
5. Anuario Estadístico de Salud 2020. MINSAP. Dirección de Registros Médicos y Estadísticas de Salud. La Habana, 2021. <https://salud.msp.gob.cu/portfolio/anuario-estadistico/>
6. Montano-Silva RM, Matos-Arias S, Hernández-Álvarez D, Abraham-Millán Y, Ruiz-Salazar R. Community Oral Health Promotion: Evaluation of an Educational Intervention for the Prevention of Oral Cancer and Premalignant Lesions. *Community and Interculturality in Dialogue*. 2021; 1:19. <https://doi.org/10.56294/cid202119>
7. Anuario Estadístico de Salud 2021. MINSAP. Dirección de Registros Médicos y Estadísticas de Salud. La Habana, 2022. <https://temas.sld.cu/estadisticassalud/2022/10/18/anuario-estadistico-de-salud-2021/>

8. Anuario Estadístico de Salud 2022. MINSAP. Dirección de Registros Médicos y Estadísticas de Salud. La Habana, 2023. <https://salud.msp.gob.cu/portfolio/anuario-estadistico/>

9. Garay-Crespo MI, Rubiera-Carballosa J, González-Escolarte V, Rodríguez-Domínguez M. Guía didáctica de apoyo al Autoexamen Bucal. *Anatomía Digital*. 2020; 3(2): 49-67. <https://doi.org/10.33262/anatomiadigital.v3i2.1188>

10. Partido Comunista de Cuba. Lineamientos de la Política Económica y Social del Partido y la Revolución para el periodo 2016-2021. La Habana: Editora política; 2022.

11. Vidiaux-Nuñez D. Intervención educativa sobre cáncer bucal en el adulto mayor. [Trabajo de terminación de especialidad para optar por el título de Especialista de Primer Grado en Estomatología General Integral]. Universidad de Ciencias Médicas de Holguín. 2022.

12. Olazabal-Reyes D, Ocampo-Ricardo A, Ricardo-Díaz L. Intervención educativa sobre cáncer bucal en pacientes fumadores que acuden a consulta de Consejería. Alcides Pino, 2018-2019. *Revista Estudiantil HolCien*. 2021; 2(1).

13. Salazar-Martínez Y. Intervención comunitaria sobre lesiones premalignas y cáncer bucal en el consultorio 24. La Demajagua. 2017-2019. [Trabajo de terminación de especialidad en opción al título de Especialista de I Grado en Estomatología General Integral. Facultad de Ciencias Médicas de la Isla de la Juventud, Cuba, no publicada].

14. Matos-Arias SA. Intervención comunitaria sobre lesiones premalignas y cáncer bucal en el consultorio 1. Santa Fe. 2017-2019. [Trabajo de terminación de especialidad en opción al título de Especialista de I Grado en Estomatología General Integral. Facultad de Ciencias Médicas de la Isla de la Juventud, Cuba, no publicada].

15. Hernández-Álvarez D. Intervención comunitaria sobre lesiones premalignas y cáncer bucal en el consultorio 3. Nueva Gerona. 2017-2019. [Trabajo de terminación de especialidad en opción al título de Especialista de I Grado en Estomatología General Integral. Facultad de Ciencias Médicas de la Isla de la Juventud, Cuba, no publicada].

16. Vásquez-Navarro JJ. Características clínicas e histopatológicas del cáncer oral según tiempo de exposición al factor de riesgo en pacientes del Hospital Hipólito Unanue durante los años 2014-2017. [Tesis para optar el grado de maestro en Odontología]. Universidad Nacional Daniel Alcides Carrión. 2019. <http://repositorio.undac.edu.pe/handle/undac/1964>

17. Montano-Silva RM, Padín-Gómez Y, Abraham-Millán Y, Ruiz-Salazar R, Leyva-Samuel L, Crispín-Rodríguez D. Community intervention on oral cancer in high risk patients. *Community and Interculturality in Dialogue* 2022; 2:37. <https://doi.org/10.56294/cid202237>

18. González-Crespo E, Martínez-Alonso L, Labrador-Falero D. Intervención educativa sobre cáncer bucal en pacientes adultos mayores en Santa Inés, Venezuela. *Rev Ciencias Médicas Pinal del Río* 2021; 25(3). <https://revcmpinar.sld.cu/index.php/publicaciones/article/view/4836>

19. Leyva-Bertolí L. Intervención educativa sobre cáncer bucal en trabajadores de la Empresa de Tabaco. [Trabajo para optar por la condición de Especialista de Primer Grado en Estomatología General Integral] Universidad de Ciencias Médicas de Holguín. 2023. <https://tesis.hlg.sld.cu/index.php?P=FullRecord&ID=3431>

20. Rodríguez-García K, Montes-de-Oca-Carmenaty M, Chi-Rivas J, del-Todo-Pupo L, Berenguer-Gouarnaluses J, Lorenzo-Rodríguez M. Rotafolio para la promoción de conocimientos sobre el cáncer bucal. *Universidad Médica Pinareña* 2021; 17(3). <https://revgaleno.sld.cu/index.php/ump/article/view/725>

FINANCING

No external financing.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Yoneisy Abraham-Millán, Rosa María Montano-Silva.

Research: Yoneisy Abraham-Millán, Rosa María Montano-Silva, Yanelilian Padín-Gómez, Douglas Crispin-Rodríguez, Lauren Danitza Leyva-Manso, Ana Maura Ortiz-Figueroa.

Data curation: Yanelilian Padín-Gómez, Lauren Danitza Leyva-Manso, Ana Maura Ortiz-Figueroa.

Formal analysis: Yoneisy Abraham-Millán, Rosa María Montano-Silva, Douglas Crispin-Rodríguez.

Methodology: Yoneisy Abraham-Millán, Rosa María Montano-Silva.

Writing - original draft: Yoneisy Abraham-Millán.

Writing - revision and editing: Rosa María Montano-Silva, Yoneisy Abraham-Millán.