Incidence of skin cancer in shellfish gatherers in the Estuarine region of the Apodi-Mossoró (RN) River: occupational risk in primary care

Incidência do câncer de pele em marisqueiras na região estuarina do Rio Apodi-Mossoró (RN): risco ocupacional na atenção primária

Incidencia de cáncer de piel en mariscadores de la zona estuarina del río Apodi-Mossoró (RN): riesgo ocupacional en la atención primaria

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Abstract

Introduction: Fishing is an important source of income and employment, but it implies an important occupational risk, due to exposure to solar radiation without adequate photoprotection, which constitutes the main risk factor for skin cancer, especially in tropical countries like Brazil. The impact of such exposure makes skin cancer the most prevalent in the world, causing high costs for the health system, due to its high morbidity rates related to physical and emotional damage to patients. **Objective:** We aim at identifying the risk factors for the incidence of skin cancer among shellfish gatherers in the fishing colony of the Apodi-Mossoró/RN estuarine region and to evaluate photoprotection measures used by this group of workers. **Methods:** This is a cross-sectional epidemiological study, with a quantitative approach, including a simple random sample of 40 individuals belonging to local fishing communities in the regions of Grossos/RN in the years 2016/2017. **Results:** It was observed that 60% of respondents are female and 40% are male. Among workers, 82% work from 5 to 6 days exposed to the sun per week, and 85% are exposed between 3 to 9 hours a day. Regarding the use of preventive measures, 75% of respondents answered that they protect themselves from the sun using sunscreen (50%), wearing long pants (68%), shirts with long sleeves (68%), hats (37%), caps (31%). In addition, 75% of respondents are aware of the occupational risk, however, 44% of respondents answered that they do not usually see the occurrence of new injuries or changes in the appearance of injuries that already exist; only 31% reported noticing injuries that take time to heal. **Conclusions:** Therefore, the studied group is exposed to occupational risks related to skin cancer. Thus, the contribution to the health care provided to the population stands out, making it possible to use the obtained data as a foundation for the planning of actions that involve the prevention and promotion of health and early diagnosis of skin cancer for fishers in the municipality of Grossos/RN.

Keywords: Solar radiation; Neoplasms; Occupational risk; Worker's health.

Resumo

Introdução: A atividade pesqueira consiste em importante fonte de renda e emprego, porém implica importante risco ocupacional, em razão da exposição à radiação solar sem fotoproteção adequada, o que se constitui no principal fator de risco para neoplasias cutâneas, sobretudo em países de clima tropical como o Brasil. O impacto dessa exposição torna o câncer de pele o mais incidente no mundo, acarretando altos custos para o sistema de saúde por sua alta morbidade relacionada a danos físicos e emocionais para os pacientes. **Objetivo:** Busca-se identificar os fatores de risco para a incidência de neoplasias cutâneas entre marisqueiras na colônia de pescadores da região estuarina do Apodi-Mossoró/RN e avaliar as medidas de fotoproteção utilizadas por esse grupo de trabalhadores. **Métodos:** Trata-se de um estudo epidemiológico de corte transversal, de abordagem quantitativa, com uma amostra aleatória simples de 40 indivíduos pertencentes a comunidades pesqueiras locais nas regiões de Grossos/RN nos anos de 2016/2017. **Resultados:** Observou-se que 60% dos entrevistados são do sexo feminino e 40% são do sexo masculino. Entre os trabalhadores, 82% trabalham cinco ou seis dias por semana expostos ao sol e 85% ficam expostos entre três e nove horas diárias. Sobre a utilização de medidas preventivas, 75% dos entrevistados responderam que se protegem do sol com filtro solar (50%), calças compridas (68%), camisa com manga comprida (68%), chapéu (37%) e boné (31%). Além disso, 75% dos entrevistados estão cientes do risco ocupacional, porém 44% responderam que não costumam verificar a ocorrência de novas lesões ou mudanças no aspecto de lesões que já existiam, e apenas 31% referiram notar lesões que demoram para cicatrizar. **Conclusões:** O grupo estudado está exposto a riscos ocupacionais relacionados ao câncer de pele. Destaca-se, assim, a contribuição para a assistência prestada à saúde da população, sendo possível utilizar os dados obtidos como um alicerce para o planejamento de ações que envolvem a prevenção e promoção da saúde e o diagnóstico precoce do câncer de pele para os pescadores do município de Grossos/RN.

Palavras-chaves: Radiação solar; Neoplasias; Risco ocupacional; Saúde do trabalhador.

Resumen

Introducción: La pesca es una importante fuente de ingresos y empleo, pero implica un importante riesgo laboral, debido a la exposición a la radiación solar sin la adecuada fotoprotección, que constituye el principal factor de riesgo para el cáncer de piel, especialmente en países tropicales, como Brasil. El impacto de esta exposición hace que el cáncer de piel sea el más incidente en el mundo, provocando altos costos para el sistema de salud, debido a su alta morbilidad relacionada con daños físicos y emocionales a los pacientes. **Objetivo:** Buscamos identificar los factores de riesgo para la incidencia de neoplasias cutáneas en mariscadores de la colonia pesquera de la región estuarina Apodi-Mossoró/RN y evaluar las medidas de fotoprotección utilizadas por este grupo de trabajadores. **Métodos:** Se trata de un estudio epidemiológico transversal, con enfoque cuantitativo, con una muestra aleatoria simple de 40 individuos pertenecientes a comunidades pesqueras locales de las regiones de Grossos/RN en los años 2016/2017. **Resultados:** Se observó que el 60% de los encuestados son mujeres y el 40% son hombres. Entre los trabajadores, el 82% trabaja de 5 a 6 días expuestos al sol por semana y el 85% se expone entre 3 a 9 horas diarias. En cuanto al uso de medidas preventivas, el 75% de los encuestados respondió que se protegen del sol, a través de bloqueador solar (50%), pantalón largo (68%), camiseta de manga larga (68%), sombrero (37%), gorra (31%). Además, el 75% de los encuestados es consciente del riesgo laboral, sin embargo, el 44% de los encuestados respondió que no suele ver la aparición de nuevas lesiones o cambios en la apariencia de las lesiones que ya existen y solo el 31% informó notar lesiones que toman tiempo para sanar. **Conclusiones:** Por tanto, el grupo estudiado está expuesto a riesgos laborales relacionados con el cáncer de piel. Así, se destaca el aporte a la atención de la salud que se brinda a la población, permitiendo utilizar los datos obtenidos como base para la planificación de acciones que involucren la prevención y promoción de la salud y el diagnóstico precoz del cáncer de piel para los pescadores del municipio de Grossos/RN.

Palabras clave: Radiación solar; Neoplasias; Riesgo laboral; Salud del trabajador.

INTRODUCTION

Whether for industrial or subsistence purposes, fishing accounts for 65% of the country's extractive activity. It is largely based on informal labor,[1] which leads to greater occupational risks, ranging from cold exposure to solar radiation.[2] The correct practice of fishing activities requires preventive measures against their harmful effects in the short and long term, such as burns, skin pigmentation, premature aging, and skin neoplasms.[3]

Among these risks, excessive exposure to solar radiation without photoprotection stands out, as it is one of the main factors causing skin cancer.[4] According to the National Cancer Institute José Alencar Gomes da Silva (INCA), professionals in certain fields are subject to intense chronic and cumulative sun exposure,[5] such as fishers, health agents, athletes, and farmers, among others, with occupational risk and ultraviolet radiation doses five to eight times higher than in other professions.[6]

Brazil has undergone changes in its epidemiological profile, shifting from an increase in the prevalence of chronic degenerative diseases to a consequent reduction in infectious diseases, as a result of improved access to healthcare services, better housing conditions, sanitation, and consequently, an enhanced quality of life for the population.[7]

Despite its low metastatic potential and limited lethality, skin cancer is the most common type in Brazil, accounting for 30% of all registered malignant tumors.[5] Additionally, this neoplasm causes various burdens on individuals, such as social isolation, reduced work productivity, and high financial costs for both patients and the healthcare system.[8]

Considering the epidemiological impact and morbidity associated with skin cancer, this study aimed to identify risk factors for the incidence of this type of neoplasm among shellfish harvesters in the fishing community of the Rio Apodi-Mossoró estuarine region (RN). Additionally, it seeks to assess and raise awareness among these workers regarding the occupational risks they face, as well as to guide them on appropriate photoprotection measures.

METHODS

The study was conducted in accordance with the criteria of Resolution 466/12 of the National Health Council and was submitted to the Research Ethics Committee (CEP) of Universidade do Estado do Rio Grande do Norte. It was approved by the CEP on March 15, 2016, opinion number 1.452.171.

This is a cross-sectional epidemiological study with fishers and shellfish harvesters based on descriptive statistics, aimed at evaluating the incidence of skin cancer in this group of workers in an estuarine region on the Brazilian coast, during the period from August 2016 to July 2017. The research was conducted in a rural coastal municipality, in the town of Grossos (RN), located in the estuarine region of the Apodi-Mossoró River (04º 55' 50'' S; 37º 09' 30'' W), within the fishing colony of the Association of Shellfish Harvesters and Artisanal Fishermen. In order to reduce skin cancer rates in this population, health education activities were developed, and educational pamphlets containing skin cancer prevention measures were distributed.

Individuals were included under the following conditions: being an artisanal fisherman/woman from nearby coastal communities, having been actively engaged in the activity for at least one year, having fishing as their primary occupation, and agreeing to participate in the study. Workers who were not actively engaged in the activity at the time were excluded, unless their absence was due to health issues related to skin conditions, or those who did not meet these criteria.

The sample was defined using a simple random sampling method. A total of 40 participants were selected by lottery between July 2016 and October 2017, as long as they were actively engaged in fishing activities. Data collection was conducted in the fishing colony during the mentioned months.

The data were obtained through questionnaires developed and administered by the researchers to the participants, which included items such as sociodemographic aspects, labor-related information, current occupational history, duration of work in shellfishing, risk factors, and preventive measures for skin neoplasms. In the first phase, a descriptive analysis of the data obtained from the questionnaires was conducted in a spreadsheet using Microsoft Excel. Subsequently, the collected data were subjected to descriptive statistical analysis.".

RESULTS

The study observed that the most prevalent gender engaged in shellfishing is female. Among the interviewees, 60% were female and 40% were male, due to the greater participation of women in this fishing activity.

Regarding chronic exposure to solar rays, 3% were exposed for three days due to their work activities, 14% for four days, 41% for five days, and 41% for six days. Thus, 82% of the workers were exposed to the sun for five or six days a week, and among them, 85% were exposed for three to nine hours a day, confirming chronic exposure to solar rays.

The time of solar exposure reported by the sample was also identified as an important risk factor for skin neoplasms, as 68% mentioned sun exposure between 10 AM and 4 PM. Among the interviewees, 82% worked five or six days exposed to the sun per week, and 85% were exposed for three to nine hours daily, confirming chronic exposure to solar rays.

When asked about photoprotection measures, 75% of the interviewees reported that they adopted some form of protection, while 25% did not use any type of protection. Among those who took protective measures: 68% stated that they wear long pants; 50% use sunscreen; 68% wear long-sleeved shirts; 37% use hats, and 31% use caps; another 6% reported wearing closed shoes, and 31% use creams/moisturizers. Among the interviewees who used sunscreen, 50% only applied it when leaving home.

Additionally, 56% of the interviewees stated that they routinely perform self-examinations of their skin to check for the presence of new lesions or changes in the appearance of preexisting lesions, while 44% did not adopt this habit. Dermatological complaints were also investigated, including the emergence of non-healing skin lesions, with 31% of the interviewees reporting a positive response. The time frame for the appearance of these lesions was reported by 60% of the interviewees as being longer than one year, whereas only 20% stated they had them for less than six months.

Regarding the type of lesion, 20% characterized it as a spot, 20% as a blister, 20% as a reddish mark, and 20% as skin dryness. All these specified lesions were attributed to sun exposure. In terms of location, it was observed that the majority of the reported lesions affected the arms, with 60% among the interviewees.

However, self-monitoring regarding the risk factors for the malignancy of preexisting lesions was not well established among the study participants, as 75% of the interviewees reported being aware that their activities could cause skin cancer, while 44% responded that they do not usually check for the occurrence of new lesions or changes (size, shape, color, asymmetry) in the appearance of previous lesions. Only 31% demonstrated awareness of lesions with characteristics of malignancy.

DISCUSSION

The municipality where the study took place is small, with a population of approximately 9,924 inhabitants, according to the 2022 census by the Brazilian Institute of Geography and Statistics (IBGE). It encompasses an estuarine region that strengthens local economic activities that rely on prolonged sun exposure, notably salt extraction and fishing activities.[9] In this context, the female population in the studied municipality stood out as the most involved in shellfishing, which has a local association predominantly represented by women.

It is noteworthy that intense and intermittent sun exposure is associated with the development of skin cancer, specifically basal cell carcinoma and melanoma. Similarly, for squamous cell carcinoma, chronic sun exposure contributes to the development of nearly 80% of this type of cancer.[7] Basal cell carcinomas and squamous cell carcinomas represent the most common types of non-melanoma cancer; together, they account for approximately 30% of all cancer types.[10,11]

Chronic exposure to ultraviolet radiation, especially UVB, is the greatest risk factor for the development of DNA mutations along with changes in the skin's immune system, contributing to the development of neoplasms, particularly the squamous cell carcinoma subtype.[12,13] A study conducted with fishers in Recife aimed to relate the effects of chronic sun exposure to skin changes in these workers, concluding that the dermatological clinical findings diagnosed in the fishers are mostly altered.[13]

Regarding skin cancer specifically, the INCA's estimate for the 2020/2022 biennium is 353,880 new cases of non-melanoma skin cancers, making it the most prevalent in Brazil. For the annual estimate from 2020 to 2022, it is projected that there will be 83,770 new cases of non-melanoma skin cancer in men and 93,170 in women in Brazil.[5]

In the present study, the data found highlight the high occupational risk faced by the workers, considering that more than half of the interviewees reported sun exposure for more than five days a week and during the hours of 10 AM to 4 PM. This fact contradicts the recommendations of the Brazilian Society of Dermatology (SBD), which advises avoiding sun exposure between 9 AM and 3 PM in the Northeast Region.[14]

The number of hours of sun exposure, due to occupational and non-occupational factors such as fair skin, tropical climate countries, family history, and lack of photoprotection, constitute significant risk factors for the development of skin cancer[15] Moreover, cumulative exposure to ultraviolet rays promotes the development of occupational skin cancer, especially at older ages, which further increases the morbidity associated with this disease.[16]

INCA[7] also emphasizes that skin tumors have high morbidity, primarily due to late diagnosis, as in such cases treatment can lead to significant mutilations in patients. Therefore, for early diagnosis in important occupational risk populations, such as shellfish harvesters, it is crucial that they are able to recognize lesions with malignancy characteristics, supported by health education.[10,11]

However, it is observed that a large portion of the workers has low educational levels, making it difficult to access information and health education.[17] Although the majority adopt photoprotection measures, such as clothing and sunscreen, 44% of the interviewees reported that they do not usually check for the occurrence of new lesions or changes in the appearance of existing lesions, and only 25% noted lesions that take a long time to heal. Thus, a smaller percentage is attentive to performing self-examinations, which is an essential tool for early diagnosis. Therefore, the use of photoprotection, combined with adherence to economically viable preventive measures such as wearing caps, hats, sunglasses, and using tents, is crucial in combating these neoplasms.[12]

According to The International Agency for Research on Cancer (IARC) in the publication 'Pathology and Genetics of Tumours of the Skin,' approximately 90% of skin cancers are preventable. In this context, health education about sun safety should be based on actions that encompass activities in Primary Health Care. Therefore, the local health team plays an important role in adopting prevention strategies, as well as in raising awareness about changes that signal malignancy.[12] Such actions should aim to reduce the occupational risks inherent to the fishing population, focusing on the prevention and early detection of neoplastic diseases and skin aging, consequently reducing morbidity and mortality.[6]

Secondary prevention for the detection of changes in preexisting lesions is also highlighted as an important tool. In this regard, guidance regarding changes in color or size of previous lesions should be provided to patients in order to facilitate early diagnosis.[7]

CONCLUSION

In light of this, it can be observed that the class of shellfish harvesters constitutes a group of workers constantly exposed to occupational risks, particularly related to skin cancer. Thus, this study contributed to promoting improvements in health care for the fishing population, strengthening the implementation of health education activities related to photoprotection in order to reduce the incidence of neoplastic diseases among these workers. The obtained data should serve as a foundation for planning actions that involve prevention and health promotion, based on the early diagnosis of skin cancer for the fishermen in the coastal municipality where the study was conducted.

Through the obtained data, strategies can be developed to address the reality, considering the socioeconomic context in which the study population is situated, highlighting educational actions that encourage the use of physical protection such as caps, long-sleeved shirts, and hats. Additionally, it was possible to conduct secondary prevention by distributing pamphlets among the local population regarding the main warning signs of skin neoplasms. Furthermore, it was feasible to coordinate with the management for referrals to a specialized unit at the university for workers presenting suspicious skin cancer lesions.

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CONFLICT OF INTERESTS

Nothing to declare

AUTHORS' CONTRIBUTIONS

EFSL: Project Administration, Data curatorship, Writing – first draft, Investigation. AMLRM: Project administration, Formal analysis, Concept, Writing – writing and editing, Methodology, Resources, Supervision, Validation. AJC: Writing – review and editing, Validation, Visualization. ALFV: Formal analysis, Concept, Data curatorship, Writing – review and editing, Supervision, Validation, Visualization. AGAS: Writing – review and editing, Validation, Visualization.

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