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Significant Caries (SiC) Index and Distribution of Regional Origins for Members of Formed Police Unit (FPU) XI

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Abstract

Indonesia's geographical conditions are very diverse. Oral disease which is the most common global health problem is caries. An indicator of caries experience which includes decay, missing, filled criteria is DMF, the easiest and most frequently used method for epidemiological surveys of dental caries. To identify the subset of the population with high and very high DMF-T scores and to find individuals who are still susceptible to caries, the Significant Caries (SiC) index is used as a complement to the average DMF-T value. This study aims to determine the description of the Significant Caries (SiC) index and the distribution of regional origins of members of the Formed Police Unit (FPU) in LKOK Pusdokkes Polri Jakarta by the year 2020. This research is descriptive study with a total sampling method of selecting samples. A The DMF-T score was 1157 with a mean DMF-T of 6.4 (high criteria), and SiC index of 11.4 (very high criteria). Respondents from the Western Region of Indonesia had a DMF-T score of 465 and SiC index of 11.34 (very high criteria). The DMF-T score for respondents from Central Region of Indonesia was 155 and SiC index 11.9 (very high criteria). Respondents from Eastern Region of Indonesia had DMF-T score of 76 and SiC index 10.85 with (very high criteria). It can be concluded that respondents have DMF-T scores in the high criteria and SiC index with very high criteria. Based on the regions of origin of the respondents, SiC score index in all three regions are of origin is included in the very high criteria with respondents from the Central Region of Indonesia having the highest SiC index compared to the other 2 regions.

Keywords: Significant Caries (SiC) Index, Regions of Origin of FPU XI Member

INTRODUCTION

Diseases in the oral cavity have become a global health problem, everyone must have experienced poor oral health in their life. The disease most often found in the oral cavity is caries. Most of dental caries that occurs in developing countries is not treated.[1,2] In Indonesia, the incidence of caries is increasing from year to year, even in the top ten major diseases.[3] Although efforts to prevent this disease have been promoted, they have not shown tangible results. The results of the 2018 Basic Health Research stated that the largest proportion of dental problems in Indonesia was damaged teeth/dental caries (45,3%), while the proportion of the population who received treatment by dental health personnel to solve dental problems was 10,2%.[4] Most people do not realize the importance of taking care of oral and dental health. The public's ignorance has resulted in decreased productivity due to the effects of pain that is felt. This is due to decreased dental support tissue. This dental caries later becomes a source of infection which can lead to several systemic diseases.[5–7]

The economic impact of dental caries is the weakening of community productivity. If children experience dental caries, then the child's development will be hampered so that it can reduce the level of intelligence of the child, which in the long term will have an impact on the quality of life of the community.[5,8] According to WHO, the diagnosis of caries experience that meets the criteria for decay, missing, filled (DMF index) is the easiest and most frequently used method for epidemiological surveys of dental caries, because they can measure the health status of the oral cavity.[9,10] Although a decrease in the prevalence of dental caries has been observed in several countries, there is also a random distribution of dental caries in children within the age range of 12 years. In fact, some individuals aged 12 years have high and very high DMF-T scores while other individuals low or caries-free DMF-T rates.[11,12] Therefore, to identify the subset of the population with high and very high DMF-T rates, and to identify individuals who are still susceptible to caries, a new index called the Significant Caries (SiC) index was introduced by Brathall to be used as a attention to individuals who have a high caries value in each population. The value was obtained from the mean DMF-T scores in one third of the population with the highest caries score. This index is used as a complement to the mean DMF-T value.[11,13] This study aims to determine the description of the Significant Caries (SiC) index and the distribution regional origin of members of the Formed Police Unit (FPU) XI in LKOK Pusdokkes Polri Jakarta

METHOD AND MATERIAL

The method used is descriptive method. Descriptive method is a research method conducted to describe a situation objectively. The form of implementation of descriptive research used is the type of survey. The population in this study were 182 members of the Formed Police Unit (FPU) XI. From this number, 61 people (1/3 of the total population) with the highest DMF-T scores were determined to be used as research samples.

Data collection was carried out at LKOK Pusdokkes Polri Jakarta on April to May 2020, the data was obtained from the medical records of members of the Formed Police Unit (FPU) XI. To obtain the SiC index, the steps taken are: 1) calculating the DMF-T score for each sample; 2) calculate the mean DMF-T; 3) determine the number of individuals included in 1/3 of the population with the highest DMF-T score; 4) summing the DMF-T scores; and 5) dividing the DMF-T score by the sample size of the 1/3 population.

RESULT

This research was conducted in LKOK Pusdokkes Polri Jakarta in 2020 with targets members of the Formed Police Unit (FPU) XI. The population in this study was the medical records of members of the Formed Police Unit (FPU) XI with 182 respondents. The sampling technique used in this study was total sampling, which is a sampling technique in which the number of samples is the same as the population.

The data used in this study are secondary data, obtained from the medical records of members of the Formed Police Unit (FPU) XI by calculating the DMF-T score, grouping data with the same DMF-T score, calculating the mean DMF-T, determining the number of individuals who are included in 1/3 of the population takes the DMF-T data with the highest score, then divides it based on the value of 1/3 of the population so that the overall SiC value is obtained. Data collection was carried out on April to May 2020 at LKOK Pusdokkes Polri Jakarta. The data collection was carried out by researchers and assisted by an administrative officer of the LKOK Pusdokkes Polri

Table 1: DMF-T scores on members of the Police Formed Police Unit (FPU) XI

Total (person)	DMF-T	Mean DMF-T	Criteria
182	1157	6.4	High

Table 1 shows the DMF-T for members of the Formed Police Unit (FPU) XI at LKOK Pusdokkes Polri Jakarta in 2020, from the total personnel of 182 people, the DMF-T score was 1157 with a mean DMF-T of 6.4 which was included in the high criteria.

Table 2: Significant Caries Index (SiC) for members of the Formed Police Unit (FPU) XI

Total (person)	DMF-T	SiC Score	Criteria
61	694	11.4	Very high

Table 2 shows the Significant Caries (SiC) index for members of the Formed Police Unit (FPU) XI at LKOK Pusdokkes Polri Jakarta in 2020. The number of respondents is 61 people which is 1/3 of the total population with the highest DMF-T score (1/3 x 182 people). The DMF-T score was 694 with a mean SiC score of 11.4 which was included in the very high criteria.

Table 3: Significant Caries (SiC) Index of Members of the Formed Police Unit (FPU) XI Based on Region of Origin

Region of Origin	Total (person)	DMF-T	SiC	Criteria
Western Region of Indonesia	41	465	11.34	Very high
Central Region of Indonesia	13	155	11.9	Very high
Eastern Region of Indonesia	7	76	10.85	Very high
Total	61	696		

Table 3 shows that there were 41 respondents who came from the Western Region of Indonesia with a DMF-T score of 465 and a SiC score of 11.34 with very high criteria. Respondents from the Central Region of Indonesia are 13 people, have a DMF-T score of 155 and SiC 11.9 with very high criteria, and respondents from the Eastern Region of Indonesia have a DMF-T score of 76 and a SiC of 10.85 with very high criteria.

DISCUSSION

From the results of the study, it can be seen that the total score of DMF-T in 182 members of the Formed Police Unit (FPU) XI at LKOK Pusdokkes Polri Jakarta is 1157 with a mean DMF-T of 6.4 (high criteria). The results of this study are worse when compared to research conducted by Jotlely et al (2017) which was conducted on Papuan people aged 18-25 years, where the mean DMF-T score was 5.3 which was classified as a high criteria. However, when compared with the mean DMF-T results in the 2018 Riskesdas National Report according to job characteristics, the results of this study were better because in Riskesdas 2018 the mean DMF-T score in the field of work of the National Police (Polri) is 7.7 (very high criteria).[14]

The Significant Caries Index (SiC) score of the Formed Police Unit (FPU) XI at LKOK Pusdokkes Polri Jakarta is 11.4 with very high criteria. This result is worse when compared with the results of a study conducted by Loyola et al. (2011 on adolescents and young adults in Mexico aged 16-25 years. From Loyola's research, it was found that the DMF-T score for the respondents was 4.04 and the prevalence of caries was 74.4%. Based on caries severity, 48.8% of respondents had a DMFT score > 3 and 24% of respondents had a DMFT score > 6. The SiC index is 8.64.[15]

The comparison of SiC scores based on the regional origin of members of the Formed Police Unit (FPU) XI at LKOK Pusdokkes Polri Jakarta showed that the mean SiC score of respondents from the Western Region of Indonesia is 11.4 with very high criteria, respondents from the Central Region of Indonesia have a mean SiC index of 11.9 with very high criteria, and respondents from the Eastern Region of Indonesia have a mean SiC score of 10.85 with very high criteria. From the calculation of the proportion of dental problems by province in the result of Riskesdas 2018, it was found that the Indonesian national figure for cavities is 45.3%, 19% of teeth lost due to extractions, and 4.1% of teeth had been filled due to cavities.[4] These results are relevant to the results of this study where in the examination of the DMF-T index, the most commonly found be components are D (Decay) compared to M (Missing) and F (Filling). From the comparison of data on respondents in the Western, Central and Eastern Regions of Indonesia, both the DMF-T and SiC scores indicate very high criteria. This shows that the location of the area does

not affect the level of tooth damage, but the dental health of individuals or communities is one of the factors that affect the health of these individuals or communities. To prevent the occurrence of dental caries and maintain good oral hygiene, a person needs to keep the teeth clean by regularly brushing his in the right way. Correct brushing behavior refers to FDI Word Dental Federation, which is the habit of brushing your teeth every day, at least twice a day, after breakfast and at night before going to bed.

CONCLUSION

From the results of research conducted on members of the Formed Police Unit (FPU) XI, it was concluded that:

1. The number of caries experience in respondents as measured by the DMF-T indicator shows a score with high criteria
2. From 1/3 of the population with the highest DMF-T score, the SiC index was found to be in the very high criteria
3. If it based on the respondent's area of origin, the SiC score was not too different in the three regions, each of which was included in the very high criteria. Respondents from the Central Region of Indonesia have the highest SiC score compared to the other 2 regions.

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