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Level of preventive oral health knowledge among parents and its socioeconomic correlation: A study in families with children aged 5–10 years

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Abstract
This scientific article examines the relationship between parents' level of preventive oral health knowledge and their socioeconomic status in the context of pediatric dental care. It also seeks to identify how a lack of oral health education among parents directly impacts children's oral health, underscoring the importance of education and access to appropriate resources for preventing dental issues during childhood. A study conducted at the Dental Specialty Clinic of Universidad Hemisferios identified factors directly influencing the oral care of children aged 5 to 10 years. Statistical analysis revealed a significant correlation between socioeconomic status and parents' preventive knowledge, highlighting the need for educational interventions tailored to specific social contexts. The study also identified gaps in the practical application of knowledge, common myths among lower-income groups, and deficiencies in the frequency of dental checkups. These findings underscore the importance of strengthening oral health education through a preventive, comprehensive, and inclusive approach.

Keywords: Oral health, prevention, socioeconomic status, parents, pediatric dentistry, health education

Introduction

Oral health is a critical component of overall well-being; however, it remains one of the most neglected areas, particularly among vulnerable populations. According to the World Health Organization approximately 3.5 billion people worldwide suffer from oral diseases, with dental caries being the most prevalent. This issue disproportionately affects low- and middle-income countries, where three out of four affected individuals belong to these socioeconomic groups [1]. Limited access to dental services, lack of knowledge about prevention, and low awareness of the importance of oral care are key factors contributing to the high incidence of these conditions.

During childhood, oral health habits are primarily shaped through parental guidance. A lack of knowledge about preventive practices among adults—combined with behaviors such as fear of the dentist or diets high in sugar—can have adverse effects on children's oral health [2]. In this context, the maternal figure plays a particularly significant role, as mothers are typically more involved in the child's daily care [3]. In a lack of information leads parents to consider the presence of caries or the premature loss of primary teeth as normal, without understanding that such conditions can compromise the development of permanent dentition [4].

Dental caries is a multifactorial disease influenced by factors such as poor oral hygiene, a cariogenic diet, salivary characteristics, the presence of specific bacteria, parents' educational and socioeconomic levels, and access to healthcare services [5]. Early-stage treatment may be non-invasive; however, as the condition progresses, it can cause pain and negatively impact a child's quality of life. The use of fluoride toothpaste with a minimum concentration of 1000 ppm has proven to be an effective strategy for the remineralization of dental enamel [6].

Parents' socioeconomic status and educational level are closely linked to their children's oral health status. Parents with higher educational attainment tend to adopt and pass on better oral hygiene practices [7]. While those with lower education often seek dental care only when pain is present, perpetuating a curative rather than preventive approach [8]. Limited financial resources may also restrict the frequency of dental visits, particularly in families with multiple children.

Consequently, various institutions and governments have promoted public health programs focused on preventing oral diseases. These include toothbrushing workshops, the application of pit and fissure sealants, and educational programs in schools, all of which have proven effective in reducing plaque and the incidence of caries [9]. Oral health education should not only target children but also their parents, as parental involvement is crucial to ensuring the continuation of healthy habits at home.

In other countries, successful programs have been implemented, such as "Love Teeth Day" in China, which included educational activities and dental screenings for children and mothers, resulting in a significant reduction in caries prevalence [10]. In Europe, the "healthy school" model incorporates strategies such as dental camps and educational materials aimed at both children and parents, reinforcing the shared role of family and school in promoting oral health [11].

To design an effective oral health program, it is essential to understand the practices, dietary habits, and clinical history of the pediatric population, as well as to conduct a clinical diagnosis to identify prevalent diseases [12]. This information

enables efforts to be focused on the most vulnerable sectors and ensures the implementation of appropriate preventive interventions [13].

Given this context, the present study aims to determine the relationship between parents' socioeconomic status and their knowledge of oral health practices in children aged 5 to 10 years. Understanding this relationship will help demonstrate how family environmental conditions influence the acquisition of oral hygiene habits, the prevention of dental caries, and access to dental care services. Furthermore, the study seeks to highlight the need to strengthen oral health education as a key tool for improving quality of life from early childhood

Methodology

Study Design

A retrospective and observational study was conducted at the Dental Specialty Clinic of Universidad de Los Hemisferios, targeting parents of children aged 5 to 10 years. The objective was to evaluate the relationship between parental knowledge of oral health and their socioeconomic status, and how these factors influence the presence of dental caries in their children.

Sample Size and Selection

The total population consisted of 750 pediatric clinical records. The sample size was determined using a standard formula for sample estimation, with a 95% confidence level ($Z = 1.96$), an estimated proportion of $p = 0.5$, and a 5% margin of error, resulting in a sample of 255 patients. A non-probabilistic sampling method was employed, including only patients who met the established criteria.

Inclusion Criteria

- Children aged 5 to 10 years treated at the Universidad de Los Hemisferios Dental Clinic.
- Parents or guardians with access to electronic devices to complete surveys.
- Presence of at least one carious lesion recorded in the clinical history.

Exclusion Criteria

- Patients outside the specified age range.
- Absence of dental caries.
- Incomplete records or lack of clinical follow-up at the institution.

Data Collection

Institutional authorization was obtained to access clinical records. The data were supplemented with surveys sent to parents via digital links (WhatsApp or email), consisting of multiple-choice questions. Two instruments were used: one to determine socioeconomic status and another to assess oral health knowledge. Only fully completed surveys were included in the analysis.

Statistical Analysis

Data were collected through Google Forms and organized for analysis. Descriptive statistics were used to characterize the sample and present the results through graphs and tables. The Chi-square test, suitable for nominal variables without a normal distribution, was applied to evaluate the relationship between qualitative variables. Additionally, a multiple correspondence analysis was conducted to identify significant associations between sociodemographic factors and parental knowledge levels.

Results

The analysis of the socioeconomic status variable revealed that the majority of participants (96.98%) belong to the lower-middle level, while only 1.01% and 2.01% correspond to the typical middle and upper-middle levels, respectively. This skewed distribution toward contexts with limited resources could significantly influence access to oral health services and the adoption of preventive practices. (Table 1.)

Table 1

Socioeconomic Status	Count	%	Cumulative %
Medium-Low	289	96.98%	96.98%
Common Average	3	1.01%	97.99%
Medium High	6	2.01%	100.00%
Total	298	100.00%	

In relation to the perception of dental caries, 55.0% of respondents correctly identified its origin as poor oral hygiene and sugar consumption. However, in the lower-middle socioeconomic group, misconceptions were observed: 13.8% attributed caries to the consumption of fried foods, 5.7% to malnutrition, and a concerning 22.5% denied that it is a disease. In contrast, 100% of respondents from the typical middle and upper-middle levels correctly identified the cause of dental caries.

These findings indicate a clear relationship between socioeconomic status and knowledge of oral health, reinforcing the need to implement educational strategies targeting vulnerable populations to enhance understanding of the etiology of caries and promote appropriate preventive behaviors.

The analysis of knowledge about the benefits of fluoride revealed mixed responses in the population, predominantly from the lower-middle socioeconomic level. While 40.3% correctly identified its preventive role against caries, a significant proportion held misconceptions, such as attributing whitening or curative properties to it. In contrast, respondents from the common average and medium high levels answered correctly in their entirety. These results highlight a lack of information among the most vulnerable groups, which could impact the proper use of fluoride as a preventive measure.

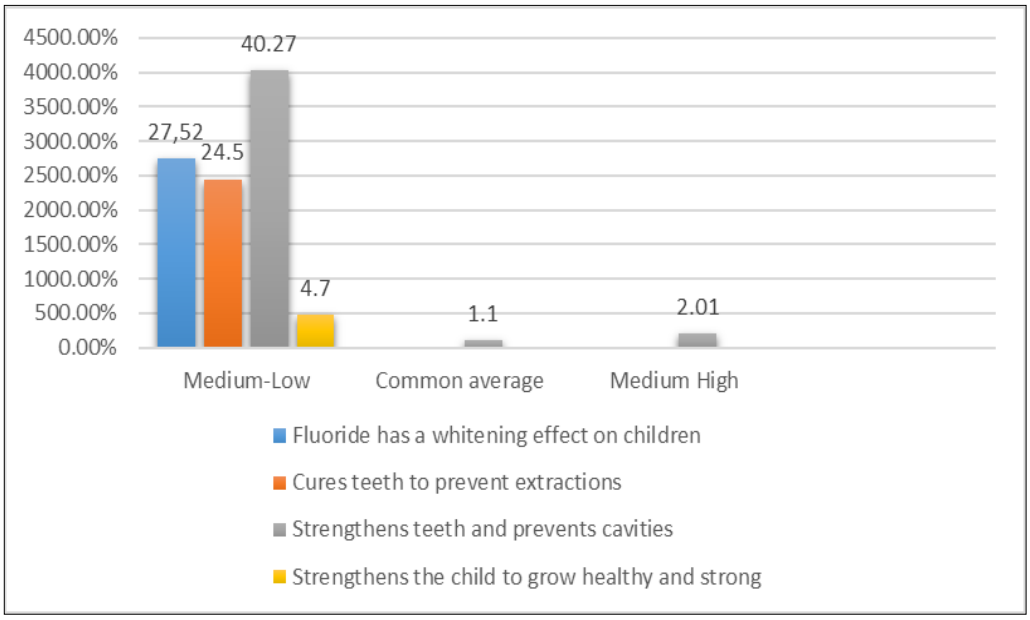

Fig 1: Level of Knowledge About Fluoride Use

Although no statistically significant associations were found between most variables and socioeconomic status, notable differences were observed in the knowledge of preventive measures against caries, and to a lesser extent, in the understanding of fluoride use and sugar consumption.

The results of the multiple correspondence analysis indicate a moderate relationship between socioeconomic status and certain aspects of knowledge and practices in oral health. Significant differences were noted in the perception of dentist visits without symptoms, knowledge about fluoride, and the valuation of primary teeth. While general knowledge about caries is similar across groups, gaps persist in the application of preventive measures, suggesting unequal access to information and resources. These findings underscore the need to implement inclusive educational strategies that promote equity in children's oral health (Tabla 2)

Table 2

Characteristic	Value	df	p-value
What is dental caries?	6.71	6	0.3490
Are primary teeth important?	4.15	6	0.6569
What benefits do you know of fluoride?	12.16	6	0.0585*
Do you think it is necessary to visit the dentist when the teeth are healthy?	9.03	6	0.1717
What preventive measures do you know to fight dental caries?	15.63	6	0.0159**
Regarding sugar consumption, please mark the correct statement.	11.36	6	0.0779*
What would happen if a child had a bottle with sugary liquids throughout the night?	3.58	6	0.7329
How many times a day should the child brush their teeth?	2.62	6	0.8548
From what age can toothpaste with fluoride be used?	3.68	6	0.7207
Until what age should the parent brush the child's teeth?	8.65	6	0.1945

Sig. *(***) 0.01, (**) 0.05, (*)* 0.1.

Discussion

The results obtained in this study highlight certain inequalities in knowledge and practices related to oral health in children aged 5 to 10 years, which are influenced by the socioeconomic status of their parents. Although some variables did not show a statistically significant relationship, others indicated differences that warrant further consideration.

Knowledge about dental caries and its etiology did not show a significant association with socioeconomic status (p = 0.3490), suggesting that parents, regardless of their socioeconomic level, have a similar level of information about this disease. This finding may be explained by widespread access to oral health education campaigns and the dissemination of information through mass media, as noted in previous studies [14]. However, the understanding of preventive practices and the implementation of prevention strategies appear to be inconsistent, as reflected in other variables of the study.

Regarding the importance of primary teeth, the results also showed no significant association with socioeconomic status (p = 0.6569). This is consistent with previous studies indicating that, although the general population acknowledges the existence of primary teeth, myths and misinformation about their critical role in dental development and future oral health persist [15]. The lack of proper understanding of the importance of primary teeth may negatively impact the adoption of preventive measures during childhood.

On the other hand, the perception of the benefits of fluoride showed a marginally significant p-value (p = 0.0585), suggesting a potential influence of socioeconomic status on knowledge of this essential component for oral health. Previous research has demonstrated that a lack of

information about fluoride is directly linked to its absence in children's oral hygiene, which affects caries prevention [16]. In particular, lower-income groups may have less access to evidence-based dental information, underscoring the need for more targeted educational interventions.

The significant association between socioeconomic status and knowledge of preventive measures against caries ($p = 0.0159$) indicates that populations with fewer resources have less access to adequate information or may not apply prevention strategies correctly [17]. This finding is concerning because caries is one of the most prevalent diseases in childhood, and its prevention largely depends on adopting proper habits from an early age [18]. This result highlights the urgency of designing educational programs aimed at reducing the gap in access to oral health information.

Regarding sugar consumption, the results showed a moderate relationship ($p = 0.0779$), suggesting that families with lower economic resources tend to consume more sugary products due to economic accessibility and the availability of processed foods. This is supported by previous studies indicating that lower-income families have higher sugar intake, which increases the risk of caries [19]. situation emphasizes the need to educate families about the relationship between sugar consumption and the risk of caries.

Concerning visits to the dentist in the absence of symptoms, no significant relationship with socioeconomic status was observed ($p = 0.1717$). This may reflect a more curative than preventive view of dentistry, a phenomenon widely documented in Latin America [20]. However, it cannot be ruled out that economic and cultural barriers influence the frequency of dental visits, an aspect that requires further attention.

Other factors, such as prolonged exposure to a bottle with sugary liquids ($p = 0.7329$), frequency of brushing ($p = 0.8548$), the age at which fluoride toothpaste use begins ($p = 0.7207$), and the age until which parents should brush their children's teeth ($p = 0.1945$), did not show significant associations with socioeconomic status. However, it is likely that these practices are influenced by other factors, such as the general education of parents and the information provided through various sources.

Conclusion

In conclusion, although variables such as brushing frequency, the onset of fluoride toothpaste use, and parental oversight of tooth brushing did not show significant associations with socioeconomic status, their impact on oral health remains crucial. These results provide an opportunity to design strategies that promote healthy habits from childhood, fostering equity in oral health and reducing inequalities in access to and understanding of dental prevention.

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