



Correlation between the Oral Health Status of Mothers and Their Children: A Comparative Study

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(Received: 04 February 2024

Revised: 11 March 2024

Accepted: 08 April 2024)

KEYWORDS

DMFT, def, OHI-S, mothers, children, oral health.

ABSTRACT:

Background: This study was conducted to assess the Correlation between the oral health status of mothers and their children.

Material and methods: The study was conducted on a sample of 160 pairs of children of 8-12years age and their mothers, who reported to the department of Paediatric & Preventive Dentistry, V S Dental College & Hospital, Bangalore. The aims and procedure of the study was explained to the mothers and the informed consent was obtained from them prior to the study. Children between 8-12 years of age and mothers who gave informed consent were included in the study. Children whose mothers were not residing with them or physically or mentally handicapped or medically compromised children had been excluded from the study. Each mother-child pair underwent intraoral examination for dental caries status. Examination was performed by single trained personnel under artificial light with mouth mirror and probe. To evaluate the dental status, DMFT index was recorded according to WHO 2013 criteria and to assess the gingival health, oral hygiene simplified index (OHI-S) was recorded for mothers and their children. The correlation between the oral health status of mother and their children was analysed. Data was entered in the spreadsheets and was analyzed using SPSS version 19. Pearson correlation test was done to determine the association between mother and their children caries status. Level of significance for the various correlations was set at $P < 0.05$.

Results: The overall mean DMFT was 4.84 ± 3.68 . The overall mean def was 5.46 ± 3.31 . The Overall mean OHI-S was 2.52 ± 1.07 . The Overall mean OHI-S among children was 1.91 ± 0.88 . In the present study, a strong correlation is seen between DMFT of mothers and def of children which means that as there is an increase in the DMFT of the mothers, there was a significant increase in the def of the children ($r=0.613$, $p=0.00$). Similarly, a good correlation was seen between OHI-S of mothers and children which mean that with an increase in the OHI-S of the mothers, there was a significant increase in the OHI-S of the children ($r=0.617$, $p=0.00$).

Conclusion: In conclusion, it was found that mothers' dental caries and oral health status had a significant direct correlation to the dental caries and oral health status of their children.



Introduction

Oral health is an important element of general health and wellbeing. Although largely preventable, many children across the world still suffer from the pain, discomfort and the other ill effects associated with different oral diseases. The most common chronic disease of childhood is dental caries.

Childhood dental caries is a multifactorial, microbial disease and if left untreated it leads to discomfort, pain and lack of interest in routine activities and ultimately destroys tooth structure and leads to early loss of tooth.

The development of dental caries is dependent upon the critical interrelationship between susceptible host/ tooth surface, specific oral bacteria and dietary carbohydrates

Streptococcus mutans (*S.mutans*) is considered to be the principal indicator group of bacterial organisms responsible for dental caries. Mutans streptococci (MS), consists mainly of the species *Streptococci mutans* and *Streptococci sobrinus*, have been implicated as the principal oral bacteria responsible for the initiation and development of dental caries

S.mutans breaks down sugar for energy and produces acidic environment, which causes demineralization of superficial structures of tooth i.e. enamel and dentin resulting in dental caries. *Streptococcus mutans* (*S.mutans*) is considered to be the principal indicator group of bacterial organisms responsible for dental caries. Make every mother and child count was the World Health Day theme for the year 2005. Healthy mother and the children are the bedrock of healthy and prosperous community and nation. According to the recent studies vertical mode of transmission is more common in preschool children than horizontal. Mainly the transferred genotypes are responsible for the transmission of caries from mothers to their children. Earlier studies demonstrated that infants acquire MS from their mothers and only after the eruption of primary teeth. More recent studies indicate that MS can colonize the mouths of pre-dentate infants and that horizontal as well as vertical transmission does occur.

Higher the levels of maternal salivary MS, greater the risk of infant being colonized. Along with maternal salivary levels of MS, the mother's oral hygiene,

periodontal disease, snacking frequency, and socioeconomic status are also associated with infant colonization. The child typically is infected by saliva from the mother, by the placement of a pacifier in the child's mouth that she has first cleaned in her own mouth, by kissing the child directly on the mouth, or by pre tasting/chewing food before it is fed to the child. However, in some cases, salivary transfer between mother and child can be protective.

Reports indicate that horizontal transmission (ie, transmission between members of a group such as siblings of a similar age or children in a day care centre) occurs. A study of children with severe early childhood caries (S-ECC) revealed that non- maternal MS genotypes were identified in the majority percentage of children

Maternal support is essential for prevention of dental caries and gingivitis in children among families with parents¹. Parents play a central role in giving children the information and encouragement needed for healthy lifestyles. Parents' attitudes have a significant positive influence on the children's oral hygiene and oral health. Within the family, the role of mother has been emphasized in relation to a child's oral health habits and status². Microbiological studies have proved that children usually attain *S.mutans* from their mothers and both isolated strains have shown similar bacterial profiles with similar chromosomal or plasmid DNA patterns. This shows that mothers are the main source of transmission of dental caries to their children and the frequency of vertical transmission is more common in pregnant mothers. The health of one generation might profoundly affect that of the next.

So, the present study was conducted to examine the interrelationships of oral health behaviour and oral health between mothers and their children.

AIM OF THE STUDY

Aim of the study was to examine the interrelationships of oral health behaviour and oral health between mothers and their children, aged 8-12 years.



OBJECTIVES

- To correlate dental caries status among mother and their children using WHO 2013 criteria
- To correlate oral hygiene status among mother and their children using OHI-S.

- Children whose mothers were not residing with them
- Physically or mentally handicapped or medically compromised children

MATERIALS AND METHODS

Sample

The study was conducted on a sample of 160 pairs of children of 8-12 years age and their mothers, who reported to the department of Paediatric & Preventive Dentistry, V S Dental College & Hospital, Bangalore. The aims and procedure of the study was explained to the mothers and the informed consent was obtained from them prior to the study.

Inclusion Criteria

- Children between 8-12 years of age
- Mothers who gave informed consent

Exclusion Criteria

Clinical examination

Each mother-child pair underwent intraoral examination for dental caries status. Examination was performed by single trained personnel under artificial light with mouth mirror and probe. To evaluate the dental status, DMFT index was recorded according to WHO 2013 criteria and to assess the gingival health, oral hygiene simplified index (OHI-S) was recorded for mothers and their children. The correlation between the oral health status of mother and their children was analysed.

STATISTICAL ANALYSIS

Data was entered in the spreadsheets and was analyzed using SPSS version 19. Pearson correlation test was done to determine the association between mother and their children caries status. Level of significance for the various correlations was set at $P < 0.05$.

RESULTS

Distribution of caries status of mothers		
Caries status	Mean DMFT \pm SD	N
Low caries status	2.06 \pm 0.86	68
Moderate caries status	4.22 \pm 1.44	48
High caries status	9.47 \pm 3.17	44
Overall mean DMFT	4.84 \pm 3.68	160

The overall mean DMFT was 4.84 \pm 3.68.

Distribution of caries status of children		
Caries status	Mean def \pm SD	N
Low caries status	2.61 \pm 0.79	59
Moderate caries status	4.81 \pm 0.86	55
High caries status	9.89 \pm 2.41	46
Overall mean def	5.46 \pm 3.31	160

The overall mean def was 5.46 \pm 3.31.

Distribution of oral hygiene status of mothers		
Oral hygiene status	Mean OHI-S \pm SD	N
Good	0.71 \pm 0.17	10
Fair	2.09 \pm 0.52	102



Poor	3.80±0.71	48
Overall mean OHI-S	2.52±1.07	160

The Overall mean OHI-S among mothers was 2.52±1.07.

Distribution of oral hygiene status of children		
Oral hygiene status	Mean OHI-S ± SD	N
Good	0.89±0.14	38
Fair	2.05±0.43	106
Poor	3.43±0.66	16
Overall mean OHI-S	1.91±0.88	160

The Overall mean OHI-S among children was 1.91±0.88.

Table: Correlation between Mother's DMFT and Child's def		
Variables	Mother's DMFT	Child's def
Mother's DMFT		
Pearson correlation	1	0.613
P value		0.00*
Child's def		
Pearson correlation	0.613	1
P value	0.00*	
**Correlation is highly significant at the 0.01 level.		

In the present study, a strong correlation is seen between DMFT of mothers and def of children which means that as there is an increase in the DMFT of the mothers, there was a significant increase in the def of the children ($r=0.613$, $p=0.00$)

Table: Correlation between Mother's OHI-S and Child's OHI-S		
Variables	Mother's OHI-S	Child's OHI-S
Mother's OHI-S		
Pearson correlation	1	0.436
P value		0.00**
Child's OHI-S		
Pearson correlation	0.436	1
P value	0.00**	
**Correlation is highly significant at the 0.01 level.		

Similarly, a good correlation was seen between OHI-S of mothers and children which mean that with an increase in the OHI-S of the mothers, there was a significant increase in the OHI-S of the children ($r=0.617$, $p=0.00$)

DISCUSSION

Mothers play a key role in the development of the oral hygiene habits of their children, and it is essential that parents have knowledge on oral hygiene practice. More than any other social factors and contexts, mothers are

considered to be very important mediators in their children's health behavior.²

The present study population comprised of 160 pairs of mothers and their children. The mean DMFT for the mother was found to be 4.84 ± 3.68 . The mean def for the children was 5.46 ± 3.31

The mean OHI-S score for mother was found to be 2.52 ± 1.07 , and that of the children was 1.91 ± 0.88



The present study showed a positive correlation between the dental caries status and oral hygiene status of a mother and the child which was in accordance with the study by Mitsugi et al.¹

More than any other social factor, mothers influence the health behaviors of their children. It is important that the knowledge of parents especially mothers regarding oral health practices including oral hygiene practices should be adequate so that they can disseminate such information and practices to their children.²

The relationship between mothers' gingival health level and caries prevalence in their children in the present study was in agreement with the findings of studies done by Sarnat et al and Sasahara et al.^{3,4}

The positive correlation between the dental caries status among the mother and the children found in this study was in contrast with the study by Verma et al in which they found no correlation between the dental caries status of children with that of their mothers.⁵

The positive correlation between the oral hygiene status among the mother and the children was also in contrast with the study by Alalausau and Malmivirta (1994) in which they found no significant correlation between children with their mother's caries prevalence and mother's salivary *S. mutans* levels.⁶

A study done by Bruce A. Dye et al showed children of mother who had higher levels of untreated caries were more likely to have higher level of caries experience. A similar relationship was observed between mothers' tooth loose and caries experience among their children. The children of mothers with higher level of tooth loss were likely to have higher level of caries experience compared with children of mothers with no tooth loss, which was in contrast with the present study⁷.

It is important that the knowledge, attitude and behavior of parents especially mothers regarding oral health practices including oral hygiene practices should be adequate so that they can disseminate such information and practices to their children. As health professionals, we should know the amount of correct information and the attitude and practices of parents and children so that we can modify their knowledge, attitude, and practices.

CONCLUSION

In conclusion, it was found that mothers' dental caries and oral health status had a significant direct correlation to the dental caries and oral health status of their children.

RECOMMENDATIONS

- Oral health education
- Early diagnosis
- Complete dental services and prevention of dental caries programs for pregnant women should be accessible so that, not only their own oral and general health will be secured, but also their children's caries risk will be reduced.

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