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in Improving Dental and Oral Health Care*

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**3rd DENTISPHERE (DENTISTRY UPDATE & SCIENTIFIC ATMOSPHERE)
CURRENT CONCEPTS AND TECHNOLOGY IN IMPROVING DENTAL AND ORAL
HEALTH CARE**

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RESEARCH ARTICLE

Preschool Caries With Pufa Index In Summersari Districts Jember

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ABSTRACT

Background: Pufa index used to assess the condition of the oral cavity as a result of untreated caries, consisting of pulpitis, ulcerative, fistula and abscess. **Methods:** An observational study with cross sectional approach in District Summersari Jember in November 2015 in children aged 4-5 years (294 infants) with cluster random sampling (n=176 infants). The research variable is dental caries (with pufa index). Data analyzed descriptively and presented with a table. **Results:** The results showed pulpitis cases are the first (1064 teeth), 22 cases of ulcerative teeth, abscesses 18 cases of tooth and the final sequence is a case of fistula are 7 teeth. Its shows a lot of dental caries and disorders as a result of untreated caries (ulcerative, fistula and abscess).

Keywords: pulpitis, ulcerative, fistula, abses

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BACKGROUND

Dental cavity which has already reached enamel cannot undergo recalcification because there's no suitable matrix available for the crystal to grow.¹ Poor oral hygiene promotes further tooth decay. Dental caries tends to grow in severity and spreads to adjacent teeth. A severe dental caries that left untreated will be able to cause pulpitis, sepsis, and infections that could potentially spread to the periodontal tissues, sometimes it can cause serious complications such as cellulitis and cerebral abscesses.²

The reported prevalence of rampant caries case was as high as 90%.³ A number of sources stated that the prevalence of 5 years old children dental caries was 29% in Denmark, 39% in Norway, 40% in England, 43% in Greece, and 55% in Scotland.⁴ While early childhood caries (ECC) prevalence in England, Finland, USA, West China, Hongkong, Taiwan, and Indonesia were reported as 4%; 6%; 20,2%; 20,2%; 31,5%; 56%, and 48%.⁵

There are variety of index to measure teeth and oral diseases. Pufa index provides information about clinical consequences of dental caries if left untreated, such as pulp abscesses which could pose a bigger threat than the cavity itself on one or more subjects. Pufa index observes of the advance stages of an untreated dental caries and the involvement of the pulp tissues. Pufa is an index that used to evaluate oral condition the resulted from an untreated dental caries. Pufa index scores any exposed pulp, ulceration of oral mucosa caused by root fragments, fistules or abscesses. The lesions on surrounding tissues which aren't tooth and pulp related

viewed as the unnoted effect of dental caries. The evaluation are conducted visually without any instruments. Just one score given for each tooth, evaluation based on pulp involvement. If any primary teeth and permanent teeth present at the moment and they are odontogenically infected then both teeth shall be taken into account. Capital letters are used to evaluate the permanent teeth and lower cases for the primary dentition. The codes and criteria for pufa index are listed below:

a. P/p:

Pulp involvement recorded when the pulp chamber is exposed or when the crown structure was devoured by the dental caries process and only root or root fragments that left intact. Probing are not conducted to diagnose pulp tissue involvement.



b. U/u:

Ulceration due to trauma caused by sharp edges of the teeth. Those sharp edges are dislocated with pulp involvement and the root fragments caused traumatic ulcer in the surrounding soft tissues, i.e tongue or buccal mucosa.



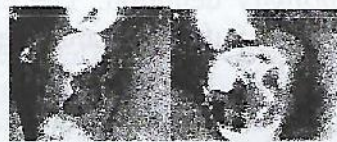
c. F/f:

Fistules are evaluated when there's a teeth related

suppuration with pulp involvements.



- d. A/a: Abscesses evaluated when aswollen tissue filled with pus is present and is tooth related with pulp involvement.



6,7,8,9

Individual pufa score is calculated with the same method with DEF-T and represents the number of teeth that matches the diagnostic criteria for pufa. Pufa for primary and permanent teeth are reported separately. So the pufa score for an individual ranges from 0-20 for primary teeth and 0-32 for permanent teeth. Pufa index possess an advantage compared the other dental caries indexes, this index can measure the severity of tooth decay (can be used as a complement to DEF-T index), easier to use (can be performed by non-dentists), safer, faster, and requires no additional instruments.⁶

Sumbersari is a subdistrict that situated in the center of Jember city with the greatest number of householders and children under age of five. Data recapitulation of family statistics in Summersarisubdistrict in 2014 recorded as much as 6779 householders and 2173 children below age of 5.¹⁰ On the age of 4-5 children begin to favor and consume lot of sweet treats but their parents aren't

paying much attention to their children's teeth brushing habit, this phenomenon resulted in increased vulnerability of dental caries in children's primary teeth.¹¹

MATERIAL AND METHODS

Observational descriptive research method with cross sectional approach in Summersari district of Jember in November 2015. Research populations were the children of age 4-5 years old (294 samples). Cluster random sampling (n=176 childrens) method was used in the research. The research variable was the dental caries. Additional instrument used was *dental mirror, dental explorers, neirbekken, dappen glass, tampon, cotton rolls, alcohol, latex gloves, surgical masks, gargling water cup, tissue, headlamp*. Data were analyzed descriptively and served in tables.

RESULT

The data of 176 children aged 4-5 years old in Jember's Summersarisubdistrict are shown in the table below:

Table 1.

Case	Numbers (teeth)
Pulpitis	1064
Ulcers	22
Fistules	7
Abscesses	18
Total	1111

Table 1 above shows that pulpitis was the most prominent case with 1064 infected teeth, ulcerative of oral tissues as many as 22 incidents, abscesses on 18 teeth, and fistules in 7

teeth. Those statistics shows a widespread of dental caries case in children and some complication of severe dental caries (ulcers, fistules, and abscesses) were also found.

DISCUSION

Harris *et al.*, (2004) published asystematic *review* about risk factors and significant indicators that related to the prevalence or incident of a primary teeth decay. They identified 106 factors that were compiled in demographic factors (education, parents, birth order), diet (sugar consumption frequency, softdrinks, snacks, sweet food and drinks consumed at night), factors related to mothers' breastfeeding and nursing bottle (duration of usage of the nursing bottle and breastfeed frequency), factors linked with oral hygiene (brushing frequency, plaque accumulation), factors related to the oral bacteria (*Streptococcus mutans*, *Lactobacilli*), and other factors as parent's attitude toward oral health, and the age when their children had their first dental examination.¹²

A healthy tooth that has it hygiene neglected combined by a high sugar diet resulted in a decay by the bacterial fermentation of food remains. When a cavity formed and not immediately treated it can grow in severity. At first a dental caries is asymptomatic; there is no pain because the decay hasn't reached the pulp yet while the inflammation process continues.¹³ Dental caries marked by a decay on the enamel and dentine. If the lesion is not immediately treated, the lesion can progress further until it reaches the pulp and develops as pulpitis, ulcer, fistules, and abscesses.

Dental caries that already reaches *dentinoenamel junction* is going to grow rapidly in lateral way because *dentinoenamel junctionis* not durable against dental caries. Demineralization of primary teeth elements that already passed through the outer enamel layer is going to grow rapidly in the progressivity. The caries process in dentine is twice as fast compared in the enamel because there is a lot of organic substances in this structure. The difficulty in eliminating the plaques from the rough and porous surfaces promotes the replication of bacteria. A continuing caries will cause an inflammation of the pulp, infection of the pulp with apical ailments, and potentially progresses toward necrosis.¹⁴

The usage of pufa index has been showed this index's relevance to treat a consequence of untreated dental caries. The collected pufa data can be used to plan, monitor, and evaluate health programs in the health centers.

CONCLUSION

The pulpitis is the most prevalence case, followed by ulcerative, abscesses, and fistules. This shows the high prevalence of dental caries in children below 5 years old and complications on untreated teeth with caries.

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