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## Seborrheic keratosis profile at Dr. Hasan Sadikin Central General Hospital Bandung 2015-2019

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### Abstract

**Background:** Seborrheic keratosis (SK) is adults' most prevalent benign skin tumor. SK originates from the proliferation of keratinocyte cells with varying morphology and degree of pigmentation. The lesions often resemble other types of malignancy. There are still many discrepancies in SK in Indonesia; hence, SK needs further understanding. This study aimed to describe the profile of seborrheic keratosis cases based on age, sex, location of lesions, and therapy at Dr. Hasan Sadikin Central General Hospital, Bandung, for five years

**Methods:** This was a retrospective descriptive study with total sampling. Secondary data were collected from medical records of SK patients in the Tumor and Skin Surgery Polyclinic of Dr. Hasan Sadikin Central General Hospital, Bandung, from Jan 1, 2015, to Dec 31, 2019. A total of 105 medical records fulfilled the inclusion and exclusion criteria.

**Results:** In most cases of SK, 41% occurred in middle-aged (40-59 years) patients. The average age was 49 ± 15 years old. Most patients, 64.8% were women. The location was mainly in the head and or neck (94.3%). SK was most frequently treated with a CO<sub>2</sub> laser (56.2%), followed by electrocautery (36.2%).

**Conclusion:** Most SK patients in this study were female, middle-aged (40-59 years), with lesions on the head and or neck, and were treated with CO<sub>2</sub> laser.

**Keywords:** *the profile, seborrheic keratosis*

### Background

Seborrheic keratosis (SK) is a benign skin tumor most commonly found in adult and elderly populations.<sup>1,2,5-9</sup> SK is also known as seborrheic wart, senile wart, senile keratosis, basal cell papilloma, verruca senilis, seborrheic verruca, basal cell acanthoma, or benign keratoacanthoma.<sup>1-4</sup> This tumor consists of keratinocyte cells with varying morphology and pigmentation degrees.<sup>1</sup> Risk factors for SK are age over 50 years, Caucasian race, sun exposure, family history of similar diseases, and Fitzpatrick skin type II.<sup>1,2,4,6,10-12</sup> SK often occurs in Caucasians and those living in temperate regions, but it can appear earlier in people living in tropical countries.<sup>1,2,8,11</sup> The geographic location of Bandung suggests a

high prevalence of SK; however, the precise number is still unknown.

SK diagnosis is established based on clinical findings and dermoscopic examination,<sup>7,11</sup> Whenever necessary, histopathological examination is performed to rule out differential diagnoses.<sup>2</sup> Differential diagnoses of SK include melanoma, BCC, SCC, actinic keratosis, melanocytic nevus, malignant lentigo, senile lentigo, verruca vulgaris, acanthosis nigricans, Bowen's disease, Paget's disease, and Buschke-Löwenstein tumors.<sup>1-3, 10,11,13</sup>

Clinical manifestations of SK are usually asymptomatic but sometimes can be itchy.<sup>1,2</sup> Lesions are round or oval in shape, measuring

1 mm to several cm each, ranging from one to hundreds of lesions, usually increasing numbers each, ranging from one to hundreds of lesions, usually increasing numbers with older age, with varying light to dark brown, yellow, and gray color. The lesions can be found all over the body, except the palms, soles, and mucous membranes.<sup>1,3,5,10,14-16</sup> Histopathologic findings from the lesions are in the form of plaque or papules with pseudo-horn cysts and may have a typical 'stuck-on' appearance.<sup>1,5</sup> SK usually does not require any treatment.<sup>8</sup> SK treatments are generally administered for cosmetic reasons or to alleviate subjective symptoms, such as itch or pain.<sup>1,2,11</sup> Treatment choices for SK include topical, surgical, and non-surgical options. Several treatment options for SK are laser, cryotherapy, excision, curettage, electrodesiccation, and electrocautery.<sup>3,5,10,14,17</sup>

Due to the high incidence rate, this study aimed to describe the profile of seborrheic keratosis based on age, sex, location of lesions, and therapy at Dr. Hasan Sadikin Central General Hospital Bandung.

## Methods

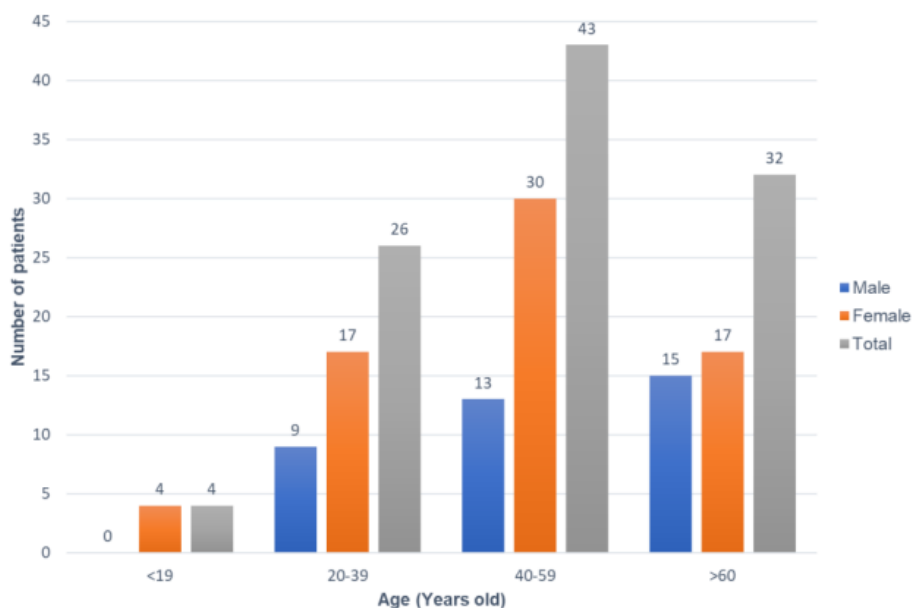
A cross-sectional retrospective and descriptive study was conducted on medical records of SK patients in the Tumor and Skin Surgery Polyclinic of Dr. Hasan Sadikin Central General

Hospital, Bandung. The Research Ethics Committee of Universitas Padjadjaran, Bandung, approved this study (Ethics approval number 898/UN6.KEP/EC/2020). The inclusion criteria were all data of SK patients registered between January 2015 and December 2019. The exclusion criteria were incomplete data and illegible writing on the medical records. Data on the SK profile were reviewed and collected.

## Results

A total of 105 cases of SK were included in this study. The proportion of female patients was higher than males, with a ratio of 9:5. SK patients who participated in this study were 14 to 82 years old, with a mean and standard deviation of 49.2 ± 15.5 years. Most patients were in the 40-59 age group. The distributions of age and gender of SK patients are presented in Figure 1.

The location of lesions varied in individuals, 99 (94.3%) lesions on the head and or neck, 2 (1.9%) on the trunk, and 4 (3.8%) on both. The most used treatment was CO<sub>2</sub> laser (56.2%), followed by electrocautery (36.2%), shave excision (6.7%), and cryotherapy in combination with a CO<sub>2</sub> laser (1.0%). Additional treatment in the form of sunscreen was given to all patients (100%). The profile of SK patients is summarized in Table 1.



**Figure 1.** Distribution of SK patients based on gender and age

**Table 1.** Profile of SK patients

Characteristics		Total SK Patients (N=105)	
		Frequency (n)	Percentage (%)
Gender	Male	37	35.2
	Female	68	64.8
Age (year)	≤19	4	3.8
	20 – 39	26	24.8
	40 – 59	43	41.0
	≥ 60 years old	32	30.5
Location of skin lesion	Head and or neck	99	94.3
	Face	47	44.8
	Forehead	1	1.0
	Eyebrow	1	1.0
	Eyelid	2	1.9
	Under eye	3	2.9
	Cheek	19	18.1
	Nose	3	2.9
	Neck	12	11.4
	Face and neck	7	6.7
	Nose and neck	1	1.0
	Earlobe	1	1.0
	Ear canal	1	1.0
	Lower jaw	1	1.0
	Trunk	2	1.9
	Shoulder	1	1.0
	Back	1	1.0
	Upper limb	0	0.0
	Lower limb	0	0.0
	Acral	0	0.0
Head and or neck and trunk	4	3.8	
	Face and chest	2	1.9
	Neck and abdomen	1	1.0
	Forehead and back	1	1.0
Therapy	Laser CO <sub>2</sub>	59	56.2
	Electrocautery	38	36.2
	Shave excision	7	6.7
	Cryotherapy & laser CO <sub>2</sub>	1	1.0
Additional therapy	Sunscreen	105	100.0

## Discussion

Age plays a significant role in the prevalence of SK.<sup>18</sup> Both intrinsic and extrinsic variables impact how the skin ages.<sup>19,20</sup> The skin undergoes inevitable physiological changes due to intrinsic causes over time, which are impacted by hormonal and genetic factors.<sup>21</sup> Skin atrophy, blood vessel protrusion, loss of elasticity, pale, dry skin, and the development of fine wrinkles are all effects of intrinsic aging. Smoking, exposure to exogenous and

endogenous chemicals, UV radiation, pollution, and food additives, such as preservatives, dyes, and food flavorings that will cause the formation of free radicals, are examples of preventable extrinsic factors in the aging process.<sup>19-21</sup> Older age increases the cumulative risk of UV exposure and DNA damage, making age a significant issue.<sup>1,22</sup> This may result in mutations in the FGFR3 gene, which promotes the proliferation of keratinocyte cells.<sup>1</sup> Oncogenic mutations in PIK3CA are frequently discovered in addition to FGFR3 gene alterations. Less frequently occurring

mutations were found in the EGFR, HRAS, KRAS, TERT promoter, and DHP3 promoter genes.<sup>5,16,18</sup> Age will also lead to a rise in IL-1 $\alpha$  production, which results in endothelin-1 (ET-1) synthesis in keratinocytes by the autocrine process. A potent melanogenic cytokine called ET-1 makes seborrheic keratosis lesions hyperpigmented.<sup>5</sup>

According to research conducted by Arrahman et al.<sup>23</sup> at RSUP Dr. M. Djamil, Padang, between December 2016 and November 2019, the 51-65 age group had the largest percentage (39%) of SK lesions. A study conducted by Kartikasari et al.<sup>24</sup> at RSUP Dr. Mohammad Hoesin, Palembang, in 2014–2016 found that among SK patients ranged in age from 19 to 82 years old, the majority (48.42%) fell into the 51–75 age group. Gefilem et al.<sup>12</sup> at RSUP Prof. Dr. RD Kandou, Manado in 2009–2011 revealed that SK was mostly found in the 45-64 age group (49.2%), followed by 15-44 years (35.6%),  $\geq 65$  years (13.6%), and 1-14 years (1.7%). The results of this study are consistent with previous research, which has shown that seborrheic keratosis is most prevalent in the middle-aged group; however, it can also manifest earlier in adolescence, particularly in patients who live in tropical regions.<sup>1,2,5</sup>

Of the 105 cases analyzed in this study, the number of female patients was higher than male (64.8% and 35.2%, respectively). This was similar to a cross-sectional study conducted by Kartikasari et al.<sup>24</sup> at Dr. Mohammad Hoesin Central General Hospital, Palembang, in 2014-2016, which revealed female and male proportions in SK patients were 68.42% and 31.58%, respectively. However, our results were not in accordance with a cross-sectional study conducted by Gefilem et al.<sup>12</sup> at Prof. Dr. R. D. Kandou Central General Hospital, Manado, in 2009-2011, which found that the number of male patients was greater than female 58.5% versus 41.5%. Another study by Ayse Serap Karadag et al.<sup>36</sup> stated that most patients ignore the spots on their faces, and others may be concerned about their appearance. These variants of results may occur due to differences in time, location, and sample size of each study. According to the literature, there is no prevalence difference between males and females.<sup>1,2,8,15</sup> Nowadays, people are becoming more health conscious, and awareness of the different medical specialties is improving. Women tend to pay attention to their appearance more than men, which is proven by

the higher number of female patients in this research.<sup>35</sup>

In this study, there were 99 (94.3%) SK lesions on the head and or neck, 2 (1.9%) on the trunk, and 4 (3.8%) on both, indicating that SK has a variety of predilections. According to a prior study by Kartikasari et al.<sup>24</sup>, patients exposed to the sun for 3-6 hours a day had the highest prevalence of SK (64.62%). The face (56%), the neck (23.2%), the V-neck area (0.8%), and the back of the hand (0.8%) were the sun-exposed areas where lesions were most frequently found. This demonstrated a correlation between the two investigations. Specifically, SK was primarily located in the head and neck region.

The literature states that SK lesions can occur anywhere on the body except on the mucous membranes, palms, and soles.<sup>5,10,14</sup> The trunk, head, neck, and extremities are the main locations where SK is concentrated.<sup>1,3,10,14-16</sup> This demonstrates how the researcher's findings and the literature are similar.

This study also found one case of SK in the ear canal and one in the auricle. SK in the ear area is rare,<sup>11</sup> but several studies have reported similar cases. In Belgium, De Loof et al.<sup>3</sup> reported two cases of SK in the outer ear canal. In Turkey, Cevizci et al.<sup>25</sup> reported a woman with irritated SK in both outer ear canals. In Korea, Kim et al.<sup>26</sup> reported six cases of SK in the outer ear canal and one in the auricle.

Due to its benign nature, most SK patients do not need to be treated.<sup>5,8</sup> SK treatments are typically performed for aesthetic purposes.<sup>1,2,11</sup> To rule out differential diagnoses and potential malignancy, atypical lesions that are expanding quickly and exhibiting symptoms such as pain, bleeding, and ulceration should be further defined by histological analysis (biopsy or excision).<sup>5,8,27</sup> Laser, cryotherapy, excision, curettage, electrodesiccation, and electrocautery are treatment options for SK.<sup>3,5,10,14,17</sup> The most popular method, according to Ranasinghe et al.<sup>28</sup> and Jackson et al.<sup>29</sup>, is cryotherapy. However, according to Mawu<sup>30</sup>, excision is a therapeutic approach that is frequently employed. In this study, CO<sub>2</sub> laser therapy accounted for 56.2% of all treatments, followed by electrocautery (36.2%), shaving excision (6.7%), and CO<sub>2</sub> laser and cryotherapy (1% each). Numerous variables, including accessible modalities, doctor expertise, lesion location, lesion size, risk of

malignancy, and patient preferences, contributed to the variety of the study findings.

Electrocautery was the second most popular therapy approach. In Egypt, Ali et al.<sup>17</sup> tested CO2 lasers compared to electrocautery in SK. As a result, the two groups had no significant differences in treatment efficacy, healing duration, post-therapy complaints, problems, or recurrence rates. Histologically, the efficacy of the two treatment techniques is nearly identical. In conclusion, treatments of SK with electrodesiccation and CO2 lasers are both successful and produce acceptable cosmetic outcomes.<sup>17</sup>

A shave excision was performed on 7 (6.7%) patients. This therapy is typically used to treat epidermis-only skin lesions, making it appropriate for SK lesions.<sup>31</sup> Depending on the location of the lesion, several types of local anesthetics are required for this surgery, including 1% lidocaine with or without epinephrine. A superficial excision is carried out using a scalpel, a unique exfoliating knife, or a double-edged razor. The samples can subsequently be transported to a lab to determine the lesion's pathophysiology.<sup>8</sup> This method's benefits include speed, ease of use for wound care, and affordability.<sup>31</sup>

In this study, CO2 lasers and cryotherapy combination were performed on 1 (1%) patient. A 25-people sample was used in a minor experiment by Wood et al.<sup>32</sup>, comparing curettage and cryotherapy as SK treatment. As a result, most patients now favor cryotherapy over curettage. After a year, the curettage usually results in hypopigmentation lesions and causes redness in the sixth week. In the short and long term, cryotherapy more frequently produces persistent lesions.<sup>32</sup> Curettage, as opposed to cryotherapy, enables the physician to transport lesion tissue for pathology analysis, making the technique more appropriate for lesions with a risk of malignancy.<sup>8</sup> The patient's needs and preferences can be considered when choosing between these options. In a comparative study, Gurel et al.<sup>33</sup> compared the efficacy of cryotherapy and erbium-doped aluminum garnet (Er:YAG) laser therapy for the treatment of seborrheic keratosis. The study found that cryotherapy has a lower healing level than Er:YAG ablative laser. Compared to cryotherapy, Er:YAG laser has fewer side effects of hyperpigmentation and erythema. Alternatives such as CO2 laser are possible, but they have a higher chance of scarring and discoloration.<sup>11,33</sup>

Sunscreen was administered to all trial participants as an additional form of therapy. Using sunscreen is necessary to reduce the risk factor of sun exposure and stop the development of new SK lesions.<sup>1</sup> Sun protecting factor (SPF) affects the efficiency of sunscreen. SPF measures how much UVB radiation is needed to cause erythema on sunscreen-protected skin compared to how much UVB radiation is needed to cause the same erythema on skin that is not protected. The SPF rating indicates how much UV light can be filtered by sunscreen and how long it can protect the skin from UV radiation. More protection can be provided with a higher SPF rating, but the higher the number, the smaller the difference. SPF 15 blocks 93% of UVB rays, SPF 30 blocks 97%, SPF 50 and 100 block 98% and 99% of UVB rays, respectively.<sup>34</sup> Patients in this study were given sunscreen with SPF 30.

The study's limitation is the absence of information on the patient's occupation, size of the lesion, dermoscopy test findings, biopsy test results, educational background, family history of the disease, and other factors that could have expanded the SK profile. Additionally, it can be challenging to locate pertinent literature because analogous research is still infrequently conducted, particularly in Indonesia. To acquire thorough results, we advise that future research include variables not included in this study.

## Conclusion

In conclusion, adult females in the 40-59 age group are the most common population to have SK. SK may appear earlier in adolescence, especially in people living in the tropics. SK is mainly found on the head and or neck and treated with CO<sub>2</sub> laser.

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## Author Contributions

All authors made substantial contributions to the conceptualization and study design, acquisition of data, as well as data analysis and interpretation; and in drafting the article and

performing critical revision for important intellectual content. All authors have agreed to submit to the current journal with final approval for publication. All authors will be accountable for all aspects of this manuscript

## Author Contributions

The authors declared no conflicts of interest related to this work.

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