

## The Effect of Parents' Socioeconomic Factors on Their Willingness to Take Care of Their Children's Oral Health in Early Childhood

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### Abstract

In Indonesia, 81.5% of children in their early childhood suffer from dental caries as infectious disease. Early childhood caries (ECC) is influenced by both internal factors i.e., host, substrate, and environment, and external factors i.e., socioeconomic condition of their parents.

Objectives to analyze socioeconomic factors i.e., education level, income level, and parental occupation towards parents' willingness to take care of child's oral of in early childhood.

This study used a literature review method. Articles were obtained from Google Scholar and PUBMED database from the publication period of 2011-2021. As many as 7,621 journals were retrieved, but only 11 journals matched the inclusion criteria. In this study, it was found that parents' socioeconomic status significantly affected child's oral health. Parents' education level was linked to the use of children's dental services. Parents with lower oral health knowledge showed unhealthy behavior and were less interested in maintaining their child's dental health.

The socioeconomic factors related to parents' willingness to check child's oral care include education level, followed by income level and occupation.

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### Introduction

Dental caries is an infection that occurs due to the acid produced from the metabolic process of bacteria on the surface of teeth. Over a period of time, the acid will inflict damage on the tooth enamel and create cavities.<sup>1</sup> Dental caries is also a disease that often occurs in society, especially in children. The Indonesian Basic Health Research in 2018 stated that 81.5% of children in their early childhood, i.e., in the 3 to 4-year age range experienced dental caries (Research and Health Development of the Indonesian Ministry of Health, 2018).<sup>2</sup>

According to the FDI World Dental Federation,<sup>3</sup> there are several factors that play a role in the development of caries, such as oral environmental factors, individual factors, community factors, and family factors. Oral

environmental factors consist of host, sugar, and bacterial biofilm or dental plaque. Individual factors are physical and demographic conditions, visits to dentists, healthy habits and behavior, genetic inheritance, and the influence of a person's growth and development. Community factors include race or ethnicity, culture, environment, and physical safety, as well as dental service facilities in the vicinity. While family factors consist of the family's health behavior, parents' health status, and socioeconomic status. Socio-economic status is a factor related to a person's health status, including the degree of dental and oral health.<sup>4,5,6,7</sup> Several factors can be used to measure a person's socioeconomic level in terms of occupation, income, and education, or other variations of these socioeconomic indicators.<sup>8</sup> Education will affect changes in attitudes and behavior towards health. Parents with a high level of education will find it easier to absorb information and implement it in their daily life; for example, they can practice maintaining oral and dental health.<sup>9</sup> Research conducted in Bauru Brazil in 2012 on the relationship between socioeconomic status and caries prevalence in

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children aged 3-5 years showed that 66.82% of children came from families with low socioeconomic background.<sup>10</sup>

High caries rates in children from families with low socioeconomic status indicate a lack of dental care among children. The American Academy of Pediatric Dentistry (AAPD) recommends that the initial visit to the pediatric dentist should begin within 6 months of the eruption of the first primary tooth or one year of age. In addition to visiting the dentist every 6 months, the role of parents is very important in maintaining dental and oral hygiene in children, for example, teaching children to brush their teeth by giving 2 cm (or the size of a corn kernel) of fluoride-containing toothpaste, brushing their teeth for 2-3 minutes, checking dental and oral hygiene and teaching children how to independently assess their dental hygiene.<sup>11</sup>

Dental care must start as early as possible because it will affect a child's health.<sup>12</sup> One method of maintaining dental and oral health is to regularly visit a dentist from an early age. Research has shown that 35% of parents supported early dental care at a dentist at least at the age of 1 year, and 65% perceived primary teeth did not need treatment as being replaced by permanent teeth. Similarly, 60% of parents only took their children to the dentist when a problem arose.<sup>13</sup> Several other studies have shown low levels of parents' knowledge, attitudes, and actions regarding visits to a dentist from an early age. Of the 842 children who came to the Department of Pedodontics and Preventive Dentistry, Chitwan Medical College Teaching Hospital, Nepal in May to November 2013, only 7% visited the dentist for the first time when they were less than 3 years old. About 1.1% came to a dentist for preventive measures.<sup>14</sup> Research by Draidi in Jordan showed that parents' knowledge of visits to a dentist from an early age was still low, and the average age of children with first dental check was 5 years.<sup>15</sup>

As parents are largely responsible for their child's dental health, it is important to know more about the relationships between parents' socioeconomic condition and their willingness to take care of child's teeth from an early age.

## Review

Search strategies:

Literature search was conducted from

January to June 2021 to identify published studies on the relationship between parents' socioeconomic and their willingness to care for their children's teeth from an early age. A librarian who managed medical referencing developed individual search strategies and retrieved citations from ScienceDirect, PubMed and Google Scholar. A mix of words and controlled vocabulary (*Parent socioeconomic AND Early Childhood Caries AND dental treatment*) were used.

Criteria:

This systematic review included cross sectional studies examining the relationship of parents' socioeconomic condition with their willingness to care for their children's teeth from an early age.

The following inclusion and exclusion criteria were used for literature selection.

Inclusion Criteria

The participants were parents of children in early ages, and the unit analysis was parents' socioeconomic condition, whether it was related or not to willingness to care for their children's oral health care. This study was cross-sectional studies that involved statistical data of odds ratios (OR), relative risk, confidence intervals (CI), p-values, and frequency of an absolute number of events in comparison with the total number of individuals per group.

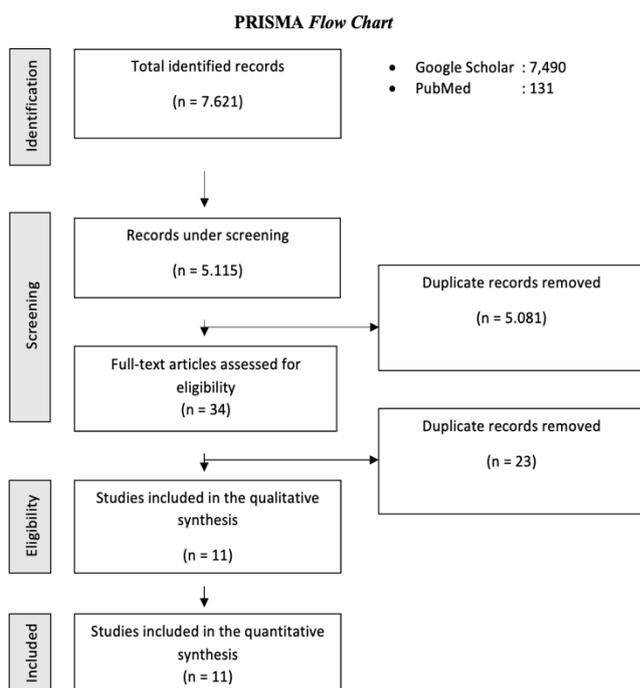
Exclusion Criteria

The following are the exclusion criteria applied: in vitro studies; animal studies; papers with abstract only; literature reviews; letters to the editor; editorials; patient handouts; case report or case series.

Data Extraction

This study generated descriptive data including clinical and methodological factors such as country of origin, study design, study site, and subjects' age.

The four-phase Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) diagram could establish the number of studies identified, screened, and included in the systematic review.



**Figure 1.** Flow diagram of study identification.

## Discussion

The FDI World Dental Federation 2015 stated that there are several factors affecting the development of dental caries, one of which is family factors. Family factors can include family's health behavior, parents' health status, and socioeconomic status. Socioeconomic status (SES) is a comprehensive measure of economic and social status. Generally, in sociology, SES is considered a potential structure and is quantified using comprehensive measures of education, income, and employment or some variations of these indicators.<sup>9</sup> Basrowi also argues that factors i.e., level of education, occupation, and income could determine whether a person's socioeconomic level is related to a generally accepted average size.<sup>16</sup> According to Li, Y et al,<sup>17</sup> one socioeconomic factor, namely parental education, was related to the parents' willingness to care for their children's teeth from an early age. In the study, parents with higher levels of education were likely to have a better understanding of oral health and knowledge of the oral cavity, for example, dental care needs. Children with more educated parents also were better at maintaining oral hygiene. This is also related to the research of Li, Y et al.<sup>18</sup> and Prakash et al.<sup>19</sup> which proved that parental education was related to their willingness to take

care of their children's teeth from an early age. Education can cause people to become more conscious of health and help them improve and practice healthier lifestyles for themselves or others. Li, Y et al.<sup>20</sup> showed the prevalence of ECC in children was 78.2%, and S-ECC was 41.2%. The prevalence of ECC was significantly lower in children with more educated mothers, as well as those from high-income families.

Research by Prakash et al.<sup>21</sup> also stated that the prevalence of caries in preschool children in urban Bangalore had a relationship with low maternal education. Low socioeconomic status and education factor were also related to the children's irregular consumption of food. Likewise, Stephen et al.<sup>10</sup> found that the prevalence of ECC was 16% in Salem, Tamil Nadu. The ECC was higher in children from lower educated groups. In line with the study, Li, Y. et al.<sup>15</sup> stated that parental factors such as education and income were notable risk factors in the development of ECC in children.

Elamin A et al.<sup>22</sup> also concluded that 4 out of 10 children aged 18 months to 4 years experienced dental caries. Lower education of mothers, bad habits of rarely teeth brushing among children, and consumption of high-sugar foods could be factors correlated with dental caries. The study found that Emirati children generally consumed more sugar than non-Emirati children and had more dental caries. It may suggest the need for targeted interventions. The study also stated that dental health education for parents with preschool children was considered to increase the willingness of parents to care for their children's teeth. Besides, introducing dental check-ups as early as possible can be a proactive preventive strategy.

Meanwhile, in Souza et al.'s research,<sup>23</sup> other socioeconomic factors e.g., income also had a relationship with parents' willingness to care for their children's teeth from an early age. Socioeconomic inequality, according to the study, was related to preventive and dental care services. Dental care service was more common in children with higher-income parents. Of the 7,241 children included, 3,812 (53.2%) had used dental care services at least once, and 1,872 (48.8%) had used dental care services for check-ups/prevention. The use of dental care services was higher in children of families with higher incomes. These findings are also supported by Li, J et al.<sup>14</sup> stating that besides parents with low

levels of education, parents with low household incomes had put their kids in a higher prevalence and severity of ECC.

Folayan et al.<sup>24</sup> also found that parents' socioeconomic factors e.g., income was proven to be related to their willingness to care for their children's teeth. However, the use of dental care services was more familiar for treatment than prevention. Likewise, dos Santos et al.<sup>24</sup> found that the prevalence of ECC correlated with low family income. Thus, this current study strengthened its findings and other previous ones by stating that socioeconomic factors are one of the important determinants of child's dental health.

Another socioeconomic factor observed influential by Stephen et al.<sup>10</sup> was parents' employment status. From the study, there was a relationship between parents' employment status and their willingness to care for their children's dental health. Out of 174 (39.28%) working mothers, with the average dfs of their children was 10.47, and out of 269 (60.72%) of unemployed mothers, the average dfs of their children was 8.07. Children had ECC when their mothers worked and vice versa.

In a study by Jain M. et al.<sup>25</sup> 56% of children did not brush their teeth at all, while 42% did once a day. The average deft was lower ( $1.5 \pm 0.509$ ) in children who brushed their teeth twice a day compared to once a day ( $4.3 \pm 1.012$ ), and the average deft was the highest ( $5.42 \pm 3.048$ ) in children who did not brush their teeth at all. Caries on average decreased with increasing brushing frequency, and caries happened the least in children who brushed twice a day. The lowest caries rate occurred to children who were supervised or assisted by adults while brushing their teeth. This study concluded children who brush their teeth late have a higher prevalence of caries in early childhood. Therefore, toothbrushing should be done when the first deciduous teeth erupt. Moreover, toothbrushing can be optimal if parents become a role model for their children to embed healthy habits for maintaining children's dental health.

Alhabdan et al.<sup>26</sup> also found that there was a relationship between caries and good oral health behavior in general, particularly the habit of teeth brushing. There was 1.5 times the risk for dental caries among people who brushed their teeth less than once per day compared to those who brushed regularly. In this study, a

majority of the children began brushing their teeth after the age of two, and a higher risk of dental caries was found among children who started brushing late at around three or four years of age. Furthermore, Bissar A. et al.<sup>26</sup> observed the majority of parents (65%) had yet to start brushing their children's teeth before the age of one. Furthermore, most parents (57%) did not help their children brush their teeth after three years of age. With regard to primary teeth brushing, dental students and dental nurses, in addition to dentists, should study the importance of dental health education for parents to start maintaining oral hygiene during the eruption of the first primary teeth. Besides, they need to convince parents about their responsibility to maintain their children's oral hygiene at least until they begin pre-school.

This study still has many shortcomings and limitations, among others. For example, library resources are limited when it comes to the relationship between socioeconomic condition of parents and their willingness to care for their children's teeth from an early age. Few studies have been done to children of an early age, and parents' employment is often less specifically discussed in various journals since working is their choice. The data for the current research are often less specific even though the data can still provide answers for the research questions. Therefore, future research should clarify parents' employment status more specifically and look for the underlying mechanisms.

Based on the review of 11 journals, this study concluded there is a relationship between parents' socioeconomic condition and their willingness to care for their children's teeth from an early age. In another word, parents' socioeconomic factors greatly contribute to their children's dental health. Lower socioeconomic factors e.g., parents' education levels indicate unhealthy behavior and little interest in maintaining their children's oral health. The use of dental health services is also higher in children with parents with higher incomes. Regarding employment status, parents' occupation was related to their children's dental health. Children with caries are more found among working mothers, and vice versa. Preventive actions e.g., toothbrushing among children from an early age poses a significant effect on overcoming caries in early childhood. In addition to employment, adult supervision or assistance with toothbrushing is

important. Therefore, it is necessary to educate parents about maintaining their child's dental hygiene as early as possible and convince parents about their responsibility for maintaining their child's dental hygiene.

## Conclusions

The socioeconomic factors related to parents' willingness to check child's oral care include education level, followed by income level and occupation.

## Declaration of Interest

The authors declare that there are no conflicts of interest.

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