

Maternal and Periodontal Health: Evaluation of Knowledge and Awareness among Pregnant Females in Malwa Region

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ABSTRACT

Background: The increase in prevalence of periodontal diseases during pregnancy is well known fact. The literature also suggests strong association between adverse pregnancy outcomes and periodontal diseases. Therefore knowledge and awareness among pregnant females (PF) is very important for improved pregnancy outcome. Present study has been planned to evaluate awareness and knowledge of pregnant females to assess barriers for dental treatment during pregnancy.

Material and Methods: A self-administered questionnaire based, cross-sectional survey was conducted among PF. A total of 400 pregnant females participated in the study. The demographic data like age, education and family income was noted for PF. The questionnaire contains 3 sections. In first section oral complaint in detail was asked. The second section contains questions about the oral hygiene practice and knowledge. Awareness and attitude about oral health was assessed in the third section.

Results: There is lack of awareness and knowledge in PF regarding oral health during pregnancy and effect of periodontal diseases on pregnancy outcome. We found a significant association between education and family income of PF and lack of dental treatment.

Conclusions: We found a positive attitude among all the participants but lack of knowledge and awareness among PF. Dentist should participate actively to increase awareness among pregnant females.

Keywords: Awareness, oral health, periodontal disease, pregnancy, pregnancy outcome.

INTRODUCTION

With the advancements in field of health sciences, the oro-systemic connection is being explored more and more.¹ In today's era, the role of dentists is not only limited to the diseases of oral cavity, rather their accountability has increased due to the relationship of oral and systemic diseases. The prevalence and severity of periodontal disease

increases during pregnancy.²⁻⁴ The possible mechanism is increase in level of progesterone and estrogen up to 10 and 30 folds respectively, which in turn alters immune-responsiveness, inflammatory mediators and sub-gingival microflora to cause oral problems primarily gingivitis and periodontal infections.^{5, 6} Periodontal diseases are clinically evident as erythema, pain,

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obvious bleeding of the gingival tissue, tooth loss, bad breadth etc. These diseases have a negative impact on the quality of life.^{7,8}

Many investigators have reported wide variations in prevalence levels of gingivitis during pregnancy, ranging from 35 to 100%.^{4,9} On the other hand, a few studies have not observed much significant gingival changes during pregnancy.^{10,11}

Periodontal diseases has been suggested as a risk factor for poor pregnancy outcomes¹²⁻¹⁹ mainly preterm, low-birth weight (PLBW) infants, and preeclampsia.^{15, 20} The mechanism can be explained as periodontal infection becomes a source of lipopolysacchride (LPS) which produces interleukin 1 beta (IL- 1 β), prostaglandin E2 (PGE2) and tumor necrosis factor- α (TFN α) resulting in preterm parturition and fetal toxicity. Though the results of some researchers are not in agreement to the same.^{17, 21}

Knowledge, attitude and awareness of pregnant females (PF) are the essential components in achieving comprehensive health care goals during pregnancy. So it is a need of the hour to emphasize the importance of good oral health along with general health to achieve best pregnancy outcomes. Very few studies in central India have been documented to assess the knowledge, attitude and awareness of periodontal status in PF.

Therefore, the present cross-sectional survey has been conducted with the aims (1) to evaluate the knowledge, attitude and awareness of PF; (2) to evaluate the barriers preventing the PF to seek dental treatment.

MATERIAL AND METHODS

A self-administered questionnaire based, cross-sectional survey was conducted among pregnant females in the maternity hospitals and ante-natal clinics at Indore, from February 2017 to April 2017. A questionnaire for the pregnant ladies was prepared. The questionnaire was prepared in two languages- Hindi and English. After acquiring ethical clearance from the Institutional Ethical review board, it was pre-tested on 10 pregnant women for further improvements of the questions. The question forms were distributed to a total of 400 consenting pregnant women, who attended the

hospitals and clinics during the study period. All the females were given assistance for understanding the question form and questionnaire was filled under supervision. All the participants were instructed that they may mark more than one answer if required. The demographic information in case of PF was asked like age, education and family income per month.

The questionnaire for PF contained three sections. Section one had questions regarding the oral problems during pregnancy. Second section was about the oral hygiene practices and knowledge. Section three had questions to assess their awareness and attitude about the oral health and about the possible barriers which is preventing them to seek dental treatment during pregnancy.

We had provided pamphlets to all the participants comprised of oral health care instructions during pregnancy to increase their knowledge, importance and awareness about oral health after the completion of the forms. We had also advised them to get a dental check-up done.

Statistical analysis

All the returned questionnaires were coded for statistical analysis. Results were expressed as the number and percentage of respondents for each question. SPSS statistical package (version 17.0; SPSS Inc. Chicago, IL, USA) was applied for statistical analysis. Chi square test was used to evaluate the statistical significance between the different variables and the level of significance was considered significant at a value of $P < 0.05$.

RESULTS

Among 400 PF surveyed, majority of them belonged to the age group 18-25 (51.5%) followed by 26-30 years (45%). Only 3.5% of the total patients are of the age group 31-35 years. Around half (51.5%) of the female surveyed were educated to secondary level. A large number (46.25%) of the females were having family income of less than 10,000 per month. [Table 1]

Table 2A and 2B is showing the response of PF about the oral complaints and oral hygiene practices and knowledge. About half (52.75%) of the participants had oral complaints. Among them the most common complaint was gum bleeding and

Table 1: Demographic data of the study

Pregnant female		
Age, Years	Frequency	Percentage
18-25	206	51.5
26-30	180	45
31-35	14	3.5
Education		
Primary	105	26.2
Secondary	206	51.5
Higher than secondary	89	22.25
Family income per month		
<10000	185	46.25
10-15000	113	28.25
>15000	102	25.5

Table 2A: Oral complaint and oral hygiene practices & knowledge in pregnant females

Statements about oral complaints	Number	Percentage
Do you have any oral complaint?		
Yes	211	52.75
No	189	47.25
If yes what is your complaint?		
Pain	80	20
Cavity	72	18
Gum bleeding	88	22
Others	26	06.5
Have you mention oral complaint to your physician?		
Yes	82	38.86
No	129	61.14
Do your physician advice you a dental visit?		
Yes	108	27
No	292	73

Table 2B: Oral complaint and oral hygiene practices & knowledge in pregnant females

By which agent you are cleaning your teeth?		
Brush and paste	244	61
Tooth powder	140	35
Datoon	16	04
Had you visited a dentist during pregnancy?		
Yes	32	08
No	368	92
Bleeding gums is?		
Normal	170	42.5
Diseased	224	56

Don't know	06	1.5
Do you heard about the following terms?		
Calculus	02	0.5
Dental Plaque	25	6.25
None		93.25
Which other agent you are using for cleaning teeth?		
Floss	00	0.0
Tongue cleaner	04	01
Mouth wash	06	1.5
Homemade remedy	62	15.5
None	328	82

Table 3A: Awareness about oral and periodontal health in pregnancy

Do you think gum problems increases during pregnancy?		
Yes	154	38.5%
No	48	12%
Don't know	198	49.5%
What is the reason of gum problem during pregnancy?		
Poor oral hygiene	15	3.75%
Nutritional deficiency	246	61.5%
Hormonal disturbance	09	2.25%
Don't know	130	32.5%
Do you think tobacco has bad effects on health of the baby?		
Yes	382	95.5%
No	18	4.5%
Is nutrition is important during pregnancy?		
Yes	379	94.75
No	18	4.5%
Don't know	03	0.75%

Table 3B: Awareness about oral and periodontal health in pregnancy

Do oral health of mother affects baby?		
Yes	00	0.0
No	378	94.5%
Don't know	22	5.5%
Do you think that is there any relation of Gum diseases and PLBW		
Yes	00	0.0
No	288	72%
Don't know	112	28%
Your perception about dental procedures during pregnancy?		
Frightful	122	30.5
Expensive	53	13.25
Unsafe	225	56.25

Table 4: Relation of awareness about dental visit with demographic characteristics of the pregnant participants

Independent variables	No. of participants	Not going for dental treatment due to FEAR (%)	Not going for dental treatment due to EXPENSES (%)	Not going for dental treatment due to UNSAFE TREATMENT (%)	p- value
Education					<0.00001*
Primary	105	12.38	6.66	80.95	
Secondary	206	42.71	9.7	47.57	
Higher than secondary	89	23.59	29.21	47.19	
Family income per month					<0.00001*
<10000	185	28.64	14.59	56.75	
10-15000	113	26.54	7.96	65.48	
>15000	102	29.41	5.88	64.7	

Table 5: Relation of awareness about poor pregnancy outcomes with demographic characteristics of the pregnant participants

Independent variables	No. of participants	Oral health of the mother AFFECT baby (%)	Oral health of the mother DID NOT AFFECT baby (%)	p- value
Education				0.134
Primary	105	4.76	95.23	
Secondary	206	3.39	96.6	
Higher than secondary	89	22.47	77.52	
Family income per month				0.189
<10000	185	1.08	98.91	
10-15000	113	4.42	95.57	
>15000	102	2.94	97.5	

swelling (41.7%) and only 12.3% had complaints like food lodgment, loosening of teeth, malalignment etc. Many of the participants (42.5%) mentioned gum bleeding as a normal during pregnancy. The most common agent used for cleaning of oral cavity was tooth brush and paste (61%). Many participants (82%) were not using any other additional agents for maintenance of oral health. The knowledge regarding the terms like dental plaque & calculus was very poor among most of them (93.25%). [Table 2]

In the section related to awareness and knowledge of periodontal health during pregnancy and effect of

periodontal disease on developing fetus, most of the participants were well aware about the role of nutrition (94.74%) and tobacco (95.5%) ill effect on the health of the mother and their babies, but none of them (0%) were aware about the role of oral health on them or infants during pregnancy. None of them (0%) were responsive about the relation of PLBW and gum diseases. Majority of the females (56.25%) thought that dental treatment is not safe during pregnancy. [Table 3A and 3B]

The table 4 and table 5 show bivariate analysis in relation to the demographic characteristics of pregnant females and awareness about dental visit

and poor pregnancy outcomes. A significant association was found between education and socioeconomic status of pregnant females and not going for a dental visit. While non-significant association is found between demographic data and awareness of periodontal status and its effects on pregnancy.

DISCUSSION

This study shows encouraging response of pregnant females similar to the previous studies,²²⁻²⁴ but a poor knowledge and awareness was observed regarding periodontal status and its correlation with pregnancy outcomes. Gingival bleeding was chief oral complaint among the PF which was in accordance with earlier observations.²⁵⁻²⁶ About 42.5% participants mentioned bleeding gums as a normal consequence of pregnancy and not as an oral problem. This might be the possible reason behind the underestimation of periodontal disease among pregnant females similar to the observations reported by Gilbert and Nuttall (1999).²⁷ Studies conducted for Periodontal examination during pregnancy had documented a very high prevalence of periodontal disease.^{2, 28} Only 27% PF had mentioned that physician advised them for dental visit

Mainly tooth brush and paste is used by pregnant females to maintain oral hygiene in Malwa region as also reported by Agarwal et al. in 2014.²⁹ The number of respondents using other oral hygiene method is very less (18.5%). The knowledge about the terms like dental plaque and calculus is found to be negligible (25.5%).

This study observed a myth among the pregnant females that nutritional deficiency during pregnancy is the main reason behind gum disease. Though most of them are quite aware about the adverse effects of tobacco and nutritional deficiency on the fetus and the mother but, their knowledge about the relationship of poor oral hygiene and adverse pregnancy outcomes was negligible. Around 80% of pregnant participants did not know about the importance of dental checkup and they consider dental procedures are not safe during pregnancy. These misconceptions among PF are the chief barrier in availing dental treatment by them.

The present study demonstrates that both, educations as well as family income significantly affect awareness about dental visits during pregnancy. While knowledge regarding, association of periodontal disease outcome is not significantly related with level of education and income of the family. Recently researchers have proposed health belief model for oral health to improve the awareness of periodontal health during pregnancy.³⁰ Limitations of the present study include; that it was a self administered questionnaire based study in which respondents could be hesitant to provide the true information.

CONCLUSION

Within the limitations of this study we conclude that there is high requirement of improvement in knowledge and awareness regarding periodontal health during pregnancy and its outcome. Level of education and family income is related positively with awareness among PF. Misconceptions related to 'dental treatment safety' during pregnancy and its effect on fetus is the major barrier in seeking the dental care during pregnancy. We, hereby, suggest that dentist particularly periodontist should play active role in enhancement of knowledge and awareness about maternal and oral health status to achieve favorable pregnancy outcomes.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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