E-ISSN 2250-0944
ISSN 2250-1150
doi: 10.31838/ijprt/16.01.280

Research Article

The Impact of Parental Education on Oral Hygiene Practices in Children: A Cross-Sectional Survey

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Received: 10.03.26, Revised: 07.04.26, Accepted: 01.05.26

ABSTRACT

Background: Oral hygiene practices during childhood are strongly influenced by parental knowledge, attitude, and educational status.

Objective: To assess the impact of parental education on oral hygiene practices among children.

Methodology: This cross-sectional study was conducted at department of Dentistry of Shahida Islam Dental College, Lodhran from June 2024 to December 2025, included 255 children and their parents. Demographic details, parental educational status, socioeconomic status, brushing frequency, use of fluoridated toothpaste, parental supervision during brushing, dental visit history, and sugary food intake were recorded using a structured questionnaire.

Results: The mean age of children was 8.74 ± 2.11 years. Most parents had secondary education, 108 (42.4%), followed by primary education, 79 (31.0%), and higher education, 68 (26.7%). Twice-daily brushing was significantly higher among children of parents with higher education, 40 (58.8%), compared with secondary, 43 (39.8%), and primary education, 18 (22.8%) ($p<0.001$). Use of fluoridated toothpaste was also higher among children of highly educated parents, 57 (83.8%), compared with secondary, 76 (70.4%), and primary education, 39 (49.4%) ($p<0.001$). Good oral hygiene was observed in 41 (60.3%) children of highly educated parents compared with 42 (38.9%) in secondary and 16 (20.3%) in primary education groups.

Conclusion: It is concluded that parental education significantly influences oral hygiene practices among children. Higher parental education was associated with better brushing habits, greater use of fluoridated toothpaste, improved parental supervision, regular dental visits, and better overall oral hygiene status.

Keywords: Education, Oral hygiene, Practices, Dental health, Development.

INTRODUCTION

Children's oral health habits are influenced by parents starting from infancy and continuing through childhood. The early developmental years are the most important time for acquisition, mainly through observational learning and parental guidance [1]. Parents set the example for personal hygiene practices, such as how often they brush their teeth, use dental products, eat and drink and their attitudes towards professional dental care. Positive oral hygiene habits will be more likely to be passed on to children when parents exhibit similar habits [2]. On the other hand, if the parents are unaware or neglect the oral care of their children, it may lead to poor oral health practices and higher risk of oral diseases in their children [3]. Early childhood caries (ECC) is recognized as the most prevalent dental disease in children worldwide and is now classified as an infectious disease that is multifactorial and linked to poor oral hygiene, excessive sugar consumption, prolonged bottle feeding, and poor parental supervision. ECC can cause discomfort, pain, chewing problems, speech issues, low self esteem, and the nutritional deficits that a child may experience can have a significant impact on the child's physical and

psychological health [4]. Untreated dental caries can also lead to school absences and social isolation. Research has indicated that children from less educated families face higher risk of ECC due to the poorer oral hygiene and access to preventive dental care. Parental education also influences knowledge about preventive dental care like fluoride, dental sealants, dental care check-ups, and diet counselling [5]. The education of parents is generally of a better standard and more likely to enable them to understand the importance of preventive oral health care and seek dental advice before problem occurs. Kids' dental visits are important for early detection and treatment of oral health issues. In most developing countries however, dental attendance is primarily symptomatic and parents seek dental care only when their child complains of pain or develops serious dental problems. This pattern is more prevalent among less educated parents, due to poor oral health literacy and financial difficulties [6].

The diet of children can also affect their oral health later in life. Consuming sweet foods, fizzy drinks, sweets and processed foods regularly raises the likelihood of dental plaque building up and tooth decay [7]. When parents are educated, they are more likely to be aware of the dangers of over-consumption of sugar, and to promote healthier food habits in their children. Children from families with lower levels of education, however, may not be eating healthy diets as often due to poor nutrition awareness and lack of dietary regulation [8]. Oral health programs in schools have been proven to be effective in raising oral health awareness among children. Parental involvement is still important for maintaining behaviors over time, though [9]. Oral health education can be delivered in the school setting but may not be reinforced at home. Community-based interventions that target oral hygiene education and behavior change of parents can have a substantial impact on oral hygiene behaviors and lowering the oral disease burden of children [10, 11].

Objective

To assess the impact of parental education on oral hygiene practices among children.

METHODOLOGY

This was a cross-sectional study conducted at department of Dentistry of Shahida Islam Dental College, Lodhran from June 2024 to December 2025. A total of 255 children along with their parents were included in the study. Non-probability consecutive sampling technique was used to collect the data.

Inclusion Criteria

- Children aged 5–12 years
- Children accompanied by at least one parent or guardian
- Parents willing to provide informed consent
- Children attending outpatient dental clinics or schools during the study period

Exclusion Criteria

- Children with congenital craniofacial anomalies or severe systemic diseases affecting oral health
- Children undergoing orthodontic treatment
- Parents unwilling to participate in the study
- Incomplete questionnaires or missing clinical information

Data Collection

After approval from the institutional ethical review committee, 255 children who met the inclusion criteria were enrolled in the study through nonprobability consecutive sampling. Written informed consent was obtained from parents or guardians before inclusion. Demographic information including child age, gender, parental educational status, family socioeconomic status, brushing frequency, use of fluoridated toothpaste, dietary habits, frequency of sugary food intake, and dental visit history was recorded using a structured pre-designed questionnaire. Parental education was categorized into primary, secondary, and higher education. Oral hygiene practices among children were assessed by evaluating brushing frequency, brushing supervision, mouth-rinsing habits, and routine dental care. Clinical oral examination was performed by a trained dental examiner under standard infection control measures to assess oral hygiene status and presence of dental caries where applicable. All collected data were kept confidential and used only for research purposes.

Data Analysis

All data were entered and analyzed using SPSS version 26. Quantitative variables such as age were presented as mean ± standard deviation, while qualitative variables including parental education level, brushing frequency, oral hygiene practices, and dental visit patterns were expressed as frequency and percentage.

A p-value of less than 0.05 was considered statistically significant.

RESULTS

Data were collected 255 patients, mean age of children was 8.74 ± 2.11 years. Male children constituted 134 (52.5%) of the participants, while females accounted for 121 (47.5%). Regarding parental education, most parents had secondary education, 108 (42.4%), followed by primary education, 79 (31.0%), and higher education, 68 (26.7%). Nearly half of the participants belonged to lower socioeconomic status, 118 (46.3%), while 97 (38.0%) belonged to middle socioeconomic class and 40 (15.7%) to upper socioeconomic class.

Table 1: Demographic Characteristics of Children and Parents (n = 255)

Variable	Category	n (%) / Mean ± SD
Age of children (years)	—	8.74 ± 2.11
Gender	Male	134 (52.5%)
	Female	121 (47.5%)
Parental education	Primary	79 (31.0%)
	Secondary	108 (42.4%)
	Higher education	68 (26.7%)
Socioeconomic status	Lower	118 (46.3%)
	Middle	97 (38.0%)
	Upper	40 (15.7%)

Assessment of oral hygiene practices showed that 118 (46.3%) children brushed their teeth once daily, while 101 (39.6%) brushed twice daily and 36 (14.1%) had irregular brushing habits. Fluoridated toothpaste was used by 172 (67.5%) children, whereas 83 (32.5%) did not use fluoridated toothpaste. Parental supervision during brushing was present in 149 (58.4%) children and absent in 106 (41.6%). Only 74 (29.0%) children had regular dental visits, while the majority, 181 (71.0%), did not attend regular dental checkups. Frequent sugary food intake was reported in 143 (56.1%) children.

Table 2: Oral Hygiene Practices Among Children (n = 255)

Variable	Category	n (%)
Tooth brushing frequency	Once daily	118 (46.3%)
	Twice daily	101 (39.6%)
	Irregular brushing	36 (14.1%)
Use of fluoridated toothpaste	Yes	172 (67.5%)
	No	83 (32.5%)
Parental supervision during brushing	Yes	149 (58.4%)
	No	106 (41.6%)
Regular dental visits	Yes	74 (29.0%)
	No	181 (71.0%)
Frequent sugary food intake	Yes	143 (56.1%)
	No	112 (43.9%)

Twice-daily brushing was highest among children of highly educated parents, 40 (58.8%), compared with secondary education, 43 (39.8%), and primary education, 18 (22.8%) ($p<0.001$). Similarly, use of fluoridated toothpaste increased with higher parental education, with usage reported in 57 (83.8%) children of highly educated parents compared with 76 (70.4%) in secondary and 39 (49.4%) in primary education groups ($p<0.001$). Parental supervision during brushing was also significantly greater among highly educated parents, 49 (72.1%), compared with secondary, 66 (61.1%), and primary education groups, 34 (43.0%) ($p=0.002$). Regular dental visits were more common among children of highly educated parents, 29 (42.6%), whereas only 14 (17.7%) children of parents with primary education had regular dental visits ($p=0.001$).

Table 3: Association between Parental Education and Oral Hygiene Practices (n = 255)

Variable	Primary Education n (%)	Secondary Education n (%)	Higher Education n (%)	p-value
Twice daily brushing	18 (22.8%)	43 (39.8%)	40 (58.8%)	<0.001
Fluoridated toothpaste use	39 (49.4%)	76 (70.4%)	57 (83.8%)	<0.001
Parental supervision during brushing	34 (43.0%)	66 (61.1%)	49 (72.1%)	0.002
Regular dental visits	14 (17.7%)	31 (28.7%)	29 (42.6%)	0.001
Frequent sugary food intake	56 (70.9%)	60 (55.6%)	27 (39.7%)	<0.001

Good oral hygiene status was observed in 41 (60.3%) children whose parents had higher education, compared with 42 (38.9%) among secondary education and 16 (20.3%) among primary education groups. Children of parents with primary education had significantly higher odds of poor oral hygiene practices (aOR = 2.84, 95% CI: 1.63–4.95, p<0.001). Irregular tooth brushing was also significantly associated with poor oral hygiene practices, with affected children having more than twice the odds of poor oral hygiene (aOR = 2.11, p=0.005). Lack of parental supervision increased the likelihood of poor oral hygiene practices (aOR = 1.92, p=0.01).

Table 4: Oral Hygiene Status and Predictors of Poor Oral Hygiene Practices (n = 255)

Variable	Good Oral Hygiene n (%)	Fair/Poor Oral Hygiene n (%)	aOR (95% CI)	p-value
Primary parental education	16 (20.3%)	63 (79.7%)	2.84 (1.63–4.95)	<0.001
Secondary parental education	42 (38.9%)	66 (61.1%)	1.56 (0.91–2.69)	0.09
Higher parental education	41 (60.3%)	27 (39.7%)	Reference	—
Irregular tooth brushing	7 (19.4%)	29 (80.6%)	2.11 (1.24–3.58)	0.005
Lack of parental supervision	28 (26.4%)	78 (73.6%)	1.92 (1.14–3.21)	0.01
Frequent sugary food intake	39 (27.3%)	104 (72.7%)	1.78 (1.06–2.99)	0.03
Lower socioeconomic status	29 (24.6%)	89 (75.4%)	2.35 (1.39–3.97)	0.001

DISCUSSION

In the present study the effects of parental education level on children's oral hygiene behaviours were examined and found to be significant; as parent's education increased, children's oral hygiene behaviours improved. Children whose parents had a higher level of education had better oral hygiene than children whose parents had a lower level of education, and they exhibited better brushing habits, more frequent use of fluoridated toothpaste, more parental supervision during brushing, more frequent visits to the dentist, and better oral hygiene. The findings underscore the importance of parents' awareness and education levels in determining oral health behaviors in childhood [12]. The average age of the children was 8.74 ± 2.11 years with a slightly higher number of boys than girls in the current study. Oral hygiene practices among school-aged children have been reported to show similar age distribution in previous studies [13]. Childhood is a pivotal time in development when behaviors that impact long-term health are formed, and oral hygiene practices established during childhood can persist into adolescence and adulthood. So, the influence of parents is very significant during these formative years. The results of the present study confirmed that children of the parents who had the higher level of education had more satisfactory oral hygiene habits. 58.8% of children whose parents had higher education were observed to brush twice a day, whereas

22.8% of children whose parents had primary education were observed to brush twice a day ($p<0.001$) [14]. This is consistent with other studies that found that parental education positively affects children's brushing habits. A previous study reported that well-educated parents are more aware of preventive oral care measures and thus promote regular brushing habits in their children [15].

Use of fluoridated toothpaste was also significantly associated with parental education in the present study. Nearly all children whose parents had tertiary education used fluoridated toothpaste, compared to nearly half of those whose parents had primary education who did not use fluoridated toothpaste. Fluoride also is helpful in the prevention of dental caries in two important ways: first, it helps to remineralize dental enamel; second, it helps to inhibit the activity of bacteria. This is consistent with previous research which has shown that the level of education of parents is a significant predictor of awareness and use of fluoride products [16]. Another finding of this study was that there was parental supervision while brushing. The higher the parents' level of education, the more supervision children would get when brushing their teeth. Good supervision allows for good brushing technique, adequate brushing time and regular maintenance of oral hygiene [17]. A number of studies have demonstrated that self-brushing is often sub-optimal in children and linked to the development of dental caries and more plaque. Better educated parents are more likely to know the value of supervision of oral hygiene practices, particularly in childhood. The present study also revealed that children of more educated parents were more likely to have regular check-ups at the dentist office. Children with less educated parents, however, did not regularly visit the dentist's office. These results are in line with previous studies in developed and developing countries. Preventive dental visits are crucial to the early diagnosis and management of oral diseases, but in many populations, dental care is still mainly symptom-driven. Less educated parents may have misconceptions about oral health and financial constraints may be factors that result in delayed oral health consultation [18].

This study's results could be attributed to parental health literacy and awareness. Well-educated parents tend to have a greater understanding of disease prevention, maintenance of oral hygiene, healthy eating, and seeking health care [19]. They are more likely to prioritize family preventive health and health-promoting behaviors. Parents with low education level, however, may lack awareness about oral diseases and oral care prevention. This study has several strengths: it examined several oral hygiene behaviors and assessed the impact of parental education on oral hygiene practices while controlling for other behaviors [20]. Some restrictions also need to be noted, however. The study was cross-sectional, and causality cannot be inferred. There may be recall or social desirability bias in self-reported oral hygiene practices. Further, this study was based on a single center with non-probability sampling, which might not be generalizable for the broader population. Despite the constraints of this study, it offers insights into the high level of influence that parent education can have on their children's oral care habits. These results indicate that education of parents and raising awareness may be important factors to enhance positive oral health behaviors and mitigate preventable oral diseases in children.

CONCLUSION

It is concluded that parental education has a significant impact on children's oral hygiene practices. Children of highly educated parents demonstrated better brushing habits, greater use of fluoridated toothpaste, increased parental supervision during brushing, more regular dental visits, and overall improved oral hygiene status compared with children of less educated parents. Lower parental education, irregular tooth brushing, lack of parental supervision, frequent consumption of sugary foods, and lower socioeconomic status were identified as important predictors of poor oral hygiene practices.

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