ASSESSMENT OF ORAL HEALTH PRACTICES, KNOWLEDGE AND ORAL HYGIENE STATUS AMONG PREGNANT WOMEN IN BANGLADESH

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ABSTRACT

Oral health during pregnancy noticeably changes due to physiologic changes and increasing plasma estrogen hormone levels. These changes lead to oral diseases if enough and timely care of the oral cavity is not taken. So, to motivate pregnant women toward oral health and implement the appropriate measures, this present study was planned to assess the oral health practices, knowledge about oral health, and oral hygiene status among pregnant women in Bangladesh. Pregnant women were considered as the study population. Data were collected from the outdoor of General Gynecology and Obstetrics Department, BSMMU, Dhaka by face-to-face interview with the help of a pretested semi-structured questionnaire comprising multiple sections, including oral health practices, knowledge about oral health, and oral hygiene status among respondents. Oral Hygiene Index (Greene and Vermilion, 1960) was also applied for assessment of the oral hygiene status of the respondent.

Regarding tooth brushing practice, 96.7% of pregnant women responded positively, and 73.3% of participants mentioned that the frequency of tooth brushing was once daily. The majority of the pregnant women (86.7%) said that they use a toothbrush with toothpaste, with a few exceptions of tooth powder (13.3%) and manjon (3.3%). About 96% of pregnant women changed their toothbrushes in more than three months of interval. None of the participants responded positively regarding smoking habit, whereas betel nut chewing habit and use of Jorda or tobacco was 21.7% and 6.7%, respectively. On the other hand, only 26.7 % of pregnant women were likely to have mouth rinsing habit after having meals, and 8.3% of pregnant women regularly visited dental surgeons during pregnancy.

Regarding knowledge about oral health, 68.3% of respondents mentioned that tooth brushing should be done once daily. Regarding best materials that should be used during tooth cleaning, 93.3% of pregnant women said that toothbrushes and toothpaste should be used. Though 40% of the participants knew symptoms of gingivitis or periodontitis, only 10 % of pregnant women knew the relation between oral health and pregnancy outcome. In contrast, almost all participants (97%) had good or fair oral hygiene status, whereas very few pregnant women had poor oral hygiene status.

However, based on this study result, most respondents reveal good oral hygiene status, but they lacked oral health practices and knowledge regarding oral health during pregnancy. Evidence-based and intensive oral health education or intervention should be conducted during pregnancy to improve knowledge, attitude, and practices regarding oral health among pregnant women to reduce the burden of oral diseases.

Keyword: *Oral health practice; Oral health knowledge, Oral hygiene status, pregnancy.*

1. INTRODUCTION:

According to the American College of Obstetricians and Gynecologists, several statements and guidelines have been published emphasizing improved oral health care during pregnancy [1][2][3]. In the early 1990s, Offenbacher et al. hypothesized that oral infections could act as a source of bacteria and inflammatory mediators that could disseminate systemically to the fetal-placental unit through the blood circulation and induce pregnancy complications [4][5][6]. Oral health care during pregnancy is essential because bacterial infections in the gum enter the bloodstream and can impact the baby [4][5][6].

Although oral diseases are infrequent due to the hormonal changes during pregnancy, gestational age, socio-demographic factors, lack of oral hygiene practices, and inadequate information to maintain oral health among pregnant women [1][6], moreover, several studies have shown that a relatively high proportion of subjects with oral diseases in the pregnant population and age, ethnicity, socioeconomic status, plaque score, smoking, etc., were considered risk factors [4][6].

In addition, the proper knowledge of these conditions is essential to prevent and minimize the unseen oral complications during the pregnancy until the birth of the child. Patient awareness regarding these conditions is also equally important [1][2][3][6]. Normal pregnancy does not necessarily contraindicate dental treatment if the stage of gestation and the extent of dental procedures are considered. The patient must be counseled about these transient changes, treatment plans and reassured accordingly [5][6][7]. Improving the oral health of the population has become a significant public health issue. Recent studies have demonstrated that overall health could not be achieved without oral health. For pregnant women, achieving and maintaining oral health also has additional implications for pregnancy outcomes [6][7].

Furthermore, the prevalence of periodontitis is high in pregnant mothers (40%), and all these mothers with periodontitis have seven times at risk of having preterm or low birth weight babies [6][8]. That's why oral health assessment and treatment should be an essential part of prenatal care, as these steps allow the patient to receive ongoing advice concerning proper oral hygiene and infant oral health care [9][10].

In contrast, a few studies in Bangladesh have been conducted regarding oral health problems in different age groups. Still, none of the studies focus on assessing oral health practices, knowledge, and oral hygiene status among pregnant women [10][11]. Moreover, studies about oral health knowledge and practices and current oral hygiene status among pregnant women in low-resource communities or countries such as Bangladesh have not been conducted, well intervened, or disseminated.

2. MATERIALS AND METHODS:

A total of 60 pregnant women between reproductive age (15-40 years) were considered study respondents and selected using purposive sampling technique based on predetermined inclusion and exclusion criteria. Data were collected from the General Gynecology and Obstetrics Department of Bangabandhu Sheikh Mujib Medical University, Dhaka. Official permission was taken from the authority of outdoor of General Gynecology and Obstetrics Department of BSMMU. All study respondents were informed clearly about the study purpose and those, who consented, were included. The data were collected by face-to-face interview with the help of a pretested semi-structured checklist/questionnaire. The questionnaire contained several sections, which include oral health practices among respondents, knowledge about oral health as well as oral hygiene status of respondents. Oral Hygiene Index (Greene and Vermilion, 1960) was applied for the assessment of the oral hygiene status of the respondent. Then, the collected data were analyzed using descriptive analysis by Statistical Package for Social Sciences (SPSS) software (version 24) for Windows. The analyzed data were presented in the frequency table.

3. RESULTS:

3.1 Section A: Oral health practices among pregnant women

In this section, we have described oral health practices among pregnant women. We used various indicators such as tooth brushing practice, frequency of tooth brushing, materials using for tooth cleaning, mouth rinsing habit after having meals, smoking status, betel-nut chewing habit and use of jorda or tobacco, etc.

Table 1: Distribution of oral health practices among the respondents (n = 60)

Indicators		**Pregnant women (n = 60)**	
		n	**(%)**
Tooth brushing practice			
	Yes	58	96.7%
	No	2	3.3%
Frequency of tooth brushing			
	Once daily	44	73.3%
	Twice daily	16	26.7%
Tooth powder use			
	Yes	8	13.3%
	No	52	86.7%
Tooth brush and tooth paste use			
	Yes	52	86.7%
	No	8	13.3%
Salt and oil			
	Yes	0	0.0%
	No	60	100%
Manjon using			
	Yes	2	3.3%
	No	58	96.7%
Using of tooth brush			
	Yes	54	90%
	No	6	10%
Duration of tooth brush change			
	≤3 months	2	3.7%
	>3 months	52	96.3%
Mouth gurgling status			
	Yes	16	26.7%
	No	44	73.3%
Smoking status	Yes	0	
	No	60	100%
Betel-Nut chewing habit			
	Yes	13	21.7%
	No	47	78.3%
Use of jorda or tobacco			
	Yes	4	6.7%
	No	56	93.3%
Dentist visiting status			
	Yes	5	8.3%
	No	55	91.7

Regarding tooth brushing practice, 96.7% of pregnant women responded positively. The majority of the pregnant participants (73.3%) mentioned that the frequency of tooth brushing was once daily. About 86.7% of the pregnant women said that they use a toothbrush with toothpaste with a few exceptions of tooth powder (13.3% in pregnant women) and manjon (3.3%). The majority of the participants in pregnant women (96.3%) changed their toothbrushes in more than three months. None of the participants responded positively regarding smoking, whereas a good percentage responded positively for betel nut eating habits (21.7%), and a few percentages responded regarding the use of jorda or tobacco (6.7%). On the other hand, 26.7 % of pregnant women were likely to have mouth rinsing habit after having meals, and only 8.3% of pregnant women used to go visit dental surgeons regularly during the pregnancy period.

3.2 Section B: Knowledge about oral health practices among pregnant women

In this section, we have described knowledge about oral health among pregnant women. Various indicators were used such as 'frequency of tooth brushing is needed' 'best materials using during tooth cleaning' 'knowledge about symptoms of periodontitis' 'knowledge about the relation between oral health and pregnancy' etc. to assess the oral health knowledge of the participants.

Table 2: Distribution of knowledge about oral health knowledge during pregnancy (n = 60).

Indicators	Pregnant women (n = 60)	
	n	(%)
Frequency of daily tooth brushing is needed		
Once-daily	41	68.3%
Twice daily	19	31.7%
Materials should be used for tooth cleaning		
Toothbrush and toothpaste	56	93.3%
Toothpowder	4	6.7%
Knowledge about symptoms of periodontitis		
Yes	24	40%
No	36	60%
Response regards relation between oral health and pregnancy outcome		
Yes	6	10%
No	1	1.7%
Don't know	53	88.3%

The majority of the participants (68.3%) mentioned that the frequency of toothbrushes should be once daily. Regarding best materials that should be used during tooth cleaning, 93.3% of pregnant women said that toothbrushes and toothpaste should be used. Though 40% of the participants knew symptoms of periodontitis among them, only 10 % of pregnant women knew the relation between oral health and pregnancy outcome.

Table-3: Distribution of knowledge about symptoms of periodontitis among pregnant women (n=24).

Indicators	Pregnant women (n = 48)	
	n	(%)
Gum bleeding	24	100%
Gum swelling	15	62.5%
Foul-smelling	9	37.5%
Tooth loosening	21	87.5%
Pain during chewing	8	33.33%
Pus formation within the gum	5	20.83%
Tooth sensitivity to hot or cold food	22	91.66%

In this table, we have described knowledge about symptoms of periodontitis among pregnant women. Gum bleeding, gum swelling, foul-smelling, tooth loosening, pain during chewing and pus formation within the gum, tooth sensitivity to hot or cold food were used as indicators of symptoms of periodontitis. All respondents and about 92% of respondents who knew signs of periodontitis mentioned gum bleeding and tooth sensitivity to hot or cold food as symptoms of periodontitis, respectively.

3.3 Section C: Oral hygiene status among pregnant women

Table 4: Distribution of oral hygiene status among pregnant women (n = 60).

Oral hygiene status	Pregnant (n = 60)	
	n	(%)

Good oral hygiene status	41	68.33%
Fair oral hygiene status	17	28.33%
Poor oral hygiene status	2	3.33%

In this table, oral hygiene status among pregnant women has been described. Almost all of the participants (97%) had good or fair oral hygiene status, whereas only a very few pregnant women had poor oral hygiene status.

4. DISCUSSION:

Pregnancy is a natural process that may change different parts of the body, including the oral cavity [2][3]. Women may experience increased gingivitis or pregnancy gingivitis beginning in the second or third month of pregnancy that increases in severity throughout pregnancy [2][4][5][6]. So, it is essential to maintain a healthy oral hygiene status to ensure both the health of the pregnant woman herself and her baby's health [7][8]. Based on these circumstances, this study aimed to illustrate the baseline data regards oral health practices, knowledge, and oral hygiene status among pregnant women in view of Bangladesh.

Although, in this current study, almost all pregnant women were used to brush their teeth regularly and most of the pregnant participants mentioned that the frequency of tooth brushing was once daily. Still, it is considered that the ideal frequency of tooth brushing is twice daily. In addition, though, the majority of the pregnant women mentioned that they use a toothbrush, and almost all of the participants in pregnant women changed their toothbrushes in more than three months duration. Still, changing of toothbrush within three months is recommended. Although, none of the participants responded positively regarding smoking, whereas a good percentage of participants responded positively for betel nut eating habits and the use of jorda or tobacco. Furthermore, only 1/3 of pregnant women lacked mouth rinsing habits after having meals. The majority of pregnant women were not used to go visit dental surgeons regularly during the pregnancy period.

In addition, in this current study, about 2/3 of the participants had a lack of knowledge about the frequency of toothbrushes daily. Moreover, the majority of the participants did not know symptoms of periodontitis, and all of them who had knowledge about symptoms of periodontitis only mentioned the gum bleeding as symptoms of periodontitis. None of the respondents had knowledge about all signs of periodontitis, and only a few numbers of pregnant women had knowledge about the relation between oral health and pregnancy outcome.

In India in 2017 conducted a previous study conducted among pregnant women belonging to different socioeconomic groups and revealed a baseline data about knowledge and practices regarding oral health care during pregnancy was poor [19]. Although their baseline study results were similar to our present study results in their study, after oral health education at the 28th week of gestation, knowledge regarding oral health care improved drastically, attitude toward oral health practices became more positive. So, we also hope that after giving the evidence-based intervention to our pregnant women group, there is a chance of improving our expectations regarding knowledge and practices of oral health during pregnancy.
On the other hand, this present study results reveal that majority of the participants had good or fair oral hygiene status, whereas only very few numbers of pregnant women had poor oral hygiene status. Our present study results are not similar to a previous study conducted in India in 2006, in where pregnant women showed poor oral hygiene, more gingival inflammation, and more periodontal disease compared to nonpregnant women [20]. The probable cause may be their study results revealed the data about ten years ago. Nowadays, people are more concerned about their oral health.

5. CONCLUSION:

Though based on the baseline data of this present study, the majority of respondents reveal good oral hygiene status, but they are lack practices and knowledge regards oral health care and symptoms of periodontitis during pregnancy.

6. RECOMMENDATION:

Evidence-based and intensive oral health education or intervention program should be conducted to improve knowledge, attitude, and practices regarding oral health care among pregnant women to reduce the burden of oral diseases.

7. CONFLICT OF INTEREST:

There is no conflict of interest

8. REFERENCES:

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