

## A Cross-Sectional Study of Knowledge and Attitude amongst Expectant Women towards Infant Oral Health Care in Nashik City

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### Abstract

**Background:** Mothers have a key role in the establishment and maintenance of their infants' dental health. The oral health of the mother and her knowledge and outlook on the importance of caring for her child's teeth are strong predictors of the child's own oral health. **Aim:** The goal of this study is to assess future moms' oral health knowledge and outlook (IOH). **Study Design:** Pregnant women in the Indian city of Nashik were the focus of a cross-sectional investigation. **Materials and Methods:** Over the course of two months, researchers randomly chose 150 eligible participants (i.e., pregnant women meeting the study recruitment criteria) from both public and private hospitals in Nashik. A self-administered questionnaire was used to gather information from mothers-to-be regarding their levels of knowledge and outlook on newborn dental health. SPSS was used for the analysis (version 22). **Results:** The results showed that most mothers-to-be were uninformed and unconcerned about their unborn child's dental health and did not practice good oral hygiene themselves. Expectant moms' levels of education, age, and the number of their pregnancies all had an influence in how well they understood the need of good dental hygiene. **Conclusion:** Awareness campaigns should be implemented to encourage and educate expecting women on the significance of dental health and its ramifications.

### 1. Introduction

Having healthy teeth and gums is a major indicator of overall health and happiness. A healthy mouth is essential to a healthy body. Children under the age of one are considered infants. Also, more has to be done to educate pregnant women about the need of good dental hygiene. Both the mother's and the child's oral health may be predicted, in large part, by the mother's level of education and awareness around the need of good dental hygiene throughout

pregnancy (1). That's why researchers set out to gauge moms-to-awareness be's of the link between their own dental health and that of their unborn children.

A child's right to complete oral health is advocated for as a basic human right by the Indian Association of Pediatric and Preventive Dentistry. The American Academy of Pediatric Dentistry (AAPD) suggests that parents get prenatal dental health counseling as part of their infant's overall treatment plan (2). Since parents play such a

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pivotal role in their children's development, their understanding and outlook on newborn oral health are crucial. When mom's teeth are healthy throughout pregnancy, baby's teeth will be healthy later on. Inadequate parental and caregiver oral health education has been identified as a major contributor to newborns' subpar oral health in a small but growing body of research (17). Better maternal oral health and a more optimistic outlook on newborn dental care are both possible outcomes of prenatal oral health education (18). An effective program to promote newborn oral health may be planned and executed with the support of survey results that assess the knowledge and attitude of pregnant moms (19).

The researchers in this study wanted to get a sense of how Nashik city pregnant moms felt about the need of good dental hygiene for their unborn children and how they felt about teaching their children good habits early on.

Objectives of the study:

1. The purpose of this survey is to determine the level of oral health literacy among expectant mothers.
2. To evaluate the knowledge and attitude of expecting mothers on infant oral health.
3. The purpose of this study is to analyze the knowledge of women who are pregnant for the first time vs those who are pregnant for the second or third time.

## 2. Materials and Methods:

1. **Material:** The study composed of study-clinic visits with structured questionnaires as the main tools in obtaining data. Questionnaire was initially drafted based on previous studies and based on understanding of the people living in rural and urban areas of Nashik and with the help of researchers in SMBT Institute of Medical Sciences & Research Centre. The questionnaire was prepared in English and translated in English to Marathi and Hindi for better understanding in rural community. An Informed Consent was designed for willingly participation of participants in the study.
2. **Study design and population:** A cross-sectional survey was conducted in Nashik

district. Convenient method of sampling was adopted. Potential participants visiting to dental hospital OPD, were explained about the study brief. Voluntarily, free of charge Study subjects provided written informed consent and gave their permission voluntarily.

3. **Study-Area (Study Site):** The study was undertaken at various government and private hospitals in Nashik city.
4. **Sampling and Sample size:** Potential participants from Nashik urban area were enrolled for this study by using Convenience method of sampling. Sampling entails selecting a subset (or sample) of a larger research population for examination. Confidence level= 95%, Margin of error (L)= 8%, population size= >20,000, response distribution (p)=50%, Recommended sample-size was N=150.
5. **Study Procedure:** The total 165 number of potential participants were randomly identified in duration of 1-month recruitment period. Out of this, 150 expectant mothers from various government and private hospitals of Nashik city belonging to any trimester were enrolled in the study. A questionnaire was developed. Subject information sheet was provided for participants and later informed consent were given. After understanding study and signing of informed consent form by participants the questionnaire was provided for respond. Face to face interview method was used and responses were recorded in a pre-tested structured questionnaire. The questionnaire was formulated after consultation with researchers. The questions were mostly on knowledge regarding infant's oral health and influence of mother's oral health on it. The responses were assessed based on the recommendations of American academy of Paediatric Dentistry (AAPD).

## Methods of data collection:

Both an English and a locally-language version of the questionnaire were created (Marathi, Hindi). Non-native speakers of English, Spanish, or Mandarin were excluded from the research, as were those who needed an interpreter. There were

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a total of 21 questions throughout the survey's two sections. The first section of the survey asked expecting moms six questions about their personal information, including their names, ages, education levels, employment statuses, birth order, and trimester of pregnancy. The second section asked pregnant women a total of 15 questions, 8 of which were related to their knowledge and 7 to their attitudes concerning the oral health of their infants. Responses to a questionnaire were compiled and classified after being returned to the researchers. All of the questions were closed-ended, and the respondents' answers were coded numerically. Information was recorded in a Microsoft Excel spreadsheet. Statistical Software for the Social Sciences (SPSS) version 22 was used to analyze the data from this sheet.

Descriptive statistics, including totals and percentages, were used to present the results. The information gathered was analyzed statistically based on the replies to questionnaires. Descriptive statistics were used for analysis, which included calculating the total and percentage.

### 3. Results:

A total of 150 expectant mothers participated in the questionnaire survey. The response rate was 90.9% ( $n = 150/165$ ).

Table 1 shows a comparison of mean scores of knowledge and attitude according to the age groups. The mean score of knowledge was more in the age group of 31-35 years and had a positive attitude.

**Table 1:** Comparison of mean scores of knowledge and attitude according to age groups

Age (in years)	Frequency (N=150)	%	Mean ± SD
<b>Knowledge</b>			0.49 ± 0.41
18-25	55	36.7	0.52 ± 0.42
26-30	68	45.3	0.49 ± 0.41
31-35	27	18	1.00 ± 0.42
<b>Attitude</b>			0.59 ± 0.36
18-25	55	37	0.60 ± 0.46
26-30	68	45	0.59 ± 0.46
31-35	27	18	0.53 ± 0.45

The averages of the knowledge and attitude tests are compared in Table 2 by level of education. Postgraduates had a higher average knowledge

score. Attitude ratings were similar across all categories of educational attainment.

**Table 2:** Comparison of mean scores of knowledge and attitude according to education

Education	Frequency	%	Mean ± SD
<b>Knowledge</b>			
Illiterate	9	6	0.33 ± 0.35
Primary	18	12	0.44 ± 0.37
Secondary & Higher Secondary	58	38.66	0.47 ± 0.42
Graduate	39	26	0.50 ± 0.40
Postgraduate	26	17.34	0.65 ± 0.35

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Attitude			
Illiterate	9	6	0.33 ± 0.41
Primary	18	12	0.48 ± 0.46
Secondary & Higher Secondary	58	38.66	0.57 ± 0.46
Graduate	39	26	0.62 ± 0.43
Postgraduate	26	17.34	0.77 ± 0.36

Table 3 provides a comparison of the average knowledge and attitude ratings for each trimester of pregnancy. All three terms had similarly high average attitudescores.

The third trimester had a higher mean score for knowledge.

**Table 3:** Comparison of mean scores of knowledge and attitude according to trimester

Pregnancy-period	Frequency	%	Mean ± SD
<b>Knowledge</b>			
First trimester	42	28	0.40 ± 0.40
Second trimester	59	39.34	0.50 ± 0.42
Third Trimester	49	32.66	0.57 ± 0.39
<b>Attitude</b>			
First trimester	42	28	0.47 ± 0.41
Second trimester	59	39	0.58 ± 0.46
Third Trimester	49	33	0.70 ± 0.40

The average knowledge and attitude ratings are compared in Table 4 by the total number of pregnancies. Mothers who had more than one child

had a higher average knowledge score, and there was also a statistically significant difference in attitude based on the number of children they had.

**Table 4:** Comparison of mean scores of knowledge and attitude according to no. of pregnancies

No. of Pregnancies	Frequency	%	Mean ± SD
<b>Knowledge</b>			
Primigravida	81	54	0.46 ± 0.42
Multigravida	69	46	0.53 ± 0.39
<b>Attitude</b>			
Primigravida	81	54	0.57 ± 0.47
Multigravida	69	46	0.62 ± 0.43

The results demonstrated that most mothers-to-be had little understanding of the connection between their dental health and that of their unborn child.

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**Table 5:** Knowledge of participants towards infant oral health

Questions	(%)
First tooth erupts at what age?	41%
When should be brushing started in children?	12%
Is there different toothpaste available for children?	92%
Is any special content (fluoride) in toothpaste recommended for children, responsible to prevent incidence of dental caries?	75%
What is the correct age to use a fluoridated toothpaste for your child?	8%
First dental visit of your child should be at the age of?	24%
Consumption of which of the following increases the incidence of dental caries?	68%
Does sugared medicines like cough syrups cause caries?	63%

**Table 6:** Attitude of participants towards infant oral health

Questions	(%)
Do you think that mother's oral hygiene practices can influence child's oral health?	85%
Do you think bacteria causing dental caries transmissible from mother to child?	38%
Do you think illness during pregnancy can affect child's teeth?	63%
Do you think medications taken during pregnancy affect development of child's teeth	33%
In your opinion, till what age should the child be breast fed?	50%
As per your opinion, teething may be associated with ....	71%
Is it necessary to clean gum pads after feeding? What do you think?	73%

**Statistical Analysis:**

The difference between knowledge of women who were pregnant for the first time and those women

who are expecting for second time was compared and it was found that women who are multigravida had more knowledge as compared with primigravida-women.

**Table 7:** Comparison between knowledge of women as per number of pregnancies.

Groups	Sample size	Mean	Standard deviation	S.E	p-value
Women pregnant for the first time	81	7.62	2.19	2.118	0.034
Women expecting for the second time	69	8.54	2.052		

**4. Discussion:**

O Orenuga and O OSofola conducted a research among schoolchildren in Nigeria and found that

71.33 percent of them thought baby teeth were crucial. On the other hand, just 8% of moms reported giving their kids a daily tooth brushing. Among the moms, only 7.97% reported ever taking

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their kid to the dentist. The majority of respondents (79.31%) believed that avoiding cavities was important (3). Sixty-eight percent of the people who took part in our survey understood the causes of dental caries. Whereas 51.5% of women in the Odisha research by K S Dhull et al. said their child's first tooth came in at about 6 months, only 41% of participants in this study said the same thing. Among the mothers surveyed, 77.8% disagreed that bacteria that causes caries is passed down from mother to kid, and 95.7% said they had no idea how to care for their infant's teeth. When it comes to their children's dental health, moms often lack information and a positive outlook. Medical personnel who have regular contact with new moms, such as obstetricians, pediatricians, and Anganwadi workers, should be educated on the need of good oral hygiene for infants. The benefits of breastfeeding are essential to an infant's health and development, so it is important that mothers be educated about oral health during their antenatal checkup (4). A study conducted by Kharouba, J., et al., in Israel in 2023 found that mothers' knowledge of infant oral health care is so important that it could serve policymakers in improving practices to advance better oral health for infants. One-child moms and women with lesser levels of education were found to have the least amount of information about how to best care for their infant's teeth while nursing (5). The lack of oral health education among children from low-income families is a finding that is consistent with the results of our research.

According to research conducted in Spain by Garca-Navas Fernández de la Puebla, L & et.al., it was shown that maternal age is positively correlated with oral health literacy; specifically, older moms had more literacy. Desai J & et.al. research 's in Navi-Mumbai on the oral health care knowledge and attitudes of pregnant women discovered substantial disparities between employed, housewives, and unemployed women. Significant variations between the top and lower divisions were also seen in terms of socioeconomic position (7). Age, level of education, and employment status were revealed to be socioeconomic characteristics that influenced parents' perceptions of the importance of newborn oral health.

Aiuto R et al. research 's systematically reviewed the literature and found. et al. discovered that parents and caregivers still know very little about their children's oral health, and that this lack of knowledge is mostly attributable to a lack of information from health professionals and institutions. In the future, it will be important for all those engaged in a pregnant woman's care to work together to better inform parents, address their concerns, and gather and compare data in order to develop more efficient intervention programs (8).

Researchers in Hyderabad discovered that pregnant mothers who practiced excellent oral hygiene had less problems with their babies. The volunteers, however, were not very good at following the prescribed procedure. The prenatal education of women should take into account the existence of misconceptions and obstacles to dental care. Improved oral hygiene and more frequent dental checkups are possible outcomes of a gynecologist's education on the connection between oral and overall health (9).

Parents who said they had completed college were more likely to have positive attitudes about oral health, and their children were more likely to practice excellent oral hygiene, according to research by Chen L & et.al. from Wuhan (10). This is consistent with our study's result that parents with more education tend to have a greater understanding of the need of good oral hygiene for their infants.

Researchers Salama F. and colleagues observed statistically significant differences in the mean scores of knowledge across all age groups in their Saudi Arabian research. The average scores of behaviors were highly correlated with age, the number of children, and degree of education. There was a statistically significant correlation between participants' belief scores and their level of education and monthly household income (11). A study conducted by Nguyen N. et al. in Vietnam found that Vietnamese parents had a moderate level of oral health knowledge but provided insufficient behavioral guidance of their children's oral health. This finding highlights the importance of continuing to educate parents about the importance of age-appropriate oral care for children (12). There is a lack of knowledge among pregnant women and women about infant feeding and weaning,

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according to a study conducted in Jaipur by Nagaraj A & et.al, and a study conducted in Saudi Arabia by Sedky NA in 2016 (both cited below). It indicated the necessity for counseling for mothers on the importance of newborn oral health (14). Several studies have shown that pregnant and expecting women have a very low level of oral health literacy.

Further research is needed to evaluate the role of the various factors involved in IOH care and to effectively educate all healthcare providers in this area (15), as was suggested by the study conducted by Shivaprakash PK & et.al, in Bagalkot, while a study conducted by Akpabio & et.al, in the United States found that parents and caregivers can play an important role in preventing oral disease in children and should therefore be well educated about oral health promotion. Based on these results, it is clear that poor communities should prioritize training young moms who have fewer children and/or less formal education (16).

**Conclusion:** Knowledge of expecting mothers was found inadequate on IOH care. Women expecting for the first time had a comparatively poorer knowledge.

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