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PREVALENCE AND ANALYSIS FACTOR RISK OF ORAL STOMATITIS IN MALAYS ETHNICITY IN INDONESIA: PANEL DATA ANALYSIS

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ABSTRACT

Background: Indonesia Family Life Survey (IFLS) was used to formulate various policy government. In that survey, respondents were also asked about experience thrush (oral stomatitis) during four last week. Objective of this study is to analyze relationship of several risk factors with incident of oral stomatitis of Malays in Indonesia.
Method: This cross-sectional study done based on the data obtained from IFLS in 2014. Data analysis used excel software (univariate data) and IBM SPSS version 25. Prevalence of oral stomatitis in ethnic Malays in Indonesia are 11% (26 cases of 236 respondents). Analysis results SPSS shows not significant relationship between age, gender, place residence, education, and economic status with incidence of oral stomatitis.
Result: There is significant relationship between condition health general with incidence of oral stomatitis ($p < 0.05$),
Conclusion: Study results recommend necessity look after and care cleanliness cavity mouth in patients who have unhealthy condition.

BACKGROUND

Oral stomatitis/thrush is general terms of inflamed and painful mouth and may happens anywhere inside the mouth ,including buccal mucous, gums, tongue, labial mucous, and palatum[1]. This can cause painful lesions that cause difficult to eat, drink and swallow. Besides pain, multifactorial and generally repeated. This characterized by its periodicity and for limit himself alone. Prevalence range between 5 and 25% of the population.[2–4] Stomatitis manifests with appearance one or multiple painful ulceration, covered by pseudo membrane and white or greyish and surrounded by a clear erythematous halo. Lesion usually located on the mucosa non-keratinized mouth and can show recurrence after period variable remission.[5]

Stomatitis can be caused by a viral infection or bacteria, disease, or bad oral hygiene and gums. Other factors including smoking reaction, wound burn consequence of hot food or drink, or allergic reaction.[6] Stomatitis is also caused by local infection, systemic disease, irritation, physique or chemical or allergy reaction. This lesion was unknown etiology, however several factors like heredity,

immunity disorder, haematological deficiency (eg substance iron, folate acid, vitamins B6 and B12), stress, local trauma, infections and infections systemic (Syndrome Behçet) is considered as predisposing factor.[5,7]

Histology lesion show epithelium ulceration, with exudate on its surface, tissue necrotic, infiltrated of cell inflammation, lamina propria edema with various degrees neutrophils and infiltration cell mononuclear, as well degeneration hyaline. There are a number cell surrounding vessels blood inflammation. It can be seen an expansion and congestion capillaries, cell endothelium vessels blood enlargement and narrowing of the lumen of the vessels. Inflammatory process play role important in emergence of apthous stomatitis.[8] Pain can originate from excessive inflammation and irritation, chemical afferents that are not once ends on connection layer epithelium and subepithelium. This pain can hinder action general like chewing, speaking, swallowing, besides influence quality patient of life.[6,9]

Management of stomatitis is still focused for relieve the symptoms. The goal treatment is to reduce inflammation, reduce pain, lengthen period between plague disease and accelerate healing. There are many approaches treatment, however topical corticosteroids still become gold standard. They have showed a profitable effect in reduce pain and ulcer duration. However thus, its continued use continuous and not appropriate can cause side effect, mainly related with possibility of drug absorption systemically.[5]

Previous findings revealed that the prevalence of stomatitis is slightly higher among children whose parents have a low level of education, those who live in rural areas, as well as those that are lower economic status, but the difference is not significant. Likewise, Patil et al. put forward that stomatitis is more common in the samples with low socioeconomic status.[2] In conversely, some studies find it higher prevalence in families with better socioeconomic status. Like Suryanata et al. mentioned, stress can become one of the risk factors for developing RAS and occurs in high economic status.[4] There is differences in health status of oral and oral health quality between ethnicity. Malay reported bad quality of oral health when compared with the Chinese and Indians. Difference quality of life between ethnicity associated with disturbance in food and talk with obviously, with the Malays feel little impact more Lots compared to with the Chinese.[10]

Based on findings from previous studies, then need done study with subject ethnicity Malays in Indonesia. Study using IFLS data in which the author ever before analyze risk factors of toothache.[11] The aim of the study is to examine the relationship between a number of factor consists of age, gender, education , socioeconomic status and general health conditions with incidence of stomatitis in ethnicity Malays in Indonesia use IFLS data of 2014.

METHOD

This cross-sectional survey was conducted in 2014 conducted by Research and Development in the United States of America in collaboration with the Research Center Gadjah Mada University Population. Survey consists from source data open, which is available online. This survey collects level data individual, family, and society taking multistage sample. The subject was the respondents with ethnicity Malay and >14 years old.

Variable main are related data with experience ulcer during last four weeks, which is obtained from question IFLS survey, " Have you experienced oral stomatitis in last four week?". Besides that, the covariate hypothesized potential related with ulcer including age, gender, place residence (rural / urban), economic status (income respondent / parents), level education level, and general health conditions.

Data analysis using SPSS version 25 for analyze effect independent from covariates on the outcome question canker sores (no= 0, ye = 1). We also categorize variable independent become two group and do labelling in accordance with the proposed hypothesis. The predictors were: age (15-44 years= 0, and >44 years= 1), gender (male= 0, and female= 1), area housing (rural= 1, and urban= 0), economic status (quintiles 1 and 2 are categorized as poor= 1, and quintiles 3, 4, and 5 are categorized as rich= 0), level parental education (no education and elementary education categorized as low level education= 1, and junior and senior high school and college categorized as high education= 0).

All procedure reviewed in an accurate way and approved by institutional review boards (IRBs) in the US and Indonesia at Gadjah Mada University. Informed consent was obtained from respondents and parents or legitimate representative in a manner law. Informed consent was given before starting work. Statement of anonymity and confidentiality has finished before beginning survey. All procedure studies done in accordance with principles Declaration of Helsinki.

RESULTS

Table 1. Characteristics of respondents

Variable	Oral Stomatitis				
	No	**% No**	**Yes**	**% Yes**	**Total**
Gender					
1: Male	105	90%	12	10%	117
3: Female	105	88%	14	12%	119
Age					
15-24	40	95%	2	5%	42
25-34	65	87%	10	13%	75
35-44	42	84%	8	16%	50
45-54	34	87%	5	13%	39
55-64	16	94%	1	6%	17

65+	13	100%	0	0%	13
Education					
No School	7	88%	1	13%	8
Sd	54	90%	6	10%	60
Junior High School	33	89%	4	11%	37
Senior High School	83	86%	14	14%	97
Diploma/S1/S2/S3	33	97%	1	3%	34
Place Stay					
Urban	172	89%	21	11%	193
Rural	38	88%	5	12%	43
Health Conditions					
Very healthy	40	95%	2	5%	42
Healthy	134	89%	16	11%	150
Not healthy	32	82%	7	18%	39
Very Unhealthy	4	80%	1	20%	5
Economic Status					
Q1 (very low)	31	89%	4	11%	35
Q2 (low)	33	87%	5	13%	38
Q3 (medium)	51	86%	8	14%	59
Q4 (high)	31	94%	2	6%	33
Q5 (very high)	64	90%	7	10%	71
Grand Totals	**210**	**89%**	**26**	**11%**	**236**

Table 1 shows characteristics respondent experienced Malays with oral stomatitis. The number of respondent experienced women with oral stomatitis (12%) was few more compared to the male (10%). Respondents with range ages 35-44 have the highest prevalence (16%) continued with respondent range ages 25-34 and 45-54 (13%). Respondents with education last senior high school is respondent with prevalence the highest (14%) followed with respondents who did not school (13%) and elementary school (10%) and junior high school (11%), meanwhile respondent with education last diploma/S1/S2/S3 is respondent with least prevalence (3%).

Respondents' ethnicity Malays living in rural areas own prevalence *oral stomatitis* (12%) compared with respondents living in urban areas (11%). Respondents with health status unhealthy and very unhealthy was higher in prevalence 20%. Whereas healthy group was 11% and that is very healthy amounted to 5%. Respondents with economic status quintile currently occupy order highest case *oral stomatitis* followed with quintile low (13%) and very low (11%). As for the economic status high 6% and very high 10%.

Table 2. Analysis of Chi-Square relationships between residency and oral stomatitis

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.020 [a]	1	.887		
Continuity Corrections [b]	.000	1	1,000		
Likelihood Ratio	.020	1	.888		
Fisher's Exact Test				.794	.533
Linear-by-Linear Association	.020	1	.888		
N of Valid Cases	236				

a. 1 cell (25.0%) has an expected count of less than 5. The minimum expected count is 4.74.

b. Computed only for a 2x2 table.

Table 3. Analysis of Chi-Square relationships between genitals and oral stomatitis

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.137 [a]	1	.711		
Continuity Corrections [b]	.026	1	.871		
Likelihood Ratio	.137	1	.711		
Fisher's Exact Test				.836	.436
Linear-by-Linear Association	.136	1	.712		
N of Valid Cases	236				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.89.

b. Computed only for a 2x2 table

Table 4. Analysis of Chi-Square relationships between age and oral stomatitis

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.536 [a]	1	.464		
Continuity Corrections [b]	.254	1	.615		
Likelihood Ratio	.558	1	.455		
Fisher's Exact Test				.648	.314
Linear-by-Linear Association	.534	1	.465		
N of Valid Cases	236				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.60.

b. Computed only for a 2x2 table

Table 5. Analysis of the Chi-Square relationship between education level and oral stomatitis

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.051 [a]	1	.821		
Continuity Corrections [b]	.000	1	1,000		
Likelihood Ratio	052	1	.820		
Fisher's Exact Test				1,000	.512
Linear-by-Linear Association	051	1	.822		
N of Valid Cases	236				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.49.

b. Computed only for a 2x2 table

Table 6. Analysis of Chi-Square relationships between general health condition and oral stomatitis

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2,832a –	1	042		
Continuity Corrections [b]	2005	1	.157		
Likelihood Ratio	2,525	1	.112		
Fisher's Exact Test				.109	083
Linear-by-Linear Association	2,820	1	043		
N of Valid Cases	236				

a. 1 cell (25.0%) has an expected count of less than 5. The minimum expected count is 4.85.

b. Computed only for a 2x2 table

Table 7. Analysis of Chi-Square relationships between economic status and oral stomatitis

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.186 [a]	1	.667		
Continuity Corrections [b]	042	1	.837		
Likelihood Ratio	.182	1	.669		
Fisher's Exact Test				.658	.410
Linear-by-Linear Association	.185	1	.667		
N of Valid Cases	236				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.04.

b. Computed only for a 2x2 table

The results of the analysis in Tables 2, 3, 4, 5, and 7 show no significant relationship between type gender, age, grade of education, residence, and economic status with incident thrush (oral stomatitis) ($p > 0.05$). Table 6 shows significant relationship between general health with incident of oral stomatitis ($P < 0.05$).

DISCUSSION

Oral stomatitis is inflammation that occurs in some location in the mouth such as on the tongue, palate, cheek mucosa, lips mucosa, gums, floor of the mouth and other locations. Oral stomatitis can lower quality life somebody like difficulty in speaking, chewing, and swallowing. The circumstances can too reduce the quality sufferer in studying and working. [3,12]

Prevalence of oral stomatitis by ethnicity Malay in Indonesia was 11%. It accordance with study previously suggested its prevalence range between 5-25%. The study was conducted by Mathew, reported that the prevalence of RAS is 2.1% in south India.[13] In other study conducted by Patil et al. (2014), reported that prevalence of RAS in northern India found by 21.7%.[2] A study conducted in Maharashtra reported that only 72 patients out of 71,851 patients were diagnosed in a manner clinical with aphthous stomatitis with prevalence 0.1%. [3]

On this study, the prevalence of oral stomatitis was slighly more among the respondent's female compared to with male. In a study conducted by Patil et al. (2014) have reported that there are higher prevalence among female (56.3%) than among male (43.7%).[2] It has been suggested by several studies that hormonal factors may be responsible for the higher prevalence of stomatitis among girls.[14] In contrast, few studies have reported this higher prevalence among men.[15]

The results show no significant relationship between age, gender, residency, education, and economic status with incidence of oral stomatitis. In contrary with research conducted before demonstrated there is difference significant between male and female. Likewise, previous findings disclose that more oral stomatitis often happened to the respondent with low economy.[2,4] Besides that, study previously put forward that prevalence more oral stomatitis higher among respondents who live in rural areas from urban.[13]

The study also finds significant relationship between condition health general with incident of oral stomatitis. Where thing the confirmed with exists frequent cases of stomatitis occurs in patients with disease systemic certain such as diabetes mellitus, anaemia, infection systemic and immunity disruptive. Systemic disease usually become predisposition of stomatitis. [16–18]

This study had limitations so that need study more carry on in development method. Limitations from study were; 1) measuring study tools used questionnaire "Is respondent experience ulcer in last four week"; 2) characteristics respondent with category rural and very unhealthy were few compared to others; 3) no followed longitudinally; and 4) no question related what factor trigger happening thrush/oral stomatitis.

CONCLUSION

Prevalence of oral stomatitis by ethnicity Malay in Indonesia is 11%. No significant relationship between age, gender, residency, education and economic status with incidence of oral stomatitis. There is significant relationship between health condition with incidence of oral stomatitis. Study results recommend necessity of oral hygiene in patients who have unhealthy condition. Disease *oral stomatitis* is necessary get attention from the dentist using education assembled prevention The conclusions.

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