MedCrave
Step into the World of Research

Journal of Dental Health, Oral Disorders & Therapy

Research Article

Open Access

CrossMark

Prevalence of and risk factors for actinic cheilitis in Brazilian beach workers

Abstract

Solar radiation is responsible for most cancers of the lower lip, if the diagnosis is late, the prognosis is unfavorable, the treatments are mutilating, palliative and expensive. This prevention campaign unprecedented in the country with a public-private partnership, aimed at informing and evaluating beach workers on the beaches of Santos, SP, Brazil, in relation to sun exposure and lip injuries. In three training workshops were held with the evaluators and instructions on the approach and calibration regarding questions and answers. A total of 119 beach workers who received information about care, symptoms and forms of sun prevention were evaluated, an explanatory folder was developed by the team and was distributed along with samples of sunscreen. Oral examination was performed evaluating lips and perioral mucosa through inspection and palpation maneuvers and within the needs of oral treatment they were referred for treatment. The results showed that only 7.56% use lip balm and 29.4% use body protector. In the lip evaluation, alterations were observed in 35 of the beach workers (29.41%) of the observed population, in 4 women (10%) and 31 men (39.24%). The data obtained may serve as a guide for preventive campaigns for this population at risk for the development of labial and perioral lesions. More attention is needed to this vulnerable population on the effects of sun exposure, protective care is not performed properly by most beach workers.

Keywords: oral manifestations, solar radiation, cheilitis, lip diseases, lip neoplasms

Volume 13 Issue 3 - 2022

Caio Vinicius G Roman-Torres, Edson Gracia Neto, Camila Barreto Barbieri, Leticia Cidreira Boaro,[1] Angelica Castro Pimentel, Heloisa Fonseca Marão, Luana de Campos

Department Dentistry, University Santo Amaro, Brazil

Correspondence: Caio Vinicius G. Roman-Torres, Rua Prof. Enéas de Siqueira Neto, 340, Jardim das Imbuias, São Paulo , SP, 04829-300, Brazil, Tel (11) 2141-8555, Email cvgrt@hotmail.com

Received: August 15, 2022 | **Published:** August 25, 2022

Introduction

The global incidence of cancer of the lip, oral cavity and pharynx is 529,500 corresponding to 3.8% of all cancer cases and is predicted to increase by 62% to 856,000 cases by 2035 due to demographic changes.[1] Lip cancer is a typical malignant tumor that comprises 25 to 30% of all cancers of the mouth. Oral and lip cancer is a serious health challenge worldwide. The incidence and mortality of this cancer is very different in different parts of the world and has a wide geographic variation. The incidence of lip and oral cavity cancer increased in the study period from 1990 to 2017. The incidence of lip and oral cavity cancer increased by 57.1% from 1.33/100,000 in 1990 to 2.09/100,000 in 2017.[2]

The main risk factors for patients who develop oral cancer are cigarettes and alcohol, but there are other risk factors and co-factors, such as HPV,[3] poor oral hygiene, non-adapted dentures, a diet low in nutrients and sun exposure. The symptoms of oral cancer are sores (canker sores) in the mouth with more than 15 days of evolution and that does not heal and hardened lumps in the neck. Normally, the initial lesions are painless.[1,4–8] The diagnosis is made through a biopsy. A small fragment of the lesion is then removed and sent to the laboratory, where it is analyzed under a microscope and the diagnosis is established. Solar radiation mainly affects fair-skinned people, being responsible for lower lip cancers.[5,7,9,10]

A variety of premalignant lesions are found in UV-exposed patients, including actinic cheilitis (AC), a precursor lesion of squamous cell carcinoma (SCC) of the lip. AC is a pre-malignant lesion on the lips in patients overexposed to sunlight and has a high chance of progressing to invasive squamous cell carcinoma (SCC). It mainly affects the lower lip of males over 50 years of age, and its clinical features include dryness, atrophy, desquamation, erythema, ulceration and poorly demarcated border.[6]

If the diagnosis is late, the prognosis is unfavorable, the treatments are mutilating, palliative and expensive for hospital units and medical and dental care plans. Other symptoms of the tumor are pain and difficulty chewing or swallowing, difficulty fitting dentures, weight loss and persistent bad breath. Lumps in the neck are usually related to the advancement of the disease. When the diagnosis is made in the early stages, oral cancer can be considered curable.[8,11]

The prevention of oral cancer acquires relevance in public health, particularly if we consider that the preventive approach is compatible with the nature of this disease, as the mouth favors easy visual access. The incidence of harmful UV rays is higher in tropical countries with Brazil having the highest levels of UV rays in the world.[7] This favors the development of oral and perioral lesions, such as skin cancer, actinic cheilitis and squamous cell carcinoma of the lip. It is important that the population is aware of these conditions, especially individuals exposed to the sun and those who work on the beaches.[8]

In addition, it is possible to clarify the population about the need to eliminate risk factors associated with the development of lesions, as well as to provide guidance on the importance of carrying out periodic oral self-examinations, since lesions in the early stages do not present symptoms. The aim of the present study was to evaluate the prevalence of oral and perioral lesions and risk factors in workers who work under sun exposure on the beaches of Santos, SP, and Brazil.

Methods

Individuals who agreed to participate in the study signed the Free and Informed Consent Term, previously evaluated and approved by the Research Ethics Committee involving human beings at the Universidade Metropolitana de Santos with CAEE: 09812119.7.0000.5509. The interviewers were undergraduate dentistry students, and to calibrate the approach, ways of asking the questions, how to perform a lip exam and classification of lesions, 3 training meetings were held with all participants involved in the application of the anamnesis and carrying out the clinical examination. Each meeting lasted 1 hour and 30 minutes and aimed to explain the entire assessment dynamics, determine the place of action of each team

and ways of approaching and talking to beach workers and in relation to the diagnosis of labral lesions. In the three training meetings, 5 lesion images were projected, and the participants had to write down which diagnosis. The result of the calibration process, measured by the kappa coefficient, ranged from 0.87. 4 teams were formed with 8 members each and composed of 1 professor and 6 students from the Faculty of Dentistry and 1 dentist from the Municipality of Santos. The shore of Santos beach, which is 7 km long and was divided into 4 areas and the teams were distributed.

On the day of the action, firstly, information about care, symptoms and forms of prevention were explained to each worker approached, and the individuals who agreed to perform an oral evaluation had their perioral mucosa and lips examined. Cameras were used to improve the visibility by zoom feature to confirm diagnosis. During the clinical examination, the following were considered: dryness, atrophy, scaly lesions, swelling of the lip, erythema, ulceration, blurred demarcation between the lip vermilion border and the skin, marked folds along the lip vermilion, white spots or plaques, crusts, blotchy areas, areas of pallor, and such as burning or itching[9] and according to the need for oral treatment were referred for treatment at the Dental Specialty Center of the Municipality of Santos.

Beach workers received an explanatory self-examination folder prepared by the researchers specifically for this action, and a previously validated questionnaire was applied containing information regarding personal data, habits, occupation, health information, which was filled out according to the volunteers responses.[10] The workers underwent clinical examinations of the upper and lower lips, through semi technical inspection and palpation maneuvers, with the aim of identifying lesions. The following were considered in the clinical examination: dryness, atrophy, scaly lesions, lip swelling, erythema, ulcerations, cloudy demarcations between the vermilion of the lip and skin, folds demarcated along the lip, white spots or plaques, crusts, stained or pale areas.

A partnership was made with a sunscreen company (Green Lakes®) that offered free samples of lip and body protector to be distributed to beach workers during the action. Each street vendor interviewed received 5 samples of sunscreen and how it should be used.

A total of 119 beach workers were evaluated and the independent variables analyzed were: sex, age, years of schooling, type of work, frequency of weekly sun exposure, daily sun exposure time, accumulated time of sun exposure and photo measurements. Occupational level protection Health data were collected, on habits (alcoholism and smoking), skin type, and adopted sun protection measures. The presence of labral lesions was the dependent variable of the study. Descriptive analyzes of all data relating to dependent and independent variables, chi-square statistical tests and calculation of prevalence ratios were performed. The significance level of 5% was adopted for all tests.

Results

Initially, 130 beach workers were approached, 11 refused to sign the consent form and were not evaluated. A total of 119 workers from the beaches of Santos were included, evaluated and interviewed, 40 were female and 79 were male, with a mean age of 42.64. With regard to smoking, a prevalence of 30.25% was observed, and with regard to alcohol consumption, 42% of the population evaluated frequently used alcoholic beverages. Beach workers who were observed to be smokers and drinkers simultaneously were 17.64% (Table 1).

Table 1 Gender and age and if the subject is a smoker or consumes at least 2 doses of alcoholic beverage per day

Beach workers		Age/years (Average)	Smokers (%)	Alcoholics	Smokers+ Alcoholics
Women	40	41, 43	08 (20%)	12 (30%)	06 (15%)
Men	79	43, 85	28 (35.4%)	38 (48.1%)	15 (18.9%)
Total	119	42, 64	36 (30.25%)	50 (42.1%)	21 (17.6%)

Regarding sun protection measures, 84% reported the constant use of a cap or hat, and between men and women the percentage of use was similar. As for the use of body sunscreen, 29.4% of beach workers reported using it, and it was found that 80% of women used it against 3.79% of men. The use of lip protector was found in only 7.65% of the population evaluated, with 22.5% of women reporting using it and none of the 79 men included in the study use it (Table 2).

Table 2 Correlation between gender and the use of any type of sun protection

	Women	Men	Total p value
Cap or Hat	35 (87.5%)	65 (82.27%)	100 (84.03%) p=0.089
Sunscreen	32 (80%)	03 (3.79%)*	35 (29.4%) p=0.038
Lip balm	09 (22.5%)	00 (0.0%)*	09 (7.56%) p=0.021

*Chi-square test (p≤0.05)

In the lip evaluation, alterations were observed in 35 of the beach workers (29.41%) of the observed population, in 4 women (10%) and 31 men (39.24%). Among the women, 2 had a dry lip, one with labial atrophy and 1 with lip ulcer. Among men, 13 had dry lips (16.4%), 10 had labial atrophy (12.6%), 07 had labial ulcers (8.86%) and 1 had a white plaque (1.26%) (Table 3).

Table 3 Correlation between gender and lip changes or injuries

	Women	Men	Total p value
Lip change	04 (10%)	31 (39.24%)*	35 (29.41%) p=0.034
Dry lip	02 (8%)	13 (16.4%)	15 (12.6%) p=0.067
Lip atrophy	01 (4%)	10 (12.6%)*	35 (29.4%) p=0.046
Lip Ulcer	01 (4%)	07 (8.86 %)	09 (7.56%) p=0.078
White plate	00	01 (1.26%)	01 (0.84%) p=0.150

*Chi-square test (p≤0.05)

Discussion

A total of 14,700 new cases of oral cancer are estimated in Brazil in 2019. There are no national data describing the incidence of lip cancer, since, in general, the reported data are considered as cancer of the oral cavity. Actinic cheilitis has been widely studied and its clinical importance stands out due to the possibility of malignant transformation of this disease to cancer of the lip, with the lower lip being the most affected site.[11,12] Prolonged exposure to sunlight represents an important risk factor for both the development of lip cancer and actinic cheilitis, and its presence in areas of squamous cell carcinoma (SCC) indicates a strong association between the two lesions.

The evolution time of these lesions is slow,[13] demonstrating the potential for malignant transformation and a much lower pattern of aggression when compared to other lesions, such as intraoral erythroplakia and oral squamous cell carcinoma. Lips are more susceptible to radiation due to their thin epithelial thickness and keratin layer, less melanin protection and scarce sebaceous and sweat gland secretions.[14,15]

Citation: Roman-Torres CVG, Neto EG, Barbieri CB, et al. Prevalence of and risk factors for actinic cheilitis in Brazilian beach workers. *J Dent Health Oral Disord Ther.* 2022;13(3):64–67. DOI: 10.15406/jdhodt.2022.13.00574

Tropical countries such as Brazil, where many male individuals work in outdoor occupations or have the habit of prolonged exposure to UV radiation, tend to have a greater number of cases of these injuries due to the high incidence of sunlight and the lack of use of protective agents such as sunscreens and hats.[11,16,17]

Prolonged consumption of alcohol and tobacco associated with the carcinogenic action of UV radiation greatly increases the risk of developing this malignancy.[4,18,19] When it comes to AC, the risk of injury prevalence in smokers, in individuals with daily alcohol consumption habits, or both is greater than in individuals who do not have these habits. However, it is very difficult to determine such habits as causal factors for this type of injury; this may be more associated with the fact that smoking and alcohol are more frequent among men, who in turn tend to be exposed to the sun without adequate protection.[20] This corroborates the survey carried out, where the vast majority of street vendors were men, smokers and/or drinkers. The habit of smoking or associated with alcohol was found in 47.89% of the interviewees, while in a study with rural workers in the Brazilian semi-arid region, about 41% were found among smokers and non-smokers,[15] whereas in a study with fishermen in Florianopolis, in the south of Brazil, revealed that 38.4% of the interviewees revealed to be smokers.[21] Therefore, smoking should also be discouraged especially among individuals exposed to more than one risk factor for the development of oral cancer. In the present study, 30.25% of the individuals were smokers and 17.64% and the entire sample were smokers and alcoholics.

We must consider that caps/hats, especially those with small brims, used by most subjects, are effective only for the upper and middle third of the face, favoring the direct incidence of UV rays on the lips. Studies show that beach workers and fishermen report the use of a hat or cap as a protective factor in 66.2% and 45.24% respectively.[3,8] In the present study, 84% of the interviewees reported the use of a hat or cap as a protection factor; this does not mean that they are adequately protected, as caps often have a short brim.

Despite this, workers believe they are protected against radiation, disregarding the importance of using sunscreen and lip balm.[8] In the survey, only 29.4% of workers said they use sunscreen and 7.56% use lip balm during their work routine, revealing an even lower number than the study carried out on the beaches of Natal in 2010, where 42% revealed the use of sunscreen and 17.5% used lip balm.[8] The prevalence of 3.79% of men who use sunscreen and 0.0% raise concerns about gender.

This neglect of both sunscreen and lip photo protection reflects the workers lack of knowledge about the harmful effects of UV radiation, demonstrating the need to intensify preventive measures for this population. Although the literature reports a higher prevalence of AC in men[8,12] our results did not show a positive association of the disease with sex. This phenomenon seems to be explained by cultural aspects of the population[3,15] as men and women do not always have the same exposure to solar radiation during the working day and differ in the use of sunscreen.

As observed in this study, for several reasons, street vendors are part of a population susceptible to lesions with malignant potential in the lip. Among the individuals interviewed, 29.41% had lip alterations. On the other hand, 3 other studies, 1 involving fishermen in Florianopolis/SC, another involving fishermen in Sergipe/SE and 1 street vendors on beaches in Natal/RN, all in Brazil, revealed the presence of AC in 12.8%, 11.4% and 15.5%, respectively.[3,8,21]

Beach workers are a source of income for the vast majority of beaches on the entire Brazilian coast and their activities employ thousands of people, but unfortunately in our country nothing has been done with regard to this imminent risk that they suffer from day-to-day exposure to sunlight. Considering that the variables studied are considered as causal or secondary factors for the emergence and evolution of lesions in the lower lip and that the difficulty of accessing information is a constant in this population it is necessary to implement public policies prevention for this type of injury.

Acknowledgments

None.

Conflicts of interest

The author declares no conflicts of interest.

References

1. English DR, Armstrong BK, Kricker A, et al. Sunlight and cancer. *Cancer Causes Control*. 1997;8(3):271–283.
2. Du M, Nair R, Jamieson L, et al. Incidence Trends of Lip, Oral Cavity, and Pharyngeal Cancers: Global Burden of Disease 1990-2017. *J Dent Res*. 2020;99(2):143–151.
3. Artur de Oliveira R, Ferreira da Silva LC, Martins-Filho PR. Prevalence of and risk factors for actinic cheilitis in Brazilian fishermen and women. *Int J Dermatol*. 2014;53(11):1370–1376.
4. Azurdia RM, Pagliaro JA, Diffey BL, et al. Sunscreen application by photosensitive patients is inadequate for protection. *Br J Dermatol*. 1999;140(2):255–258.
5. Rodriguez-Blanco I, Florez Á, Paredes-Suárez C, et al. Use of lip photo protection in patients suffering from actinic cheilitis. *Eur J Dermatol*. 2019;29(4):383–386.
6. Bakirtzi K, Papadimitriou I, Andreadis D, et al. Treatment Options and Post-Treatment Malignant Transformation Rate of Actinic Cheilitis: A Systematic Review. *Cancers (Basel)*. 2021;13(13):3354.
7. Kirchhoff VWJH, Echer E, Leme NP, et al. The Seasonal Variation of Biologically Active Solar Ultraviolet Radiation. *Brazilian Journal of Geophysics*. 2000;18(1):63–74.
8. de Souza Lucena EE, Costa DC, da Silveira EJ, et al. Prevalence and factors associated to actinic cheilitis in beach workers. *Oral Dis*. 2012;18(6):575–579.
9. Cavalcante AS, Anbinder AL, Carvalho YR. Actinic cheilitis: clinical and histological features. *J Oral Maxillofacial Surg.* 2008;66(3):498–503.
10. Lucena EE, Castro AC, Farias DB, et al. Prevalence of lip and perioral Ephelides in beach workers. *An Bras Dermatol.* 2013;88(1):56–63.
11. Silva LVO, de Arruda JAA, Abreu LG, et al. Demographic and Clinicopathologic Features of Actinic Cheilitis and Lip Squamous Cell Carcinoma: a Brazilian Multicentre Study. *Head Neck Pathol*. 2020;14(4):899–908.
12. Armstrong BK, Kricker A. The epidemiology of UV induced skin cancer. *J Photochem Photobiol B*. 2001;63(1–3):8–18.
13. Zanetti R, Florio MF, Moraes PC, et al. Prevalence of actinic cheilitis in an oral health campaign in the city of Campinas, SP. *J Appl Oral Sci*. 2009;15:353.
14. Markopoulos A, Albanidou-Farmaki E, Kayavis I. Actinic cheilitis: clinical and pathologic characteristics in 65 cases. *Oral Dis*. 2004;10(4):212–216.
15. Martins-Filho PR, Da Silva LC, Piva MR. The prevalence of actinic cheilitis in farmers in a semi-arid northeastern region of Brazil. *Int J Dermatol*. 2011;50(9):1109–1114.

16. Lucena IM, Santos IDS, Daroit NB, et al. Sun protection as a protective factor for actinic cheilitis: Cross-sectional population-based study. *Oral Dis*. 2021:33751725.

17. Mello FW, Melo G, Modolo F, et al. Actinic cheilitis and lip squamous cell carcinoma: Literature review and new data from Brazil. *J Clin Exp Dent*. 2019;11(1):e62–e69.

18. Campisi G, Margiotta V. Oral mucosa lesions and risk habits among men in an Italian study population. *J Oral Pathol Med*. 2001;30(1):22–28.

19. Kricker A, Armstrong BK, English DR. Sun exposure and non-melanocytic skin cancer. *Cancer Causes Control*. 1994;5(4):367–392.

20. Maruccia M, Onesti MG, Parisi P, et al. Lip cancer: a 10-year retrospective epidemiological study. *Anticancer Res.* 2012;32(4):1543–1546.

21. Piñera-Marques K, Lorenço SV, Silva LFF, et al. Actinic lesions in fishermen's lower lip: clinical, cytopathological and histopathologic analysis. *Clinics (Sao Paulo)*. 2010;65(4):363–367.

Citation: Roman-Torres CVG, Neto EG, Barbieri CB, et al. Prevalence of and risk factors for actinic cheilitis in Brazilian beach workers. *J Dent Health Oral Disord Ther.* 2022;13(3):64–67. DOI: 10.15406/jdhodt.2022.13.00574