

## Oral Health Awareness in School-Going Children and Its Significance to Parent's Education Level

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### Abstract

Oral health, a pivotal component of overall well-being, has witnessed a surge in dental ailments among school-age children globally. This study explores the oral health awareness of children aged 5 to 15, with a specific focus on the influence of parental education levels. Two randomly selected government schools served as the backdrop for this cross-sectional research, employing the World Health Organization's 2004 guidelines for oral health awareness in children. The study's materials and methods involved personal interviews with both children and their parents to ensure a comprehensive understanding of oral health behaviors. Data analysis, conducted using the Statistical Package for the Social Sciences (SPSS 16.0), employed chi-square/Fisher's exact test for dichotomous data variables. Results from the evaluation of 210 children and their parents revealed compelling insights. Notably, children with uneducated parents exhibited a higher prevalence of toothache, less frequent brushing, and increased dentist visits for toothache, establishing a statistically significant correlation ( $p < 0.001$ ). The overall oral health status of the children was deemed average. The introduction of socio-economic factors through parental education levels adds a nuanced layer to the understanding of oral health determinants. The study highlights the need for targeted interventions and educational initiatives, emphasizing the crucial role of parental involvement in shaping children's oral health behaviors. This research contributes to the existing body of knowledge by unraveling the intricacies of oral health awareness among school children and accentuating the pivotal role of parental education in influencing these health outcomes. The findings underscore the importance of proactive oral health initiatives at the school level, providing a foundation for evidence-based recommendations to improve oral health outcomes in this demographic.

**Keywords.** oral health, school children, parental education, dental ailments, preventive methods, cross-sectional study, World Health Organization, socio-economic factors, dentist visits, toothache, oral health awareness, SPSS, statistical analysis.

### I. Introduction

Oral health, an integral component of overall well-being, stands as a cornerstone for a fulfilling and healthy life. The last few decades have witnessed a surge in dental ailments, underlining the need for accessible preventive measures. This study delves into the oral health awareness of school-going children, exploring the nuanced relationship between parental education levels and children's dental well-being. The importance of oral health extends far beyond the confines of the dental chair. It is a critical determinant of one's quality of life, influencing not only physical well-being but also psychological and social aspects. Dental caries and periodontal diseases, prevalent global health burdens, have repercussions that extend beyond oral discomfort, impacting daily activities, self-esteem, and overall quality of life. The World Health Organization's (WHO) 2003 Oral Health Report draws attention to the alarming prevalence of dental caries among Asian school-age children, ranging from 60% to 90%. In response to this, the WHO advocates for oral health promotion at the school level, aiming to instill knowledge, positive attitudes, and health-conscious behaviors to alleviate the global burden of oral diseases. However, the success of such initiatives hinges on understanding the baseline level of oral health awareness among school children, laying the foundation for targeted and effective interventions. Bandura's

social cognitive theory underscores the influential role of parental actions in shaping the social and health behaviors of their children. Recognizing this, the current study endeavors to assess not only the oral health awareness of school children but also the impact of parental education on these crucial health behaviors. It aims to bridge the gap between theoretical frameworks and empirical evidence, providing valuable insights for policymakers, educators, and healthcare professionals.

### **Objectives of the Study**

The primary objective of this research is to comprehensively assess the oral health awareness of school children, with a particular emphasis on the influence of parental education. To achieve this overarching goal, the study aims to:

- Evaluate the oral health status of school children aged 5 to 15 in two randomly selected government schools using the 2004 WHO guidelines for children's oral health.
- Investigate the correlation between parental education levels and children's oral health behaviors, including frequency of dental visits, brushing habits, and awareness of preventive measures.
- Explore the factors influencing children's satisfaction with their oral appearance and the impact of dental issues on their daily activities.
- Provide evidence-based recommendations for targeted interventions and educational programs to enhance oral health awareness among school children.

The following sections will unfold the layers of this study, starting with a detailed exploration of the materials and methods employed to gather and analyze data. Subsequently, the results will be presented and analyzed, offering insights into the current state of oral health awareness among school children. The discussion section will critically examine these findings, contextualizing them within the existing literature and theoretical frameworks. Finally, the study will conclude with a synthesis of key takeaways and recommendations for future research and practical interventions.

## **II. Background**

A child's health is a complex interplay of various factors, encompassing social environments, physical circumstances, and the cultural fabric woven by their family. In this intricate tapestry, oral health emerges as a pivotal thread, weaving its influence through daily routines, dietary habits, and healthcare practices. The prevalence of dental ailments among school-age children necessitates a thorough examination of the factors contributing to or mitigating these issues.

This study's significance lies in its multifaceted approach to oral health assessment. By targeting school-going children aged 5 to 15, it encompasses a crucial developmental period, where habits are formed and attitudes towards health are molded. The choice of two randomly selected government schools adds a layer of diversity to the study, acknowledging the varied socioeconomic backgrounds that can influence health outcomes.

Furthermore, the focus on parental education levels introduces a socio-economic dimension to the study. Understanding how a parent's educational background correlates with their child's oral health awareness and practices provides a nuanced understanding of the socio-cultural determinants at play. This not only enriches the scientific discourse on oral health but also offers practical implications for designing tailored interventions that consider the broader familial context.

## **III. Materials and Methods**

The methodology employed in this study aimed to provide a robust framework for the comprehensive evaluation of oral health awareness among school children, with a specific focus on the influence of parental education levels. The following sections detail the materials, participants, procedures, and statistical analyses conducted to derive meaningful insights.

### **A. Study Design**

This research adopted an observational cross-sectional study design. The cross-sectional approach allowed for the simultaneous examination of oral health status and awareness among a diverse group of school children, providing a snapshot of the current scenario.

### **B. Participants**

The study involved 210 school children (133 males and 77 females) aged 5 to 15, and their parents, who were randomly selected from two government schools in Karad. Informed consent was obtained from both the children and their parents, ensuring voluntary participation. Children with chronic systemic conditions, as reported by their parents, were excluded to maintain homogeneity within the sample.

### **C. Ethical Considerations**

The Institutional Ethical Committee approved the study's design, ensuring that it adhered to ethical standards and protected the rights and well-being of the participants. Permission was obtained from the school administrators before the commencement of the research.

### **D. Data Collection**

**Instrumentation:** The data collection instrument utilized the 2004 World Health Organization (WHO) guidelines for children's oral health awareness. The questionnaire encompassed a spectrum of parameters, including dental and gum health, dental service utilization, oral hygiene practices, and psychosocial aspects.

**Procedure:** Data collection involved personal interviews with both the children and their parents during their school visit. This ensured a comprehensive understanding of the child's oral health behaviors and allowed for clarifications to mitigate potential bias in questionnaire interpretation. Any incomplete or half-completed questionnaires were excluded from the study.

### **E. Statistical Analysis**

The Statistical Package for the Social Sciences (SPSS 16.0) was employed for data analysis. The chi-square test and Fisher's exact test were used to compare dichotomous data variables, providing statistical significance for observed associations. Descriptive statistics were utilized to present the demographic characteristics and various parameters assessed in the questionnaire.

### **F. Limitations**

**Sample Size:** The study's sample size, although representative, may have limitations in generalizing the findings to a larger population. Future studies with a more extensive and diverse participant pool could enhance the external validity of the results.

**Self-Reporting Bias:** The reliance on self-reported data, especially regarding oral health practices, might introduce bias due to social desirability or recall inaccuracies. Combining self-reports with clinical assessments could offer a more comprehensive understanding.

### **G. Strengths**

**Diversity:** The inclusion of participants from two government schools in Karad enhances the study's diversity and reflects a broader socio-economic spectrum, contributing to the generalizability of the findings.

**Parental Involvement:** By including both children and their parents in the data collection process, the study acknowledges and incorporates the influential role of parental education in shaping children's oral health behaviors.

#### IV. RESULT

A total of 210 children (133 males and 77 females) and their parents were evaluated for their awareness of their child's oral health condition. A total of 134 (63.3%) youngsters were aged 5-10 years, while 76 (36.7%) were aged 11-15 years. Approximately 66.7% of the population went to the dentist. Tables 1-7 and Figure 1 depict the various parameters assessed in the questionnaire. The quantitative portion of the investigation finds that 73.3% and 68.6% of the sample population have average dental and gum health, respectively. Almost 66.7% of the population went to the dentist at least once.

71% of the sample population went to the dentist because of pain, whereas only 20.5% went for a normal checkup. Almost 18.1% of the study population brushes twice everyday, while 80% brushes once daily. About 97.1% of the population utilizes toothpaste to clean their teeth, while the remaining 2.9% use powder/charcoal and its products. Fluoride was unknown to over 98.1% of the population.

About 22.4% of the children were not satisfied with their appearance of teeth, 15.2% of them avoid smiling/laughing publicly due to unesthetic appearance of their teeth, and 18.1% of the population missed classroom/daily activities due to toothache, while 9.5%–10% of the population has difficulty in biting and chewing.

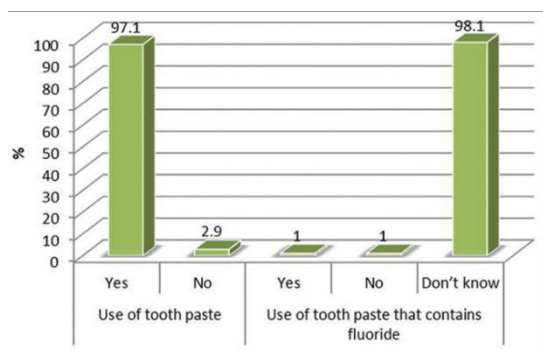


FIG 1: method used for cleaning teeth

	<i>n (%)</i>
Health of teeth	
Good	36 (17.1)
Average	154 (73.3)
Poor	20 (9.5)
Gums	
Good	43 (20.5)
Average	144 (68.6)
Poor	23 (11.0)

Table 1: Description of health and gums of teeth

	<i>n (%)</i>
Often	129 (61.4)
Occasionally	30 (14.3)
Rarely	12 (5.7)
Never	39 (18.6)

Table 2: Description of toothache

	<i>n (%)</i>
Once	140 (66.7)
Twice	36 (17.1)
Three times	14 (6.7)
Four times	10 (4.8)
>4 times	5 (2.4)
No visit	3 (1.4)
No care from dentist	2 (1.0)

Table 3: Practice of visiting dentist during the past 12 months

Reasons	<i>n</i> (%)
Pain or trouble with teeth	149 (71.0)
Treatment/follow-up of treatment	17 (8.1)
Routine checkup of teeth	43 (20.5)
Do not know	1 (0.5)

**Table 4: Reason for last visit to Dentist**

Frequency	<i>n</i> (%)
Never	2 (1.0)
2-3 times in a month	1 (0.5)
Once a week	1 (0.5)
Once a day	168 (80.0)
2 or more times in a day	38 (18.1)

**Table 5: Frequency of cleaning teeth**

Problems	<i>n</i> (%)
Not satisfied with the appearance of teeth	
Yes	47 (22.4)
No	151 (71.9)
Do not know	12 (5.7)
Often avoid smiling and laughing due to teeth	
Yes	32 (15.2)
No	166 (79.0)
Do not know	12 (5.7)
Toothache or discomfort caused to miss activities	
Yes	38 (18.1)
No	163 (77.6)
Do not know	9 (4.3)
Difficulty in biting hard foods	
Yes	21 (10.0)
No	180 (85.7)
Do not know	9 (4.3)
Difficulty in chewing	
Yes	20 (9.5)
No	181 (86.2)
Do not know	9 (4.3)

**Table 6: Problem faced during the past year**

Frequency	Biscuits, cakes, cream cakes, sweet pies, etc.	Lemonade, coca cola, or other soft drinks	Fresh fruits	Chewing gum containing sugar	Sweets/candy	Milk with sugar	Tea with sugar	Coffee with sugar	Tobacco
Never	1.0	13.8	5.2	22.9	3.3	4.8	11.4	81.4	99.5
Several times a month	1.4	26.7	13.8	1.4	0.5	3.3	6.2	0.5	0.0
Once a week	6.2	25.7	14.8	20.0	14.3	2.9	1.4	5.7	0.0
Several times a week	11.9	29.5	54.8	26.6	25.7	15.7	8.1	9.0	0.0
Every day	70.5	3.3	11.0	18.1	51.4	62.9	67.6	2.3	0.0
Several times a day	9.0	1.0	0.5	11.0	4.8	10.5	5.2	1.0	0.5

**Table 7: Consumption of sugar, sugar products, and tobacco**

Confectionery goods such as cookies and cakes were the most common source of daily sugar intake, followed by milk/tea with sugar. A statistically significant relationship was discovered between educated moms and good oral and gum health. There was no significant relationship found between fathers' literacy and their children's dental health.

## V. Discussion

The results of this study provide a comprehensive snapshot of the oral health landscape among the evaluated group of school children and shed light on several key aspects that warrant attention and intervention. The discussion will delve into various dimensions of the findings, exploring patterns, implications, and potential avenues for improvement.

### 1. Utilization of Dental Services:

Approximately 66.7% of the population reported visiting the dentist at least once, indicating a moderate level of engagement with dental services. This suggests a positive inclination toward seeking professional oral care. However, the primary motivation for dental visits, with 71% seeking treatment due to pain, raises concerns about a predominantly reactive approach to oral health. Encouraging regular check-ups for preventive care could shift the focus from addressing issues after they arise to actively preventing them.

### 2. Oral Hygiene Practices:

The oral hygiene practices revealed by the study present a mixed picture. While a significant portion of the population brushes once daily, only 18.1% adhere to the recommended twice-daily brushing regimen. This discrepancy underscores the need for targeted education on the importance of consistent and thorough oral hygiene practices. Additionally, the prevalence of toothpaste usage is encouraging, although the 2.9% using powder/charcoal products may benefit from clarification on the effectiveness and safety of such alternatives.

### 3. Fluoride Awareness:

The stark lack of awareness about fluoride among over 98.1% of the population is a critical finding. Fluoride plays a pivotal role in dental health by strengthening tooth enamel and preventing cavities. This gap in knowledge highlights an opportunity for public health campaigns and educational programs to address misconceptions and promote the importance of fluoride in maintaining oral health.

### 4. Psychosocial Impact of Oral Health:

The study delves into the psychosocial dimensions of oral health, revealing that a notable percentage of children express dissatisfaction with their teeth, avoid public expressions of joy due to esthetic concerns, and experience disruptions in daily activities due to toothache. These findings emphasize the far-reaching consequences of oral health on the holistic well-being of children. Interventions targeting these psychosocial aspects, including

confidence-building measures and counseling, could contribute to a more comprehensive approach to oral health promotion.

### **5. Parental Education and Oral Health Disparities:**

The most compelling revelation lies in the correlation between parental education levels and children's oral health outcomes. Children with uneducated parents exhibited a higher prevalence of toothache, less frequent brushing, and increased dental visits for pain. This highlights the socio-economic determinants influencing oral health and emphasizes the need for targeted interventions that address the root causes of disparities.

## **VI. Conclusion**

In conclusion, this study presents a nuanced exploration of the oral health status and awareness among school children, uncovering critical insights into their dental practices and the broader socio-economic factors influencing oral health outcomes. The findings provide a foundation for understanding the multifaceted nature of oral health and offer actionable implications for interventions and public health initiatives. While a substantial proportion of the population visited the dentist, the predominant reason being pain indicates a reactive rather than a proactive approach to oral health. There is a pressing need for educational programs that emphasize the importance of regular check-ups for preventive care, aiming to shift the focus from treatment to prevention. The study reveals a gap in adherence to recommended oral hygiene practices, with a majority brushing only once daily. Educational campaigns promoting the benefits of consistent and thorough oral care, including twice-daily brushing, could significantly impact the oral health habits of this demographic. The striking lack of awareness about fluoride among the studied population underscores the importance of targeted education on the role of fluoride in preventing cavities and maintaining optimal oral health. Public health campaigns can play a pivotal role in dispelling myths and fostering awareness about the benefits of fluoride. The study delves into the psychosocial aspects of oral health, revealing the significant impact on children's self-esteem and daily activities. Addressing these psychosocial dimensions through counseling and confidence-building measures is crucial for a holistic approach to oral health promotion. The most significant revelation lies in the correlation between parental education levels and children's oral health outcomes. This emphasizes the need for targeted interventions that consider the socio-economic context, aiming to bridge the gap in oral health disparities among children from different educational backgrounds. Moving forward, tailored interventions should be designed to address the specific needs identified in this study. Educational programs should not only target children but actively involve parents, considering their influential role in shaping oral health behaviors. Public health campaigns should demystify fluoride, promote preventive care, and address the psychosocial aspects of oral health.

## **REFERENCE**

- [1] Petersen PE. The World Oral Health Report: Continuous improvement of oral health in the 21st century – The approach of the World Health Organization Global Oral Health Programme. *Community Dent Oral Epidemiol* 2003;31 Suppl 1:3-23.
- [2] Petersen PE. World Health Organization global policy for improvement of oral health – World health assembly 2007. *Int Dent J* 2008;58:115-21.
- [3] Okada M, Kawamura M, Kaihara Y, Matsuzaki Y, Kuwahara S, Ishidori H, et al. Influence of parents' oral health behaviour on oral health status of their school children: An exploratory study employing a causal modelling technique. *Int J Paediatr Dent* 2002;12:101-8.
- [4] Isong IA, Zuckerman KE, Rao SR, Kuhlthau KA, Winickoff JP, Perrin JM, et al. Association between parents' and children's use of oral health services. *Pediatrics* 2010;125:502-8.
- [5] Van den Branden S, Van den Broucke S, Leroy R, Declerck D, Hoppenbrouwers K. Effects of time and socio-economic status on the determinants of oral health-related behaviours of parents of preschool children. *Eur J Oral Sci* 2012;120:153-60.

- [6] Camargo MB, Barros AJ, Frazão P, Matijasevich A, Santos IS, Peres MA, et al. Predictors of dental visits for routine check-ups and for the resolution of problems among preschool children. *Rev Saude Publica* 2012;46:87-97.
- [7] Mathur A, Gupta T. Oral health attitude knowledge behavior and consent towards dental treatment among school children. *J Orofac Res* 2011;1:6-10.
- [8] Costa C, Pereira M, Passadouro R, Spencer B. Higiene oral na criança: boca sã, família vigilante? *Acta Médica Portuguesa* 2008;21:467-74.
- [9] Vallejos-Sánchez AA, Medina-Solís CE, Maupomé G, Casanova-Rosado JF, Minaya-Sánchez M, Villalobos-Rodelo JJ, et al. Sociobehavioral factors influencing toothbrushing frequency among schoolchildren. *J Am Dent Assoc* 2008;139:743-9.
- [10] Razmienė J, Vanagas G, Bendoraitienė E, Vyšniauskaitė A. The relation between oral hygiene skills and the prevalence of dental caries among 4 – 6-year-old children. *Stomatologija* 2011;13:62-7.
- [11] Mattos MC, Nascimento PC, Almeida SS, Costa TM. Influence of advertisements in the food choices of children and adolescents. *Psychology: Theory and practice* 2010;12: 34-51.
- [12] Trindade F, Valente A, Andrade M, Tannure P, Antonio A, Fidalgo T. Knowledge and practices of parents and guardians regarding the oral health of children from a shelter and a university in Rio de Janeiro, Brazil. *Pesqui Bras Odontopediatria Clin Integr* 2014;14:293-302.
- [13] Janani, S., Dilip, R., Talukdar, S.B., Talukdar, V.B., Mishra, K.N., Dhablya, D. IoT and machine learning in smart city healthcare systems (2023) *Handbook of Research on Data-Driven Mathematical Modeling in Smart Cities*, pp. 262-279.