

# Nutritional Status and *Angular cheilitis* in School Children at Landfill Suwung, Denpasar City

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**Abstract-***Angular cheilitis* the clinical diagnosis of majority lesions affecting at the corner of the mouth. *Angular cheilitis* was an issue of global that affect children population. *Angular cheilitis* becomes a serious problem due to its rapid development, therefore there should be no delay in treatment if symptoms of *angular cheilitis* have occurred. The purpose of this research is to know nutritional status with *angular cheilitis* in school children aged 6-12 years at landfill Suwung, Denpasar City. This research was a analytic descriptive study with 32 school children between 6-12 years old who have resided at landfill Suwung. Lameshow formula was used to calculate the sample size in this study. *Angular cheilitis* status was determined based on the criteria set by Ohman (1986). Anthropometric status was determined by CDC BMI-for-age percentile growth chart. Statistical analysis of the relationship between of nutritional status and *angular cheilitis* was a chi-square test. Prevalence of *angular cheilitis* and malnutrition status were 75% and 71,9%, respectively. There are significant relationship between nutritional status with *angular cheilitis* ( $p < 0,05$ ). Nutritional status is significantly associated with *angular cheilitis* in school children, at landfill Suwung, Denpasar city.

## Key words

*Angular cheilitis*; nutritional status; school children

## I. INTRODUCTON

*Angular cheilitis* is often found in school children in Indonesia. *Angular cheilitis* is the clinical diagnosis of majority lesions affecting the angles of the mouth. *Angular cheilitis* presents as an area of inflamed and cracked skin at the angles of the mounth (Partakusuma, 2016; Zaidan, 2008). One type of oral disease that often occurs in the community, especially children when there are nutritional factors is *angular cheilitis* occurs due to the condition of decreased immunity and below nutritional status (Fajriani, 2017). This disease can also be caused by vitamin B complex deficiency, blood iron deficiency, folate deficiency, denture sore mouth and other factors such as breathing through mouth, wetting lips with tongue and licking the corner of the mouth with tongue (Murray *et al.*, 2008; Park, 2011; Rakhmayanti *et al.*, 2016). There is debate about the causes of *angular cheilitis* and many factors suspected, including malnutrition and infection. This disease progression is so fast. There for should be no delay in treatment if symptoms of *angular cheilitis* occurred and very clear (Park, 2011).

WHO estimates that malnutrition children account for 181.9 million (32%) in developing countries. In Central and South East Asia, approximately half of children have a decline in growth, compared to their age (Atmarita, 2006). *Angular cheilitis* was prevalent disease of oral cavity which are found in various areas. Its prevalence from year to year was not receding. There are many etiological factor associated with the occurrence of *angular cheilitis*, among others are under nutrition, socio-economic factors and oral hygiene (Partakusuma, 2016).

The landfill of Suwung, Denpasar city was an area devoted to stockpiling any garbage originating from the city of Denpasar and surrounding areas. Based on observations and initial surveys conducted by researchers, most of the people living in the landfill of Suwung area work as "scavengers" or garbage workers. The socio-

economic life of the people is still in the middle to the bottom where the environmental and housing conditions are very concerned, there are many piles of garbage strewn, puddles that do not flow, clean water is not available, as well as less hygienic food, is it all becomes the trigger factor of *angular cheilitis*.

Based on the above, the authors are very interested to conduct research on the relationship of nutritional status with *angular cheilitis* in school children who live in the landfill of Suwung, Denpasar city.

## II. MATERIAL AND METHOD

The design of this study was a analytic descriptive study, with cross sectional study approach (Notoatmojo, 2002). This research was conducted in the landfill of Suwung, Denpasar city. The time of this research was conducted from September to October 2017. The study population was all school children residing around landfill of Suwung, aged 6-12 years, based on preliminary survey amounted to 40 children. The samples in this study were children who met the inclusion and exclusion criteria. Inclusion criteria are samples willing to be examined and parental consent, able to communicate well, cooperative during the data taking and present at the time of examination. Exclusion criteria are children who are mentally retarded.

The nutritional status of children was a state of children health, determined by the physical degree of energy and other nutrients derived from food whose physical effects can be measured based on the anthropometric index (Khairina, 2012).

Lameshow formula was used to calculate the sample size in this study (Lameshow, 1990). The number of samples set in this study were 32 school children. Angular cheilitis status was determined based on the criteria set by Ohman (Ohman *et al.*, 1986). Anthropometric status was determined by CDC BMI-for-age percentile growth chart. Statistical analysis of the relationship between of nutritional status and *angular cheilitis* was a chi-square test.

Weight of each subject was measured using an electronic weighing scale to the nearest 0,1 kg and height was measured to the nearest 0,1 cm using a microtoise.

## III. RESULTS

The subjects of this study was with 32 school children between 6-12 years old, who have receded in the landfill of Suwung, Denpasar city. In this study was found 24 respondents (75%) with *angular cheilitis* and 8 respondents (25%) without *angular cheilitis*. In this study found 14 respondents (43.75%) were 6-7 years age group, 5 respondents (15.63%) were 8-9 years age group, 10 respondents (31.25%) were 10-11 year age group, and 3 respondents (9.38%) are 12 years age group. Thus, most of the respondents in this study were the age group of 6-7 years (43.75%).

In this study found respondents had *angular cheilitis* and below malnutrition status were 75% and 71,9% respectively. In this study was found from 20 respondents (62.5%) who had below malnutrition status, also had *angular cheilitis*, 3 respondents (9.4%) who had below malnutrition status did not experience *angular cheilitis*. Of the 4 respondents (12.5%) who had normal nutritional status, experience *angular cheilitis*, Statistical test results using pearson chi-square showed that the significance value of 0.013. Pearson chi-square significance value for cross tabulation between nutritional status and occurrence *angular cheilitis*, smaller than probality value. Thus, it can be concluded that the nutritional status of children in landfill of Suwung, Denpasar city has a significant effect on the occurrence of *angular cheilitis*.

## IV. DISCUSSION

*Angular cheilitis* the clinical diagnosis of majority of lesions affecting the angles of the mouth. *Angular cheilitis* presents as an area of inflamed and cracked skin at the angles of the mounth. One type of oral disease that often occurs in the community, especially children when there are factors of malnutrition. There is debate about the causes of *angular cheilitis* and many factors suspected about the pathogenitas of this state, including malnutrition and infection. Lack of nutrition can be due to lack of vitamin B<sub>2</sub>, riboflavin, vitamin B<sub>6</sub>, piridoksin, iron, folic acid and biotin. *Angular cheilitis* becomes a serious problem due to its rapid development (Zaidan, 2008).

The prevalence of *angular cheilitis* is quite high in Indonesia (Yusran *et al.*, 2013). This is in accordance with the results of this study was found 24 respondents (75%) there are *angular cheilitis* and 23 respondents (71,9%) there are below malnutrition. This could be due to the fact that the children are domiciled in the

landfill of Suwung area, help his parents work as “scavengers” or garbage workers. The socio-economic life of the people is still in the middle to the bottom where the environmental and housing conditions are very concerned, there are many piles of garbage strewn, puddles that do not flow, clean water is not available, as well as less hygienic food, is it all becomes the trigger factor of *angular cheilitis* (Partakusuma, 2016). Confirmed also by Atmarita that children living in very unhygienic slums correlate with nutritional deficiencies to the triggering factor of *angular cheilitis* (Atmarita, 2006). This is because children aged 6-12 years including nutritionally vulnerable groups in accordance with the WHO statement that children aged 6-12 years are among the vulnerable groups of nutrition is a group in the community most susceptible to health problems or susceptible to malnutrition (Diana *et al.*, 2015). There are several etiological factors of *angular cheilitis* such as *Candida albicans* fungal infections, nutritional deficiencies, avitaminosis, and bad habits. Candidiasis is a red and creamy mushroom infection that originally looks like a patch formed on a moist surface in the mouth and can cause pain. This condition can cause difficult to swallow and changing the sense of taste. Candidiasis is more common in children with a very low immune system (Murray *et al.*, 2008). This study concluded that the nutritional status of children in landfill of Suwung, Denpasar city has a significant effect on the occurrence of *angular cheilitis*. This is consistent with statement that malnutrition is major cause of *angular cheilitis* in the third world countries. Nutrition deficiency may lower the immune system by impairing the cellular, so it provide of opportunistic infections such as *candida albicans* for the occurrence *angular cheilitis* especially in poor oral hygienes subjects. *Angular cheilitis* occurs in children frequently because of lack of nutrition. Nutritional status of children in which the main cause of *angular cheilitis* in children is a nutritional deficiency caused by lack of protein, vitamin A, B<sub>2</sub>, B<sub>6</sub>, B<sub>12</sub>, piridoksin, C, E, folic acid, biotin and mineral Fe, Zn (Budisuari *et al.*, 2010; Rakhmayanti *et al.*, 2016). One type of oral disease that often occurs in the community, especially children when there are nutritional factors is *angular cheilitis* (Fajriani, 2017).

In this study, it was found that in subjects with normal nutritional status experienced *angular cheilitis* were 12,5%. Similarly found in this study prevalence of respondents (9.4%) who had below malnutrition status did not experience *angular cheilitis*. This can happen because of nutritional status measurements by using CDC BMI-for-age percentile growth chart. This is in accordance with the opinion of Fajriani and Greenberg that although the child’s nutritional status is normal, the child may have vitamin B<sub>2</sub>, B<sub>12</sub>, B<sub>6</sub>, piridoksin, folic acid, Fe, or biotin deficiency, is it all becomes the trigger factor of *angular cheilitis* (Fajriani, 2017; Greenberg, *et al.*, 2008). There is debate about the causes of *angular cheilitis* and many factors suspected about the pathogenitas, including malnutrition and infection. Any etiologic factor causing *angular cheilitis* especially nutritional deficiency correlates with slum environmental conditions. Bacterial infection and mechanical factor often occur in children with bad habits such as licking the corner of the lip and sucking finger. These will accumulate the saliva on the corner of the mouth and unwittingly provide perfect environment for infections agents in causing between *angular cheilitis* and large intake of carbohydrates has been shown, and it was assumed that a high salivary concentration of 384lucose predispose to infection, in the angles of the mouth (Atmarita, 2006).

## V. CONCLUSION

This study was found 75% respondents there are *angular cheilitis* and 71,9% respondents there are below malnutrition. Nutritional status is significantly associated with *angular cheilitis* incident in school children, in landfill of Suwung, Denpasar city.

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