

The association between parental socioeconomic level and dental caries in 12-year-old children in Pangkalan Jati, Depok City

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ABSTRACT

Introduction: Dental caries is among the most prevalent chronic diseases affecting children globally. It results from the demineralization of tooth structures due to the complex interaction of various factors, including diet, oral hygiene, and bacterial activity. Socioeconomic status (SES) is a well-established determinant of health that influences access to healthcare services, education, and health-related behaviors. Children from lower socioeconomic backgrounds are generally at greater risk of developing dental caries due to limited access to preventive care and reduced awareness of oral hygiene practices. This study examines the association between parental socioeconomic status—encompassing education, occupation, and income—and the prevalence of dental caries among 12-year-old children in Pangkalan Jati, Depok City, Indonesia. **Methods:** A descriptive cross-sectional study was conducted involving 111 twelve-year-old children, selected through total sampling. Dental caries status was evaluated using the DMF-T index (Decayed, Missing, Filled Teeth). Data on parental education, occupation, and household income were collected and analyzed for correlation with children's DMF-T scores. **Results:** The mean DMF-T score among participants was 2.8, indicating a moderate caries severity according to WHO criteria. Significant inverse correlations were found between DMF-T scores and paternal education ($r_s = -0.383$, $p < 0.001$), maternal education ($r_s = -0.278$, $p = 0.003$), paternal occupation ($r_s = -0.377$, $p < 0.001$), and household income ($r_s = -0.335$, $p < 0.001$). No significant correlation was observed with maternal occupation ($r_s = -0.138$, $p = 0.150$). **Conclusion:** Parental socioeconomic status—particularly education, occupation, and income—significantly influences the prevalence of dental caries among children. These findings underscore the importance of implementing targeted oral health education and intervention programs for socioeconomically disadvantaged families.

Keywords: children, dental caries, socioeconomic

INTRODUCTION

Dental caries is a disease that affected the hard tissue of the teeth, which occurs due to multiple factors, including primary factor also secondary factor, such as socioeconomic factor. Socioeconomic background determines one's significant variable that affects health behaviour and status. This study aimed to assess the association between parental socioeconomic level and dental caries in 12-year-old children.

METHODS

This was a descriptive study with a cross-sectional study design, conducted in 111 children aged 12 years in Pangkalan Jati, Depok City, using total sampling method. Dental caries status was assessed by using the DMF-T (decayed, missing, filling teeth) Index.

RESULTS

The result of this research showed that the DMF-T Index in children aged 12 years in Pangkalan Jati, Depok was in moderate index (2,8). There were significant associations between paternal educa-

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tion and dental caries ($r_s = -0,383$, $p < 0,001$), maternal education and dental caries ($r_s = -0,278$, $p = 0,003$), paternal occupation and dental caries ($r_s = -0,377$, $p < 0,001$), also family income and dental caries in children ($r_s = -0,335$, $p < 0,001$). However, there was no significant association found between maternal occupation and dental caries in children ($r_s = -0,138$, $p = 0,150$).

Table 1. Correlation between DMF-T with Various Characteristics

DISCUSSION

Based on the result of the research, DMF-T Index data on 12 year old children in Pangkalan Jati, Depok City is 2,8. Referring to the caries severity classification according to WHO, DMF-T index of 2.8 is included in the moderate caries class. This figure is higher than the results of Basic Health Research (Riskesdas) in 2013 on DMF-T Index according to the characteristics of the 12-year age group in Indonesia at 1.4.1 This result is also higher than the study by Notohartoyo (2002) on the assessment of DMF-T Index in the city

Table 1. Correlation between DMF-T with Various Characteristics

Correlation between DMF-T with the characteristics	Correlation Coefficient (r_s)	p value
Paternal Education	-0,383	< 0,001
Maternal Education	-0,278	0,003
Paternal Occupation	-0,377	< 0,001
Maternal Occupation	-0,138	0,150
Family Income	-0,335	< 0,001

r_s = rank spearman's Correlation Coefficient

of Bandung for 2.00.2 Based on data from the Ministry of Health of the Republic of Indonesia (2014), the number of dentists in Depok City is still below the target that has been determined. The dentist ratio in Depok City is 6 / 100.000 population, with target of dentist ratio 12 / 100.000 population.³ This means that the number of dentists in Depok City is still less than the required amount.

The results showed a significant relationship between paternal education with DMF-T score in children ($p < 0.001$), and the relationship between maternal education with DMF-T score in children ($p = 0,003$). This result is similar to the research conducted in Medan on the correlation between the socioeconomic level of parents with caries-free status of children aged 7 - 11 years. Can be interpreted, the lower the parent education the higher the level of dental caries in children, on the contrary the higher the parent education the lower the level of dental caries in children.⁴ Highly educated parents are assumed to have a good knowledge of health and are also balanced with high health concerns. Awareness to care for dental health is also high in parents with high education. Conversely, in parents with low levels of education are assumed to have low levels of knowledge and awareness of dental health. Parents with low levels of education often neglect their child's dental health so dental caries can occur.

Work is a symbol of a person's position in a society that demonstrates the ability to earn money to meet the needs of life, shelter, and health services desired. The better the type of work a person then the needs of life and family health more fulfilled too.⁴ The results showed that there was a very significant relationship be-

tween father work and DMF-T score in children ($p < 0.001$). This is similar to the results of a study conducted in Medan with significant results on the relationship between dental work and caries-free prevalence. The result of the research on mother work relationship with DMF-T score of children in this study showed no significant relationship between maternal job with DMF-T score of children ($p = 0,150$). This is similar to the results of a study conducted in Bitung on the influence of the socioeconomic status of parents on childhood caries which did not show any significant relationship between maternal and childhood caries work. This is thought to be due to the high percentage of unemployed mothers or low levels of employment of 90 (81.1%), and financial resources may be obtained only from husband's income.

The results of this study indicate a significant relationship between family income with dental caries of children ($p < 0.001$). The results of a study by Guan et al (2015) in China showed a similar case where there was a significant relationship between dental caries in children with family income. Revenue can be a measure of a person's ability to obtain health care (Susi et al., 2012). Parents with sufficient or adequate income can provide care to their children through adequate health care as well. Conversely, parents who have inadequate income will have difficulty in terms of performing care on health services. Alternative selection such as buying own medicine, referring to a general practitioner, or visiting a dental practitioner often done by families with low economy.

It can be understood that most of the variables are not influenced by the existence of annoying variables, in terms of the existence of a meaningful relationship between the variables mentioned above. Unlike the case with maternal education variables that have no significant relationship with dental caries in children. This is likely due to the influence of these confounding variables that include behavior, lifestyle, and health services.

CONCLUSION

The conclusion of this research shows that parental socioeconomic level is associated with dental caries in 12-year-old children in Pangkalan Jati, Depok.

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