

# The Maternal Socioeconomic Status and the Caries Experience Among 2-6 Years Old Preschool Children of Lucknow City, India

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## ABSTRACT

**Aim:** The aim of the present study was to assess the maternal socioeconomic status and the caries experience among 2-6 years old preschool children of Lucknow city, India.

**Material and Methods:** A sample of 512 preschool going children were selected through a multistage cluster random sampling. Their mothers provided information regarding their demographic data. Their socioeconomic statuses were elicited by using the modified B.G.L. Prasad's classification for the year 2010. Their mothers' education, occupations and incomes were also recorded. The dental caries experience was recorded by using the dentition status and the treatment needs (WHO

Basic Oral Health Survey 1997). The association between the socioeconomic status and the caries experience was obtained by using the Chi – square test. One way ANOVA was used for the multiple group comparisons.

**Results:** The prevalence of nursing caries was 33.01%. The association between the presence of nursing caries and a lower status of the mother's education and occupation and socioeconomic position proved to be statistically significant ( $p < 0.001$ ).

**Conclusion:** Instilling positive attitudes in the parents, especially in the mothers, towards the prevention of nursing caries, would reduce its prevalence at this tender age of life.

**Key words:** Nursing caries, Preschool, Early childhood caries, Education, Occupation

## INTRODUCTION

Nursing caries is a form of rampant caries which is seen in the primary teeth of young children. Studies have focused on the impact, association and the correlation of the mother's oral health, habits, attitudes and knowledge with respect to her child's dental health. Various studies have been done to determine the prevalence of nursing caries. In Asia, the prevalence in three year olds ranges from 36% to 85%, while in India, a prevalence of 44% has been reported for caries in 8 to 48 months old children [1].

As caries can be effectively prevented and controlled, an early identification provides an opportunity to identify the youngsters who are at a high risk for the disease, so that appropriate preventive interventions can be initiated to protect the unaffected teeth [2]. Hence, the present study was undertaken to find the prevalence of nursing caries and its relationship with the maternal socio economic status in 2-6 years old preschool children of Lucknow city.

## MATERIAL AND METHOD

This present cross-sectional study was carried out from January to April 2011. A pilot study was conducted by using a proforma on 30 preschool children to assess the operational feasibility of the study. The sample size was calculated by using the standard formula and the results were sought at a 95% Confidence Interval, for which the value of 'z' was 1.96, with the allowable error ( $e$ ) being taken as 0.05. Thus, by using the above mentioned formula, a pilot study was conducted on the prevalence of the disease. A sample size of 512 preschool going children was obtained. A multistage cluster random sampling was done. In the first stage, Lucknow city of India was divided geographically into 5 areas i.e. east, west, north, south and central. In the second stage, 1 ward was randomly selected from each geographic area. In the third

stage, a school survey was conducted and 102 children from 4 wards each and 104 children were selected from 1 ward to attain a sample size of 512.

A written consent was obtained from the school authorities and informed consents were obtained from the mothers/guardians for the examination of their children. An approval for carrying out the study was obtained from the Ethical Committee of the Institution. To assess the intra – examiner agreement, the examiner investigated 10% of the sample on the second occasion. The kappa statistical test evidenced a near – perfect agreement between the measurements (0.94). One intern from the department was selected as a recording assistant, who was also trained.

The proforma had two parts: the first part consisted of a pre – designed and a pre – tested questionnaire. The parents were invited to participate in the study on the parent – teachers meeting day. The information regarding the demographic data was obtained. The socioeconomic status was elicited by using the modified B.G.L. Prasad's classification for the year 2010. The second part consisted of the clinical assessment. The prevalence of nursing caries was recorded by using, "Dentition status and treatment needs" (the WHO basic oral health assessment form, 1997) [3].

The data was analysed by using the SPSS software, version 15. The Chi – square test and One way ANOVA were used.

## RESULTS

Among the 512 subjects who were examined, 65.2% (334) were males and 34.8% (178) were females.

On the whole, 33.1% (169) had nursing caries, while 66.9% (343) children had no caries. Among the 169 children with nursing caries, a majority were males (61.5%:104) and 38.5% (65) were

females. No statistically significant difference was found between males and females in the prevalence of nursing caries ( $p=0.22$ ).

[Table/Fig-1] shows that the children whose mothers had a lesser education had a statistically highly significant caries experience ( $p<0.001$ ) than the children whose mothers had higher education.

[Table/Fig-2] shows that the children whose mothers were unemployed had a statistically highly significant ( $p<0.001$ ) caries experience as compared to the children whose mothers were professionals.

[Table/Fig-3] shows the children who belonged to lower socio-economic statuses had a statistically highly significant ( $p<0.001$ ) caries experience as compared to the children who belonged to other socioeconomic classes. The mean dmft scores differed highly significantly ( $p=0.0001$ ) across the different socioeconomic classes.

## DISCUSSION

The study population consisted of 512 preschool going children who were aged 2 – 6 years. Almost similar sample sizes of 504 and 530 children were examined in studies which were done by Mohebbi SZ et al., [4] and Babu Jose et al., [5] respectively. Lower sample sizes of 369 and 468 children were examined in studies which were done by Tatiana Degani Paes Leme Azevedo et al., [6] and A Rosenblatt et al., [7] respectively. Higher sample sizes

of 813, 1500 and 1650 children were examined in studies which were done by Tyagi R [8], Mahejabeen R [9] and Yang Li et al., [10] respectively.

The prevalence of nursing caries in the present study was 33.1%. A lower prevalence of nursing caries was reported by Raadal et al., [11] (5.5%) in Sudan and by Mousami Goswami Singh et al., [12] (30.6%) in the Moradabad, Uttar Pradesh, India. A higher prevalence of nursing caries was reported by S. Sunitha et al., [2] (36%) in Davangere, Karnataka, India and 72% in Navajo children by Broderick et al., [13].

The prevalence of nursing caries had varied in each of the reported studies. This could be related to the lack of a universally accepted definition of nursing caries and a suitable epidemiologic index for the measurement of nursing caries.

In the present study, the lower prevalence and the lower mean dmft scores were significantly ( $p<0.001$ ,  $p=0.00$ ) related to the higher levels of education and occupations of the mothers. The reason for the lower mean dmft among the children could be that the parents had more knowledge and that they were aware of the importance of the oral health, which had probably further influenced the behaviour which was related to the dental health of their children, so as to maintain good dietary habits and hygiene.

Mother's education	dmft 0		dmft ≥1		Mean dmft ±SD
	n	%	n	%	
Primary school	21	30.8%	47	69.2%	2.4412±2.5179
High school	99	56.9%	75	43.1%	1.2126±2.3150
University	216	83.8%	42	16.2%	0.3953±1.1631
Illiterate	07	58.3%	05	41.7%	1.1667±1.5859
Total	343	66.9%	169	33.1%	0.9629±1.9636

[Table/Fig-1]: Distribution of nursing caries experience of the children in relation to their mother's education.  $\chi^2 = 81.18$ ,  $p<0.001$ ;  $F = 23.829$ ,  $p=0.00$

Mother's occupation	dmft 0		dmft ≥1		Mean dmft ±SD
	n	%	n	%	
Professional	120	89.6%	14	10.2%	0.2537±1.0383
Semi – professional	17	66.3%	09	34.7%	1.6154±3.2010
Clerical /shop keeper/farmer	02	66.7%	01	33.3%	0.6662±1.1547
Skilled	01	100%	0	0%	0
Semi – skilled	0	0%	0	0%	0
Unskilled	02	100%	0	0%	0
Unemployed	201	58.1%	145	41.9%	1.1994±2.0622
Total	343	66.9%	169	33.1%	0.9629±1.9636

[Table/Fig-2]: Distribution of nursing caries experience of the children in relation to their mother's occupation  $\chi^2 = 43.66$ ,  $p<0.001$ ;  $F = 5.46$ ,  $p = 0.00$

Socioeconomic status of family	dmft 0		dmft ≥1		Mean dmft ±SD
	n	%	n	%	
Upper class (278)	216	77.7%	62	22.3%	0.5487±1.4303
Upper middle (104)	65	62.5%	39	37.5%	0.9904±1.7818
Lower middle (82)	48	58.3%	34	41.7%	1.3413±2.0741
Upper lower (48)	14	29.1%	34	70.9%	2.6669±3.3601
Lower class (0)	0	0%	0	0%	0
Total	343	66.9%	169	33.1%	0.9629±1.9636

[Table/Fig-3]: Distribution of nursing caries experience of the children in relation to maternal socioeconomic status  $\chi^2 = 49.07$ ,  $p<0.001$ ;  $F = 14.29$ ,  $p = 0.00$

In the present study, the prevalence of nursing caries was higher in the Class IV social group with similar findings being reported by Grytten et al., [14] Chosack et al., [15] Grindejford et al., [16] Tyagi R [8] and Babu Jose et al., [17].

The reason may be that the individuals from the lower socioeconomic status experience financial, social and material disadvantages that compromise their ability to care for themselves, afford professional health care services and to live in a healthy environment. In addition, the low socioeconomic status individuals have more fatalistic beliefs about their health and they have a lower perceived need for care, thus leading to less self care and a lower utilisation of the preventive health services.

Although there have been major advances in the understanding of the pathogenesis and the prevention of dental caries in the past two decades, still there are reports of a high prevalence of caries in preschool children across the globe, owing to its multifactorial nature [18].

## CONCLUSION

The prevalence of nursing caries in the present study was high. It was found to be higher in the children whose mothers had low levels of education and occupation and a lower socioeconomic status. This emphasises that the awareness of the parents, especially the mothers, regarding the oral health care, makes a significant impact.

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