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Incidence and Characteristics of Skin Cancer Patients at Dr. Mohammad Hoesin General Hospital, Palembang

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ABSTRACT

Background: Breast-related new skin cancer cases have increased annually over the past decade. Current data on new skin cancer cases is essential as a preliminary step in preventing and reducing the incidence of new cases. This study aims to determine the incidence and characteristics of skin cancer patients at Dr. Mohammad Hoesin General Hospital, Palembang, from 2019 to 2021.

Methods: This observational descriptive study employed a cross-sectional design using total sampling. Data were obtained from the medical records of skin cancer patients at Dr. Mohammad Hoesin General Hospital between January 2019 and December 2021. The variables analyzed included demographic characteristics (age, gender, occupation, education, marital status, and residence), cancer type, cancer stage, and tumor location. The data were analyzed using descriptive statistics to determine the frequency and distribution of each variable.

Results: The incidence and characteristics of skin cancer at Dr. Mohammad Hoesin General Hospital were recorded in 38 patients. Basal cell carcinoma was the most common type, accounting for 44.74% of cases. Most patients were aged 45-64 years (52.6%), unemployed or housewives (65.8%), female (65.8%), had completed high school (44.7%), were married (89.5%), and resided outside Palembang (55.3%). Most cases were diagnosed at stage I (44.7%) and were primarily located in the head and neck region (76.3%). Early-stage diagnosis is associated with better survival rates, while advanced-stage cancers, are more aggressive and require prompt treatment for improved survival outcomes. Understanding these factors is crucial for optimizing patient management and resource allocation.

Conclusions: The study shows basal cell carcinoma as the most common skin cancer at Dr. Mohammad Hoesin General Hospital, with a higher incidence in females, especially those aged 45–64, unemployed or housewives, married, and living outside Palembang. Most cases were diagnosed early and located in the head and neck.

INTRODUCTION

Skin cancer is a tumor characterized by abnormal cell proliferation and differentiation, originating from keratinocytes, melanocytes, adnexal skin structures, or cysts [1]. It is broadly categorized into two groups: melanoma and non-melanoma skin cancers. Melanoma arises from melanocytes, whereas non-melanoma skin cancers develop from the epidermis's outer layer, excluding melanocytes. This category includes basal cell carcinoma, squamous cell carcinoma, and Merkel cell carcinoma [2]. In Indonesia, the most common types of skin malignancies are basal cell carcinoma (65.5%), squamous cell carcinoma (23%), and malignant melanoma (7.9%) [3].

The incidence of skin cancer is primarily influenced by sun exposure. Genetic factors also significantly impact the incidence, with fair-skinned populations at higher risk. However, prolonged sun exposure is not the sole risk factor. Other factors, such as exposure to chemicals (e.g., cosmetics, hormonal drugs), smoking, and family history of cancer, also increase the risk. Indonesia, located on the equator, receives sunlight throughout the year. This exposure, combined with the country's agricultural lifestyle, contributes to the high incidence of skin cancer [4]. The incidence of skin cancer has been rising over the past decade and is expected to continue increasing. Climate change, the ozone layer's protective thickness alterations, and social habits leading to increased sun exposure are contributing factors [5]. Although skin cancer rarely causes significant mortality or morbidity, the rising incidence indicates a need for attention [3].

Preventive measures are essential in reducing the incidence of skin cancer. Primary prevention includes avoiding risk factors such as direct sun exposure and smoking. Protective measures like wearing covering clothing, using UV-protection sunscreen, and exercising can also reduce risk [6]. Lack of public awareness about skin cancer necessitates intervention to reduce its incidence. This study is the first to examine the characteristics of skin cancer patients in the Palembang region, making it a unique contribution to understanding skin cancer in this area. The data collected provides valuable insights into the demographics, cancer types, and stages of skin cancer in this population. Furthermore, this study can serve as a reference for describing the characteristics of skin cancer patients in Indonesia, helping to fill a gap in the existing literature. With this information, physicians can better recognize risk factors and identify skin cancer patients earlier, which can lead to more timely and effective interventions in clinical practice. Given the limited recent data on skin cancer cases, it is essential to conduct thorough observations to understand the incidence and characteristics of skin cancer in South Sumatra.

METHODS

This study was an observational descriptive research with a cross-sectional design, conducted using a total sampling method. The eligibility criteria for this study included all new patients diagnosed with skin cancer at Dr. Mohammad Hoesin General Hospital, Palembang, between January 2019 and December 2021. Inclusion criteria were based on complete medical records documenting demographic characteristics, clinical diagnosis, cancer stage, and lesion location. Patients with incomplete medical records or those who had a previous diagnosis of skin cancer before the study period were excluded. Only patients with confirmed histopathological diagnoses of skin cancer were included in the final analysis to ensure accuracy in classification and staging. In this study, several key variables were analyzed to provide a comprehensive understanding of the incidence and characteristics of skin cancer patients. The demographic variables included age, gender, occupation, education level, marital status, and place of residence. These variables are crucial for identifying potential risk factors and trends in specific population groups. The clinical variables included the type of skin cancer, which is essential for understanding the distribution of cancer subtypes in the population. The cancer stage at the time of diagnosis (stages I–IV) was also examined, as early detection and staging are critical in determining the prognosis and treatment strategy. The location of the skin cancer lesions was recorded, as the lesion site is often linked with exposure to risk factors like UV radiation and can influence surgical and treatment outcomes. Among these variables, the most important for skin cancer prognosis and management are the cancer type, stage at diagnosis, and location of the lesion. These factors significantly impact treatment decisions, survival rates, and the potential for recurrence, making them critical in skin cancer research and clinical practice.

Data on age, gender, occupation, education, marital status, skin cancer type, stage, and lesion location were collected from medical records. Age was recorded in years and categorized into age groups, while occupation, education level, and marital status were grouped based on standard classifications. Skin cancer type, stage, and location were determined through clinical and histopathological diagnoses in the patient records. All data were processed using Microsoft Excel and descriptive statistics were used to analyze the frequency distribution of each variable.

RESULTS

The study analyzed the incidence and characteristics of skin cancer cases at Dr. Mohammad Hoesin General Hospital from 2019 to 2021. A total of 38 new cases of skin cancer were recorded during this period. The types of skin cancer observed were predominantly basal cell carcinoma, accounting for 17 cases (44.74%), followed by squamous cell carcinoma with 12 cases (31.57%), malignant melanoma with 5 cases (13.16%), and other skin cancers with 4 cases (10.53%). The incidence of skin cancer in Dr. Mohammad Hoesin Hospital are shown in **Figure 1.**

The demographic characteristics of the patients were categorized based on age, occupation, gender, education, marital status, and residence. The characteristics of skin cancer patients in Dr. Mohammad Hoesin Hospital are shown in **Table 1.** The age distribution revealed that most patients were between 45 and 64 years old, totaling 20 patients (52.6%), followed by those aged 65 and above with 11 patients (28.9%). Only 1 patient (2.6%)

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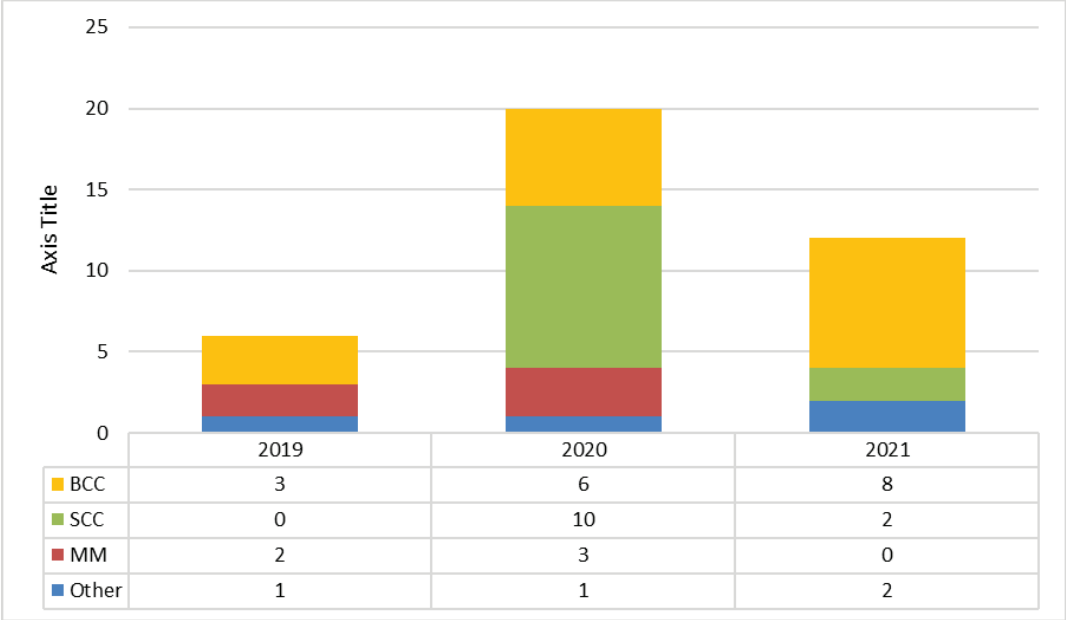

Figure 1. Incidence of skin cancer in Dr. Mohammad Hoesin Hospital during 2019 to 2021 BCC: Basal cell carcinoma, MM: Malignant melanoma, SCC: Squamous cell carcinoma

Table 1. Characteristics of skin cancer patients in Dr. Mohammad Hoesin Hospital

Characteristics	BCC	SCC	MM	Other skin cancer	Total (%)
Age					
< 25 years	0	2	0	0	2 (5.3%)
25–44 years	0	3	1	1	5 (13.2%)
45–64 years	8	6	2	3	20 (52.6%)
≥ 65 years	8	1	2	0	11 (28.9%)
Gender					
Male	3	7	2	1	13 (34.2%)
Female	14	5	3	3	25 (65.8%)
Job					
Indoor workers	3	2	2	0	7 (19.2%)
Farmer/labors	1	5	0	0	6 (15.8%)
Unemployed	12	6	3	4	25 (65%)
Education level					
Below senior high school	8	8	0	22	18 (47.4%)
Senior high school and above	9	4	5		20 (52.6%)
Marital status					
Married	16	10	5	3	34 (89.5%)
Single	1	2	0	1	4 (10.5%)
Living area					
Urban	8	3	1	1	13 (34.2%)
Rural	9	8	4	4	25 (65.8%)
Cancer staging					
Stage I	13	3	1	0	17 (44.7%)
Stage II	4	6	0	3	13 (34.2%)
Stage III	0	3	4	1	8 (21.1%)
Stage IV	0	0	0	0	0
Site of cancer					
Head and neck	17	9	1	2	29 (76.3%)
Extremity	0	2	3	1	6 (15.8%)
Body	0	1	1	1	3 (87.9%)

BCC: basal cell carcinoma, MM: malignant melanoma, SCC: squamous cell carcinoma

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was under 25 years old, and 6 patients (15.8%) were between 25 and 44 years old. Gender distribution showed a higher prevalence of skin cancer among females, with 25 cases (65.8%), compared to 13 cases (34.2%) among males. In terms of occupation, 25 patients (65.8%) were not working or were housewives, while 13 patients (34.2%) were employed. The employed group included civil servants, private employees, farmers/ laborers, and other occupations. Educational background data indicated that 15 patients (39.5%) had completed elementary school, 3 patients (7.9%) had middle school education, 17 patients (44.7%) were high school graduates, and 3 patients (7.9%) had pursued higher education. Regarding marital status, most of the patients were married, accounting for 34 cases (89.5%), while 4 patients (10.5%) were not married. Most of the patients' residences were in rural areas, with 25 cases (65.8%), followed by 13 cases (34.2%) came from urban areas. Clinically, the stages at diagnosis varied, with 17 patients (44.7%) diagnosed at stage I and 13 patients (34.2%) at stage II. Eight patients (21.1%) were diagnosed at stage III, and none at stage IV. The location of the skin cancers was primarily in the head and neck region, with 29 cases (76.3%), followed by the extremities with 6 cases (15.8%) and the body with 3 cases (7.9%).

DISCUSSION

The study found that the incidence of skin cancer at Dr. Mohammad Hoesin General Hospital in Palembang from 2019 to 2021 was 38 patients. This study highlights the prevalence of basal cell carcinoma as the most common type of skin cancer at Dr. Mohammad Hoesin General Hospital. The data also underscores the significant demographic and clinical variations among patients, providing a comprehensive overview of skin cancer characteristics in this population The most common type of skin cancer was basal cell carcinoma (44.74%), followed by squamous cell carcinoma (31.57%), malignant melanoma (13.16%), and other skin cancers (10.53%). These findings are consistent with previous research conducted at Dr. M Djamil Hospital in Padang, which also reported basal cell carcinoma as the most frequent type of skin cancer (65.5%), followed by squamous cell carcinoma (23%), and malignant melanoma (7.9%) [3]. Similar trends were observed in other studies [5,7,8].

One of the primary risk factors for skin cancer is prolonged exposure to sunlight. UV radiation from the sun can cause DNA damage, gene mutations, immunosuppression, oxidative stress, and inflammatory responses. This damage accumulates over time, increasing the risk of skin cancer as one age [9]. In this study, most skin cancer cases were found in the 45–64 age group (52.6%) and the ≥ 65 age group (28.9%). This aligns with Wilvestra et al. [3] study, where most cases were also in the 45-64 age group (58%), followed by those aged ≥ 65 (34%). Prihartono et al. [4] research similarly found that most skin cancer cases were in individuals aged ≥ 51 (74%).

The data showed that most skin cancer patients were unemployed (23.7%) or housewives (42.1%). This contrasts with Leiter's study, which found that skin cancer was more common among individuals who worked outdoors [7]. The high incidence among unemployed and housewives in this study might be due to factors such as genetic predisposition, use of cosmetics, medications, or harmful chemicals, although the exact reasons remain unclear without data on sun exposure duration [4,9,10]. Theoretically, individuals with outdoor jobs like farmers, gardeners, or construction workers have a higher risk of skin cancer due to prolonged sun exposure [7]. In this study, 34.2% of skin cancer patients were employed, with the largest proportion being farmers or laborers (15.8%). This supports the assertion that long-term sun exposure associated with certain occupations increases skin cancer risk [7,11].

Regarding gender, 34.2% of patients were male, and 65.8% were female. This differs from the 2018 study at Dr. M. Djamil Hospital, which found a higher incidence in males (53%) [12]. Previous research indicates that skin cancer is more common in males, likely due to greater sun exposure [13-15]. The higher incidence in females in this study may be related to the predominance of housewives in the sample, alongside factors such as genetic predisposition and the use of cosmetics and medications [4,7,9,10].

Educational data revealed that 47.4% of patients had only completed elementary or junior high school, 44.7% had completed high school, and 7.9% had attended higher education. This suggests that lower education levels, often associated with prolonged sun exposure occupations, may increase skin cancer risk [7].

Most patients in the study were married (89.5%), reflecting the age distribution, as most were over 25 years old, an age associated with marriage. Furthermore, 55.3% of patients lived outside Palembang, indicating that rural and agricultural lifestyles may contribute to higher skin cancer rates due to increased sun exposure. Most skin cancer cases (78.9%) were diagnosed at early stages (stage I or II), with only 21.1% diagnosed at later stages (stage III), and no cases at stage IV. This is consistent with statistics indicating that 63% of skin cancers are diagnosed early, with only 21% having lymph node metastasis and 16% with distant metastasis [14]. Non-melanoma skin cancers rarely metastasize, while malignant melanoma is aggressive and prone to metastasis [16-18]. Early detection is facilitated by the superficial nature of skin cancers, making visual identification easier [19]. The study found that the most common site for skin cancer was the head and neck (76.3%), followed by extremities (15.8%) and the body (7.9%). This aligns with other research indicating that

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sun-exposed areas such as the head, neck, arms, and legs are the most frequent sites for skin cancer [1,20–22]. Skin cancer is commonly found in the head and neck region due to factors such as high UV exposure, environmental influences, and skin characteristics in these areas. The head and neck are frequently exposed to UV radiation, a key risk factor for nonmelanoma skin cancers like basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), which are linked to cumulative UV exposure [23,24]. About 80% of BCCs and many SCCs occur in sun-exposed regions, especially the head and neck [24,25]. Specific facial areas, like the nose and cheeks, are more prone to cancer due to thin skin and embryological suture lines [26,27].

A major strength of this study is its comprehensive analysis of skin cancer incidence and characteristics over three years at Dr. Mohammad Hoesin General Hospital. The use of total sampling ensures that all cases within the specified period are included, providing a robust dataset that enhances the reliability of the findings. Additionally, the detailed demographic and clinical data collected allow for a thorough examination of various factors influencing skin cancer incidence, such as age, gender, occupation, education, and residential location. This comprehensive approach facilitates a deeper understanding of the epidemiology of skin cancer in South Sumatra, contributing valuable insights to the existing literature.

However, the study is not without limitations. One notable limitation is its reliance on medical records, which may be incomplete or contain inaccuracies. The cross-sectional design also limits the ability to establish causal relationships between risk factors and skin cancer incidence. Additionally, the findings are based on a single hospital's data, which may not be generalizable to other regions or populations. The lack of information on patients' sun exposure habits and the duration of exposure also limits the ability to draw definitive conclusions about the relationship between occupation, sun exposure, and skin cancer risk.

CONCLUSIONS

This study highlights the incidence and characteristics of skin cancer patients at Dr. Mohammad Hoesin General Hospital, with basal cell carcinoma being the most prevalent type. Most cases occurred in females, particularly those aged 45-64, unemployed or housewives, married, and residing outside Palembang. Most patients were diagnosed early, with lesions predominantly located in the head and neck region. These findings emphasize the need for early detection strategies and targeted awareness programs, especially for high-risk groups.

Despite its valuable insights, this study is limited by its cross-sectional design, which restricts the ability to establish causal relationships, and the use of a single-center dataset, which may affect generalizability. Future research should consider a larger, multi-center study with a longer data collection period to provide a more comprehensive understanding of skin cancer patterns. Additionally, further investigation into genetic predispositions, sun exposure habits, and environmental risk factors could enhance preventive and diagnostic efforts in skin cancer management.

DECLARATIONS

Competing interest

The author(s) declare no competing interest in this study.

Ethics approval and consent to participate

Ethical approval was obtained from the Medical and Health Research Ethics Committee, Faculty of Medicine, Sriwijaya University (Protocol No: 253-2022). As this study involved the analysis of existing medical records and did not require direct patient contact, the requirement for informed consent was waived by the ethics committee of Dr. Mohammad Hoesin General Hospital. Patient confidentiality and privacy were strictly maintained throughout the study. All data were anonymized to ensure that individual patients could not be identified.

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