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Prevalence of dental caries based on DMF-S index in two Indonesian communities with different radon levels

Nadira1, S. Sitam1, Irmaleny1.

1Department of Radiology, Faculty of Dentistry, Universitas Padjadjaran, Bandung, Jawa Barat, Indonesia

Introduction: Caries is an oral disease with high prevalence and severity scale in Indonesia. The onset of caries may be affected by internal and external factors. One of the external factors is the unsound environment such as radiation exposure. Radon is an ionizing radiation exposure that may affect the public health and dental health of human beings.

Objectives: To determine the prevalence of dental caries based on DMF-S index in two Indonesian communities with different radon level.

Materials and methods: This research used the observational method with a cross-sectional approach. One hundred samples consisting of 50 respondents from the Gunung Masigit Village with radon level 24.8±29 Bq/m$^3$ and 50 people from the Cipatat Village with radon level 16.6±24 Bq/m$^3$ were participated. The DMF-S index examination was conducted on 5 dental surfaces using the mouth mirror and the WHO probe.

Results: The average value of DMF-S index in the Gunung Masigit Village on various tooth surfaces including occlusal, mesial, buccal, distal, and palatal/lingual are 4.96, 3.92, 3.92, 4.10 and 3.82, respectively. While the average value of DMF-S index in the Cipatat village on occlusal, mesial, buccal, distal, and palatal/lingual surfaces are 4.18, 2.92, 2.82, 3.04 and 2.82, respectively. From both areas the average value of DMF-S index on the various surfaces are occlusal 4.57; mesial 3.42; buccal 3.37; distal 3.57 and palatal/lingual 3.32.

Conclusions: As a conclusion, this research shows that the average value DMF-S index in the Gunung Masigit Village is high while the Cipatat Villages falls in the medium category. In both areas, the DMF-S index in the occlusal area is higher than other surfaces of the teeth.

Keywords: Dental Caries, Radon, DMF-S index.