

Knowledge, Belief and Practice of Pregnant Mothers Towards Infant Oral Health Care

Srijna Malik^{1*} Samta Khetarpal² Deepika Janghu³ Palkeen Kaur⁴

¹Consultant Periodontist, Department of Dentistry, Mahabirdal Hospital, Karnal, Haryana, India.

²Consultant Endodontist, Department of Dentistry, Mahabirdal Hospital, Karnal, Haryana, India.

³Senior Lecturer, Department of Orthodontics and Dentofacial Orthopedics, Yammuna Institute of Dental Sciences and Research, Yammuna Nagar, Haryana, India.

⁴Senior Lecturer, Department of Conservative and Endodontic, BJS Dental College and Hospital & Research institute, Ludhiana, Punjab, India.

ABSTRACT

Aim: The aim of this study is to collect the baseline data to assess the Knowledge, Belief & Practices of expectant mothers regarding oral health and hygiene practices. Study Design: This was a cross-sectional questionnaire based survey among 100 expectant mothers in Bahadurgarh and Rohtak cities.

Material and methods: One hundred expectant mothers fulfilling the inclusion and exclusion criteria were randomly selected based on convenience method over a period of 1 month. The data were collected using a questionnaire addressing the various aspects of expectant mother's knowledge about infant oral health and their own oral hygiene practices. The analysis was done using SPSS version 16.0.

Results: The overall score revealed that majority of the expectant mothers had fair knowledge and practice toward infant oral health and their own oral hygiene. Expectant mothers' educational qualification, trimester, and the number of pregnancy had a significant role in their knowledge, attitude, and oral hygiene practices.

Conclusion: The findings suggest that there should be implementation of educational programs to bring out the awareness about the importance of oral health among expectant mothers.

Keywords: Oral health, pregnancy, oral health promotion.

INTRODUCTION

Good oral health is an important component of overall general health. There are studies which state that infant oral health status is poor in developing nations and the most common chronic childhood disease is dental caries.¹ There is now recommendation that all women should receive a comprehensive oral health education and risk assessment during pregnancy².

Pregnancy is a unique period of women's life which is characterized by complex physiological changes, which may affect the oral health. Evidence suggests that most infants and young children acquire caries causing bacteria³.

Bacterial plaque is formed about an hour after tooth brushing and it is the precursor of the two commonest of dental diseases i.e. dental caries and periodontal disease. One of the changes seen during pregnancy is increase in gingival inflammation. It may be due to increased levels of estrogen and progesterone which may further cause increased vascular permeability and decreased host immunity⁴. However, these changes can be made reversible if adequate oral hygiene is maintained⁵.

The oral health of pregnant women has been gaining special area of interest in the recent times because of the suspected association between adverse pregnancy outcomes such as premature birth, low birth weight and pre-eclampsia and periodontal diseases⁶. This correlation is important as there is high prevalence of infant mortality rates in our

Received: June. 26, 2018; Accepted: Aug. 13, 2018

*Correspondence Dr. Srijna Malik.

Mahabirdal Hospital, Karnal-132001, Haryana, India.

Email: srijnamalik88@gmail.com

country⁷. Proper nutrition and lifestyle also plays an important role in the well- being of expectant mothers⁸.

In a child's life, parents play a major role in their well- being. It has been seen that good oral health of the expectant mother can be a key to establish good infant oral health.⁹ It has been seen that inadequate knowledge and attitude about infant oral health among parents and caregivers is the primary reason for poor oral health of the infants¹⁰. To achieve the goal of optimal oral health in childhood, the American Academy of Pediatric Dentistry (AAPD) recommends that infant oral health care should begin ideally with prenatal oral health counseling for parents².

Hence, by providing prenatal oral health education as a preventive intervention during pregnancy can aid to improve and instill a positive attitude towards infant oral health. The aim of this study is to collect the baseline data to assess the Knowledge, Belief & Practices of expectant mothers regarding oral health and hygiene practices in Bahadurgarh and Rohtak cities.

MATERIAL AND METHODS

A cross-sectional questionnaire based survey was conducted among 100 expectant mothers in Bahadurgarh and Rohtak. The study participants were randomly selected based on convenience method from those reporting to the Department of Gynecology in PDM General hospital Bahadurgarh and one private maternity clinic in the Rohtak cities during a period of 1 month. There was no bias among the poor, rich, literate and illiterate sections of the society. The study was conducted upon obtaining approval from the institutional ethical committee, the chief medical officer of the hospital and gynecologists of the maternity clinic. The subjects were briefed about the study after taking their voluntary consent. The questionnaire was made in English language. It had three parts. Part one contained questions with respect to the demographic background of the expectant mothers which included the age, Educational qualification, Number of pregnancies and Period of pregnancy. The second part included a total of 21 questions which were based on knowledge and part three included 8 questions, which were based on the oral hygiene practices of the expectant mothers. The

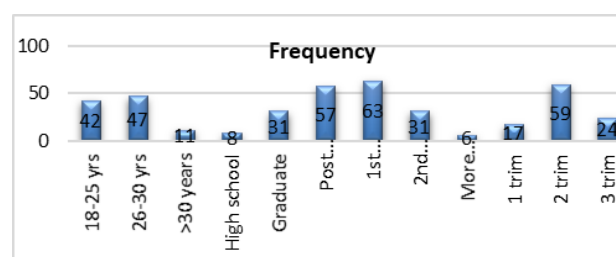
overall knowledge of expectant mothers towards infant oral health care and their oral hygiene practices were scored with each correct answer given a value of one. The maximum score was 29 and minimum was 0 .The total score was calculated for each participant and subjects were divided based on number of correct answers into poor(score<9), fair(10-19) and good (20-29). The data was analyzed using Chi-square test and one way analysis of variance (ANOVA) .A P value of 0.05 or less was used for statistical significance.

RESULTS

A total of 100 expectant women participated in the survey. The overall score showed that majority of the expectant mothers had a fair knowledge towards infant oral health care and fair hygiene practices.

Table 1: Profile of the study population.

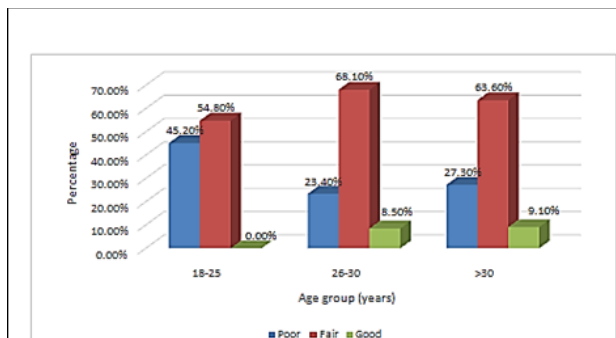
	n	%
Age group		
18-25	42	42.0
26-30	47	47.0
>30	11	11.0
Education		
High school	8	8.0
Graduate	31	31.0
Post graduate	57	57.0
Pregnancy number		
1 st	63	63.0
2 nd	31	31.0
More than 2	6	6.0
Pregnancy period		
1 st Trimester	17	17.0
2 nd Trimester	59	59.0
3 rd Trimester	24	24.0
TOTAL	100	100.0



Graph 1: Shows profile of study population according to Age group, Education, number of Pregnancies and Pregnancy period.

Table 2: shows percentage of total scores and p score= 0.108 NS, ($p \leq 0.05$ S) according to age group.

Age group (yrs)		Total score			Total
		Poor (score upto 9)	Fair (score 10-19)	Good (score 20-29)	
18-25	n	19	23	0	42
	%	45.2%	54.8%	0.0%	100.0%
26-30	n	11	32	4	47
	%	23.4%	68.1%	8.5%	100.0%
>30	n	3	7	1	11
	%	27.3%	63.6%	9.1%	100.0%
Total	n	33	62	5	100
	%	33.0%	62.0%	5.0%	100.0%
P value		0.108, NS			

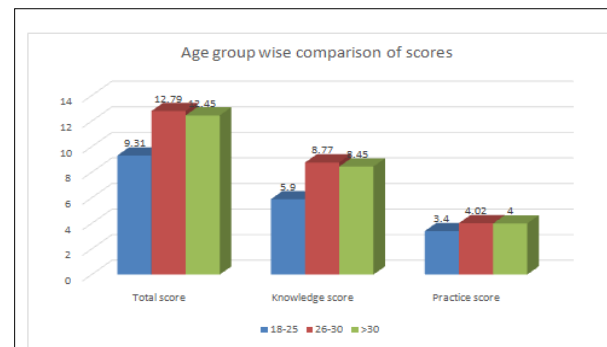


Graph 2 shows percentage of total scores and p score= 0.108 NS, ($p \leq 0.05$ S) according to age group.

Table 3: Shows individual scores, post hoc analysis and p value(0.001 S, 0.001S & 0.048S) according to age group.

Age Group		N	Mea n	Std. Deviation	F valu e	P value	Post hoc analy sis
Total Score	18-25	42	9.31	3.65	7.386	0.001, S	2>1
	26-30	47	12.79	4.63			
	>30	11	12.45	5.82			
	Total	100	11.29	4.67			
Knowle dge Score	18-25	42	5.90	2.91	8.000	0.001,S	2>1
	26-30	47	8.77	3.58			
	>30	11	8.45	4.76			
	Total	100	7.53	3.70			
Practice	18-	42	3.40	0.89	3.14	0.04	2>1

s Score	25				2	8,S	
	26-30	47	4.02	1.42			
	>30	11	4.00	1.26			
	Total	100	3.76	1.23			



Graph 3: Shows individual scores, post hoc analysis and p value(0.001 S, 0.001S & 0.048S) according to age group.

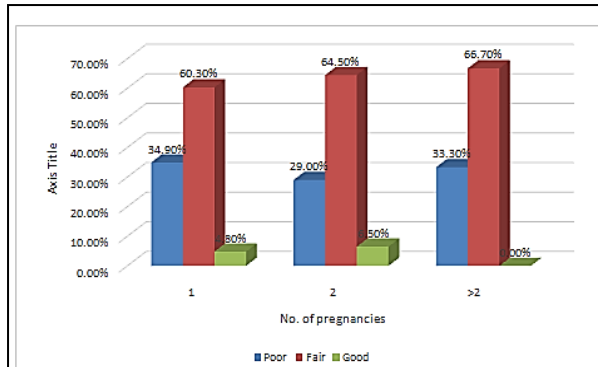
Table 2 shows 62% of expectant females had fair score of the total, 5% good score and 33% poor score.

However, in Table 3 on comparing the age groups individually with the knowledge score and practice score, a significant difference (≤ 0.001 S) was found between group two i.e. 26-30 and group one i.e. 18-25.

Group 2 showed better score than group 1, there was not much significant difference found in group 3 and 2.

Education		Total score			Total score
		Poor (score upto 9)	Fair (score 10-19)	Good (score 20-29)	
High school	n	12	0	0	12
	%	100.0%	0.0%	0.0%	100.0%
Graduate	n	12	18	1	31
	%	38.7%	58.1%	3.2%	100.0%
Post-graduate	n	9	44	4	57
	%	15.8%	77.2%	7.0%	100.0%
Total		n 33	62	5	100

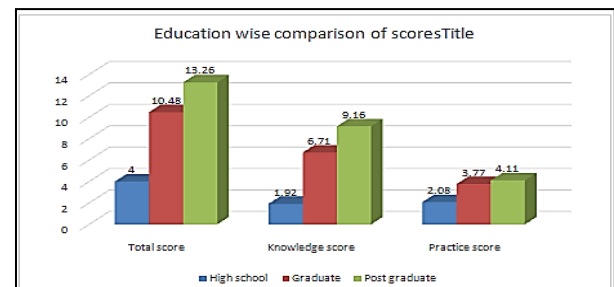
	%	33.0%	62.0%	5.0%	100.0%
P value		<0.0001,S			



Graph 4: Shows percentage of scores and p score=<0.0001S (≤0.05S) according to education.

Table 5: Shows P score (0.001S, 0.001S & 0.048S) & post hoc analysis.

Education		N	Me an	Std. Deviat ion	F val ue	P value	Post hoc analy sis
Total score	High school	12.00	4.00	1.04	33.42	<0.001,S	3>2>1
	Graduate	31.00	10.48	4.19			
	Post-graduate	57.00	13.26	3.63			
	Total	100.00	11.29	4.67			
Knowledge score	High school	12.00	1.92	0.90	33.06	<0.001,S	3>2>1
	Graduate	31.00	6.71	3.48			
	Post-graduate	57.00	9.16	2.79			
	Total	100.00	7.53	3.70			
Practice score	High school	12.00	2.08	0.51	17.92	<0.048,S	3>2>1
	Graduate	31.00	6.71	3.48			
	Post-graduate	57.00	4.11	1.21			
	Total	100.00	3.76	1.23			

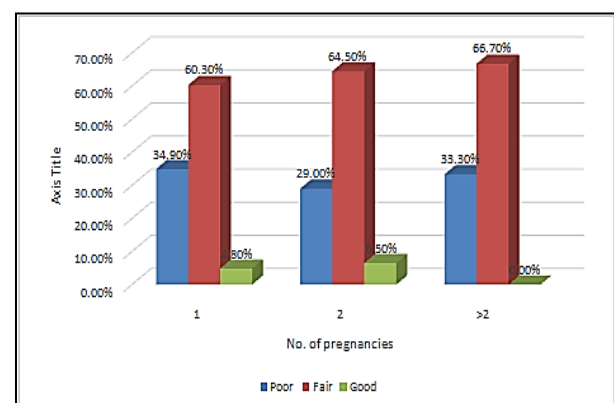


Graph 5: Shows P score (0.001S, 0.001S & 0.048S) & post hoc analysis.

On comparing the scores individually, there was significant difference in group 3(P score- <0.0001S) i.e. post graduate females had a better knowledge and practice score as compared to graduates and high school expectant mothers.

Table 6: shows percentage of scores and p value(0.947 NS (p≤0.05 S)) according to number of pregnancy.

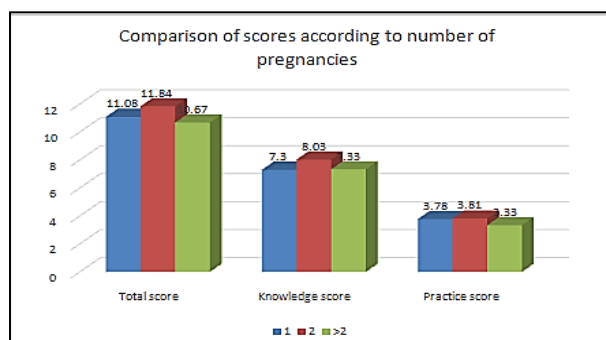
No of pregnancy		Total score			Total score
		Poor (score upto 9)	Fair (score 10-19)	Good (score 20-29)	
1	n	22	38	3	63
	%	34.9%	60.3	4.8%	100.0%
2	n	9	20	2	31
	%	29.0%	64.5%	6.5%	100.0%
>2	n	2	4	0	6
	%	33.3%	66.7%	0.0%	100.0%
Total	n	33	62	5	100
	%	33.0%	62.0%	5.0%	100.0%
P value		0.947,NS			



Graph 6: shows percentage of scores and p value(0.947 NS (p≤0.05 S)) according to number of pregnancy.

Table 7: Shows post hoc analysis and p value (0.722 NS, 0.666NS & 0.782 NS) according to number of pregnancy.

No of pregnancies	N	Mean	Std. Deviation	F value	P value	Post hoc analysis
Total score	1	63.00	11.08	0.327	0.722	NA
	2	31.00	11.84			
	>2	6.00	10.67			
	Total	100.00	11.29			
Knowledge score	1	63.00	7.30	0.409	0.666 NS	NA
	2	31.00	8.03			
	>2	6.00	7.33			
	Total	100.00	7.53			
Practice score	1	63.00	3.78	0.384	0.782 NS	NA
	2	31.00	3.81			
	>2	6.00	3.33			
	Total	100.00	3.76			

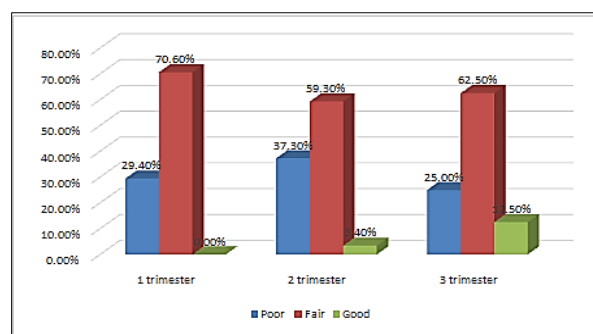


Graph 7: Shows post hoc analysis and p value (0.722 NS, 0.666NS & 0.782 NS) according to number of pregnancy

When comparing individually, there was not much significant difference(0.947NS) in the knowledge and practice score as per pregnancy number.

Table 8: Shows percentage of scores and p value (0.289 NS (p≤0.05S) according to pregnancy period.

Pregnancy period		Total score			Total score
		Poor (score upto 9)	Fair (score 10-19)	Good (score 20-29)	
1 st trimester	n	5	12	0	17
	%	29.4%	70.6%	0.0%	100.0%
2 nd trimester	n	22	35	2	59
	%	37.3%	59.3%	3.4%	100.0
3 rd trimester	n	6	15	3	24
	%	25.0%	62.5%	12.5%	100.0%
Total	n	33	62	5	100
	%	33.0%	62.0%	5.0%	100.0%
P value		0.289,NS			

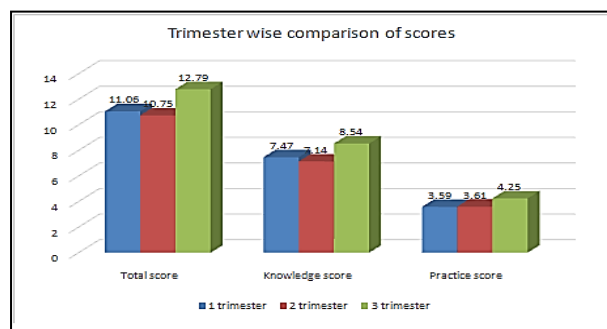


Graph 8: shows percentage of scores and p value (0.289 NS (p≤0.05S) according to pregnancy period.

Table 9: shows post hoc analysis and p scores 0.19NS, 0.29 NS & 0.081S)

Pregnancy period (trimester)	N	Mean	Std. Deviation	F value	P value	Post hoc analysis
Total score	1	17	11.06	1.685	0.19,NS	NA
	2	59	10.75			
	3	24	12.79			
	Total	100	11.29			
Knowledge score	1	17	7.47	1.234	0.29,NS	NA
	2	59	7.14			
	3	24	8.54			
	Total	100	7.53			

Practice score	1	17	3.5	1.12	2.5	0.081, NS	NA
	2	59	3.6	1.25			
	3	24	4.2	1.19			
	Tot al	100	3.7	1.23			



Graph 9: Shows post hoc analysis and p scores 0.19NS, 0.29 NS & 0.081S).

On individual comparison, there was not much significant difference (P score= 0.289 NS) in knowledge and practice scores.

DISCUSSION

There is no repudiation with the fact that good oral health during pregnancy is important as a poor oral health can lead to unfavorable pregnancy outcomes. This is especially important in developing countries where infant mortality rate is high. The commonest oral disease during pregnancy i.e. gingivitis and periodontitis can be prevented by implementing simple measures like maintenance of oral hygiene which includes tooth brushing and flossing.¹¹ Shenoy and Chacko et al¹² in a similar study outlined fair infant oral hygiene knowledge among expectant mothers. In our study the expectant mothers in middle age group i.e. between 26-30 fared better scores. This is comparable to the study done by Akpabio et al¹³ in Michigian, USA. It was found that post graduate sexpectant mothers had a better knowledge and oral hygiene practices. This finding was similar to studies conducted by Sufia et al¹⁴ and Mascarenhas.¹⁵ This emphasizes the importance of giving education to illiterate sections of the society by health care individuals.

There is common belief that knowledge of mothers towards oral health of infant improves with more than one pregnancy. The reason may be attributed

to the inquisitiveness of mothers in their first pregnancy¹⁶. In the present study, expectant mothers in their first trimester scored better in terms of knowledge and practices and also followed better oral hygiene which is similar to the study done by Thomas et al¹⁷. In our study, 94% of the subjects practiced brushing daily. This is in accordance to the study conducted by Abiola et al¹⁸ where 94.2% pregnant females used tooth brushing. 95% of the subjects in our study did not know about fluoride or its use which is contradictory to the study carried out by Al- Truck¹⁹ where 82% females used fluoride tooth-paste.

Only 31% subjects in the present study knew the importance of visiting dental professional during pregnancy. 55% did not consider visiting dentist. However, studies conducted by Christensen et al²⁰ in Danish women reported that 90% had regular dental visits as compared to 36% in North London which was reported by Hullah et al²¹. Al- Habashneh et al²² in 2005 reported that 39% of the mothers who had given birth in Johnson USA, were aware of the possible connections between gum problems and pregnancy outcomes. In the present study only 2% of the subjects knew this connection. This lack of knowledge among the mothers indicates the role of health care providers to educate about the value of optimal oral health for overall general health of expecting mothers and babies.

CONCLUSION

To conclude, it was seen that in this study, the knowledge, belief and practice of expectant mothers towards infant and their oral hygiene was fair. In the developing country like ours, to plan an effective antenatal dental health education program, there should be emphasis on maternal and infant oral hygiene knowledge and practices.

CONFLICT OF INTEREST

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

REFERENCES

- 1) Jawdekar AM. A proposed model for infant and child oral health promotion in India. *Int J Dent* 2013;2013: 685049.

- 2) American Academy on Pediatric Dentistry Clinical Affairs Committee-Infant Oral Health Subcommittee; American Academy on Pediatric Dentistry Council on Clinical Affairs. Guideline on infant oral health care. *Pediatr Dent* 2008-2009;30(Suppl):90-3.
- 3) American Academy of Pediatric Dentistry. Policy on Early Childhood Caries (ECC). Unique Challenges and Treatment Options. Chicago: AAPD, 2011.
- 4) Gursoy M, Pajukanta R, Sorsa T, Kononen E. Clinical changes in periodontium during pregnancy and post-partum. *J Clin Periodontol* 2008; 35: 576-83.
- 5) Tilakaratne A, Soory M, Ranasinghe AW, Corea SM, Ekanayake SL, de Silva M. Periodontal disease status during pregnancy and 3 months post-partum, in a rural population of Sri-Lankan women. *J Clin Periodontol* 2000; 27: 787-92.
- 6) Xiong X, Buckens P, Fraser WD, Beck J, Offenbacher S. Periodontal disease and adverse pregnancy outcomes: a systemic review. *BJOG* 2006;113:135-143.
- 7) Reddy H, Pradhan MR, Ghosh R, Khan AG. India's progress towards the millennium development goals 4 and 5 on infant and maternal mortality. *WHO South-East Asia J Public Health* 2012;1:279-89.
- 8) Mills LW and Moses DT. Oral health during pregnancy. *Am J Matern Child Nurse* 2002;27:275-80.
- 9) Chacko V, Shenoy R, Prasy HE, Agarwal S. Self-reported awareness of oral health and infant oral health among pregnant women in Mangalore, India- A prenatal survey. *Int J Health RehabilSci* 2013;2:109-15.
- 10) Berkowitz RJ. Causes, treatment and prevention of early childhood caries: A microbiologic perspective. *J Can Dent Assoc* 2003;69:304-7.
- 11) Abiola A, Olaiyanka A, Mathilda B, Ogunbiyi O, Modupe S, Olubunmi O. A survey of the oral health knowledge and practices of pregnant women in a nigerian teaching hospital. *Afr J Reprod Health* 2011;15:14-19.
- 12) Chacko V, Shenoy R, Prasy HE, Agarwal S. Self-reported awareness of oral health and infant oral health among pregnant women in Mangalore, India – A prenatal survey. *Int J Health RehabilSci* 2013;2:109-15.
- 13) Akpabio A, Klausner CP, Inglehart MR. Mothers'/guardians' knowledge about promoting children's oral health. *J Dent Hyg* 2008;82:12.
- 14) Sufia S, Chaudhry S, Izhar F, Syed A, Mirza BA, Khan AA. Dental caries experience in preschool children: Is it related to a child's place of residence and family income? *Oral Health Prev Dent* 2011;9:375-9.
- 15) Mascarenhas AK. Oral hygiene as a risk indicator of enamel and dentin caries. *Community Dent Oral Epidemiol* 1998;26:331-9.
- 16) Assery MK, Al-Saif KM. A survey of dental knowledge in Al-Jubail Antenatal clinic population. *Saudi Dent J* 1993;5:13-6.
- 17) Thomas A, Jacob A, Kunhambu D, Shetty P, Shetty S. Evaluation of the knowledge and attitude of expectant mothers about infant oral health and their oral hygiene practices. *J Int Soc Prevent Communit Dent* 2015;5:400-5.
- 18) Abiola A, Olaiyanka A, Mathilda B, Ogunbiyi O, Modupe S, Olubunmi O. A survey of the oral health knowledge and practices of pregnant women in a nigerian teaching hospital. *Afr J Reprod Health* 2011;15:14-19.
- 19) Al-Truck KMA. Self-reported dental care and dietary habits of Saudi pregnant women in a prenatal clinic in Riyadh. *Pakistan Oral Dent Jr* 2005;25:75-80.
- 20) Christensen LB, Jeppe Jensen D, Petersen PE. Self-reported gingival conditions and self-care in the oral health of Danish women during pregnancy. *J Clin Periodontol* 2003;30:949-53.
- 21) Hullah E, Turok Y, Nauta M, Yoong W. Self-reported oral hygiene habits, dental attendance and attitudes to dentistry during pregnancy in a sample of immigrant women in North London. *Arch Gynecol Obstet* 2008;277:405-9.

22) Al Habashneh R, Guthmiller JM, Levy S, Johnson
GK, Squier C, Dawson DV, et al. Factors related to

utilization of dental services during pregnancy. J
ClinPeriodontol. 2005; 32: 815-21.