

## The relationship between family economic status and parents' level of knowledge about dental caries disease in early childhood

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### ABSTRACT

Dental caries is an infectious disease that attacks the lining of the teeth caused by bacteria. According to the Indonesian Basic Health Research in 2018, the prevalence of dental caries in Indonesia is still quite high, namely 45.3% which has increased compared to data in 2013 which amounted to 25.9%. In early childhood with an age range of 3-4 years, they experienced dental caries as much as 36.4% and at the age of 5-9 years as much as 54.0%. This study uses the literature review method and based on the result of data search, 7 articles were studied in this study. The result found in 7 articles stated that the low income of parents affects the maintenance and oral health services for their child. In line with the low level of education, parents will also have a low level of knowledge about dental and oral health as well. Meanwhile, high parental income and high education will have an impact on the low incidence of caries in child. The conclusion of this study is that there is a relationship between family economic status and dental caries in early childhood which is also influenced by the level of knowledge of parents about the importance of maintaining oral and dental health.

**Keywords:** caries, economic status, level of knowledge

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### INTRODUCTION

Dental caries is an infectious disease that attacks the hard tissues of the teeth, namely enamel, dentine and cementum caused by acids produced by bacterial metabolism on the surface of the teeth, so that within a certain period of time these acids will damage the tooth coating and cause cavities. Early Childhood Caries (ECC) is caries that occurs in the teeth of early childhood, if the condition is severe it can be called Severe Early Childhood Caries (S-ECC).<sup>1</sup> According to the Indonesian Basic Health Research in 2018, the prevalence of dental caries in Indonesia is still quite high, namely 45.3%. That prevalence has increased compared to data in 2013 which amounted to 25.9%. In early childhood with an age range of 3-4 years, 36.4% experienced dental caries and 54.0% at the age of 5-9 years.<sup>2</sup>

Caries is a multifactorial disease. There are several factors that influence the occurrence of caries, such as oral environmental factors, individual factors, community factors, and family factors. Environmental factors in the oral cavity include the host, sugar, and biofilm or dental plaque. Individual factors include physical and demographic conditions, visits to the dentist, healthy habits and behavior, the presence of genetic factors, and the influence of growth and development. Community factors, namely race or ethnicity, culture, environment, physical safety, and dental service facilities in their environment. As well as family factors which include family healthy behavior, parents' health status, and socioeconomic status.<sup>3</sup>

Socioeconomic status is a factor that is indirectly related to a person's health status, including the degree of dental and oral health.<sup>4</sup> Factors that can be used to measure the socio-economic level of a family include occupation, income, and education.<sup>5</sup> A person's occupation affects his family life where each individual's occupation is different. This difference can lead to the difference between low income levels and high-income levels.<sup>6</sup>

Income is the total income of the head of the family or other family members. While education is an activity and effort to improve personality by fostering personal potential. Economic status itself is defined as the position of a person or family in society based on monthly income. Economic status can be seen from the income adjusted for staple goods.<sup>7</sup> Income can affect social status that occurs in the community. This affects the social recognition of the social status of each individual in society.

Health knowledge includes what a person knows about ways to maintain health, such as knowledge about infectious diseases, knowledge about health-related factors, knowledge about health care facilities, and knowledge about disease prevention.<sup>8</sup> Factors that affect a person's level of knowledge include education; information or mass media; social, cultural, and economic; environment; experience; and age. The level of education will influence changes in attitudes and behavior towards health. Parents with a high level of education will more easily absorb information and apply it in everyday life, for example parents can practice and train their children to maintain oral health.<sup>9</sup>

The high incidence of dental caries in children (ECC) from families with low economic status indicates a lack of dental care for children.<sup>10</sup> The American Academy of Pediatric Dentistry (AAPD) recommends that the initial visit to the dentist should begin within 6 months of the eruption of the first primary teeth. In addition to visits to the dentist every 6 months, the role of parents is also very important in maintaining healthy teeth and mouth in children, for example teaching children to brush their teeth, brushing their teeth for 2-3 minutes, checking dental and oral hygiene, and teaching them how to assess cleanliness. teeth independently.<sup>11</sup>

Dental caries in children who are not treated will result in impaired quality of life, such as pain in the mouth, difficulty chewing or eating hard food, insomnia, absence from school and difficulty concentrating in class. Children with dental caries have a worse quality of life impact than children without dental caries. The main impacts that arise include pain which will result in disruption to eating patterns, sleep patterns, school and social activities.<sup>12,13</sup> Therefore, parents are very responsible for the dental health of their children, so it is important to know more about the relationship between the economic status of parents and the level of knowledge of parents about caries in early childhood.

Based on the background description above, it can be seen that there are several factors that cause caries in early childhood such as oral environmental factors, individual factors, community factors, and family factors. In this study, researchers formulate the problem regarding the relationship between family economic status and parents' level of knowledge about dental caries in early childhood using the literature review method.

## METHOD

This type of research is a literature review, which is a series of literature studies related to library data collection methods where the object of research is taken through library sources without the researcher having to go into the field to find the necessary data.<sup>14</sup> The data collection method is to collect secondary data obtained from various sources, such as books, scientific articles, reports, and others.<sup>15</sup> The database source used in this study is Google Scholar with the stages of literature review described by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method. Screening of research data is carried out to select research problems that are appropriate to the topic of the problem to be discussed. At screening, the researcher determined the inclusion and exclusion criteria. Inclusion criteria include articles with a period of 10 years (2012-2022), articles in Indonesian or English, the type of article is a research article with research objects on early childhood and parents. Meanwhile, the exclusion criteria included in vitro research, research on experimental animals, research with only abstracts, literature review, and case reports.

Data analysis is a vital process in a study that aims to systematically search, combine, and organize data that has been obtained by researchers so that new understanding can be obtained and can be interpreted into results that are in accordance with scientific principles.<sup>15</sup> In this literature review, data analysis was used in the form of critical review analysis, which is a process of careful and systematic analysis used in evaluating research to determine the level of trustworthiness, value, and relevance in a particular context. The result of this data analysis is to evaluate and interpret the literature sources that have been selected by researchers by considering the validity, results, and also the relevance of the literature sources to the subject matter of this study. There are three stages that must be carried out in critical review analysis, namely compare or find similarities between several literatures, contrast or find differences between several literatures and draw conclusions, and criticize or provide opinions based on the sources of literature that have been analyzed.<sup>16</sup>

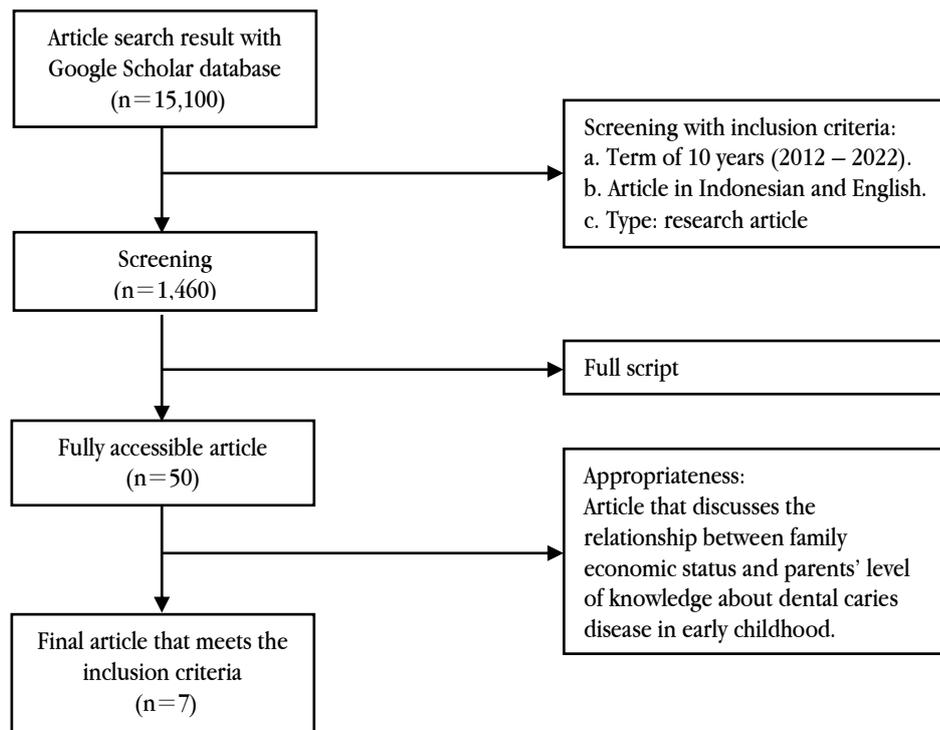


Figure 1. PRISMA flow diagram

## RESULTS

The search for research data in the form of literature was carried out through the Google Scholar database. The keywords used were "family economic status", "parents' level of knowledge", and "early childhood caries" and the search results obtained were 15,100 articles. The search results that have been obtained are then filtered with inclusion criteria which include articles with a period of 10 years (2012-2022), Indonesian or English language articles, types of research articles, and the results obtained are 1,460 articles. In further screening, only full article data were collected and not those containing only abstracts, the results obtained were 50 manuscripts. Further research data must be determined which will be carried out by reviewing the literature by looking at the feasibility of the literature source. Researchers only took data relating to the relationship between family economic status and parents' level of knowledge about caries in early childhood. The results of research data findings that meet eligibility are as many as 7 articles which will then be carried out a critical appraisal to analyze the study results.

Table 1. Article review.

No	Author and Title	Goals	Result
1.	Zhang <i>et al.</i> (2021) "Association between socioeconomic status and dental caries among chinese preschool children: A cross-sectional national study"	Discusses indicators of socioeconomic status including parents' knowledge and family income on the incidence of dental caries in preschool children.	The results of the study show that children from families with minimal knowledge and low income have a higher dental caries index compared to children from families who have good knowledge and have sufficient or high income.
2.	Liu <i>et al.</i> (2022) "Early childhood caries prevalence and associated factors among preschoolers ages 3-5 years in Xiangyun, China: A cross-sectional study"	Discusses the investigation of the prevalence of early childhood caries in preschool children aged 3-5 years in the Chinese region, and explores the factors related to the prevalence of caries in these children. Related factors examined in this journal include demographic variables, family socioeconomic status, eating habits and oral health, parents'	The results of a study conducted on 1,280 children aged 3-5 years showed a caries prevalence rate of 74.3%. The results of the regression analysis showed that the most significantly related factors were older age, lower family income, and poorer parental perceptions of children's dental and oral health status.

		dental knowledge, and condition of utilization of dental services.	
3.	Aryanita <i>et al.</i> (2018) "Gambaran tingkat sosial ekonomi orang tua dan perilaku anak terhadap indeks karies di SD 1 Kerobokan dan SD 1 Kamasan"	Discusses the level of parental education, parental occupation, parental income, and children's behavior on dental DMF values in elementary school children.	The results of the study showed that there was no significant influence between the socioeconomic status of parents and caries in children.
4.	Jyoti <i>et al.</i> (2019) "Hubungan tingkat pengetahuan dan perilaku ibu dalam merawat gigi anak terhadap kejadian karies anak di TK Titi Dharma Denpasar"	Discusses the relationship between mother's level of knowledge and mother's behavior in caring for children's teeth to the incidence of child caries in kindergarten. Considering that Denpasar has a lot of access to dental and oral health services, is it in line with the caries index in the region.	The results of the study show that most mothers have good knowledge about dental care for children, this is also supported by environmental factors where Denpasar is the capital city of Bali with very good access to information. In addition, studies show that some respondents have good behavior in caring for children's teeth. Respondents with a good level of knowledge have children with a very low caries severity level, while respondents with a poor level of knowledge have children with a very high caries severity level.
5.	Fadia <i>et al.</i> (2022) "Pendapatan orang tua dengan kejadian karies gigi anak TK Dharma Wanita Persatuan Tambakrejo 1"	Discusses the relationship between parental income and the incidence of dental caries in children in kindergarten because the prevalence of dental caries in kindergarten is still relatively high.	The results of the study show that there is a significant relationship between parents' income and the incidence of dental caries in children in the kindergarten. Low income is caused by minimum education and some respondents work as laborers, so this affects the income received. Low income has an effect on dental caries due to limited intake of food that nourishes teeth.
6.	Oktaria (2021) "Hubungan status ekonomi keluarga terhadap tingkat pengetahuan orang tua mengenai menjaga kesehatan gigi dan mulut di Kelurahan Talang Kelapa"	Measuring the economic status of the family (lower class, middle class, upper class) through income, occupation, and parents' educational level (high and low), as well as measuring the level of parents' knowledge about dental and oral health. Families with middle to lower socioeconomic status assume that money is better used for daily needs and ignore dental and oral health problems.	The results of the study show that the low economic status of parents indicates low knowledge about dental and child health. In addition, there is a significant relationship between parental education, the higher the parental education, the higher the knowledge about dental and oral health.
7.	Susi <i>et al.</i> (2012) "Hubungan status sosial ekonomi orang tua dengan karies pada gigi sulung anak umur 4 dan 5 tahun"	Discusses the relationship between socioeconomic status and the incidence of caries in primary teeth of children aged 4 and 5 years. Damage to primary teeth spreads more rapidly, extends and is more severe than permanent teeth. Caries is often found in people with low socioeconomic status.	The results of the study showed that there was no significant relationship between the socioeconomic status and the caries status of the respondents.

## DISCUSSION

Caries is a multifactorial disease. Several factors influence the occurrence of caries, one of which is the family factor. Family factors include family healthy behavior, parental health status, and socio-economic status.<sup>3</sup> Socioeconomic status is a comprehensive measure of economic and social status, which is considered as a potential structure and quantified using measures of education, income, and employment.

Based on the research, most of the children's parents have low education.<sup>17</sup> With low education, parents have limitations in getting jobs, so parents have low income to meet their daily needs, meaning that with a low level of education, parents will also have a low level of knowledge about dental and oral health. The low income of these parents affects the maintenance and oral health services for their children. This is due to the high cost of dental and oral health services. This statement is reinforced by the results of research which stated that there were 81.8% of children with dental caries and came from families with low economic status.<sup>18</sup> Families with high

levels of family income have children with DMF-T of 1.7 which indicates that the caries index of families with high economic status is included in the low category. Meanwhile, children with low parental income levels have a DMF-T value of 3.5 which indicates that the caries index from families with low income levels is included in the high category.<sup>19</sup> In general, families with high levels of economic status will have many opportunities to access health information, come to dental and oral health services, and receive dental and oral health consultations, which can contribute to caries prevention in early childhood.<sup>20</sup> Family economic status is the strongest factor that correlates with dental and oral health in children.<sup>21</sup>

The low level of parental income and knowledge has an impact on the high prevalence of dental caries in children and also the high DMF-T. This is in accordance with the research which states that children with parents who earn enough have the opportunity to obtain health services. Parents with adequate income will enable them to provide better health services to their children. Meanwhile, parents with low economic status will find it difficult to meet their basic needs, let alone provide dental and oral health services to their children.<sup>22</sup>

In the research regarding the relationship of family economic status to the level of parental knowledge about maintaining oral and dental health in Talang Kelapa Village, it concluded that the low economic status of parents indicates knowledge about oral and dental health in children is also low. In addition, there is a significant relationship between parental education which can affect the level of knowledge about oral and dental health.<sup>23</sup>

Whereas parents with higher education and socio-economic status, the higher the knowledge about dental and oral health in early childhood. This is in line with the research which states that parents who have high economic status have a good level of knowledge about dental and oral health, so that the severity of caries in their children is low and very low. On the other hand, parents with low economic status have a low level of knowledge, and have children with high levels of caries severity.<sup>24</sup>

Many factors influence the occurrence of caries, one of which is the attitude or behavior that does not pay attention to dental and oral hygiene. Lack of knowledge regarding the maintenance of dental and oral health is one of the main causes. 52.8% of parents belong to a low education level.<sup>18</sup> Parents' level of education will help to have better awareness and concern so that it influences healthy living behavior. Parents with higher education tend to have better knowledge and know more about dental health problems, so that they systematically have better health status. The level of education of parents can also affect the level of concern and knowledge about oral and dental health. Many respondents were found to have dental caries with low parental income, namely 81.2%, compared to moderate parental income, namely 42.9%. besides that, the results of respondents who had dental caries with bad parental attitudes were also obtained, namely 85% compared to moderate and good parental attitudes, namely 42.9% and 50% as evidenced by the statement that it is permissible to exchange toothbrushes with friends, not to replace toothbrushes if the fur has bloomed so that this attitude has an unfavorable impact on children resulting in caries in children.<sup>18</sup>

Based on the literature review that has been done, this research can be used by various groups such as the government and various related agencies to make policies for preventing dental caries in early childhood. Preventive measures, such as toothbrushing among children from an early age, have a substantial impact on conquering dental caries in childhood. Adult supervision or aid with toothbrushing is essential in addition to employment. As a result, it is critical to educate parents about their child's oral hygiene as early as possible and to persuade them of their responsibilities for their child's dental hygiene. Early childhood education schools and kindergartens can be used as a medium of education in early childhood about dental and oral health. In addition, *posyandu*, integrated health center, can be used as an educational medium to increase parents' awareness of the importance of maintaining healthy teeth and mouth in children. Explicitly, the policy is right on target and able to suppress and prevent the risk of dental caries in early childhood, so that it can reduce the negative risks caused by dental caries without worrying about the family's economic status.

## CONCLUSION

Based on the review of 7 articles, this study concluded that the economic status of parents can influence the level of knowledge and concern for dental and oral health to avoid caries in early childhood. The healthy lifestyle adopted by parents is able to minimize the risk of being affected by caries in early childhood. Also, caries can affect the quality of life of early childhood without any education on parental concern for caries in early

childhood. Suggestions for further research can be to carry out analysis and evaluation of policies that have been designed to prevent dental caries in early childhood and reduce the risks that occur due to dental caries, so that early childhood can grow and develop well. On the other hand, parents also have high awareness of oral health regardless of economic status to prevent and reduce the risk of dental caries in early childhood.

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