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Analysis on the Knowledge about Oral Potentially Malignant Disorders of a Male Motorcycle Community in Indonesia

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Abstract

Background Oral potentially malignant disorders (OPMDs) are a group of oral lesions or conditions with a higher risk of malignant transformation. OPMD affects 4.47% of people worldwide, with predilection in males. The high tendency of frequent tobacco smoking and alcohol consumption may lead the male motorcycle community to have a higher risk for developing OPMD and malignant transformation.

Objectives This article determines the level of knowledge about OPMD within a male motorcycle community.

Methods This study uses a survey research design that is a questionnaire-based and descriptive study. Data were obtained using a Google Form, and IBM SPSS was used for analysis. Simple random sampling is the sampling method applied. The total knowledge score is divided into three levels, low (0–4), moderate (5–9), and high (10–15).

Results The questionnaire was finished by 60 people entirely. All respondents (100%) were men, and the majority (83.00%) was aged between 20 and 21. A total of 26 respondents (43.30%) had moderate knowledge levels, followed by 21 with high knowledge levels (35.0%), and 13 with low knowledge levels (21.70%).

Conclusion The majority of the male motorcycle community (43.30%) has a moderate knowledge level regarding OPMD. This study indicates the need for educational measures to improve awareness regarding OPMD in a high-risk community.

Keywords
- malignant transformation
- alcohol use
- tobacco use
- level of knowledge

Introduction

In 2018, a systematic review reported 354,864 new oral cavity and lip cancer cases globally.[1] Another study in Asia found that oral cancer incidence varies from 0.12 to 4.12 per 1,000, with an average of 8.5 per 100,000 individuals.[2] Furthermore, Global Cancer Observatory (Globocan) 2021 reported that Indonesia had 5,780 new cases (1.5%) and 3,087 deaths (1.3%) related to oral cancer.[3]

In oral carcinogenesis, oral carcinoma is often preceded by a group of lesions called oral potentially malignant disorder

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(OPMD).[4] OPMD is an umbrella term encompassing various oral lesions or conditions with a higher risk of transforming into malignancies.[5] The most common OPMDs are leukoplakia, erythroplakia, actinic cheilitis, oral submucous fibrosis (OSF), and oral lichen planus erosive type.[6] A meta-analysis reported that the global prevalence of OPMD is 4.47%, with a higher incidence in men.[3] The etiopathogenesis of OPMD is a complex multifactorial process involving various genetic and environmental factors.[1,7] However, many studies confirmed that tobacco smoking and frequent alcohol consumption are the main risk factors for most OPMD development.[7] Other etiological factors such as ultraviolet (UV) exposure and betel nut chewing are the primary factors in actinic cheilitis and OSF, respectively.[1]

The diagnosis of OPMD is made based on clinical and histopathological examination.[1,8] An assessment of risk factors is also needed to support a diagnosis.[8] Early detection of OPMD lesions and oral cancer improves survival and reduces morbidity, damage, treatment time, and cost.[1] Mouth self-examination (MSE) is a useful tool for detecting suspicious lesions in the oral cavity and may aid in the early detection of oral cancer and OPMD.[9] A previous study reported that the delays in OPMD diagnosis are due to the lack of public awareness and knowledge about the signs, symptoms, and risk factors of OPMD lesions.[10]

According to a cross-sectional research conducted in Uganda, young males riding motorcycles smoke cigarettes and drink alcohol frequently.[11] The study by Ozoh et al[12] also found a strong correlation between current smoking and alcohol usage, as well as a high rate of alcohol consumption among Nigerians. The motorcycle community is considered to be at high risk for OPMD since smoking and drinking alcohol are risk factors for developing the disease. The study's objective is to determine the level of knowledge of the motorcycle community about OPMD. Thus, this study can serve as the basis for further in-depth programs to prevent the onset of OPMD.

Materials and Methods

Study Design and Participants

This descriptive study's population is made up of the 68 consenting participants from the "SunmoriYuk" motorbike club in Surabaya City, East Java Region, Indonesia. The Slovin formula (*e*: 0.05) is used to apply simple random sampling, with a minimum of 59 samples needed due to the population size of 68 participants. The details of the sample size calculation are shown in ►**Fig. 1**. This formula can be used to estimate the ideal sample size when the population is limited, and the researchers lack sufficient details on the behavioral distribution of the population.[13] The informed consent procedure was used to obtain respondents' permission to participate in the study. The study took place online from July 2021 until September 2021.

Questionnaire Format

The study was performed through 15 statement questionnaires that had passed statistical tests for reliability and validity using the Windows-based IBM SPSS version 25 (IBM Corporation, United States) applications. According to the

Sample size *Slovin's* Formula

$$n = \frac{N}{1 + N(e)^2}$$

n = the sample size

N = the population size

e = margin of error (0.05)

According to the formula above, if there are 68 people overall, then the smallest sample size obtained was:

$$n = \frac{68}{1 + 68(0.05)^2}$$

$$n = \frac{68}{1.17}$$

$$n = 58.12 \approx 59$$

Fig. 1 Slovin's formula.

results of the validity and reliability tests, 13 out of the 15 items in the questionnaire are valid, and all 15 questions are reliable. The questionnaire consists of several segments, including sociodemographic data. The second segment contains information on risk factors, clinical symptoms, and OPMD generally.

A Google Form questionnaire was used to collect the data, and the link was shared on social media. Before completing the questionnaire section, respondents must select the option to provide consent if they are willing to participate. The Guttman scale was used to modify respondents' responses from 0 to 1, which was added to provide a total result. Based on the total number of respondents' scores, the motor community "SunmoriYuk's" knowledge level was divided into three categories: low (number of scores 0–4), medium (number of scores 5–9), and high (number of scores 10–15). Questionnaires 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15 have a value of 1 for "yes" responses and 0 for "no" responses. Questionnaire no. 3 scores 1 for "no" and 0 for "yes" responses.

Results

The sociodemographic distribution of the respondents is provided in ►**Table 1**. The questionnaire was given to 68

Table 1 Sociodemographic distribution of the respondents

		Frequency	Percentage
Gender	Male	60	100
	Female	0	0
Age	18–19	6	10.00
	20–21	50	83.00
	22–23	3	5.00
	24–25	1	1.70
Education	Elementary school	0	0
	Junior high school	0	0
	Senior high school	60	100
	Others	0	0
Family history with cancer	Yes	8	13.30
	No	52	86.70
Smoking background	Yes	53	88.30
	No	7	11.70
Smoking duration	Never/passive	10	16.70
	< 1 y	1	1.70
	1–3 y	13	21.70
	3–5 y	20	33.30
	> 5 y	16	26.70
Total cigarette consumption	Never/passive	10	16.70
	< 1 stick/week	1	1.70
	< 1 stick/day	3	5.00
	1–5 sticks/day	12	20.00
	6–10 sticks/day	13	21.70
	11–20 sticks/day	14	23.30
	> 20 sticks/day	7	11.70
Consuming alcohol background	Yes	46	76.70
	No	14	23.30
Consuming alcohol duration	Never/passive	17	28.30
	< 1 y	5	8.30
	1–3 y	15	25.00
	3–5 y	17	28.30

Table 1 (*Continued*)

		Frequency	Percentage
	> 5 y	6	10.00
Alcohol consumption	Never/passive	17	28.30
	< 1 time/month	19	31.70
	2–4 times/month	18	30.00

(*Continued*)

Table 2 Level of knowledge of members of the community about OPMD

	Frequency	Percentage
Low (0–4)	13	21.70
Moderate (5–9)	26	43.30
High (10–15)	21	35.00
Total	60	100

Abbreviation: OPMD, oral potentially malignant disorder.

community members, and 60 of them responded. Results were analyzed and had an 88% response rate, which met the required minimum. The age range of 20 to 21 years old had the highest responses, with 50 respondents (83.00%). The age groups of 18 to 19, 22 to 23, and 24 to 25 were represented by 6 respondents (10.00%), 3 respondents (5.00%), and 1 respondent (1.70%), respectively. All of the respondents have graduated from senior high school. The study's respondents also come from a variety of backgrounds. There were 52 respondents (86.7%) with no cancer knowledge background. There were 53 (83.30%) respondents who had a history of smoking, with 20 (33.30%) of them having smoked for 3 to 5 years and 14 (23.30%) of them smoking 1 to 20 sticks daily. Of the 60 respondents, 46 (76.70%) drank alcohol, with 19 (31.70%) doing so more than once monthly.

►**Table 2** provides the information of the knowledge level of the respondents about OPMD. It is shown that the majority of respondents—26 (43.30%) respondents—had a moderate knowledge about OPMD. The respondents were followed by others with a high level of knowledge—21 (35.00%) respondents—and others with a low level of knowledge—13 (21.70%) respondents—about OPMD.

The questionnaire was divided into three domains: the knowledge of general information about OPMD, the risk factors of OPMD, and the clinical features of OPMD. The distribution of respondents' answers is provided in ►**Table 3**.

Discussion

The first statement of the first domain is oral cancer can be prevented and treatment is improved with early diagnosis of OPMD soft tissue disorders. This statement was correctly answered by 41 responders (68.30%). The diagnostic process begins with an oral clinical examination, including a visual and digital examination of the oral cavity.[1] Statement, namely, OPMD soft tissue abnormalities do not have the potential to develop into oral cavity cancer, received a total of 41 responses (68.30%) in its favor. This claim is false since OPMDs are a specific type of epithelial lesion or condition that manifests before invasive oral cancer and has a higher chance of developing into a malignancy.[8,14] Some respondents to the study acknowledged that OPMD had the potential to develop into oral cancer. The results also showed that the majority of the community, 49 respondents (81.70%), incorrectly responded to the statement, "You have heard of and/or performed in a self-examination of the oral cavity." According to the study's findings by Wetzel and Wollenberg,[9] the majority of community members are still unaware of the benefits of MSE, which can help in the early detection of disorders like oral cancer and other damaging conditions by detecting potentially malignant lesions in the oral cavity. Shrestha and Maharjan[15] described the MSE brief method, including visual inspection and palpation, which is a simple, affordable, and harmless method for detecting oral precancerous lesions that do not require to be examined by a dentist. The absence of proper research and informal education regarding MSE in Indonesia may be responsible for the respondents' lack of knowledge. MSE can contribute to prevention by preventing high-risk community behaviors like drinking alcohol and smoking.[16]

In the second domain, 47 respondents (78.30%) correctly answered, "Smoking tobacco can contribute to OPMD's soft tissue abnormalities." This statement is true because cigarettes containing nitrosamines will promote the hyperplastic transformation of oral mucosal cells and its smoke exposure induces the risk of developing oral cancer due to increased macrophages, lymphocytes, and matrix metalloproteinase-9 expression in tongue epithelial cells.[17] In this domain, respondents also incorrectly answered a few questions. Thirty-two (53.30%) respondents did not know that alcohol-containing beverages may result in OPMD soft tissue abnormalities. According to Warnakulasuriya,[16] excessive alcohol consumption is a common risk factor for OPMD. Different results were displayed in the journal by Firincioglulari et al,[18] 64.0% of participants knew drinking alcohol increased the risk of oral cancer, but their attitudes remained the same. Thirty-five (58.30%) respondents chose the incorrect answer to the statement that consuming betel nuts can result in soft tissue abnormalities. According to the study by Warnakulasuriya and Chen,[19] according to all Taiwanese investigations, the risk of developing leukoplakia or submucous fibrosis increases with an exposure level of chewing time and quantity of areca nut. A survey in Jakarta revealed that 13

Table 3 Respondents statement answers ($n = 60$)

	Statements	Right answer	False answer
OPMD in general	Soft tissue disorders oral potentially malignant disorders (OPMD) are different from precancerous lesions of the oral cavity	33 (55.00%)	27 (45.00%)
	You heard about a mouth self-examination and/or performed at some[a]	11 (18.30%)	49 (81.70%)
	Cancer of the oral cavity cannot develop from OPMD soft tissue abnormalities	41 (68.30%)	19 (31.70%)
	Oral cancer can be prevented and treatment is improved with early diagnosis of OPMD soft tissue disorders	41 (68.30%)	19 (31.70%)
Risk factor of OPMD	Smoking tobacco has the ability to contribute to OPMD's soft tissue abnormalities	47 (78.30%)	13 (21.70%)
	Alcohol-containing beverages may result in OPMD soft tissue abnormalities[a]	28 (46.70%)	32 (53.30%)
	Consuming betel nut can result in soft tissue abnormalities, according to OPMD[a]	25 (41.70%)	35 (58.30%)
	UV radiation may result in OPMD's soft tissue abnormalities[a]	24 (40.00%)	36 (60.00%)
	OPMD soft tissue problems can be exacerbated by a deficiency of fruits and vegetables	38 (63.30%)	22 (36.70%)
	Elderly persons are more sensitive to OPMD soft tissue disorders	42 (70.00%)	18 (30.00%)
	In OPMD, the human papillomavirus (HPV) may result in soft tissue abnormalities[a]	24 (40.00%)	36 (60.00%)
Clinical features of OPMD	OPMD could manifest as lesions or ulcers that are difficult to heal (permanent)	43 (71.70%)	17 (28.30%)
	OPMD may develop red patches to appear in the oral cavity	42 (70.00%)	18 (30.00%)
	OPMD may develop white patches to appear in the oral cavity[a]	25 (41.70%)	35 (58.30%)
	OPMD may manifest as edema in the mouth[a]	20 (33.30%)	40 (66.70%)

Abbreviations: OPMD, oral potentially malignant disorder; UV, ultraviolet.
[a]Statement that indicates a knowledge gap.

out of 1,000 respondents identified as betel nut users.[20] A total of 36 (60%) respondents chose the wrong answer to the statement that UV radiation may result in OPMD's soft tissue abnormalities. According to Pires et al,[21] actinic cheilitis was more common in male patients (68%) because of the higher frequency of occupational exposure to UV radiation and the lower likelihood of sunscreen use among males, one of the risk factors for the development of OPMD. The findings indicated that there is still a need for improvement in the community's understanding of UV light as a risk factor for OPMD. Lastly, 36 (60.00%) respondents incorrectly answered that the human papillomavirus (HPV) might result in soft tissue abnormalities. HPV infection has grown in oropharyngeal head and neck cancers over time, increasing from 40.50% before 2000 to 72.20% in 2005 to 2009; these data suggest that HPV infection is a significant indication of oral cancer risk.[22] Research from Formosa et al[23] showed as many as 121 (77%) respondents did not agree that HPV is a risk factor for cancer. The results showed that many community members need more understanding of the risk factors of OPMD. Good knowledge of risk factors for OPMD can be used to avoid delays in diagnosing OPMD.[10]

Knowledge of the clinical manifestations of OPMD can be used in detecting suspicious lesions in the oral cavity and can assist in the early detection of oral cancer and OPMD.[9] OPMD may develop white patches to appear in the oral cavity.[7] A total of 43 respondents (71.70%) were correct in their statement; OPMD could manifest as lesions or ulcers that are difficult to heal (permanent). This result is aligned with a previous study by Warnakulasuriya,[16] where a biopsy is required if a lesion develops for more than 2 weeks without healing, which is a sign of malignancy. A chronic lesion is one of the clinical signs of OPMD, as shown by another study.[8] The majority of the respondent is already aware that persistent lesions are one of OPMD's clinical symptoms, according to the findings of a study. Additionally, 40 respondents (66.700%) responded incorrectly to the statement, "OPMD may manifest as enlargement of the oral cavity." Focal induration may be a sign of dysplasia or even cancer.[24] The respondent may not be aware of swelling as a clinical sign of OPMD since they have never personally experienced the disease.

Limitation

Given that this study was conducted in a single community (single-center), the results cannot be generalized to other communities (multicenter). The language used in the questionnaire and the data collecting method, a self-

administered questionnaire, had to have an impact on the study's findings in the form of gaps in each domain because respondents can have difficulty understanding OPMD and MSE. Smokeless tobacco use and tobacco chewing were excluded as etiological factors for OPMD because they are still infrequent in Indonesia. However, the community in this study tends to be homogeneous based on the gender, age, and educational background of each respondent. The same sociodemographic distribution of respondents may help to reduce variations in the study's findings about the knowledge level of the motor community "SunmoriYuk."

Conclusion

According to the results of this study, the majority of the SunmoriYuk motorcycling community's members have moderate knowledge of OPMD.

Ethical Approval
The Health Research Ethical Clearance Commission approved this research study on July 30, 2021, at the Faculty of Dentistry, Universitas Airlangga, with certificate number 415/HRECC. FODM/VII/2021.

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Conflict of Interest
None declared.

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