

Research Article

Prevention and Early Detection of Skin Cancer on the Head and Neck in the State of Paraná Between 1989-2018

Fernando Minari Sassi^{1,*}, Cleverson Patussi², Juliana Lucena Schussel³, Maria Isabela Guebur², Roberta Stramandinoli-Zanicotti², Jose Luis Dissenha², Marcio Hurczulack-Quadros⁴, Bruna Wastner², Fernando Luiz Zanferrari², Gyl Henrique Ramos^{3,5}, Dinarte Orlandi², Laurindo Moacir Sassi²

¹Department of Medicine, Pequeno Príncipe University, Curitiba, Brazil

²Bucomaxillofacial Surgery Department, Erasto Gaertner Cancer Center, Curitiba, Brazil

³Head and Neck Department, Federal University of Paraná Curitiba, Brazil

⁴Otorhinolaryngology Department, Evangelico Manckenzie University Hospital, Curitiba, Brazil

⁵Head and Neck Surgery Department, Erasto Gaertner Cancer Center, Curitiba, Brazil

Abstract

Background: To present the results of oral cancer preventive actions over the last 30 years in the state of Paraná, Brazil. Anamnesis and clinical examinations were performed in individuals over 30 years of age during health actions. All participants answered a questionnaire with great coverage of the identification questions. Clinical examination revealed hygiene and lesions. Information about cancer prevention was also provided. **Results:** Of the 29,682 examinations performed, 6,314 mouth lesions (21.3%) and 398 (1.3%) skin lesions were detected. Of these, 312 lesions (79.5%) were found in patients aged 41-80 years of age and Caucasians (320 - 82.9%). A total of 232 (58.4%) patients were female, 284 (76.8%) had an income lower than 500 dollars, and 303 (77.9%) had completed only elementary school. Regarding oral care, 283 (75.6%) had regular or poor hygiene, 82 (21.2%) only went to the dentist when in pain, and 106 (27.4%) were edentulous. A total of 139 (36.4%) never had a previous oral cancer orientation, 182 (47.6%) were informed at least once, 61 (16.0%) did not know it, and 281 (73.0%) were non-smokers. The most common skin lesion was basal-cell carcinoma. **Conclusions:** A higher prevalence of skin lesions was found in Caucasians between 41-80 years of age, with low schooling, and low income. These data emphasize the importance of head and neck examinations and teaching about oral and skin cancer risk factors.

Keywords

Skin Cancer, Head and Neck Cancer, Prevention, Early Detection, Basal-Cell Carcinoma, Squamous Cell Carcinoma, Risk Factors, Paraná

*Corresponding author: fernandosassi@pm.me (Fernando Minari Sassi)

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1. Introduction

Basal cell carcinoma (BCC) is the most common cancerous lesion on the skin of the head and neck. It represents 65% of skin carcinomas that are quite frequent in the United States and Europe. Although this type of carcinoma is not associated with high mortality, its treatment has a relatively high cost to the healthcare system [1]. The second most common type is squamous cell carcinoma, which has the potential to metastasize and, in this way, cause fatalities [2]. Therefore, its cost to healthcare systems is not yet high, but is likely to increase.

The identification of skin lesions on the head and neck for cancer prevention is not a recent occurrence. As seen in the actions of Sassi et al. [3], 11.6% of the 935 lesions found throughout the oral examinations were from the skin. Furthermore, these data would not be available if his policies for maintaining health actions, throughout the state of Paraná Brazil, were not carried out. In addition, the demonstration and explanation of how to perform self-examination for skin lesions is very efficient in decreasing the incidence of certain cancers. Berwick et al. [4] reported that performing a self-examination could, potentially, reduce the mortality of melanoma by 63%.

With the objective of preventing the evolution of skin cancer, self-examination and identification of the risk factors for this type of lesion should be realized. Some of them are, for example, continuous exposure to the sun, enabling continuous action of UV rays, which is the principal risk factor for non-melanoma cancer [5].

The objective of this study was to delimitate the risk groups of skin lesions on the head and neck and, therefore, act on the precise prevention of the individuals that are part of the groups. In this area of the body, it is common to develop cancerous and non-cancerous lesions, with the lip being the most common site of oral cancer [6]. The data acquired from the past 30 years originated from oral cancer prevention actions that had been realized in the whole state of Paraná Brazil; therefore, in the midst of many oral lesions found, there were also skin lesions. From the form used for this preventive action, it was possible to identify pertinent characteristics of individuals that may be indicative of the appearance of lesions. Skin cancer is most common in individuals of an advanced age [7]. In addition, lesions are more commonly found in patients of masculine sex [8].

2. Method

2.1. Study Design

Between 1989 and 2018 (until November 2018), health actions were conducted in public places to prevent oral cancer. Anamnesis and intraoral clinical examinations, as well as head and neck skin inspection, were performed in individuals over 30 years of age. All participants answered a questionnaire on schooling, family income, dental care, habits, conditions and

addictions, gender, age, and ethnicity.

2.2. Ethical Considerations

In addition, all patients who were interviewed by the researchers were volunteers and agreed to participate in the study; thus, informed consent was obtained from all participants. Clinical examination revealed oral hygiene, presence of mouth and skin lesions on the head and neck, and information regarding cancer prevention was provided. The RESEARCH ETHICS COMMITTEE of the Erasto Gaertner Cancer Center (Hospital Erasto Gaertner) has approved this research project, stating that the project is in accordance with the items analyzed, and the methods were carried out in accordance with relevant guidelines and regulations. (Presentation certificate for Ethical Appreciation (CAAE) number: 80188017.8.0000.0098 and opinion number: 2.417.328.

3. Results

From a total of 29,682 exams performed, there were 6,314 mouth lesions (21.3%) and 398 (1.3%) skin lesions detected. Of these, 312 lesions (79.5%) were found in patients between 41-80 years of age (Figure 1), predominantly in Caucasians (320 - 82.9%) (Figure 2). A total of 232 (58.4%) patients were female (Figure 3), 284 (76.8%) had an income lower than 500 dollars (less than 2 minimum wages) (Figure 4), and 303 (77.9%) had completed only elementary school (Figure 5). Regarding oral care, 283 (75.6%) had regular or poor oral hygiene, 82 (21.2%) only went to the dentist when in pain, and 106 (27.4%) were edentulous. A total of 139 (36.4%) never had previous oral cancer orientation, 182 (47.6%) were informed at least once, and 61 (16.0%) did not even know about it (Figure 7); 281 (73.0%) were non-smokers and 14 (3.6%) were former smokers (Figure 6). Of these, 321 (83.8%) did not consume alcohol. Finally, the most common skin lesion was basal-cell carcinoma.

Profile of patients with Skin lesions according to Age Range - 1989 to 2018

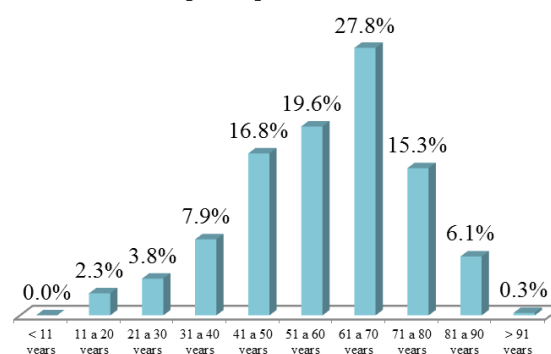
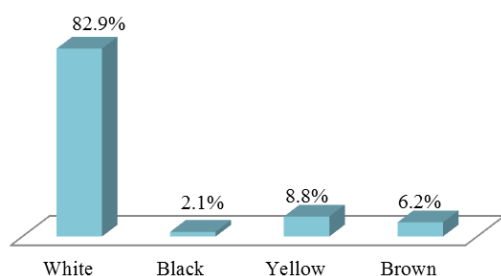
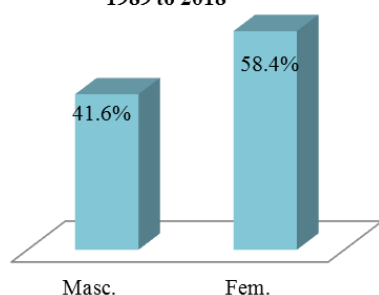
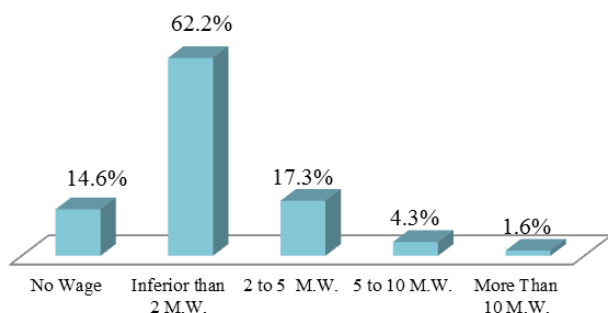
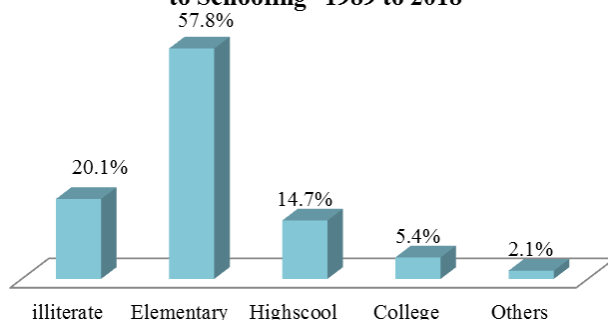
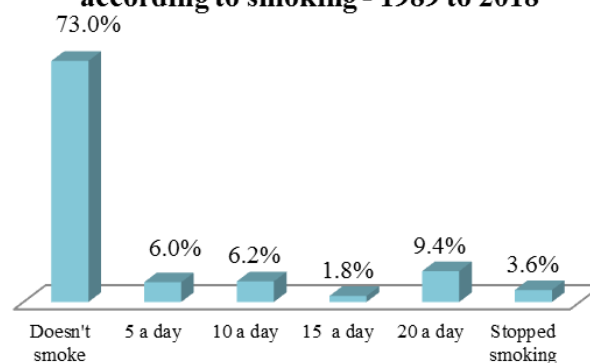
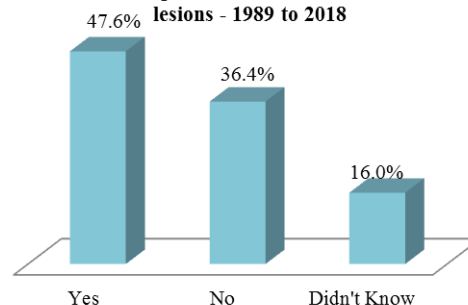


Figure 1. Age Range.

Profile of patients with skin lesions according to Skin Color - 1989 to 2018**Figure 2. Skin Color.****Profile of patients with Skin lesions according to Gender - 1989 to 2018****Figure 3. Gender.****Profile of patients with Skin lesions according to Wage Income - 1989 to 2018****Figure 4. Income.****Profile of patients with Skin lesions according to Schooling - 1989 to 2018****Figure 5. Schooling.****Profile of patients with lesions according to smoking - 1989 to 2018****Figure 6. Smoking.****Profile of patients with Preventive Skin lesions - 1989 to 2018****Figure 7. Had done Prevention of Oral Cancer¹.**

4. Discussion

Most of our findings are similar to those in the literature. As seen in Hughley and Schmalbach [9], basal-cell carcinoma was the most common lesion in their research, a result that agrees with ours. Most literature indicates that this cancer is the most incident, while squamous cell carcinoma is the most fatal [10]. Throughout our study, the age of the patients with skin lesions ranged from 41 to 80 years, with the majority being the 61 to 70 years old group, a data that is similar to that found in Reddy et al. [11]. Moreover, in that study, the slightly higher percentage of female patients was another concordance with ours, even though we believe that the reason for fewer male patients with lesions is that they are not as frequent in our health actions, since, most of the time, they are less worried about their health than females.

Kricker et al. [12] found that, in males, the prevalence and incidence of skin cancer increases with age. On the other hand, female patients do not partake in this greatly increase as they age; they only have a slight increase. This information is consistent with our results, since we found higher percentages of skin cancer in older male patients. In accordance with our research, Wassberg et al. [11], identified people with fair skin

¹ All figures are own authorship

(of European origin) as a risk group for lesions, which we, and many other articles, agree on. Although Hertog et al. [12], found that smoking tobacco was a risk factor for cutaneous squamous cell carcinoma, we could not find any relationship with our attendees, as 73% of those with lesions did not smoke. In addition to the relationship with alcohol consumption, most of the patients who encountered lesions denied consumption; thus, we could not find any relationship between them. These two factors need to be further investigated in relation to their relationship with skin cancer. However, we believe that smoking tobacco and continuous alcohol consumption could be factors for squamous cell carcinoma on the lip, mainly due to the exposure of the area to these agents; when the site of the lesion is the skin, there is a necessity for further studies.

Most patients with skin lesions had only completed elementary school and had an income lower than 500 dollars. For that reason, we believe that patients with lower income and less access to higher educational levels have a higher risk of developing this type of lesion because of diminished access to information about prevention, risk factors, and when to go to a doctor. This data corroborates with another situation found throughout the questionnaire: most patients (52.4%) with lesions did know about prevention at all. By understanding these results and promoting health actions to spread information on how to prevent this type of cancer, more than half of the individuals could not develop lesions. Thus, it is possible to identify the importance of prevention, as well as the importance of maintaining regular health actions throughout the year.

In addition, we believe the relationship between most of the patients with lesions having poor oral care and only going to dental care when in pain with skin cancer is that these individuals tend to take more time to identify any strange parts on their body in general, as well as on their mouth, since they probably do not take great preventive care on both. Furthermore, if these strange parts were cancerous lesions, the time taken for them to identify that they should visit a doctor would determine a great part of the prognostic results. That said, our data have higher percentages of these patients because of the higher chance for them to develop the lesions.

5. Conclusion

The majority of the data we gathered throughout these 30 years are compatible with what was found in the literature. Except for the higher number of lesions encountered in female patients, which we think was due to the higher frequency of women in our health actions. A good idea would be to find a way of bringing attention to skin cancer in men as well, since, most of the time, they tend to not look after their health as women. In addition, health actions, principally prevention actions, should be intensified since they are essentially low cost, but prevent several complications later, as well as costly treatments. By maintaining and performing these actions several times throughout the year, the number of cancers with

the highest incidence worldwide can be reduced.

Abbreviations

BCC	Basal Cell Carcinoma
UV	Ultraviolet

Author Contributions

Fernando Minari Sassi: Investigation, Validation, Writing – original draft, Writing – review & editing

Cleverson Patussi: Writing – review & editing

Juliana Lucena Schussel: Data curation, Supervision, Writing – review & editing

Maria Isabela Guebur: Investigation, Visualization, Writing – review & editing

Roberta Stramandinoli-Zanicotti: Data curation, Resources

Jose Luis Dissenha: Resources

Marcio Hurczulack-Quadros: Formal Analysis

Bruna Wastner: Data curation

Fernando Luiz Zanferrari: Data curation

Gyl Henrique Ramos: Conceptualization, Data curation, Funding acquisition

Dinarte Orlandi: Resources, Visualization

Laurindo Moacir Sassi: Data curation, Funding acquisition, Supervision, Writing – original draft

Conflicts of Interest

The authors declare no conflicts of interest.

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