



The Association between Parental Age, Education and Occupation (Familial Status) and Oral Health Status among Pre-school Children of Bhopal City, India

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Abstract

Purpose: To investigate the association between parental age, education and occupation on the child's oral health among preschool children of Bhopal, India.

Materials and Method: A cross sectional study was conducted among the Pre-school children and their parents of Bhopal City, Madhya Pradesh, India. The modified WHO oral health assessment proforma (1997) was used for this purpose. General information related to age, sex, educational level, occupation and monthly income were collected using a self-reported, close ended questionnaire. Statistical analysis was done using SPSS Version 20. Descriptive statistics and spearman's correlation were applied wherever indicated.

Results: The study subjects comprised of a total of 1383 preschool children, out of which 759 (54.88%) were males and 624 (45.12%) were females. The prevalence of gingivitis among male study subjects was 3.69% and females were 3.21% and dental caries prevalence was in the range of 25.6% to 28.7%. Parental education had a correlation with gingivitis and a few were found to be statistically significant ($p < 0.05$).

Conclusion: The prevalence of gingivitis among pre-schoolers was found to be low and dental caries prevalence was found to be moderate. The age, education and occupation of parents may have a strong impact on the oral health of preschool children. The maintenance of child's dental health behaviour is of precedence as dental health is a marker of overall health.

Keywords: Oral Health; Dental Caries; Gingivitis; Parental Age; Parental Education; Parental Occupation

Introduction

Oral health means more than healthy teeth. What goes on in your mouth can affect the rest of your body. The mouth is a gateway to the whole body, and the health of the mouth is a reflection of total body health. The mouth, lungs, intestines, and intestinal tract are potential entry sites through which a multitude of bacteria may gain access to the body. This can cause trouble in people with a weakened immune system. Dental diseases share common risk factors with many systemic diseases. Risk factors may include an unhealthy diet, lack of exercise, poor oral hygiene, tobacco, and alcohol use [1].

When performed regularly and over time, healthy habits are the foundations of a lifestyle of improved oral and overall health. Since children are dependent upon parents and caregivers to learn and maintain healthy habits, it is important for them to serve as both teachers and role models. Promoting early healthy habits for children is a valuable part of developing quality, nurturing relationships between the parents or caregivers and children.

Children are in the Preschool Years from 3 years old until they start school. These children start to show personality traits and more intellectual development, creativity and independence to perform their own activities including brushing their teeth, dress-

ing themselves up and to the extent that they want to help parents with their house hold chores. They learn to be a good companion or friend to other children their age during this period. They also learn to listen attentively and start complex movements such as hopping, climbing, and skipping. They are very active during this age and language improvements are predominant. They tend to learn the difference between right and wrong and are heavily influenced by what they see [2].

Oral diseases and disorders can have an impact on the quality of life of preschool children and their parents, affecting their oral health and wellbeing. Parents play an important role in decision-making with regard to their children's oral health and this assessment tool measures parents' perceptions on how oral health problems, including symptoms, the disease itself, and its treatment, affect their child's quality of life [2].

Parental familial status comprising of age, education and occupation play a major role on the child's oral health. Hectic lifestyles have resulted in increased stress and social problems. Some parents forget their parental responsibilities. Children spend more time with their peers, computers and televisions. These changes may affect parent behaviour in regard to their child's oral health, resulting in less attention being paid to their child's dental health [3].

There is a lack of literature and very less knowledge regarding the impact of Parental familial Status on oral health of Pre School children. Thus, this study was designed to investigate the impact of parental familial status on their child's oral health in Bhopal City, India.

Objectives

To evaluate the impact of parental age, education and occupation on oral health status of preschool children.

Materials and Method

A cross sectional study was conducted among the Pre-school children and their parents of Bhopal City, Madhya Pradesh, India. The modified WHO oral health assessment proforma (1997) was used for this purpose. The study subjects (defined target population) consisted of Pre-school children of Bhopal city aged between 3 - 5 years. Pre-schoolers were examined for oral health status and their parents were interviewed using a questionnaire.

The present study employed multistage stratified cluster sampling methodology. The sampling of students involved a multistage approach. At first stage, groups of schools were selected and then groups of students were selected from sampled schools. The selection of students within the school was split into two steps:

- Selection of a class at a level (kindergarten) and
- Selection of individual students from the class (based on inclusion criteria).

The data used in the sampling frame is a comprehensive list of schools. It was updated and obtained from Block resource Centre (Sarva Shiksha Abhiyan). It included the enrolment data by sex, year of all students, school classification information, and contact information. The sampling frame consisted of 1489 private schools in Bhopal city.

Selection Criteria

Inclusion criteria

1. Children with a full set of deciduous teeth
2. The parents and three to five-year-old children attending preschools in Bhopal City
3. Either of the parents or guardian
4. Pre-schoolers attending private schools

Exclusion criteria

1. Children with the presence of 1st permanent molars
2. The parents not willing to participate in the study/did not attend the school at the time of the survey
3. Parents who returned incompletely filled questionnaires
4. Parents who did not return the filled questionnaire with in the specified time period or even after reminders or unable to respond to survey instrument because of insufficient ability of reading skill or physical or intellectual disabilities.
5. Pre-schoolers with physical or intellectual disabilities or limited language skills such that they are unable to participate.

The detailed study protocol was submitted and approval from the ethical committee of People's Dental Academy, Bhopal was obtained. Permissions for conducting this study were taken from Director of School Education, School Authorities and parents of the children. A brief study protocol was explained and an informed consent was obtained from the Director of School Education, School Authorities and parents of the children.

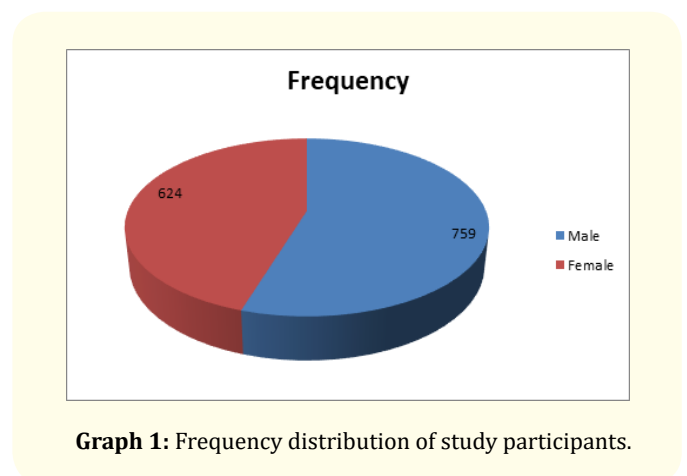
To ensure uniform interpretation, understanding and application by the examiner regarding the codes and criteria for the various diseases and conditions to be observed and recorded in the Modified WHO proforma [2007] [7] used, the examiner underwent prior calibration and training in the Department of Public Health Dentistry, People's Dental Academy, Bhopal, before the commencement of the study.

General information related to age, sex, educational level, occupation and monthly income along with the oral hygiene behaviour of the parents towards their child's oral health were collected using a pretested, self-reported, close ended questionnaire. Statistical analysis was done using SPSS Version 20. Descriptive statistics, chi-square, t-test and spearman's correlation were applied wherever indicated.

Results

The present study was conducted among the Preschool children of Bhopal City between the age ranges of 3 - 5 years. The Oral health status of the study subjects was recorded using Modified WHO Proforma 1997. The presence or absence of Gingivitis and the prevalence of Dental caries and the treatment needs among the study subjects were evaluated. The influence of Parental age, education and occupation on the oral health status of the pre-school children was analysed using a self-reported, close ended Questionnaire.

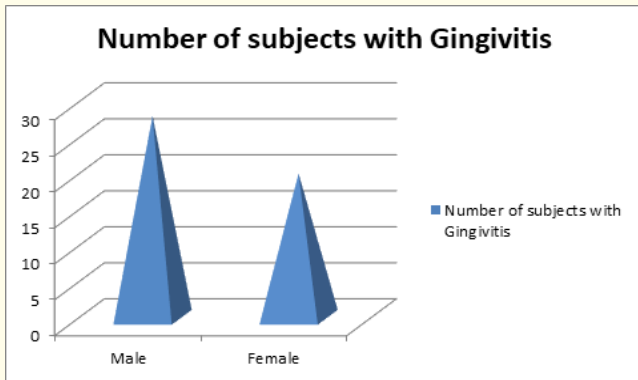
The study subjects comprised of a total of 1383 preschool children, out of which 759 (54.88%) were males and 624 (45.12%) were females. No extra oral abnormalities were observed among these study subjects (Graph 1).



Graph 1: Frequency distribution of study participants.

On evaluating the prevalence of gingivitis among the pre-schoolers, it was observed that a total prevalence of 3.47% was

observed among the study subjects. The prevalence among males was 3.69% and females were 3.21%. These observations were not found to be statistically significant (Table 1, Graph 2).

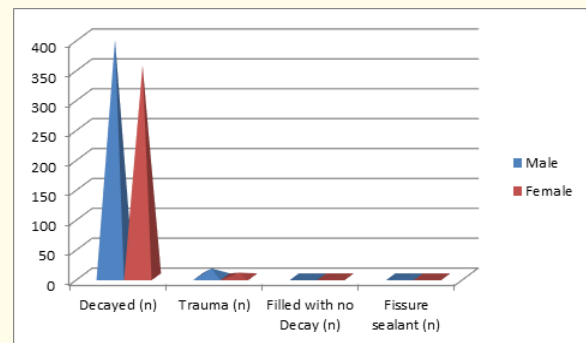


Graph 2: Prevalence of Gingivitis.

Gender	Total (N)	Total no of subjects with Gingivitis n (%)	Statistical Inference
Male	759	28 (3.69%)	$X^2 = 0.239$ $df = 1$ $P \text{ value} = 0.625$ (NS)
Female	624	20 (3.21%)	
Total	1383	48 (3.47%)	

Table 1: Prevalence of Gingivitis among the Pre-schoolers.

Dental caries prevalence and decay which has been treated among the preschool children, shows that the total of 759 male study participants, 397 (28.7%) presented with dental caries, 14 (1%) with Trauma, and just 1 participant (0.1%) had pit and fissure sealant restoration. Among a total of 624 female participants, 354 (25.6%) presented with dental caries, 7 (0.5%) with traumatic injuries of teeth and just 1 (0.1%) participant had a tooth filled which had no decay. Out of a total of 1383 study subjects, 751 (54.30%) pre-schoolers presented with dental caries. Traumatic dental injuries were observed in only 21 (1.51%) study subjects and 1 (0.1%) person each was seen with teeth filled with no decay and tooth restored with pit and fissure sealant. There was no statistically significant difference observed between the male and female study participants (Table 2, Graph 3).

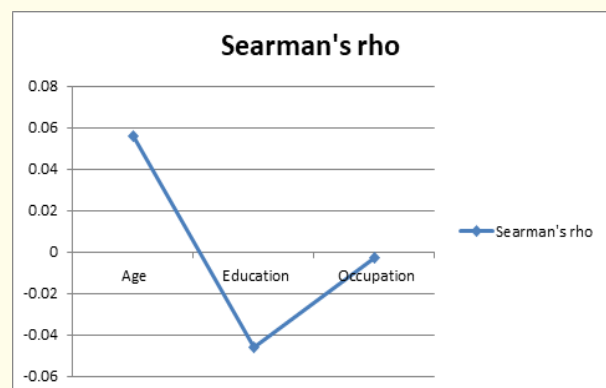


Graph 3: Number of Preschoolers with Dental Caries and Treated decay.

Gender	Total (N)	Decayed n (%)	Trauma n (%)	Filled with no decay n (%)	Fissure Sealant n (%)	Statistical Inference
Male	759	397 (28.7)	14 (1.0)	0	1(0.1)	$X^2 = 3.58$ $df = 3$ $P \text{ Value} = 0.311$ (NS)
Female	624	354 (25.6)	7(0.5)	1(0.1)	0	
Total	1383	751 (54.30%)	21 (1.51%)	1 (0.07%)	1 (0.07%)	

Table 2: Number and Percentage of Pre-schoolers with Dental Caries and Treated decay.

On evaluating the correlation between parental age, education and occupation with dental caries, it was observed that there was a positive correlation ($\rho = 0.056$) between the parent's age and dental caries but this was not found to be statistically significant. That is the younger the parent, the lesser is the presence of dental caries among their children. Parent's education and occupation had a negative correlation ($\rho = -0.046$ and $\rho = -0.003$ respectively) with dental caries and these were also not statistically significant. This suggests that, the greater the educational level and better the occupational standard of the parent, the lesser is the presence of dental caries among the children (Table 3, Graph 4).



Graph 4: Correlation between Parental Age, Education and Occupation and Dental Caries.

Parents Age, Education and Occupation	Dental Caries Status n (%)	Spearman's Correlation (rho)	Significance
Age*	531(57)	0.056	P = 0.090 (NS)
Education ^s		-0.046	P = 0.156 (NS)
Occupation [#]		-0.003	P = 0.918 (NS)

Table 3: Correlation between Parental Age, Education and Occupation and Dental Caries.

The correlation analysis between the parental age, education and occupation with gingivitis shows that there was a negative correlation ($\rho = -0.055$) between parents age and presence of gingivitis among children and this was not found to be statistically significant. This suggests that as the age of the parent increased the presence of gingivitis decreased. The parental education and occupation had a positive correlation ($\rho = 0.086$ and 0.014 respectively) with the presence of gingivitis among children. The correlation between parental education and gingivitis was statistically significant ($p = 0.009$) but occupation was not significant. This suggests that the increased level of parent's educational and occupational status had a high impact on the child's gingival health (Table 4, Graph 5).

Discussion

Children's dental health is critically important to their overall health and successful development into high-functioning adults. Protecting it is straightforward and cost effective. If left untreated, dental disease undermines a child's well-being. Diseases such as tooth decay and gum diseases are debilitating in themselves and can lead to other problems such as constant pain, malnourishment, loss of teeth, and in adulthood, increased risk of cardiac problems and diabetes. If severe enough, dental decay and gum disease cause infections that can even result in death. Pain itself may overshadow childhood, making it difficult to learn, attend school, and develop socially [4].

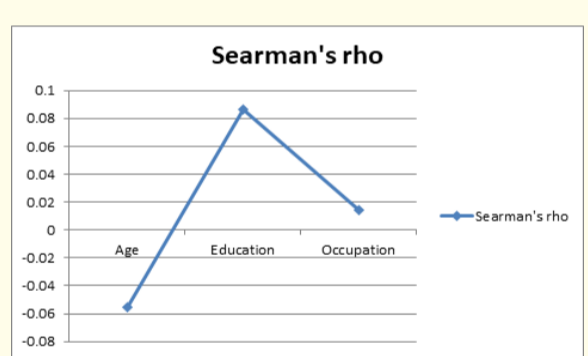
In the current study, the correlation between parental age, education and occupation with dental caries and gingivitis was analyzed. A positive correlation was observed between parental age and dental caries where as a negative correlation was observed between parental education and occupation with dental caries. In a study conducted by Adeniyi AA., *et al.* (2009) [5] among the pre-school children in Lagos, Nigeria, it was observed that maternal age and education had a positive correlation with the child's caries status. In the present study, parental age too had a positive correlation with dental caries but the parental education had a negative correlation with dental caries which was against the findings of the quoted study. This can be due to the variations in educational status of the parents between the two countries.

Khan MN., *et al.* (1998) [6] suggested in their study conducted among African pre-schoolers that family education is associated with caries prevalence and it is a disease marker to target in future caries risk evaluations. This was in accordance with the current study where a strong association was found between parental education and dental caries. The correlation was found to be negative whereas the educational status of parents increased, the dental caries prevalence decreased. A help desk report by the Human Development Resource Centre (HDRC) (2011) [7] from the Department of International Development, UKaid, opined that there is evidence of an association between child health outcomes and parents' education. This relationship is particularly pronounced when considering the impact of maternal education. This was in agreement with the present study. Berger LM., *et al.* (2005) [8] suggested in their study that parental occupation had a strong impact on the health status of the child. This was in agreement with the current study where an association was found between parental occupation and dental caries and the correlation suggested that as the occupational level increases the caries prevalence decreases.

Sufia S., *et al.* (2009) [9] in their study opined that the younger age of the parent, higher level of educational attainment, higher income due to better occupational status and urban residence all had a strong association with dental caries and a positive influence on dental health practices of the children. This was in accordance with the present study. This can be attributed to the increased

Parents Age, Education and Occupation	Gingivitis Status n (%)	Spearman's Correlation (rho)	Significance
Age*	43(4.6)	-0.055	P = 0.093 (NS)
Education ^s		0.086	P = 0.009 (S)
Occupation [#]		0.014	P = 0.678 (NS)

Table 3: Correlation between Parental Age, Education and Occupation and Gingivitis



Graph 5: Correlation between Parental Age, Education and Occupation and Gingivitis.

*Age Classification:

- 20 - 29 years
- 30 - 39 years
- 40 - 49 years
- 50 - 59 years

\$Education Classification:

- Illiterate
- Primary school Education
- High School Education
- Graduate
- Post Graduate

#Occupation Classification:

- Unemployed
- Labourer
- Clerical Staff
- Business/Managerial post
- Professional

awareness regarding dental health among younger parents with higher level of educational attainment. Also, better occupational status of the parents provides for better accessibility to dental care. Traebert J., *et al.* (2011) [10] in their study suggested that among school children with mothers of low educational level, the prevalence of dental caries was found to be significantly high. This is similar to the findings of the present study, where educational level of parent had a negative correlation with dental caries. This can be due to the low awareness of the parents regarding oral health and which in turn influences their dental care seeking behaviour.

In the current study, parental age had a negative correlation with gingivitis and whereas the parental education and occupation had a positive correlation. Thomson WM (2004) [11] opined in their study that parental occupation had a strong impact on the child's gingival conditions, where lower educational levels of the parent resulted in increased gingival diseases. This was not in accordance with the present study where a positive correlation was obtained between parental occupation and gingivitis. This can be due to the highly busy schedule of the parents because of their job demands resulting in lesser care of the child's dental health causing increased gingival problems. Mejia GC (2013) [12] in her study suggested that adult education had a strong association with the dental health and gingival status of the child. This is at par with the current study where parent's education had a positive correlation with child's gingival health. Joshi AR (1994) [13] in the study conducted in Nepal suggested that women with schooling had healthier children with better general and oral health conditions which is in accordance with the present study.

Mascarenhas AK (1998) [14] suggested that mother's highest level of education was considered a risk indicator of enamel and dentinal caries and poor oral health resulting in gingival diseases. This was in accordance with the present study. Wendell JA (1980) [15] opined that low socio economic status caused due to low levels of education and occupation can have an intense impact on dental caries and gingivitis among small children around 36 months age. This impact had a variation as the age increased. This was in accordance with the present study.

Limitations of the Study

Limitations of this study can be attributed to the sampling procedure employed. The cluster sampling design can result in sampling errors that may influence the effective size of the outcome variables when compared to random sampling. But this limitation has been tried to overcome by increasing the sample size. Pre-schoolers attending government schools were not considered for this study, as these schools are observed to have a wide variation with respect to age, non-availability of children and its improper functioning. The inclusion of the government school children would have resulted in the coverage of all the social strata's of Bhopal city, as government schools are mostly attended by students of low socio economic status due to the low fee structures in these schools. This would have helped in more generalization of the results.

Conclusion

The present study was conducted among the Preschool children of Bhopal City between the age ranges of 3 - 5 years. Though the prevalence of gingivitis and dental caries was not significant between both the male and female study subjects, the correlation between parental education and gingivitis was statistically significant but parents' age, education and occupation with dental caries was not found to be statistically significant. The oral health of pre-school children is a public health concern and education regarding oral hygiene practices and dietary habits should be imparted to this population. Regular dental and oral check-up should be made a priority for this group. Continuous monitoring and regular review of this population is mandatory for betterment of general and oral health of these pre-schoolers who are the future.

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