Oral health of preschool children in Dhanbad District, Jharkhand: A gander into the maternal behavior and practices

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Abstract

Introduction: Mothers have an important role in taking decisions about their children’s oral health. The study assessed the echelon of oral health behavior and practices of the mothers in relation to their preschool-aged children, which could possibly influence their oral health. Methods: A cross-sectional study was carried out among 312 mothers, selected randomly from eight blocks of Dhanbad District, Jharkhand State, by administering a structured questionnaire on oral health behavior and practices regarding oral health. Results: The overall data indicated that the practices of mothers about oral health of their preschool children increased as their age increased, which was however, not statistically significant (P > 0.47). The mothers who had less than higher secondary school education and belonging to lower socioeconomic groups had poorer oral health practices and was found to be statistically significant (P < 0.002). Conclusion: The mothers ought to inculcate positive practices and perceptions about preventive oral health for themselves first, to be good role models for their children.

Keywords: Maternal behavior, oral health practice, preschool children

Introduction

Oral health is a major public health issue affecting all groups of the population. Poor oral health during the early years is directly associated with poor oral health outcomes in childhood and throughout adulthood as they remain susceptible to developing dental diseases throughout their life.⁴ Children under the age of 5 years generally spend most of their time with their parents and guardians. During the first 3 years and preschool period, the role of parents is very vital in maintaining good oral health of the child, since they are the main caregivers of oral health. This includes eating and drinking habits of the child and healthy behaviors established as norms in the home and it relies on the knowledge and behavior of parents and the elder siblings.⁵ Opinions and beliefs of mothers are valuable considerations in forays into children’s oral health initiatives. In Jharkhand, studies on oral health perception are scarce, especially for those under 6 years.

Materials and Methods

The present cross-sectional study was conducted using a structured questionnaire which was administered to the mothers of the preschool children, who were under 6 years of age. The ethical clearance was obtained from the Institutional Review Board, and informed consent was obtained from the wards of the study participants. The study was conducted on a randomly

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selected sample of mothers in the rural areas of Dhanbad District.

The sample size was calculated using the formula: 
\[ n = \frac{z^2pq}{d^2} \]
where \( n \) = sample size, \( P \) = prevalence of disease, \( q \) = free from disease, \( d \) = allowable error and \( z \) = point on the normal deviation. Accordingly, 312 mothers were selected with an age range of 18–35 years. The education of the mothers was classified as belonging to illiterate, primary school, intermediate, and above. The income of the families was classified as below Rs. 5000, Rs. 5000–10,000, Rs. 10,000–15,000, and above Rs. 15,000 per month. The samples were taken from the eight blocks of Dhanbad District and from each Block, 39 mothers were selected.

### Statistical analysis

The data were tabulated and statistically analyzed using the Statistical Package for Social Sciences, Version 12. The Chi-square test was used for comparing the oral health practices of the mothers in relation to their oral health.

### Results

The study was conducted in Dhanbad, a major District of Jharkhand State. A total of 312 mothers of preschool children participated in the study. The age of the mothers ranged between 18 and 25 years (34.6%), 26 and 35 years (59.3%), and 35 years and above (6.1%). Almost half of the mothers (44.9%) were illiterate and those who had up to primary, intermediate, and above intermediate education were, 43.6%, 8.6%, and 2.9%, of the study group, respectively. A whopping 79.2% of the mothers had a meager monthly income below Rs. 5000, and those who had the monthly family income in the next higher brackets were 18.6%, 0.9%, and 1.3% of the study group, respectively [Table 1].

A majority of the children belonged to the 3-year (33.6%) and 4-year (35.2%) age groups, followed by 5-year (27.4%) and 6-year (3.8%) age groups. The data on feeding practices revealed that the children were breastfed during the initial period and weaned off later to bottle feeding.

When the mothers were asked about the pattern of sweet consumption by their children, a majority of them reported the consumption to be once a day, i.e., among 63.9%, 74.3%, and 65.4% children, across the age groups, respectively [Table 4]. However, there was no statistically significant differences observed among the mothers according to age (\( \chi^2 = 4.35, P > 0.63 \)), educational status (\( \chi^2 = 9.95, P > 0.35 \)) and family income (\( \chi^2 = 11.53, P > 0.24 \)).

A greater number of mothers used a toothpaste to clean their child’s teeth, i.e., among 63.2%, 72.1%, and 52.3% children, across the age groups, respectively [Table 5]. However, there was no statistically significant difference observed among the mothers according to age (\( \chi^2 = 14.40, P > 0.72 \)), educational status (\( \chi^2 = 18.8, P > 0.11 \)) and family income (\( \chi^2 = 6.02, P > 0.91 \)).

### Discussion

Oral health has a pivotal role in the general well-being of individuals and the adoption of good oral health habits in childhood often takes place with active guidance from caregivers, teachers, dentist, physician, and parents, especially the mothers.[12] It appears that interventions targeting parental oral health beliefs and practices might be beneficial in the prevention of oral health problems.[11]

In the present study, parents with poor education and economic background probably had poorer perception regarding dental health. The knowledge and practices of the mothers about their wards’ oral health varied with increasing age. These findings were similar to the outcome of the study undertaken by Talekar et al.[12]

It has been established that higher the mother’s education level, the lower their child’s caries experience and this finding is similar to the results published by Pacharuniti et al.[13]
### Table 2: Pattern of sweet consumption by the children in the study group

|                          | Frequency (%) | Statistical significance |
|--------------------------|---------------|--------------------------|
|                          | Once | Twice | Thrice | Others | \( \chi^2 \) |
| Mothers' age group (in years) |     |       |        |        |            |
| 18-25                    | 34.3 | 29.1  | 27.3   | 9.3    | \( \chi^2=7.55, P>0.478 \) (NS) |
| 26-35                    | 41.4 | 21.2  | 35.6   | 1.8    |            |
| 35 and above             | 72.5 | 19.2  | 5.7    | 2.6    |            |
| Education level          |       |       |        |        |            |
| Illiterate               | 28.4 | 13.7  | 12.3   | 45.6   | \( \chi^2=15.76, P>0.202 \) (NS) |
| Up to primary School     | 41.8 | 50.7  | 4.2    | 3.3    |            |
| Up to intermediate       | 72.1 | 8.7   | 17.2   | 1.4    |            |
| Above intermediate       | 42.6 | 15.9  | 19.7   | 21.8   |            |
| Family income (Rs.)      |       |       |        |        |            |
| <5000                    | 31.4 | 12.4  | 53.7   | 2.5    | \( \chi^2=10.57, P>0.56 \) (NS) |
| 5000-10,000              | 45.8 | 13.1  | 23.3   | 17.8   |            |
| 10,000-15,000            | 61.7 | 24.6  | 10.4   | 3.3    |            |
| >15,000                  | 35.6 | 41.2  | 21.5   | 1.7    |            |

P<0.05: NS: Nonsignificant

### Table 3: Pattern of cleaning of teeth by the children in the study group

|                          | Frequency (%) | Statistical significance |
|--------------------------|---------------|--------------------------|
|                          | Once | Twice | Thrice |          | \( \chi^2 \) |
| Mothers' age group (in years) |     |       |        |          |            |
| 18-25                    | 89.5 | 9.6   | 0.9    |          | \( \chi^2=16.94, P<0.002 \) (HS) |
| 26-35                    | 74.4 | 23.9  | 1.7    |          |            |
| 35 and above             | 92.7 | 4.9   | 2.4    |          |            |
| Education level          |       |       |        |          |            |
| Illiterate               | 92.7 | 5.7   | 1.6    |          | \( \chi^2=14.76, P<0.002 \) (HS) |
| Up to primary school     | 88.4 | 10.3  | 1.3    |          |            |
| Up to intermediate       | 72.5 | 25.1  | 2.4    |          |            |
| Above intermediate       | 66.8 | 21.6  | 11.6   |          |            |
| Family income (Rs.)      |       |       |        |          |            |
| <5000                    | 93.7 | 4.5   | 1.8    |          | \( \chi^2=19.38, P<0.004 \) (HS) |
| 5000-10,000              | 70.5 | 27.6  | 1.9    |          |            |
| 10,000-15,000            | 66.5 | 31.2  | 2.3    |          |            |
| >15,000                  | 47.9 | 48.7  | 3.4    |          |            |

P<0.01: HS: Highly significant

### Table 4: Manner of cleaning of teeth by the children in the study group

|                          | Tooth brush | Finger | Twig | Others | Statistical significance |
|--------------------------|-------------|--------|------|--------|--------------------------|
|                          |             |        |      |        | \( \chi^2 \) |
| Mothers' age group (in years) |     |       |      |        |            |
| 18-25                    | 63.9        | 15.8   | 19.4 | 0.9    | \( \chi^2=4.35, P>0.631 \) (NS) |
| 26-35                    | 74.3        | 8.2    | 15.4 | 2.1    |            |
| 35 and above             | 65.4        | 21.8   | 10.5 | 2.3    |            |
| Education level          |             |        |      |        |            |
| Illiterate               | 67.2        | 11.3   | 19.3 | 2.2    | \( \chi^2=9.95, P>0.35 \) (NS) |
| Up to primary school     | 64.1        | 15.4   | 16.2 | 4.3    |            |
| Up to intermediate       | 76.2        | 7.4    | 13.8 | 2.6    |            |
| Above intermediate       | 66.7        | 27.3   | 3.9  | 2.1    |            |
| Family income (Rs.)      |             |        |      |        |            |
| <5000                    | 56.3        | 21.9   | 19.4 | 2.4    | \( \chi^2=11.53, P>0.24 \) (NS) |
| 5000-10,000              | 64.8        | 15.2   | 17.7 | 2.3    |            |
| 10,000-15,000            | 72.3        | 10.8   | 15.3 | 1.6    |            |
| >15,000                  | 81.4        | 14.5   | 2.7  | 1.4    |            |

P<0.05: NS: Nonsignificant
It was found that the most deprived families, in terms of the education level of the parents, showed the least positive attitude and had the weakest motivation for controlling their child's sugar snacking habits. A majority of the mothers were aware that sugary items could lead to dental caries. It has been suggested that the parents with a general, improved level of education might be better able to assess an appropriate source of information and understand the contents more clearly. These findings were similar to the findings of the study conducted by Moulana et al.\textsuperscript{[14]} and Kamolmatyakul and Saiong.\textsuperscript{[15]}

It was observed that parents living in deprivation and those who had no further education, all had less chances of having high levels of dental knowledge and positive dental attitudes. These observations were similar to the findings put forth by Williams et al.\textsuperscript{[16]}

It was seen that children from disadvantaged groups had the lowest level of dental health. The parents' age and education levels were the key factors in the preschool children's dental health which were in accordance with the findings of the study conducted by Mattila et al.\textsuperscript{[17]}

Although not statistically significant, good oral health behaviors were observed more among the older mothers than the younger ones. This could perhaps be explained on the premise that the former were more likely to have had various oral health experiences compared to the latter. These results were similar to the findings of the study conducted by Pacharunithi et al.\textsuperscript{[19]} A majority of the parents (67.9%) selected a toothbrush as the most appropriate cleaning aid for their children's teeth and similar findings were reported by Naidu and Davis.\textsuperscript{[18]}

In the present study, around two-thirds of the study subjects used a toothbrush and toothpaste for brushing their ward's teeth which was higher than in the study carried out by Pullishery et al.\textsuperscript{[12]}

### Conclusion

Notable health behaviors in parents, such as tooth brushing habits and frequency of consumption of sweet foods, are important determinants of these behaviors in their children. A majority of the mothers had a poor perception of their child's oral health and thus steps ought to be taken to educate and motivate the mothers about the importance of regular dental visits. Since primary care physicians and dentists could influence the oral health behavior of the mothers, they have to focus more on oral/dental prevention than just depend on clinical therapy.

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### Conflicts of interest

There are no conflicts of interest.

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