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## Exposure of Radon in West Java Indonesia and its effect on oral health

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**Introduction:** Radon as natural ionizing radiation an odorless, tasteless, invisible gas that mixed in the air, decay by alpha particle emission ( $T_{1/2} = 3.8$  days), able to diffuse through rock and soil can caused effect on oral health.

**Objective:** This study was conducted to determine radon exposure and socioeconomic condition in West Java, Indonesia, especially Gunung Masigit and Cipatat, as well as its effect on oral health.

**Materials and methods:** The study used descriptive method. Radon level was determined by radon detector. Socioeconomical background was collected by using questionnaire. Oral health data was collected with epidemiological survey based on WHO Basic Oral Health Surveys Method (2013).

**Results:** The result showed that radon exposure in Gunung Masigit was  $24.8 \pm 29$  Bq/m<sup>3</sup> and in Cipatat  $16.6 \pm 24$  Bq/m<sup>3</sup>. Approximately three quarters of the people in both areas lives in the area for more than 20 years. The highest percentage of education level attained in Gunung Masigit was junior high school and in Cipatat was elementary school. The income level in Gunung Masigit was low, while in Cipatat was medium. Plasma superoxide dismutase (SOD) of the people in both areas showed that there was free radical in the cell caused radon activity. The average plasma SOD in Cipatat was 1.20, while in Gunung Masigit was 3.11. Both areas were often affected by diseases, including oral diseases such as dental caries and periodontal diseases. Dental caries and periodontal severity index in Gunung Masigit were higher than those in Cipatat.

**Conclusion:** It can be concluded that oral health condition is worse in area with higher radon level and it can be assumed that oral health can be influenced by socioeconomic condition.

**Keywords:** Radon, Oral health, SOD, Socioeconomic condition

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