Knowledge of Pregnant Women in Regards to Oral Health of the Expected Child

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Abstract

Background: Maternal oral health literacy, positive attitude and behavior in regards to infant's oral health dramatically reduce the chances of early childhood caries. The aim of the study is to assess oral health knowledge among pregnant women and to report their beliefs regarding dental care for their expected child. The study also evaluates the contribution of health care providers in regards to the oral health of the expected child.

Method: The cross-sectional study was conducted among 422 pregnant women, who attended an antenatal clinic at a tertiary health-care facility in Lucknow.

Closed-ended questionnaire was used to collect the data. The validity and reliability of questionnaire was tested. Frequency, distribution tables and descriptive statistics were calculated for all variables. Mann-Whitney U test and Kruskal Wallis H tests were applied to check for any significant difference between socio-demographic characteristics and general knowledge about oral health care as well as practices. Bi-variate and multivariate analysis was done.

Result : 40.8% pregnant women had poor knowledge, 56% had poor oral hygiene practices and 46.8% had poor knowledge regarding dental care of their expected child. Education was the only factor to be significantly associated with both variables- knowledge, and practice (p- value<0.01).

Conclusion and Recommendation: The present study highlights the need for improved communication and coordination between prenatal health care professionals, dentist, and pregnant women to facilitate optimal care of their child's oral health.

Keywords: *pregnant women, oral health care, early childhood caries, oral hygiene practice, education, referrals.*

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Introduction

Early childhood caries (ECC), a severe form of dental caries, has been defined as the presence of 1 or more decayed (non-cavitated or cavitated), missing (due to caries), or filled tooth surfaces in any primary tooth, in age less than 72 months, by the American Academy of Pediatric Dentistry (AAPD). [1]

Early Childhood Caries continues to be spread worldwide, with prevalence varying between countries and continents, despite all recommendations by the World Health Organization (WHO), for prevention of ECC. Dental caries affects nearly 30% to 50% of children in developed countries and upto 90% in developing and underdeveloped countries and other vulnerable populations. [2,6]

The occurrence of caries in a tender and budding age has a huge negative impact on the child's physical and mental development[7]. Oral malaise due to ECC, like experience of pain, trouble with eating, chewing, smiling and communication due to missing, discolored or decayed teeth, impedes a child's activities which eventually leads to loss of many potential school hours and playtime[7]. Besides, untreated tooth decay radically increases the risk of permanent tooth caries and poor overall health of the child due to poor nutrition.[7, 8]

Toddlers affected by caries may have to undergo a lot of psychological trauma due to fear and discomfort of getting treated. The idea of visiting a dentist, receiving injection and treatment in the oral cavity, is distressing for a juvenile, leading to sleeplessness and nitpickiness at meals with increased risk of domestic violence towards a child.[9] The distress and suffering, which an innocent juvenile undergoes due to the negligence on part of caregivers, need a call for attention for allcaregivers.

To manage ECC rationally, policies must pay attention on the right cause at the right time, thereby, preventing initiation of caries rather than in managing severity (10). WHO experts recommended that the critical period for preventive intervention of ECC is during the first 1000 days i.e. from pregnancy through to the child's second birthday.[11,12.] Dental caries could be prevented through coordinated efforts of mothers/ would-be mothers, the health care professionals i.e. the gynecologist, pediatrician, dentist, general practitioners and, other caregivers. Good oral health of the mother, good oral health knowledge and positive attitude about the infant's oral health, among mothers dramatically reduces the chances of ECC (13).

The purpose of the present study is to explore the oral health knowledge and self-care practice of pregnant women and their beliefs about the oral health care of the expected child. The study helps to assess the need for educating expecting mothers and motivating the health care professionals for oral health carepromotion.

Methods

This is a descriptive cross-sectional study. Pregnant women, regardless of financial status, social class or ethnicity, trimester, visiting the outpatient department of the anti-natal clinic (ANC) at the Department of Obstetrics & Gynecology, King Georges Medical University, Lucknow, India were systematically randomly selected for the study. Physically or mentally disabled females, females with some systemic health issues, those who refused to give written consent or those who could not read English or Hindi, were excluded from the study. Considering an estimate of 50% knowledge level (as the prevalence of knowledge of oral health in this community was unknown), with 5% precision of error, 95% confidence interval, and 80% power, the required sample-size was 384. To account for 10% anticipated non- responsiveness, this estimate was increased to a final sample size of 422. A review of past outpatient department attendance revealed that on an average "60" number of pregnant women attend ANC clinic at the Department of Obstetrics & Gynecology per day. A total of about 3600 (60 x 60= 3600) pregnant women are expected to visit ANC clinic during the 60 days of data collection. Hence, to enroll the desired sample size of 422 pregnant women, every 3600/422th i.e. every 9th pregnant womanwas enrolled for the study after assessing the inclusion and exclusion criteria. Ethical clearance was obtained from the institutional ethical committee (**90th ECM II B-IMR-S/P2).** The study has been conducted in full accordance with the World Medical Association Declaration ofHelinski.

The study participants were presented with a standardized questionnaire based on the WHO (**Table 1**)oral health questionnaire for adults as well as specific questions relating to oral health care of infants were added from similar studies.[14] A pilot study was conducted earlier on 20 expecting mothers to check the validity and reliability of the questionnaire. Editing was done until there was an acceptable clarity of the questionnaire. The questions were closed ended and in Hindi and English dialect. Questionnaires were completed, under the supervision of the principal investigator, by selecting the most relevant answer with

no interpersonal communications. The questionnaire was divided into 5 sections- section one, gathered information about the socio-demographic and socioeconomic background, section two consisted of seven questions assessing general oral health knowledge, section three had ten questions regarding the knowledge of expectant mothers about oral health care of the expected child and section four assessed oral health care practice of pregnant women. The fifth section assessed the attitude of pregnant women and health care professionals towards oralhealthoftheexpectedchild. Forassessingknowledgeandpracticeinsectionstwoand

three, correct answers were given a score of 1 whereas incorrect answers and 'I don't know` answers were given a score of zero. Later subjects were divided as per their scores. Participants who scored four or more were categorized in high knowledge group and rest in low knowledge group. For categorization, on basis of practice, those scoring five or higher were considered with adequate oral health care practice. In third section, those who scored six or more were classified as having good knowledge regarding oral health care of a child. Separate percentages were reported for the section-assessing attitude regarding of oral health care.

Statistical analyses were done using the Statistical Packages for Social Sciences (SPSS) software version 20.0. Frequency and descriptive statistics were calculated for all variables. Further, bi-variate and multivariate analysis(Table2) was performed. Chi-square test of association was performed. Ranks of scores were compared across various socio-demographic characteristics using the Mann Whitney U test (2 groups) and Kruskal Wallis (>2 groups) test.The p-value of less than 0.05 was considered to be statistically significant.

Ethics: The study has been approved by the InstitutionalEthical Committee: Reference number: 90th ECM II B IMR-S/P2.

Results

The data was collected for four hundred individuals.

The responses regarding oral health knowledge, knowledge about oral health care of the child and practice are presented in Figure 1.1, 1.2 respectively. Overall, out of 400 women, 40.8% had low knowledge about oral health, 46.8% percent of women had poor knowledge about the oral health care of the child and 56% of the women surveyed did not adequately followed good oral health care regimen.

Table 1 shows the response of prenatal care providers towards oral health care of the expected childChi-square test of association was performed. Education and occupation of women were found to be significantly associated with general knowledge about oral healthcare .Age andnumber of children had significant association with practice of oral healthcare. Age, education, number of children and period of gestation were all significantly associated with knowledge about oral health care of the child.

Initially, bi-variate analysis was done to check for any association between socio- demographic variables and knowledge about oral health care and practice Further, to study the effect of socio-demographic variables on the knowledge and practice of oral health care among pregnant women, multi variate analysis was performed. For general knowledge eaboutoral healthcare, occupation was significant in the multi variate model in **table 2**. As compared to women who were housewives, women who were employed had four times higher knowledge about oral health care of the child. For practice, both age and number of children were significant in the multivariate model. Womenagedbetween18 to25 years had five times highero dds of following good practice of oral healthcare than women of 35 years and above. Women having no child were four times more likely to follow good practice of oral health care as compared to women having 3 or more children. Lastly for knowledge about oral health care of the child, number of children and women's education were significant in the multivariate model . Women who completed college or university were almost eleven times more likely to have good knowledge for health care of the child as compared to women having no education. Similarly, women having no child were four times more likely to have better knowledge about oral health care of the child than women having 3 or more children.

Table 1: Attitude of respondents towards oral health care (as frequency percentage).

Attitude	Yes	No	I am Planning	
	Frequency (%)	Frequency (%)	Frequency (%)	
Did you visit any dentist during pregnancy? (n=400)	112(28%)	264(66%)	24(6%)	
If Yes, what was the reason of your visit? (n=112)	Dental Problem	Routine Check up	For advice regarding oral health care for the child	
	99(88%)	9(8%)	4(4%)	
If you visited the dentist, did the dentist give you advise regarding oral health care for the expected child? (n=112)	Oral Advice	Written & Oral Advice	Written Advice	Not given any advice
	26(23%)	0(0%)	0(0%)	86(77%)
Were you recommended to visit the dentist for oral health care advice for the child during your pregnancy? n=400	Gynecologist/ Pediatrician/ Any physician 5(1.25%)	Family/Friends 3(0.75%)	Self – Motivated 2(0.5%)	Not recommended 390(97.5%)

Table 2: Multivariate analysis

General Knowledge about oral health care		Practice		Knowledge about oral health care of the child	
Variables	**OR (95% CI)**	**Variables**	**OR (95% CI)**	**Variables**	**OR (95% CI)**
Education No Education College or Univ.	1.00 2.125(0.80-5.62)	Age 35 & above 18-25 yrs	1.00 5.42(2.34-12.54)*	Age 35 & above 18-25 yrs	1.00 0.47(0.17-1.33)
Occupation Housewives Employed	1.00 4.168(1.77-9.80)*	No. of children 3 or more No child	1.00 3.79(1.56-9.18)*	Education No Education College or Univ.	1.00 10.77(2.24-51.67)*
				No. of children 3 or more No child	1.00 3.82(1.03-14.19)*

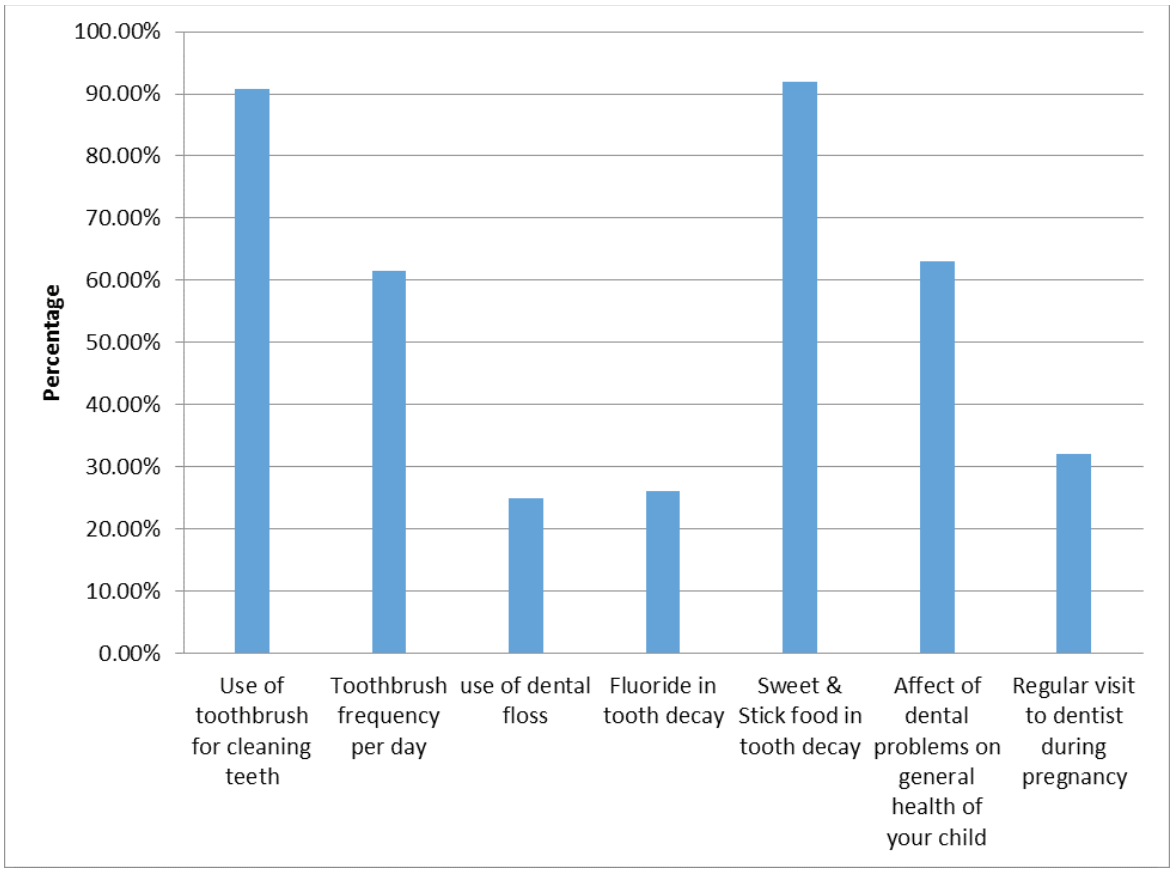

Figure 1.1. General Knowledge about oral health care

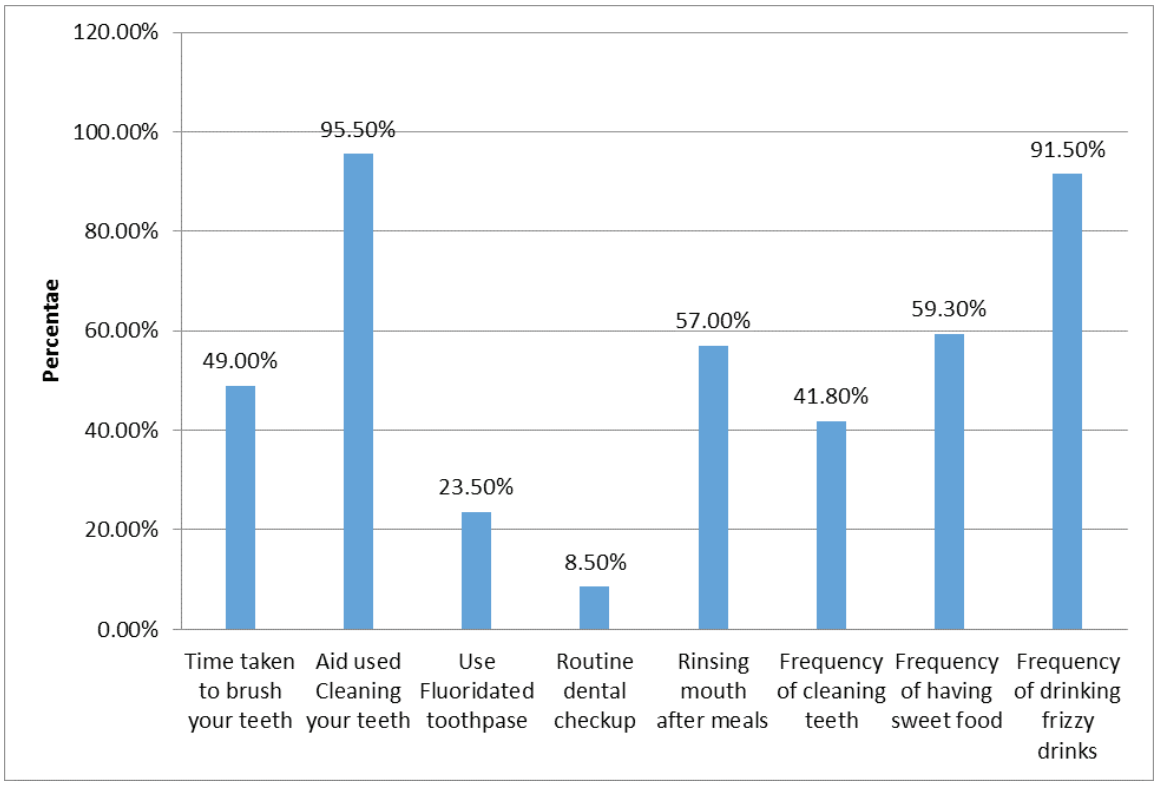

Figure 1.2. Distribution of practices

Discussion

To ascertain that future generations of children, have better oral health and improved quality of life worldwide, we need to consider strategies to promote preventive approach rather than the general curative approach. A systematic reviewbyLeongetalin2012doneontherisk factors during the first year of life for ECC highlights the need for early maternal intervention to reduce the likelihood of ECC.[15]

The impediment in reducing the prevalence of ECC is that many women are ignorant of the effects of their oral health behavior on themselves and their babies earlier to, during and after pregnancy. Moreover, many of those who are aware, lack the orientation to take appropriate actions.[15, 17]

The overall score of the present study revealed poor oral health knowledge and poor oral hygiene practices among pregnant mothers. Expectant mothers also showed deficient knowledge regarding infant oral health care in many aspects. Educational qualification of the pregnant women had a significant role in their oral health knowledge, oral hygiene practices and knowledge about the oral health care of the expected child. Earlier studies have also shown a direct influence of educational level on oral health knowledge and practices. [18]

There was good knowledge about the use of toothbrush in cleaning teeth and role of sweet and sticky food in tooth decay and limited knowledge of the role of fluoride and flossing in caries prevention, which well correlated with the results of earlier studies.[19, 22] A cohort study by Correia surveyed the future plans of pregnant women to provide dental care for their expected child and reported deficient knowledge.[22] The findings were similar to our study but they did not report the variability in knowledge in regards to education level and employment status.

Poor oral health of the mother due to inadequate oral hygiene practice inadvertently affects the overall health and oral health of the unborn child. In our study, 56% of female participants did not follow adequate oral health practices. Mothers need to know that if they have a higher level of mutans streptococci (MS), a microbial risk factor of ECC, their infants are at greater risk of acquiring MS than those mothers having low levels.[23, 24]

In our study positive correlation was observed between general knowledge about oral health and practices and knowledge about the oral health care of the child. This is in agreement with a study by Vann et al in 2010 on the impact of oral health literacy among female caregivers on outcomes in early childhood. He concludes that poor oral health literacy of the caregiver was associated with deleterious oral health behaviors, including nighttime bottle use and no daily brushing/ cleaning and this may have a multidimensional negative impact on oral health outcomes in infants and young children.[25]

As far as the best of our knowledge, this is the first study to evaluate the role of prenatal care providers in preventing ECC and promoting oral health. Out of 400 expectant mothers visiting the antenatal clinic, only 5 had been recommended for a dental visit by health care professional. Also, disharmony was seen between the prenatal providers and dentist; prenatal care providers fail to assess and refer the pregnant patient for oral health care training for herself and for the expected child. Moreover, it was seen that many dentists are providing dental care only by treating the patients and not by advising for proper oral health care protocol. Out of 112 patients who visited the dentist during pregnancy, 86 women were not given any guidelines regarding oral health care for the expected child. Laxity in the form of lack of communication and recommendations on part of the prenatal care providers is contributing to lack of awareness and motivation among pregnant women leading to a high prevalence of ECC.

Moreover, consideration of oral diseases is intended at the secondary and tertiary level of prevention, when the child has already acquired the disease, neglecting early prevention. Primary or early prevention is paramount to ECC management. Pregnant women, early mothers, primary caregivers, policy makers, and health care professionals, all should recognize the common risk factors of ECC and promote healthy oral healthpractices.[11]

There is increased approachability of women during pregnancy by health care professionals therefore maternal and infant oral health care messaging during this period is opportune. Brief counseling and strategies that move would-be mothers from inaction to action

should be adopted. Written guidelines in regards to oral health care for pregnant women and infant should be given, well explained and reinforced to the patient on every visit.

The results of the study are assessed within the context of study restraints. Limitation of the study was that convenience sampling was used which may have led to some bias, though the sample of pregnant women was almost equally distributed among the residential blocks in Lucknow. Moreover, the sample was not representative of health-care professionals in general because the data was collected at an antenatal clinic in a primary health care center. The use of a self-administered questionnaire might have introduced some bias as some of the participants might have under reported bad practices or over reported some good activities. Despite these limitations, it is still justified to consider the study results which, call for strategies for implementation of programs to motivate prenatal care providers to bring out awareness about the importance of oral health and theirimplications.

Conclusion and Recommendation

Our findings report poor and deficient knowledge among pregnant mothers regarding oral health care. Expectant mothers do not know all the factors that can influence caries in their children. There was a lack of initiative from health care professionals in providing referrals for dental visits during pregnancy. The present study highlights the need for improved communication and coordination between prenatal health care professionals, dentist, and pregnant women to facilitate optimal care of their child's oral health.

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Conflict of Interest: All authors declare that there is no conflict of interest.

Practice Relevance:

1. A preventive rather than curative approach will help decrease the oral health related ailments and also will be cost effective in the longer run.

2. A proper referral system from pre-natal health provider to a dentist if setup, will help bridge the gap of knowledge regarding oral health in pregnant females and a proper counselling will move them from inaction to action and thereby decreasing the suffering of the child.

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