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Systematic Review

Knowledge, Attitude and Practices of Mothers Regarding Oral Hygiene and Dental Caries Among Children: A Systematic Review

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ABSTRACT

Oral hygiene is an important factor in determining good health especially among children. The role of mothers is inevitable in helping their children learn basics of maintaining good oral hygiene. However, the literature is unclear about the exact role and fulfillment of the learning outcomes about oral health given by the mother **Objective**: To review knowledge, attitude and practices of mothers regarding oral hygiene and dental caries among children **Methods**: Original observational studies of any sort, both descriptive and analytical and any design were included. PRISMA guidelines were followed to search literature through free web search sources such as google scholar, PubMed, Web of Science and others and BOOLEAN search strategy was opted **Results**: The total number of subjects included in 9 selected studies were 9,481. All studies reported that mother's KAP as well as involvement in children's oral hygiene and care is an important determinant to prevent risk of dental caries as well as to improve overall oral health **Conclusions:** Mothers have a significant impact on oral health of children. Mother's good knowledge, attitude and practices may help develop good oral hygiene of the children and may reduce risk of dental caries.

INTRODUCTION

Oral hygiene is an important factor in determining good health especially among children [1]. Lack of good oral practices may cause many dental disorders [2]. Dental caries is one of the commonest types of dental problems reported worldwide [3]. Dental caries occurs with interaction of surface of tooth with some specific types of bacteria specially Streptococcus mutans. It effects 60 to 90% of children aged 2 to 11 years worldwide. Dental caries is a multifactorial problem and different social, behavioral, environmental and lifestyle factors contribute in its prevalence and severity [4]. Although different dental problems have different risk factors, oral hygiene plays a significant role in all these problems. Maintenance of good oral hygiene in prevention of dental problems and increases tooth life [5]. Many developed countries have understood this fact and hence have worked on creating awareness about oral health in schools and general population. This has enabled a significant reduction in dental problems and a considerable decline in prevalence of dental caries has also been recorded in the past decade [6]. The role of parents, especially mothers is inevitable in helping their children learn basics of maintaining good oral hygiene [7]. It is essential to brush twice daily and regularly floss to keep bacteria away and develop a self-care routine for oral health. Because of the fact that children lack ability to completely and accurately perform the task of brushing, mother should help children in this and facilitate them in learning other good habits of oral health [8]. In Southeast Asia, traditionally joint family system was effective and hence a child had adult supervision of some kind to teach

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them these habits. However, the family structure is slowly becoming more and more nuclear and hence role of mother has subsequently become more and more crucial in this regard being the primary caregiver of the child [9]. However, the literature is unclear about the exact role and fulfillment of the learning outcomes about oral health given by the mother [10]. Therefore, this study has been designed to review the role of mother among children for their oral hygiene and dental caries.

METHODS

Preferred Reporting Items for Systematic Review and Meta-Analysis statement (PRISMA) guidelines were followed for literature reporting (Figure 1). All studies which were available for free, in full length format and without any restrictions were included in the study. Observational studies of any sort, both descriptive and analytical were included in this study. Cross-sectional, longitudinal, and case-control studies are examples of study designs. descriptive surveys and retrospective case control were included whereas, studies with any follow-ups, case report, case series or any reviews were excluded from selection. Similarly, studies with incomplete methodology, variables, or irrelevant data analysis were excluded from selection as well. The studies were filtered through a short self-structured check list of all inclusion and inclusion criteria as checkpoints. The published literature was searched through free web search sources such as google scholar, PubMed, Web of Science and others. BOOLEAN search strategy was opted and relevant terms were used with "and" and "OR" operations for better search. The key terms used included, but were not limited to, "oral health", "oral hygiene", "role of mothers", "Dental caries" etc. initially selected studies were sorted and stored on ENDNOTE version 7, which is a reference management software. The studies were then assessed using the checklist, mentioned above, to filter for its relevance and inclusion. The studies that did not fall in the desired category were excluded from research. The finalized studies were then proceeded with for further analysis. Principal author studied all finalized publications in detail and extracted required information on a semi structured form that included information like author, year of study, sample size, objective and main finding. The form, when filled, was reviewed individually by all the authors for any discrepancy or duplication. Any raised concern was dealt with, via face to face meetings of all authors till final consensus was developed.

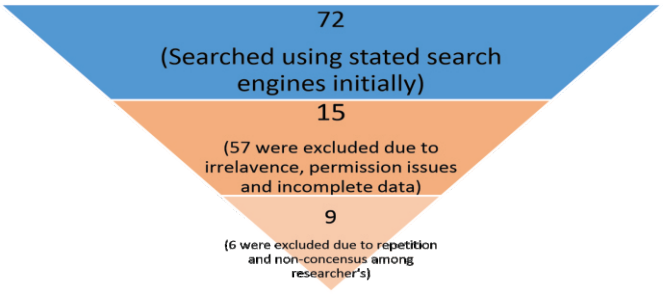

Figure 1: PRISMA Flow Diagram

RESULTS

In the initial search, 72 studies were found. However, after thoroughly reading all the articles, those with some irrelevance, ambiguity or not in line with inclusion criteria, articles were dropped out of study. In the final analysis, only 9 articles were retained. The total number of subjects included in all 9 studies were 9,481. The most recent study included in our review was from 2021, whereas, the oldest one was published in 2007. The study published most recently, in 2021, was a cross sectional survey done in Saudi Arabia. The authors wanted to learn more about the risk factors for Early Childhood Caries (ECC) in preschoolers. They reported that socio-demographic as well as behavioral factors related to oral health were most significant determinants of ECC [11]. Another study published in 2022 aimed to evaluate the Knowledge, Attitude and Behaviour (KAP) of working mothers in infant oral health care in India. They concluded that all mothers had fair knowledge about oral health, overall a positive attitude but insufficient practices towards oral care of their infants. To sum up, this study found that 24.9% of moms had adequate knowledge, 29 percent had a poor attitude, and 12.5%had poor habits when it came to their children's dental hygiene. Only 42.3% knew about the fluoride content of toothpaste and 13.5% were aware of tooth wipes [12]. Similarly, a study conducted in 2017 with largest sample size among all included in this study (6315) found prevalence of 14.7% of caries among children. They found inverse association of dental caries with parental level of education as well as occupation [13]. All other studies reported that mother's KAP as well as involvement in children's oral hygiene and care is an important determinant to prevent risk of dental caries as well as to improve overall oral health (Table 1).

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Study Design	objective	Sample size	Main findings with stats	conclusions
Cross-sectional [14]	To assess mothers' knowledge, attitudes, and practices about oral hygiene and dental caries in children under the age of five in a public hospital in Karachi.	281 mothers	Literacy and financial status are critical variables in mother and child oral health; 85 % of mothers have knowledge about caries, but only 4.6 % knew what causes caries; and the majority of mothers were unaware that parental help is required up to the age of seven years.	It was shown that moms ofchildren under the age of five had insufficient information, unfavorable attitudes, an poor oral hygiene habits when it came to dental caries and oral hygiene.
Questionnaire survey [12]	To assess professional working moms' knowledge, attitudes, and practices about newborn oral care in Pune, India.	Was calculated from a previous study by Nagarajappa*et al* on KAP study regarding infant oral health among patients in Udaipur	Maximum mothers knew that first tooth erupt around 6 to 12 months,98.2 % had a positive attitude towards care of infant's teeth,63% of mothers brush their infant's mouth twice daily,42% don't know regarding fluoride content of toothpaste	All moms exhibited insufficient knowledge, a good attitude, and inadequate behaviours when it came t infant dental care
Questionnaire based survey [15]	To determine the frequency of cariogenic food consumption, oral hygiene behaviours, and dental health knowledge among Saudi male primary school students in connection to sociodemographic factors, and to identify possible dental care pedictors among them.	1058	Dental lesions were more common among urban school children, and caries were more common among students with poor parental education and high maternal illiteracy, according to the study.	Poor oral hygiene practises were found to be the most important predictors o dental caries in school-aged children.
Cross sectional [16]	To look evaluate the oral hygiene and oral washing frequency in children under the age of three in relation to mother-related factors.	500	The higher the family's educational level, the more probable mothers reported brushing their children's teeth more frequently. Mothers' positive perceptions of their capacity to manage their children's oral hygiene should be linked to the child's oral cleaning frequency.	More focus should be placed on mothers' own tooth brushing and their abilities in their children's mouth cleansing to improve oral hygiene in early childhood.
Cross sectional [17]	To determine the risk factors for ECC among preschool children from eastern Saudia Arabia	241		Socio demographic factors along with oral health related behaviors were risk factors associated with ECC among preschool children
Cross sectional [18]	The purpose of this study is to describe the caries experience and related factors in mothers and their preschool children.	258	The study Focuses on carious lesions and associated factors in Saudi families, ,DMFT score was higher, mothers with higher education was found to have lower DMFTs	Caries exposure is high in Saudi mothers and their children, with simila caries-related contributing variables.
Self admimistated survey [19]	Because most oral diseases are not life-threatening, it is reasonable to infer that one's behaviour in maintaining one's oral health is influenced by one's oral health knowledge.	230	With a mean score of 7.37 out of 9, the majority of the participants answered correctly on oral hygiene knowledge. There was no significant difference between children's oral health behaviour and mothers' oral health knowledge.	The smaller the gap between accurate and incorrect answers on the mother's oral health knowledge to her child, the higher the mother's score for caring fo her child's oral health behaviour.

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Cross sectional [20]	To investigate the relationship between parental jobs, levels of education, and household income and the occurrence of dental caries in 3-year-old Japanese children.	6315	The incidence of dental caries was 14.7 %, and there was a strong inverse relationship between parental education and household income and the prevalence of dental caries.	The occurrence of dental caries in children is influenced by the occupation of the parents. The prevalence of dental caries was reduced when parents had a greater level of education and household income.
Systematic review [21]	To find scientific evidence regarding the role of mothers in caries prevention		Periodontal diseases, caries breastfeeding are responsible for caries	Concluded that there are scientific evidence proving mothers-to-child transmission of cariogenic bacteria. role of mothers, healthy diet and proper diet can prevent caries
Cross-sectional [22]	To analyses the moms of preschool children in Greater Noida, India's oral health knowledge, awareness, and associated practiced.	598	24.9 % of women had good knowledge, whereas 29 % and 12.5 % had poor attitudes and practices when it came to their child's dental health, awareness regarding fluorides' involvement in the cause and prevention of caries, and so on.	Participants in the study had low knowledge and attitudes about their children's oral health, which led to poor health practices by their parents.

Table 1: Mother's KAP about Oral Hygiene and Frequency of Caries Among Children

DISCUSSION

Literature has stressed the fact that oral health of a child depends upon the oral health self-care habits developed during early years of his life [23]. Parents and especially mothers, being the primary caregiver or guardian of the children are responsible for developing these oral care related routine in children. However, this can only be expected if the mothers themselves have enough knowledge about this and adapt good attitude and practices as well [24]. The better level of KAP about oral hygiene among mothers is directly related to better oral health and less chances of dental caries among their children [25]. However, despite of the established role of mothers, literature is very limited to quantify that role and further recommend any strategies for improvement in this regard. Especially local literature is very scarce and hence, this study aims to review the role of knowledge of mothers about oral hygiene and its effect on oral health of their children [26,27]. This study reported that overall KAP of mothers regarding oral hygiene among their kids was low. The studies also had consensus in results that the mother's KAP was a significant factor is determining the oral health of their children. Studies also reported that children of mothers with poor KAP had higher risk of dental caries. These results were in consensus with another study conducted in 2021, in which they concluded that higher the score of mother's knowledge about oral hygiene, lower was the prevalence of dental caries and better was their children's oral health. There was significantly lower risk of dental caries and protective effect of mother's knowledge was found (p-values<0.001) [28]. Similarly, another study from 2019 in Tamil Nadu, India reported that mothers had a poor knowledge about oral health of children and mother's work status and family income were significantly associated with oral health or their children(p-values<0.05) [29]. Hence, these studies show results in consensus with our review and stress upon the fact that mother's KAP is a helpful factor in maintaining oral hygiene of their children.

CONCLUSION

Mothers have a significant impact on oral health of children. Mother's good knowledge, attitude and practices may help develop good oral hygiene of the children and may reduce risk of dental caries. More local studies are recommended to explore several related factors and provide better recommendations to improve KAP among mother's and develop healthy oral care routines.

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