

Maternal Oral Health and Its Association With Oral Health Status of Children: A Cross-Sectional Study

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ABSTRACT

Background: Maternal oral health and oral-health-related behaviours may influence the development and maintenance of oral health in children. Mothers play an important role in establishing children's oral hygiene practices, dietary habits, and utilization of dental care services. The present study was undertaken to assess maternal oral health and determine its association with the oral health status of their children.

Aim: To assess maternal oral health and evaluate its association with the oral health status of children.

Materials and Methods: A cross-sectional study was conducted among **55 mother-child pairs**. Maternal demographic characteristics, oral hygiene practices, dental-visit history, oral hygiene status, and dental caries status were assessed. The oral health status of children was evaluated with particular emphasis on dental caries and oral hygiene. The association between maternal oral health parameters and children's oral health status was assessed statistically. Children were categorized as positive or negative according to the predefined criteria for oral disease.

Results: Among the 55 children evaluated, **12 (21.8%) were positive for dental caries**, while 43 (78.2%) were negative. Positive cases were more frequent among children whose mothers had poor oral hygiene (**5/10; 50.0%**) compared with those whose mothers had fair (**4/18; 22.2%**) or good oral hygiene (**3/27; 11.1%**). Dental caries was present in 24 (43.6%) mothers. Among children of mothers with dental caries, **8 (33.3%)** were positive, compared with **4 (12.9%)** among children of mothers without dental caries. Similarly, the proportion of positive children was higher among mothers who had never visited a dentist (**35.3%**) than among those reporting regular dental visits (**7.1%**). Poor oral hygiene was also more commonly observed among children whose mothers had poor oral hygiene.

Conclusion: The findings suggest that **maternal oral health status and oral-health-related practices may be associated with the oral health status of children**. Improving maternal oral health, oral hygiene practices, and regular utilization of preventive dental services may contribute to better oral health outcomes in children. Further longitudinal studies with larger sample sizes are recommended to establish the direction and strength of these associations.

Keywords: Maternal oral health; child oral health; dental caries; oral hygiene; dental health behaviour; mother–child pair; cross-sectional study

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INTRODUCTION

Oral health is an essential component of general health and well-being, particularly during childhood when oral conditions can influence nutrition, growth, development, school attendance, quality of life, and future oral health behaviour. Dental caries remains one of the most common chronic diseases affecting children worldwide, with a substantial burden in both primary and permanent dentitions. Early childhood caries is particularly important because untreated disease may result in pain, difficulty in eating and sleeping, impaired quality of life, and the need for extensive dental treatment. Preventive approaches therefore need to begin early and should involve not only the child but also the family environment in which oral-health behaviours are established. [1,2]

The oral health of children is influenced by a complex interaction of biological, behavioural, environmental, socioeconomic, and familial factors. Among these, parents and caregivers have an important role because they establish many of the behaviours that influence children's oral health. Mothers frequently act as the primary caregivers and are commonly responsible for introducing toothbrushing routines, selecting foods and beverages, supervising oral hygiene, arranging dental visits, and providing information about oral health. Consequently, maternal knowledge, attitudes, practices, and personal oral health may have implications for the development of oral health behaviours in children. [3,4]

Maternal oral health may influence children's oral health through several pathways. Mothers with poor oral hygiene or untreated dental caries may have oral-health behaviours that are also adopted by their children. The family environment can influence the frequency and quality of toothbrushing, dietary practices, consumption of cariogenic foods and drinks, and utilization of preventive dental services. Systematic reviews have reported an association between parental oral-health behaviours and dental caries among children, although the strength of the association varies across populations and study designs. [5,6]

The relationship between maternal and child dental caries is also biologically plausible. Dental caries is a multifactorial disease involving susceptible tooth surfaces, dietary substrates, oral microorganisms, and time. Mothers and children share a close environment and frequent contact, and maternal oral health may therefore contribute to the child's exposure to cariogenic microorganisms. However, dental caries cannot be attributed to maternal transmission alone because socioeconomic conditions, dietary habits, fluoride exposure, oral hygiene, access to dental care, and other environmental factors also contribute substantially to disease development. [7,8]

Maternal dental caries has been investigated as a potential marker of caries risk in children. A systematic review evaluating caregiver oral health and dental caries in offspring found that most included studies reported a significant relationship between caregiver and child caries experience, although the overall certainty of evidence was limited by methodological heterogeneity and imprecision. [9] More recent evidence has similarly emphasized the importance of considering the caregiver and family environment when developing preventive strategies for childhood dental caries. [10]

Maternal oral hygiene practices may also influence the development of corresponding practices in children. Regular toothbrushing, appropriate use of fluoride toothpaste, supervision of children's brushing, and appropriate dietary practices are important components of caries prevention. Children often learn these behaviours through observation and parental guidance. Consequently, mothers who maintain better oral hygiene practices may be more likely to establish and reinforce appropriate oral hygiene routines in their children. Conversely, inadequate maternal oral hygiene may coexist with inadequate child oral hygiene. [3,5]

Dental-service utilization represents another important component of maternal oral-health behaviour. Regular dental visits may facilitate early identification and management of maternal dental disease and may increase awareness regarding

preventive oral care for children. Evidence from systematic reviews suggests that preventive dental programmes and prenatal oral-health care can form an important component of strategies aimed at reducing early childhood caries. [11,12] Nevertheless, access to dental services and their utilization are influenced by socioeconomic status, education, geographical accessibility, cost, cultural beliefs, and perceived need for dental care.

Pregnancy and early motherhood provide important opportunities for oral-health promotion. During pregnancy, women frequently have regular contact with healthcare professionals and may therefore be reached through antenatal and primary healthcare services. Oral-health education during this period can potentially improve maternal knowledge and practices and may subsequently influence the oral-health environment of the developing child. Recent evidence indicates that educational interventions directed at pregnant women can improve several maternal oral-health outcomes and may contribute to improved oral-health outcomes in infants, although the certainty and consistency of evidence differ between outcomes. [13,14]

Maternal education and socioeconomic circumstances are also relevant determinants of childhood oral health. Educational attainment may influence health literacy, knowledge of preventive practices, dietary choices, healthcare utilization, and the ability to obtain appropriate dental care. Recent meta-analytic evidence has reported an association between lower maternal educational attainment and increased odds of early childhood caries, highlighting the importance of social and educational determinants in childhood oral health. [15] The importance of maternal and caregiver oral health is further supported by contemporary preventive approaches that emphasize family-centred rather than child-only interventions. Interventions involving pregnant women, new mothers, and other primary caregivers may include oral-health education, dietary counselling, promotion of appropriate toothbrushing, fluoride use, preventive dental visits, and clinical management of maternal oral disease. However, intervention studies have shown variable effects on children's caries outcomes, indicating that maternal oral health is one component of a broader network of biological, behavioural, and socioeconomic determinants. [11,13]

Despite increasing evidence regarding the relationship between maternal and child oral health, there remains a need for studies assessing this association in different populations and healthcare

settings. In particular, evaluation of maternal oral hygiene status, dental caries, dental-visit patterns, and oral-health practices alongside the child's oral hygiene and caries status may provide a more comprehensive understanding of the mother-child relationship. Such information can assist in identifying potentially modifiable family-level factors and may support the development of preventive oral-health programmes.

The present study was therefore undertaken to assess maternal oral health and determine its association with the oral health status of their children. Maternal demographic characteristics, oral hygiene practices, dental-visit history, oral hygiene status, and dental caries status were evaluated, while children's oral hygiene and dental caries status were assessed. By examining these parameters together, the study aims to explore whether maternal oral-health conditions and behaviours are associated with oral-health outcomes among children and to highlight the potential importance of family-centred approaches to oral-health promotion.

MATERIALS AND METHODS

Study Design

A cross-sectional observational study was conducted in the Department of Obstetrics and Gynaecology with collaboration with Department of Oral Medicine to assess maternal oral health and its association with the oral health status of their children. The study included mother-child pairs and evaluated maternal demographic characteristics, oral hygiene practices, dental-visit history, oral hygiene status, and dental caries status, along with the corresponding oral health parameters of the children.

Study Population

The study population consisted of **55 mother-child pairs**. Mothers and their children were evaluated together to explore the possible association between maternal oral health and the oral health status of children.

Study Participants

Mothers accompanying their children for healthcare/dental assessment during the study period were considered for participation. Each mother was assessed for her oral health status and relevant oral-health-related behaviours, while the participating

child underwent assessment of oral hygiene and dental caries status.

Inclusion Criteria

Mothers:

- Mothers willing to participate in the study.
- Mothers having a child within the predefined study age range.
- Mothers able to provide relevant information regarding their oral hygiene practices and dental-visit history.

Children:

- Children aged **3–11 years**.
- Children accompanied by their participating mothers.
- Children whose mothers consented to their participation.

Exclusion Criteria

- Mother–child pairs unwilling to participate.
- Children or mothers for whom adequate oral-health assessment could not be performed.
- Children with conditions that prevented satisfactory oral examination.
- Mother–child pairs with incomplete essential information.

Sample Size

A total of **55 mother–child pairs** were included in the present study. Each mother–child pair was considered as a study unit for analysis of the relationship between maternal and child oral-health characteristics.

Data Collection

Relevant demographic and oral-health information was collected using a structured data collection format. Maternal information included:

1. Maternal age.
2. Oral hygiene practices.
3. Frequency of toothbrushing.
4. History of dental visits.
5. Maternal oral hygiene status.
6. Presence or absence of dental caries.

Child-related information included:

1. Age.
2. Sex.
3. Oral hygiene status.
4. Presence or absence of dental caries.

The uploaded study categorized mothers into four age groups: **20–25, 26–30, 31–35, and 36–40 years**, while children were categorized into **3–5, 6–8, and 9–11 years**.

Assessment of Maternal Oral Hygiene

Maternal oral hygiene was assessed and categorized into three groups:

- **Good oral hygiene**
- **Fair oral hygiene**
- **Poor oral hygiene**

The study classified 27 mothers as having good oral hygiene, 18 as fair, and 10 as poor.

Assessment of Maternal Oral Hygiene Practices

Information regarding toothbrushing frequency was obtained from the mothers. Based on the reported practice, mothers were categorized as:

- Brushing once daily
- Brushing twice daily
- Irregular brushing

In the study population, 24 mothers reported brushing once daily, 25 reported brushing twice daily, and 6 reported irregular brushing.

Assessment of Dental-Visit History

Maternal utilization of dental services was assessed based on reported dental-visit history. Mothers were categorized into:

- Regular dental visits
- Occasional dental visits
- No previous dental visit

The corresponding groups consisted of 14, 24, and 17 mothers, respectively.

Assessment of Maternal Dental Caries

Maternal dental caries status was recorded as either **present** or **absent** based on the assessment. Among the 55 mothers, dental caries was recorded in 24 mothers, while 31 mothers were classified as having no clinically evident dental caries.

Assessment of Children's Oral Hygiene

The oral hygiene status of children was categorized into:

- Good
- Fair
- Poor

Among the 55 children, 31 had good oral hygiene, 15 had fair oral hygiene, and 9 had poor oral hygiene.

Assessment of Children's Dental Caries

Children were assessed for dental caries and classified as:

- **Positive/affected**
- **Negative/unaffected**

Of the 55 children included in the study, 12 were classified as positive for dental caries and 43 as negative.

Study Outcome

The **primary outcome** was the association between maternal oral-health characteristics and the oral health status of children.

Particular emphasis was placed on the relationship between:

- Maternal oral hygiene and children's dental caries.
- Maternal dental caries and children's dental caries.
- Maternal dental-visit pattern and children's dental caries.
- Maternal oral hygiene and children's oral hygiene.
- Overall maternal oral health status and children's oral health status.

These relationships correspond to the associations presented in the uploaded study.

Statistical Analysis

Data were summarized using frequencies and percentages for categorical variables. Associations between maternal oral-health characteristics and children's oral-health outcomes were assessed using appropriate tests for categorical data, such as the **Chi-square test** or **Fisher's exact test**, depending on the expected cell frequencies. A **p-value <0.05** was considered statistically significant.

RESULTS

A total of **55 mother–child pairs** were included in the present cross-sectional study. Maternal oral health status was assessed and its association with the oral health status of their children was evaluated. For the purpose of analysis, **12 (21.8%) children were classified as positive/affected cases**, while **43 (78.2%) were classified as negative/unaffected cases**.

Table 1. Distribution of study participants according to age of mothers

Maternal age (years)	No. of mothers	Percentage (%)
20–25	12	21.8
26–30	20	36.4
31–35	16	29.1
36–40	7	12.7
Total	55	100.0

The majority of mothers belonged to the **26–30 years** age group (36.4%), followed by 31–35 years (29.1%). Mothers aged 36–40 years constituted the smallest group (12.7%).

Table 2. Distribution of children according to age

Child age (years)	No. of children	Percentage (%)
3–5	18	32.7
6–8	21	38.2
9–11	16	29.1
Total	55	100.0

The largest proportion of children were aged **6–8 years (38.2%)**, followed by 3–5 years (32.7%) and 9–11 years (29.1%).

Table 3. Distribution of children according to sex

Sex	No. of children	Percentage (%)
Male	29	52.7
Female	26	47.3
Total	55	100.0

There was a slight male predominance, with **29 male children (52.7%)** compared with 26 female children (47.3%).

Table 4. Maternal oral hygiene practices

Oral hygiene practice	No. of mothers	Percentage (%)
Brush once daily	24	43.6
Brush twice daily	25	45.5
Irregular brushing	6	10.9
Total	55	100.0

Most mothers reported brushing either once or twice daily. **25 mothers (45.5%)** reported brushing twice daily, whereas 6 (10.9%) had irregular brushing practices.

Table 5. Maternal dental visit history

Dental visit pattern	No. of mothers	Percentage (%)
Regular dental visits	14	25.5
Occasional visits	24	43.6
No previous dental visit	17	30.9
Total	55	100.0

Only one-fourth of mothers reported regular dental visits. **17 mothers (30.9%) had never visited a dentist**, indicating relatively low utilization of preventive dental services.

Table 6. Maternal oral hygiene status

Maternal oral hygiene status	No. of mothers	Percentage (%)
Good	27	49.1
Fair	18	32.7
Poor	10	18.2
Total	55	100.0

Good oral hygiene was observed/reported in **27 mothers (49.1%)**, while 18 (32.7%) had fair and 10 (18.2%) had poor oral hygiene.

Table 7. Maternal dental caries status

Maternal status	caries No. mothers	of Percentage (%)
Caries absent	31	56.4
Caries present	24	43.6
Total	55	100.0

Dental caries was present in **24 mothers (43.6%)**, whereas 31 (56.4%) were free from clinically evident dental caries.

Table 8. Children's oral hygiene status

Child oral hygiene status	No. children	of Percentage (%)
Good	31	56.4
Fair	15	27.3
Poor	9	16.4
Total	55	100.0

More than half of the children, **31 (56.4%)**, had good oral hygiene. Poor oral hygiene was observed in 9 children (16.4%).

Table 9. Children's dental caries status

Child dental caries status	No. children	of Percentage (%)
Positive/affected	12	21.8
Negative/unaffected	43	78.2
Total	55	100.0

Of the 55 children examined, **12 (21.8%)** were **positive for dental caries**, whereas **43 (78.2%)** were **negative**. Thus, the prevalence of dental caries in the study population was **21.8%**.

Table 10. Distribution of positive cases according to child age

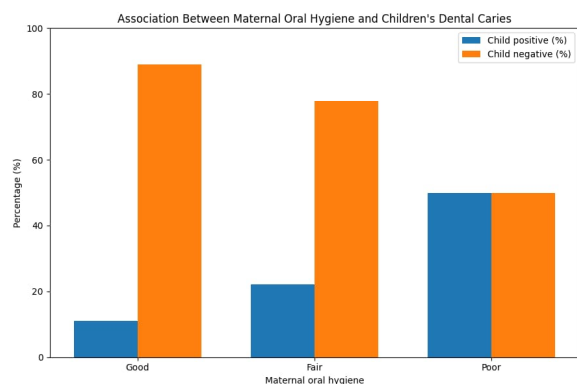
Child age	Positive cases	Percentage among positive cases (%)
3–5 years	4	33.3
6–8 years	5	41.7
9–11 years	3	25.0
Total	12	100.0

Among the 12 positive cases, the largest proportion belonged to the **6–8-year age group (41.7%)**, followed by 3–5 years (33.3%). Children aged 9–11 years accounted for 25.0% of positive cases.

Table 11. Association between maternal oral hygiene and children's dental caries

Maternal oral hygiene	Child positive (%)	Child negative (%)	n Total
Good	3 (11.1)	24 (88.9)	27
Fair	4 (22.2)	14 (77.8)	18
Poor	5 (50.0)	5 (50.0)	10
Total	12 (21.8)	43 (78.2)	55

A higher proportion of positive cases was observed among children whose mothers had **poor oral hygiene (50.0%)**, compared with mothers having fair (22.2%) or good (11.1%) oral hygiene. This finding suggests a possible relationship between maternal oral hygiene and the child's oral health status.



Graph 1: Association between maternal oral hygiene and children's dental caries

Maternal oral hygiene	Child positive (%)	Child negative (%)	n Total
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Table 12. Association between maternal dental caries and children's dental caries

Maternal dental caries	Child positive (%)	Child negative (%)	n Total
Present	8 (33.3)	16 (66.7)	24
Absent	4 (12.9)	27 (87.1)	31
Total	12 (21.8)	43 (78.2)	55

Among mothers with dental caries, **8 of 24 children (33.3%)** were positive for dental caries. In comparison, only **4 of 31 children (12.9%)** of mothers without dental caries were positive. This indicates a higher proportion of childhood caries among children whose mothers had dental caries.

Table 13. Association between maternal dental visit pattern and children's dental caries

Maternal dental visits	Child positive (%)	Child negative (%)	n Total
Regular	1 (7.1)	13 (92.9)	14
Occasional	5 (20.8)	19 (79.2)	24
None	6 (35.3)	11 (64.7)	17
Total	12 (21.8)	43 (78.2)	55

The proportion of positive children was lowest among mothers who had **regular dental visits (7.1%)** and highest among mothers who had **never visited a dentist (35.3%)**. This suggests that better maternal utilization of dental services may be associated with better oral health among children.

Table 14. Association between maternal and child oral hygiene status

Maternal oral hygiene	Child good	Child fair	Child poor	Total
Good	20	6	1	27
Fair	9	6	3	18
Poor	2	3	5	10
Total	31	15	9	55

Children of mothers with good oral hygiene predominantly had good oral hygiene themselves. Conversely, **5 of 10 children (50%)** whose mothers had **poor oral hygiene** also had **poor oral hygiene**, suggesting a possible intergenerational association in oral hygiene practices.

Table 15. Overall association between maternal oral health and child oral health status

Maternal oral health status	Child positive	Child negative	Total
Good/favourable	4	29	33
Poor/unfavourable	8	14	22
Total	12	43	55

Positive oral health findings in children were more frequent when the mother had an **unfavourable oral health status**. Eight of 22 children (36.4%) in the unfavourable maternal oral-health group were positive, compared with 4 of 33 (12.1%) in the favourable maternal oral-health group.

In the present study of **55 mother–child pairs, 12 children (21.8%) were positive for dental caries**, while 43 (78.2%) were negative. Positive cases were more frequently observed among children whose mothers had **poor oral hygiene, dental caries, and infrequent/no dental visits**. The findings indicate a **potential association between maternal oral health and the oral health status of children**.

DISCUSSION

The present cross-sectional study evaluated the relationship between maternal oral health and the oral health status of children among 55 mother–child pairs. In the study, 12 (21.8%) children were classified as positive for dental caries, while 43 (78.2%) were negative. Positive cases were more frequently observed among children whose mothers had poor oral hygiene, maternal dental caries, and no or infrequent dental visits. These findings support the concept that the family environment, particularly maternal oral-health behaviour and status, may be an important component of childhood oral-health risk. [1,2]

Dental caries is a multifactorial disease influenced by microbial, dietary, behavioural, environmental, and socioeconomic factors. It remains one of the most prevalent chronic conditions affecting children globally. Previous systematic evidence has demonstrated a substantial worldwide burden of early childhood caries. [1] Studies from different

populations have also demonstrated considerable variation in the prevalence of childhood dental caries. [2]

In the present study, 21.8% of children had dental caries. Although direct comparison with other studies should be made cautiously because of differences in age groups, diagnostic criteria and study populations, the finding demonstrates a clinically relevant burden of childhood caries. The occurrence of dental caries is influenced by multiple interacting determinants rather than by a single risk factor. [3,8]

A major finding of the present study was the association between maternal oral hygiene and children's dental caries. Among children whose mothers had poor oral hygiene, 5 of 10 (50.0%) were positive for dental caries, compared with 4 of 18 (22.2%) among mothers with fair oral hygiene and only 3 of 27 (11.1%) among mothers with good oral hygiene. This graded pattern suggests that poorer maternal oral hygiene may coexist with greater risk of adverse oral-health outcomes in children.

These findings are consistent with the concept of the family oral-health environment. Fisher-Owens et al. proposed a multidimensional model in which children's oral health is influenced by individual, family, and community-level factors. [3] Hooley et al. similarly reported that parental factors are associated with the development of dental caries in young children. [4] Castilho et al. emphasized that family environment and parental behaviour may influence children's oral-health practices. [5]

The association between maternal dental caries and child dental caries was another important observation. In the present study, 8 of 24 children (33.3%) whose mothers had dental caries were positive, compared with 4 of 31 (12.9%) children whose mothers did not have dental caries. This finding is compatible with previous evidence indicating that caregiver oral health can be associated with children's caries experience. [6,7]

Ho et al. reported that most studies included in their systematic review demonstrated a relationship between caregiver oral health and dental caries in children, although the overall certainty of evidence was limited by methodological limitations. [6] More recent evidence has also reported an association between caregiver oral health status and dental caries in children, supporting the importance of considering maternal oral health within family-centred prevention. [7]

The biological explanation for this relationship may include shared oral microorganisms, close mother–child contact, and common dietary and oral-hygiene practices. However, maternal dental caries should not be interpreted as a direct or exclusive cause of childhood caries. Dental caries is multifactorial, and socioeconomic circumstances, fluoride exposure, diet, oral hygiene, healthcare access and individual susceptibility may contribute substantially. [8]

The study also demonstrated an association between maternal dental-service utilization and children's caries status. Only 1 of 14 children (7.1%) whose mothers reported regular dental visits was positive, compared with 5 of 24 (20.8%) among mothers with occasional visits and 6 of 17 (35.3%) among mothers who had never visited a dentist. This pattern suggests that regular utilization of dental services may coexist with more favourable child oral-health outcomes.

Dental attendance can provide opportunities for preventive counselling, early detection of disease, fluoride-related advice and reinforcement of appropriate oral-hygiene practices. However, the present cross-sectional design does not establish that maternal dental attendance itself prevents childhood caries. Dental attendance may also reflect differences in health awareness, socioeconomic circumstances, accessibility of care and perceived health needs.

The relationship between maternal and child oral hygiene was also notable. Of the 27 mothers with good oral hygiene, 20 children had good oral hygiene, whereas among 10 mothers with poor oral hygiene, 5 children also had poor oral hygiene. This finding supports the concept of behavioural modelling, whereby children may acquire health behaviours through observation and reinforcement within the family. [3-5]

Parental education and oral-health literacy may further influence this relationship. Evidence indicates that parental oral-health literacy is relevant to children's oral-health behaviours and outcomes. [16,17] Parental knowledge may influence toothbrushing practices, dietary choices, preventive dental attendance and supervision of children's oral hygiene.

The overall comparison in the present study further supports this observation. Among children of mothers classified as having favourable oral health, 4 of 33 (12.1%) were positive, whereas 8 of 22 (36.4%) children in the unfavourable maternal oral-health group were positive. This difference indicates a

potential clustering of oral-health problems within mother–child pairs.

The findings of the present study are broadly consistent with previous research emphasizing the importance of maternal and family-level determinants. Peres et al. described oral diseases as a major global public-health challenge and highlighted the importance of social and behavioural determinants. [11] Kumar et al. reported that parent-related factors are associated with dental caries in children and emphasized the importance of family-level prevention. [12]

Prenatal and maternal oral-health interventions have also been investigated. Xiao et al. reported that pregnancy provides an important opportunity for oral-health promotion and prevention of early childhood caries. [13] Gomersall et al. reported that interventions directed toward pregnant women, new mothers and other primary caregivers may have preventive value, particularly dietary and feeding advice, although the certainty of evidence differed between intervention types. [14]

Recent evidence continues to support a family-centred approach to childhood oral-health promotion. Gomersall et al. emphasized that interventions involving pregnant women, new mothers and other primary caregivers may influence childhood caries-related outcomes, although evidence for several intervention categories remains uncertain. [16] This is relevant to the present study because the observed maternal–child associations suggest that preventive counselling may need to include mothers rather than focusing exclusively on children.

Parental oral-health literacy has also received increasing attention. Alzahrani et al. reviewed the influence of parental oral-health literacy and highlighted the role of parental knowledge in shaping children's oral-health practices. [17] This provides a behavioural explanation for the present observation that poorer maternal oral hygiene frequently occurred alongside poorer child oral hygiene.

The association between parental education and early childhood caries has been examined in recent reviews. A scoping review found that parental educational attainment is frequently investigated in relation to early childhood caries and emphasized the importance of educational determinants. [18] Recent evidence also suggests an association between lower maternal education and higher odds of early

childhood caries, although substantial heterogeneity exists between studies. [15]

Recent evidence has additionally emphasized the importance of early intervention and prevention. Al-Ansari highlighted the potential role of interventions directed toward pregnant women, new mothers and primary caregivers in preventing early childhood caries. [19] Similarly, Lam et al. reported that early childhood caries is associated with subsequent caries development, reinforcing the importance of early prevention and risk identification. [20]

The clinical significance of childhood dental caries extends beyond the presence of a dental lesion. Pitts et al. emphasized that early childhood caries is an important condition requiring prevention and early management. [21] The global burden of untreated dental caries has also been shown to be substantial, emphasizing the need for effective preventive approaches. [22]

Oral health may also affect children's broader well-being. Evidence has suggested relationships between children's oral health, school performance and school attendance, although the strength of these relationships varies between studies. [23] Therefore, prevention of childhood dental disease may have implications extending beyond dental health alone.

Previous intervention research has also supported the importance of involving primary caregivers. Riggs et al. emphasized the potential role of interventions involving pregnant women, new mothers and caregivers in preventing early childhood caries. [24] Prenatal oral-health care has similarly been investigated as a potential strategy for improving maternal oral health and reducing early childhood caries risk. [25]

The present study should nevertheless be interpreted in light of its cross-sectional design and relatively small sample size. The findings demonstrate associations rather than causation. Important potential confounding factors, including socioeconomic status, maternal education, dietary sugar exposure, fluoride exposure, feeding practices, plaque levels and access to dental care, were not comprehensively assessed. Therefore, the observed maternal-child relationships should be regarded as potential associations requiring confirmation in larger prospective studies.

Another limitation is that the study used categorical assessments of oral hygiene and caries status rather than detailed quantitative indices such as DMFT/dmft

or plaque scores. Consequently, the results provide an overview of the association but do not quantify disease severity in detail.

Overall, the findings suggest that maternal oral health may be an important component of the child's oral-health environment. The higher frequency of dental caries among children of mothers with poor oral hygiene or dental caries, together with the relationship between maternal and child oral hygiene, supports consideration of mother-child or family-centred preventive oral-health programmes. Nevertheless, larger longitudinal studies incorporating socioeconomic, dietary, behavioural, microbiological and detailed clinical variables are required to determine the independent contribution of maternal oral health to childhood dental caries.

CONCLUSION

The present cross-sectional study of 55 mother-child pairs demonstrated a potential association between maternal oral health and the oral health status of children. Dental caries was identified in 21.8% of children, with a higher proportion observed among children whose mothers had poor oral hygiene, maternal dental caries, and no or infrequent dental visits. A similar pattern was observed for oral hygiene, with poorer maternal oral hygiene frequently accompanied by poorer oral hygiene in children.

These findings highlight the importance of maternal oral-health practices and family-centred preventive strategies in promoting better oral health among children. Maternal oral-health education, appropriate oral hygiene practices, regular dental care, and early preventive counselling may be valuable components of comprehensive child oral-health programmes.

However, because the study was cross-sectional and involved a relatively small sample, the observed associations cannot establish causality. Larger longitudinal studies incorporating socioeconomic, dietary, behavioural, clinical, and microbiological factors are recommended to further clarify the relationship between maternal and child oral health.

LIMITATIONS

The study had a relatively small sample size of 55 mother-child pairs and used a cross-sectional design, limiting the generalizability of findings and preventing conclusions about causality.

Detailed assessment of potential confounding factors such as dietary habits, socioeconomic status, fluoride exposure, and quantitative oral-health indices was not available.

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