

Association of Knowledge and Attitude of Mothers and Pre-Nursery / Nursery School Teachers Regarding Early Childhood Caries in Preschool Children of Puducherry – A Cross Sectional Study

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ABSTRACT

Introduction: Early Childhood Caries (ECC) is a severe form of dental decay with multi factorial origin. The role of mothers and teachers has become more imperative in promoting oral health care in children. The present study aimed to assess the knowledge and attitude of the mothers and pre- nursery/ nursery school teachers regarding ECC in the pre-school children of Puducherry.

Material and Methods: A cross-sectional study was conducted in a total of 350 children belonging to the age group of 3-5 years attending pre-schools in the west region of Puducherry, accompanied by their mothers and pre- nursery/ nursery school teachers constituted the study group. They were categorised as preschool children, mothers and pre- nursery/ nursery school teachers. Oral health status was assessed using decayed filled teeth index (dfs/dft). Mother's and teacher's knowledge and attitude were assessed by using a closed ended questionnaire distributed to the mothers through their teachers and directly to the teachers. Data collected were subjected to statistical analysis.

Results: The caries prevalence in preschool children was found to be around 30%. Statistically significant results were found between the age and educational status of the mothers and pre-nursery/ nursery school teachers with the caries status of the children.

Conclusion: A significant association between the knowledge and attitude of mothers and pre-nursery / nursery school teachers regarding ECC was observed. Thus, in our study both the mothers and teachers had better knowledge but poor attitude towards ECC.

Keywords: Knowledge, Attitude, Mothers

INTRODUCTION

Oral health is an important aspect of general health in infants and children, which has an impact on the quality of life and health outcome.^{1,2} Dental caries is the most common chronic disease affecting children of low and high economic communities without any discrimination.²

Early Childhood Caries is a preventable disease among children recently defined as "Caries is a biofilm (plaque) induced acid demineralization of enamel or dentin, mediated by saliva. Early Childhood Caries (ECC) is the presence of 1 or more decayed (non-cavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth in a child 71 months of age or younger. In children younger than 3 years of age, any sign of smooth-surface caries is indicative of severe early childhood caries (S-ECC). From ages 3 through 5, 1 or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary anterior teeth or a decayed, missing, or filled score of ≥ 4 (age 3), ≥ 5 (age 4), or ≥ 6 (age 5) surfaces constitutes S-ECC.³

Pattern of behaviours learnt in early childhood are deeply ingrained and are resistant to change. Attempts at changing the

behaviour at the later stage of development may be difficult because of earlier indoctrination at home.⁴ This oral disease which is more common in young children, could be prevented if their mothers and Pre-Nursery / Nursery school teachers took necessary precautions in maintaining their children's oral health.⁵ Mothers are undoubtedly the primary source of early education in children with regard to good oral health. Parents are the decision makers for their children hence they should have knowledge about the primary teeth in order to build confidence in their children. But still in developing countries like India there is less parental awareness and thus increased prevalence of early childhood caries.^{1,2} The knowledge of the teacher is also very important in imbibing good oral health behaviour in children, as children come from different communities where their standard of living differs from one another.²

Studies have been conducted evaluating the knowledge and attitude of mothers and pre-nursery/ nursery school teachers regarding ECC in Vadodara^{6,7}, Hubli⁴, Mysore⁸, Hyderabad², Davangere⁹, Trivandrum¹⁰– cities in India, but till date no study has been done in the city of Puducherry. Hence this study was planned to instill a positive attitude in mothers, pre-nursery and nursery school teachers in order to improve the oral health of the children in the future years.

MATERIAL AND METHODS

This cross sectional study was conducted among preschool children of seven preschools in Puducherry, over a period of time from March to June 2014. A survey was conducted in the city of Puducherry to identify the preschools, dividing the city into 5 zones namely south, east, west, north and central. We found that preschools were more in number in the west region, thus we randomly selected 10 pre-schools out of which only 7 of them gave permission for the study. Written permission to conduct the study among the preschool children was obtained from the school principal. This study was approved by the Institutional Ethical Committee, Internal Review Board, IGIDS (IEC REFERENCE NO: IGIDSIEC 2014PEDO04PGDNDP,

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IEC). Informed Consent from the parents was obtained prior to enrolling the child for the study. Pre-school children aged 3-5 years, mothers and Pre- Nursery and Nursery school teachers present on that day of examination and who were willing to participate in the study were included while special children were excluded.

Sample size was calculated based on the literature and by using the sample size calculation formula. Initially screening was done and case history was recorded using the case sheet. The questionnaires were distributed to the parents through the teachers and were obtained the next day within 24 hours. In five schools oral health education talk was delivered to the parents on parents- Teachers day as three sessions in the morning at noon and evening. In two schools pamphlet was delivered through the preschool teachers to the parents. The questionnaires for the teachers were distributed and the filled forms were obtained immediately. The questionnaires were given to the class teachers to be distributed among mothers. All the mothers returned the filled in questionnaires through their class teachers on the next day itself.

STATISTICAL ANALYSIS

The data was tabulated and subjected to statistical analysis. Frequency test, t – test and chi -square test were used for analyzing the data and one way ANOVA was used to find the association between the knowledge and attitude of mothers and pre-nursery / nursery school teachers between groups. The p value for our study was kept < 0.05 which was considered to be statistically significant.

RESULTS

This clinical study was conducted among the preschools of Puducherry, in preschool children aged 3-5 years to assess the knowledge and attitude of their mothers and teachers regarding early childhood caries by using a questionnaire and by performing clinical examination in children. A total of 350 preschool children and their mothers and a minimum of 25 teacher’s were included.

They were further subdivided into 3 subgroups based on their age, as mothers < 25 years of age and mothers who are in the age range of 25-36 years and mothers who are > 36 years of age. It was found that the mean and standard deviation in knowledge and attitude of mothers regarding Early childhood caries based on their age below 25 years was 13.34 ±0.90, for the age range of 25-36 years it was 24.15 ±5.43, and more than 36 years of age it was 36.72 ±1.76. Statistically significant results were found between the three groups (p < 0.001) and also within groups. Statistically significant results were obtained between groups (p < 0.001), mothers with the age range of > 36 years were found to have better knowledge and attitude towards Early childhood caries than other groups. (Table 1)

The mothers were further subdivided into four subgroups based on their educational level as those who had passed tenth standard, 12th standard, who had done bachelor’s and master’s degree. The mean and standard deviation of the mothers with educational qualification of 10th standard was 13.00 ± 0.00, while 18.03 ± 2.35 for the mothers with 12th standard qualification and 27.09 ± 4.71 for the mothers with bachelor’s degree and 36.72 ±1.76 for mothers with Master’s degree. It

was found that statistically significant difference existed among all the 4 groups. (p < 0.001) Statistically significant result was observed regarding attitude and knowledge regarding Early Childhood Caries in the group of mothers who had obtained master’s degree. (Figure 1)

The mother’s knowledge and attitude regarding Early childhood caries was assessed based on their occupational status. It was found that most of the mothers were working, while non-working mothers comprised of only a small percentage. The mean and standard deviation for working mothers was 17.94 ± 4.83 whereas for nonworking mothers it was 33.76 ±2.75. Statistically significant (p < 0.001) results were obtained between the two subgroups, wherein non-working mothers had better knowledge and attitude regarding Early childhood caries compared to working mothers. (Table 2)

The knowledge and attitude of teachers regarding Early childhood caries were compared by subdividing the teachers based on their age as; teachers less than 25 years, in the age group of 25-36 years and more than 36 years. The mean and standard deviation for teachers under the age of 25 years was found to be 17.75 ± 3.67. The mean and standard deviation for teachers in the age group of 25-36 years was found to be 31.33 ± 4.12 and for ages more than 36 years it was found to be 39.00 ± 0.00. The mean and the standard deviation for the 3 subgroups were found to be 26.04 ± 9.20. Statistical significance was observed in between the three sub groups (p < .001). Pre-nursery / nursery school teachers in the age group of more than 36 years were found to have more knowledge and attitude towards Early Childhood Caries than the other groups. (Figure 2)

When the knowledge and attitude regarding the Early childhood caries were compared between the mothers and the teachers, it

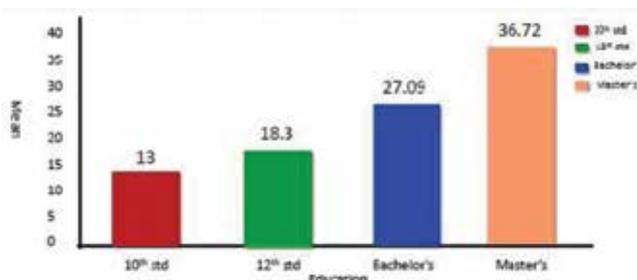


Figure-1: Comparison of knowledge and attitude regarding Early childhood caries among the mothers, based on their educational level.

| Age | N | Mean | Std. Deviation | F Value | P Value |
|-------------|-----|-------|----------------|---------|----------|
| >25 years | 117 | 13.34 | 0.90 | | |
| 25-36 years | 201 | 24.15 | 5.43 | 473.05 | 0.001(S) |
| <36 years | 32 | 36.72 | 1.76 | | |
| Total | 350 | 21.69 | 8.06 | | |

Table-1: Comparison of Mothers knowledge and attitude regarding Early Childhood Caries based on their age.

| Occupation | N | Mean | Std. deviation | t Value | p Value |
|-------------|-----|-------|----------------|---------|----------|
| Working | 267 | 17.94 | 4.83 | | |
| | | | | 37.417 | 0.001(S) |
| Non working | 83 | 33.76 | 2.75 | | |

Table-2: Comparison of Mothers knowledge and attitude regarding Early Childhood Caries based on their working status

was found that the mean and standard deviation for the mothers were found to be 21.69 ± 8.06 and for the pre-nursery/ nursery school teachers it was 26.04 ± 9.20 . Statistical significance was obtained between the two groups. Comparatively pre-nursery / nursery teachers had more knowledge regarding Early childhood caries (Table 3).

We found a positive correlation between knowledge and the attitude of mothers and the caries status of the children when the correlation coefficient was kept as 0.01. (Table 4)

In our present study we found a positive correlation between the knowledge, attitude of Pre-Nursery/Nursery school teachers and the caries status of the children when the correlation coefficient was kept as 0.01. (Table 5)

DISCUSSION

In India, similar studies assessing the knowledge and attitude of Mothers and Pre- Nursery school teachers regarding ECC in pre-school children have been conducted in Vadodara^{6,7}, Hubli⁴, Mysore⁸, Hyderabad², Davangere⁹, Trivandrum¹⁰ but till date no study has been conducted in the city of Puducherry, thus this study was planned. This study was conducted to explore the knowledge and attitude of parents and pre-nursery / nursery school teachers and associate it with the caries status of their children in the preschools of Puducherry. The present study was conducted among the Pre-school children of 7 preschools in West Puducherry.

Early Childhood Caries is an infectious disease that can begin as early as the teeth begin to emerge (around 6 months, until 6 years), often progresses rapidly. If left untreated, it can destroy the child’s teeth, and have a strong, lasting effect on a child’s overall general health. Children of 3-5 years age group were selected, as ECC falls within this range.^{11,12}

A total of 350 children, their Mothers and 25 Pre-Nursery / Nursery school teachers were included in this study after obtaining permission and informed consent. Sample size was calculated based on the previous literature and the formula $(n = (Z^2 \times P (1 - P)) / e^2)$.

Preschool children were selected after excluding children with physical and intellectual disability and the parents who are not the primary caretakers of the children. This shows that they were interested in participating in the study and in knowing about the oral health status of their children. The questionnaire for Pre-Nursery/ Nursery school teachers were distributed and filled in questionnaires were collected on the same day. The teachers voluntarily participated in the study with an eagerness to improve their knowledge and enhance their awareness regarding oral health care of children.

A closed ended questionnaire was used for mothers and pre-Nursery / Nursery school teachers, as it offers a better way to compare groups of respondents and gives a numerical value to compare between the groups than an open ended questionnaire. In the present study, the questionnaires included 5 questions about the demographic features of the mothers and teachers.

A study reported that poor attitude of parents towards oral health of young children were associated with increased prevalence of dental caries. The questionnaire for mothers included about 13 questions, out of which 6 questions addressed the knowledge of the Mothers and remaining 7 assessed their attitude.³

By virtue of their training and opportunity to influence large

| | N | Mean | Std. Deviation | t Value | P Value |
|----------|-----|-------|----------------|---------|---------|
| Mothers | 350 | 21.69 | 8.06 | | |
| | | | | 2.30 | 0.02(S) |
| Teachers | 25 | 26.04 | 9.20 | | |

Table-3: Comparison of knowledge and attitude of mothers and pre- nursery/ nursery school teachers regarding early childhood caries

| Variables | ‘r’ value | Remarks |
|----------------------------------|-----------|---------|
| Dental caries status of children | | |
| Knowledge | 0.644** | S |
| Attitude | 0.910** | S |

Table-4: Association between the knowledge and attitude of mothers with the caries status of the children.

| Variables | ‘r’ value | Remarks |
|----------------------------------|-----------|---------|
| Dental caries status of children | | |
| Knowledge | 0.579** | S |
| Attitude | 0.854** | S |

Table-5: Comparison of the knowledge and attitude of pre-nursery / nursery school teachers with the caries status of the children.

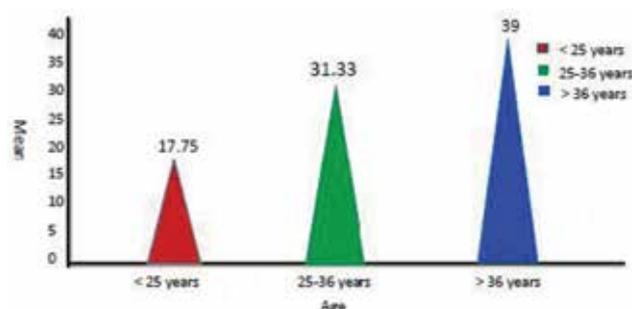


Figure-2: Comparison of pre-nursery/nursery school teachers knowledge and attitude regarding early childhood caries based on their age

number of children and their parents, teachers form a particular group of interest in planning and implementation of oral health programmes. In the present scenario, most of the mothers are working and the children spend more time in the school with their school teachers. Thus, increasing the oral health knowledge of primary school teachers could provide an opportunity to educate large populations of young children.

Early childhood caries (ECC), also known as baby bottle tooth decay is a disease characterized by early occurrence of decay in the teeth of infants or young children. Its etiology is multifactorial and has been well established. This oral disease in young children can be prevented to a great extent if parents and teachers are educated and motivated.¹³

In the present study, as the mother’s age increased the knowledge and attitude regarding ECC also increased. These results are in correlation with studies done by Scroth¹⁴ and Togoo¹³, wherein mothers above 30 years of age had more knowledge and attitude compared to the 20-29 years. Analogous to mothers, as the age of the Pre- Nursery/ Nursery school teachers increased their knowledge and attitude regarding ECC also increased. These results are in correlation with other studies^{15,16}, wherein they found that the teachers handling the children for more years had

good exposure regarding their oral health when compared to others. This may be attributed to the fact that with an increase in age maturity level increases. We observed that mothers with bachelors or master's degree had better knowledge and attitude regarding ECC. This is similar to the Polish study done by Szatko et al¹⁷ wherein mothers with higher education had better knowledge regarding the oral hygiene practices and they also knew the importance of deciduous teeth.

Besides, in Suresh et al⁵ study mothers with lower level of education had inadequate oral health knowledge. Corresponding to this, as the educational level of the Pre-Nursery/Nursery school teachers increased the knowledge and attitude regarding ECC also increased. This is comparatively similar to Dawani N et al¹⁸ study in Karachi, Pakistan wherein education level was significantly associated with the knowledge of teachers depicting that as teachers attain higher education, their subsequent knowledge regarding dental caries and its etiology amplify. Contrast to Mani SA et al¹ study, although the percentage of teachers with higher education were more, their knowledge and attitude was less. Thus, with improved level of education, they may be able to assess appropriate source of information and understand that information regarding oral health care more completely.

Contrary to other results from our study, non-working mothers had comparatively good knowledge and attitude regarding ECC. This is in correlation with Kuriakose et al¹⁰ study, where they found a strong association between the working status of the mother and dental caries i.e. the caries in children of working mothers were more than non-working mothers. This may be due to the fact that the non-working mothers stressed the maintenance of oral health than others due to the ample time they spend with their children.

The knowledge and attitude of mothers regarding ECC were comparatively more when compared to the Pre-Nursery/Nursery school teachers. This is in compliance with previous study where caregivers, who were involved in taking care of more than 5 children had overall weaker oral health practices, whereas mothers have only one or two children to take care, thus they give more attention than the caregivers/ teachers.¹⁹

In our study, caries prevalence rates were found to be low which is similar to the study done by Subramaniam P et al⁸ and in contrast to Mahejabeen et al⁴ study, where the caries prevalence rate was high. Mothers and Pre-Nursery / Nursery school teachers had better knowledge and attitude about ECC in Puducherry, which attributes to the low caries prevalence among the children who participated in our study. By imparting more knowledge about ECC the caries prevalence could still be reduced and also a positive attitude about oral health can be established.

We found significant association between the knowledge and attitude of mothers with the caries status of the children these findings are in correspondence with the study done by Farid et al.²⁰ As mothers were more aware regarding oral care and had better knowledge regarding ECC, they brought their children for frequent dental check-ups and maintained oral hygiene, leading to low caries status in their children.

Likewise, a significant correlation between the knowledge and attitude of pre-Nursery/Nursery school teachers with the caries status of the children was observed in the present study. This is

similar to Maranhao et al¹⁵ and Silvi AS et al²¹ studies, wherein they found similar correlation between caries prevalence and knowledge and attitude regarding ECC. Thus, teachers with good knowledge can discuss and stress the importance of maintaining good oral health in children.

Limitation of this study was that, the malocclusion status and children younger than 3 years were not included. Additionally, we had difficulty in identifying non-cavitated lesions. In the near future these children will be recalled to the college hospital and they will be checked for non-cavitated lesions and necessary interventions will be provided. Further studies are recommended in larger samples, such that larger group could be educated and motivated.

CONCLUSION

With increase in mothers and pre-Nursery/ Nursery school teachers age and their educational status knowledge and attitude regarding ECC was better. The caries prevalence rate in the preschool children was found to be low (30%). A significant association between the knowledge and attitude of mothers and Pre-Nursery / Nursery school teachers regarding ECC was observed. Overall we can conclude that in our study both the mothers and teachers had better knowledge but poor attitude towards ECC. Education and attitude appeared to be favourable indicators of the teacher's attitude with regard to the oral health of their preschool children.

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