

Caries Experience and Its Relationship with Mother's Educational Level and Occupational Status: A Cross-sectional Survey

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ABSTRACT

Aim: Most studies have investigated established risk factors contributing to dental caries in children, however, with the growing incidence of caries in children more risk factors are being included in literature. Thus, this cross-sectional study was conducted to assess the relationship between mother's educational level and occupational status with the caries experience of the child.

Materials and method: About 120 mother-child pairs participated in the study. Children below 12 years were screened for their dental caries status using DMFT index. The pairs were equally divided into three groups according to the mother's education and occupational status as: Group I-Mothers who did not receive any formal education, Group II-Educated mothers but unemployed, and Group III-Educated employed mothers. Mother's knowledge and attitude regarding the child's oral health was recorded analyzed using Chi-square test with statistical significance set at $p < 0.05$.

Results: In the present study, the lower DMFT score has been significantly related to higher levels of education and occupation of the mother. It was also observed that the knowledge and attitude of the mother related to the child's oral health is directly proportional to the education and occupational status.

Conclusion: The findings of our study suggest that mother's level of education increases the awareness of the child's oral health. Therefore, it is utmost important to educate a mother to help the child maintain his oral health and reduce the caries prevalence.

Clinical significance: The results of the present study conducted will help the clinician to keep in sight the relationship of mother's education and occupational level and its impact on their child's teeth, which will in turn help them for creating further dental awareness in the society.

Keywords: Dental caries, Education, Mother-child, Occupation.

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INTRODUCTION

Oral health is an integral component of general health which has an effect on the quality of life in children, adolescents through adulthood.^{1,2} One of the most devastating oral diseases among children is Dental Caries, but on the contrary it is also preventable.³ Dental caries occurs when there is an interplay involving microbial, genetic, biochemical, and social factors.⁴

Despite the preventable nature of dental caries, it still remains a chronic condition in developing and developed countries affecting both low and high socioeconomic populations.⁵⁻⁷ Most studies in literature highlight factors such as cariogenic microorganisms, deficient fluoride levels, changes in dietary habits, and poor oral health habits for an increased risk of caries in children.^{8,9} However, education of parents, meagre income of families and single marital status are also contributing factors toward caries.¹⁰

Mothers play a critical role in moulding children to develop good oral health practices.^{1,2} Mothers are pivotal in engaging with the child during daily activities and are also fundamental for security and assurance for the child,^{11,12} which in turn influences the oral hygiene and dietary habits of the child.¹³ Lack of awareness regarding risk factors of caries transcends to ineffective preventive approaches.¹⁴

Determining the current level of knowledge regarding oral health among mothers can help health care providers to target vulnerable groups with a systematic approach toward prevention of oral diseases in children.³ Thus, our study was conducted to

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assess the relationship between mother's educational level and occupational status with the caries experience of their children.

MATERIALS AND METHODS

A cross-sectional study was conducted in children aged below 12 years in Mumbai, India. Ethical clearance was obtained from the Research Committee, Faculty of Dentistry, DY Patil University, Navi Mumbai. A convenience sample of 120 mother-child pairs were selected for the study from the outpatient department of the hospital and neighboring areas based on the inclusion criteria. Participants willing to participate in the study were included and an informed consent was obtained from the mothers. They were divided into three groups, according to the mother's educational level and occupational status:

- Group I—Uneducated mothers
- Group II—Educated mothers, not working
- Group III—Educated mothers, working

Dental caries status of children was recorded by using the DMFT index. Dental examination of the child was done by the principal investigator using a plain mouth mirror, only to retract the soft tissues. A questionnaire was developed in English and the local language to assess the mother's knowledge and attitude regarding their child's oral health.

Statistical Analysis

The collected data was tabulated in Microsoft Excel 2007 and was analyzed using IBM SPSS statistics 20.0 (IBM Corporation, Armonk, NY, USA) with statistical significance set at $p < 0.05$.

RESULTS

A total of 120 mother-child pairs participated in the study and were equally divided into the three groups that is 40 in each group. In Group I, 57.5% of uneducated mothers had no formal education and 42.5% had education less than high school. In Group II, it was seen that 55% mothers had a bachelor's degree and 5% had a master's degree in education whereas in Group III, 85% of mothers had basic college and 5% had a master's degree in education. This difference with respect to the degree of education was statistically significant ($p < 0.001$) between all three groups using Chi-square test (Fig. 1).

On inquiring about the number of times the child brushes his teeth, all mothers in Group I responded as once daily (100%), Group II mothers answered as once in 77.5%, and twice in 22.5% cases. Group III mothers were split between 52.5% responding as once daily and 47.5% as twice daily ($p < 0.001$). Assistance while brushing was almost never in responses received from Group III mothers (92.5%), while the remaining assisting occasionally. In Group I and II mothers, 60% of mothers never assisted their child while brushing.

About 50% of mothers in Group I regarded the primary teeth as fairly important, with 47.5% mothers stating as not so important and the remaining considered it very important. In Group II, 97.5% mothers stated fairly important whereas 2.5% mothers stated as very important. Majority of Group III mothers regarded the milk teeth as very important (52.5%) and 47.5% considered them as fairly important. When asked if the decay in milk teeth can affect

the permanent teeth, Group III mothers were certain that the decay would affect the succedaneous teeth. In Group I and II the responses were 15% and 75%, respectively ($p < 0.001$).

During the dental examination it was noticed that the children belonging to Group I mother's had the highest DMFT score when compared to the children belonging to Group II and Group III mother's, respectively and this difference was seen to be statistically significant ($p < 0.001$).

DISCUSSION

Caries has been a significant menace amongst infants and preschoolers, especially in developing countries in the recent years.¹⁵ In a large developing nation like India, there is limited documentation regarding the importance of primary teeth among parents, particularly mothers.¹⁶ A study by Narang et al. concluded that maternal influence was greater as compared to paternal, with respect to prevalence of dental caries. Mothers engaging profoundly in daily activities and nurturing of the child could be a rational explanation for this influence.¹⁷ A review by Ismail, stated that irrespective of preventive therapies such as fluoride, promotion of education among caregivers is imperative considering their impact on the child's oral health status.¹⁸ Kay and Locker proposed that assessing the understanding of mothers regarding child oral health is essential to accomplish targets to contain the spread of caries.¹⁹ In addition, mother's knowledge regarding oral health translates to the child's future oral health practices.²⁰ While all mothers have the fundamental right to be educated about caries preventive strategies and good oral hygiene, there might be a specific groups of mothers who should be targeted for educational interventions.

Shamata et al.²¹ and Kamil et al.²² found a strong interdependence between mothers knowledge and their educational level, which in turn has an effect on oral health of child. Rajab and Hamdan revealed a dearth of knowledge about oral health and poor access to dental care was mostly associated with lower levels of education.²³ Conversely, Elena and Petr²⁴ asserted that a positive dental knowledge and attitude is directly proportional to higher education levels among mothers. We observed that the knowledge and attitude regarding oral health was directly proportional to the educational levels and our results were in accordance with studies by Szatko et al.²⁵ and Nivedha et al.²⁶

Comparing the feeding practice by the mothers it was seen that Group I and most of the Group II mother's breast fed their child for a period between 6 months to 1 year whereas majority of Group III mother's started weaning by 6 months (Table 1). These are in agreement with results obtained in studies conducted by Ju et al.²⁷ and Kato et al.²⁸ The probable reason for this could be that the educated working mothers start the weaning process earlier to resume work and are also aware of the effects of prolonged breast feeding on oral health.

It was seen from the present study that the snacking habit in children of mothers in the three groups showed statistically significant differences (Table 2) similar to results obtained by Kato et al.²⁸ and Ju et al.²⁷ Studies have proven the repercussions of sweet food intake on the dental hard tissues with maternal education acting as a risk factor toward increased sweet food intake in children.²⁹ The children of the educated working mothers are left unsupervised leading to an increase in snacking in between meals.

On assessing the oral health knowledge of mother's with respect to frequency of brushing (Table 3) and the effects of milk

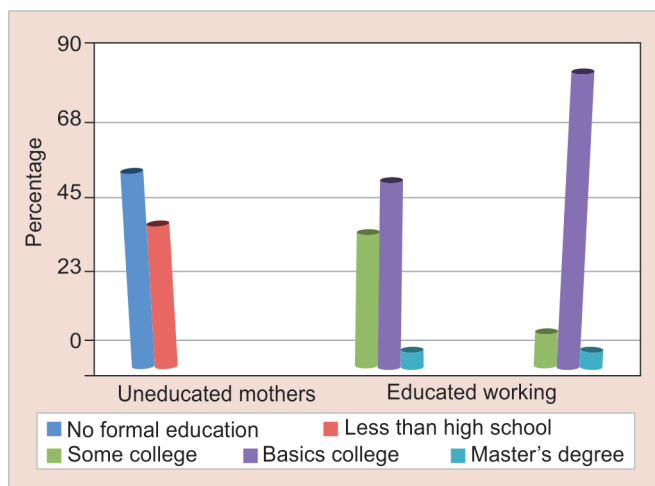


Fig. 1: Comparison of mother's educational status using Chi-square test

teeth on permanent there was a significant difference observed between all three groups which was in accordance with the results stated by Sultan et al.¹⁶

In the present study lower dmft score have been significantly related to higher levels of education and occupation of the mother. The reason for this inverse association could be that educated mothers are aware of the importance of oral health and abide with good dietary habits and oral hygiene measures for their child (Table 4). Similar findings were reported by Narang et al.,¹⁷ Chan et al.,³⁰ and Mohebbi et al.^{31,32} On the contrary Kuriakose et al.³³ noted the caries in children of working mothers were more than nonworking mothers. The reason may be that nonworking mother's stress upon maintenance of oral health because of the ample time they spend with their children. This difference can be attributed to the increase in awareness created through counselling at clinics and camps, posters and pamphlets at public places over the last decade.

CONCLUSION

Mother's level of education increases the awareness of oral health related issues. Broadening prevention concepts and regular visit to pedodontist needs to be emphasized upon. Educating mothers on child dental care will promote lifelong good oral hygiene habits and will bring down the prevalence of oral diseases considerably.

CLINICAL SIGNIFICANCE

The results of the present study will help the clinician to keep in sight the relationship of mother's education and occupational level and its impact on their child's teeth when formulating dental awareness programs in the society.

Limitations

The present study has few limitations of its own. The sample size selected for this study is small and might not be a complete

Table 1: Comparison of the feeding practice using Chi-square test

		<i>How long has the child been breastfed?</i>		<i>Total</i>
		<i>Up to 6 months</i>	<i>6 months–1 year</i>	
Group (I)	Count (%)	0 (0.0)	40 (100.0)	40 (100.0)
Group (II)	Count (%)	11 (27.5)	29 (72.5)	40 (100.0)
Group (III)	Count (%)	30 (75.0)	10 (25.0)	40 (100.0)
Total	Count (%)	41 (34.2)	79 (65.8)	120 (100.0)

Chi-square value: 51.201, *p* value: < 0.001**

Table 2: Comparison of the snacking habit using Chi-square test

		<i>Snacking in between meal present</i>		<i>Total</i>
		<i>Yes</i>	<i>No</i>	
Group (I)	Count (%)	36 (90.0)	4 (10.0)	40 (100.0)
Group (II)	Count (%)	25 (62.5)	15 (37.5)	40 (100.0)
Group (III)	Count (%)	38 (95.0)	2 (5.0)	40 (100.0)
Total	Count (%)	99 (82.5)	21 (17.5)	120 (100.0)

Chi-square value: 16.970, *p* value: < 0.001**

Table 3: Comparison of the brushing knowledge using Chi-square test

		<i>When should you begin brushing your child's teeth?</i>		<i>Total</i>
		<i>At 6 months of age</i>	<i>At the age of 1 year</i>	
Group (I)	Count (%)	0 (0.0)	40 (100.0)	40 (100.0)
Group (II)	Count (%)	11 (27.5)	29 (72.5)	40 (100.0)
Group (III)	Count (%)	21 (52.5)	19 (47.5)	40 (100.0)
Total	Count (%)	32 (26.7)	88 (73.3)	120 (100.0)

Chi-square value: 28.210, *p* value: < 0.001**

Table 4: Comparison of the oral health knowledge using Chi-square test

		<i>Do you believe that it is necessary to rinse your child's mouth after every meal?</i>		<i>Total</i>
		<i>Yes</i>	<i>No</i>	
Group (I)	Count (%)	0 (0.0)	40 (100.0)	40 (100.0)
Group (II)	Count (%)	18 (45.0)	22 (55.0)	40 (100.0)
Group (III)	Count (%)	39 (97.5)	1 (2.5)	40 (100.0)
Total	Count (%)	57 (47.5)	63 (52.5)	120 (100.0)

Chi-square value: 76.391, *p* value: 0.046*

representation of the population. Only visual examination of the caries was done, leading to a possibility of overlooking interproximal caries which is better examined radiographically.

In our study, we have used a crude measurement of employment status, such as employment vs unemployment. This might not be explanatory about specific occupations.

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