

Review On Oral And Dental Health Status Among Pregnant Women In Different Areas Of Bangladesh

¹Md. Ashraful Alam,¹Mossammat Rima Akter, ^{1,2}Monoara Mofiz,
¹Sukalyan Kumar Kundu, ³Sabiha Sultana, ⁴Psyche Wadud, ¹Md Rafiquzzaman

¹Department of Pharmacy, Jahangirnagar University, Savar, Dhaka-1342, Bangladesh.

²Assistant Professor, Department of Periodontology and Oral Pathology, Delta Medical College, Mirpur-1, Dhaka, Bangladesh.

³Junior Consultant, Habib Hospital, Dendabor, Savar, Dhaka, Bangladesh.

⁴Medical Officer, DGHS (on deputation as an FCPS student at Bangabandhu Sheikh Mujib Medical University, Shahabag, Dhaka, Bangladesh).

Abstract:

Teeth are a precious gift from the Almighty that play an unparalleled role in human beings. Women during pregnancy are vulnerable to a large number of diseases, including various oral and dental health problems. The present authors aimed to find out the prevalence, impact, and care of various dental diseases during pregnancy in women in Bangladesh. Google Scholar was used for finding the recent articles relevant to dental diseases in pregnant women using various keywords. A comprehensive literature review (2008-2023) showed that pregnant women are vulnerable to a number of dental diseases, namely dental caries, gingivitis, periodontitis, calculus, cavities, bleeding gums, dental erosion, halitosis, aphthous ulcers, sensitive teeth, loose teeth, and oral tumors, etc. Among these diseases, dental caries, gingivitis, halitosis, and sensitive teeth are more prevalent and have a major impact on pregnant women. A significant number of pregnant women did not seek oral healthcare during pregnancy. Oral healthcare and regular checkups are highly recommended for specific dental problems such as dental caries, gingivitis, and calculus during pregnancy. This can be accomplished if comprehensive clinical guidelines pertaining to dental and oral healthcare for pregnant women in Bangladesh are adopted.

Date of Submission: 02-01-2024

Date of Acceptance: 12-01-2024

I. Introduction:

Teeth are the most important elements of our body due to their valuable significance in speaking, eating, smiling, and aesthetic value. Women's lives have several stages, among which pregnancy is one of the most vulnerable stages during which various physiological and psychological changes occur due to a number of hormonal fluctuations (Eke *et al.*, 2005; Onigbinde *et al.*, 2014). The most common physiological alterations are changes in blood chemistry, the cardiovascular system, the respiratory system, the gastrointestinal system, and other general changes (Naseem *et al.*, 2016). Changes in the oral cavity during pregnancy include gingival hyperplasia, gingivitis, pyogenic granulomas, etc. (Tarsitano and Rollings, 1993). Fluctuations of estrogens and progesterone affect the gingiva and periodontium tissues (Rahman *et al.*, 2013), which can lead to an increase in oral vasculature permeability, a decrease in host immune competence, and an increase in susceptibility to oral infections (ACOG Practice Bulletin, 2002). The prevalence of gingivitis and gingival hyperplasia is highly associated with excessive levels of circulating estrogen (Hemalatha *et al.*, 2013). Additionally, the oral cavity is often exposed to gastric acid due to gas reflux, leading to nausea and vomiting condition to the pregnant women, which can cause enamel erosion (Silk *et al.*, 2008; Mahmud *et al.*, 2014). Some systemic conditions also need to be considered, such as hypertension, which can lead to dental bleeding. There is a clear link between maternal oral health, pregnancy outcomes, and the dental health of the offspring (Lydon-Rochelle *et al.*, 2004). Periodontitis is associated with preterm birth and low birth weight (Dörtbudak *et al.*, 2005). Caries are more common in children whose mothers have high caries (Berkowitz, 2003). The maintenance of oral health during pregnancy is essential for the good health of both the mother and the child. It is important to depict the oral and dental health scenario of pregnant women from the perspective of Bangladesh to facilitate their oral and dental health and well-being. Therefore, for optimal oral health conditions of mothers and their offspring, the authors of this article aimed to illustrate the prevailing oral and dental health among pregnant women in Bangladesh by reviewing papers published in this area in recent years. They also aimed to depict the suggestions and recommendations encountered during the review process for the oral health and well-being of pregnant women.

II. Methodology:

The present review work was conducted by browsing the Google Scholar website. Keywords such as oral diseases during pregnancy in Bangladesh, gingivitis during pregnancy in Bangladesh, and oral health of pregnant women in Bangladesh, etc. were used to find relevant articles on the oral and dental health of pregnant women in Bangladesh. Out of the articles that appeared after browsing, it was found that some papers, which were published from 2008 to 2023, were somehow relevant to the objectives of the authors of the present work, and those were systematically reviewed. Pregnancy aspects and the various oral and dental health problems in pregnant women from the Bangladesh perspective were researched from selected papers, and those were noted, detailed, and discussed in the present paper, along with the depictions of suggestions and recommendations laid out by others in the literature for the oral health and well-being of pregnant women.

III. Results and Discussions:

The primary focus of this paper was on pregnant women and their oral health, particularly dental health and care. The literature review indicated that the reproductive age for females in Bangladesh was considered to be 15 – 49 years (Mahmud *et al.*, 2014). Based on the present review, it was found that the lowest age at which pregnancy took place (Table 1) was 15 years (Rahman *et al.*, 2013), and the highest age at which pregnancy occurred was reported as 41 years (Ahmed *et al.*, 2023, data not shown), while some others mentioned it as >35 years old (Nabi *et al.*, 2020). The percentage of pregnant women in the highest age group was found to be low, (Rahman *et al.*, 2013; Nabi *et al.*, 2020; Chowdhury and Islam, 2021), ranging from 6% to 9% (Table 1). The authors of this paper do not believe that the lowest age of pregnancy could be 15 years old. Rather, it appeared so because of the exclusion of pregnant women from the study below 15 years of age (Nabi *et al.*, 2020) or due consideration of the reproductive age period of 15 – 49 years (Mahmud *et al.*, 2014). Similarly, the highest age of pregnancy could not be 41 years old. It was simply due to a lack of pregnant women over 41 years old in the study group.

No one mentioned the reason behind the age grouping of 15–20 years rather than <15–20 years. The present authors firmly believe that it happened to be so because of the due consideration of reproductive age

Table 1: Distribution of Pregnant Women by Age in Two Studied Areas in Bangladesh

Rahman <i>et al.</i> , 2013 (Thakurgaon, Panchaghar & Nilphamary area) n = 102			Nabi <i>et al.</i> , 2020* (Azimpur, Dhaka area) n = 147		
Age (years)	Frequency	Percent	Age (years)	Frequency	Percent
15 - 20	51	50	15 - 19	28	19
21 - 30	45	44.1	20 - 29	106	72
31 - 35	6	5.9	30 - >35	13	9
Total	102	100	Total	147	102
Mean (± SD) years: 21.94 (±4.76) years			Mean (±SD) years : 23.39 (±4.35), if the upper limit of the age of pregnant women is considered as 49 years.		

Nabi *et al.*, 2020*: Results are presented here in a slightly revised format.

period of 15 – 49 years (Mahmud *et al.*, 2014) from the perspective of Bangladesh. The mean age at which pregnancy occurred was calculated to be 21.94 (±4.76) (Table 1), but it was probably mistakenly reported as 22.28 (±4.22) by Rahman *et al.* (2013) in their paper.

As Nabi *et al.* (2020) did not mention the upper age limit of pregnant women, it was not possible to calculate the average age of pregnant women in the population of the areas studied by them. Since the reproductive age for females in Bangladesh was reported as 15 – 49 years (Mahmud *et al.*, 2014), we considered the upper limit of age for pregnant women as 49 in the age data of Nabi *et al.* (2020) to calculate the mean age of pregnant women in the population of their studied area. The calculated result was found to be 23.39 (±4.35) years, and it was shown in Table 1. It is evident that the result found (23.39±4.35 years), was very similar to the result (21.94±4.76 years) shown in Table 1, which was calculated from the data reported by Rahman *et al.* (2013). Readers may consult the mean age of pregnant women from other published papers (Chowdhury and Islam, 2021; Ahmed *et al.*, 2023, etc.), and they will find similar results if the years of study (not the publishing years) are not far apart.

Rahman *et al.* (2013) observed the highest number of pregnancies (Table 1) in the age group of 15 - 20 years (50%), while Nabi *et al.* (2020) found it in the age group of 20 - 29 years (72%). This difference in their findings could lie with the areas they included in their studies and hence the differences in the prevalence of educated females in the population studied. Rahman *et al.* (2013) studied the rural population of the North Bengal (Thakurgaon, Panchaghar, and Nilphamary) area of Bangladesh, where the prevalence of educated females might naturally be lower compared to the study area Azimpur of Nabi *et al.* (2020), which is an advanced area in Dhaka, Bangladesh. Mahmud *et al.* (2014) reported that most of the pregnant women (72%) were in the age range of 20 – 29 years, among the pregnant women who attended health check-ups in some of

the selected hospitals in Dhaka, Bangladesh, and this finding echoed the results of Nabi *et al.* (2020). Similar trends were also observed by Chowdhury and Islam (2021) as well as Ahmed *et al.*, 2023 (data not shown).

Only one study in Bangladesh recorded the frequency of visits by the subjects to the dentist (Table 2) during the pregnancy period (Nabi *et al.*, 2020), and it was 9 out of the 147 pregnant women (just 6% only). The most frustrating information was that 63% (Table 2) of pregnant women in the studied area of Bangladesh had never visited a dentist before the session they underwent during the study conducted by Nabi *et al.* in 2020. A similar observation (62.2%) was reported by Ahmed *et al.* (2023). Only 22 to 34 percent of women in the United States consult a dentist during pregnancy (Silk *et al.*, 2008). This problem, with a low percentage of pregnant women visiting dentists during their pregnancy, might have happened due to a lack of national clinical guidelines for the management of common oral conditions in pregnancy. Additionally, also for disregard by general physicians for the referral of pregnant women to dentists (Silk *et al.*, 2008) and some dental professionals are reluctant to provide dental treatment to pregnant women (Ahmed *et al.*, 2023).

Table 2: Scenario of Dental Care During Pregnancy in the Population of Azimpur, Dhaka Area of Bangladesh*

Last visit to a dentist	Frequency	Percent
Never visit to a dentist	92	63
1 year ago	18	12
2 or more years ago	28	19
Prior/during pregnancy	9	6
Total	147	100

*Based on the published article by Nabi *et al.*, 2020.

Problems of oral health in pregnant women in some areas of Bangladesh, as reported by various researchers, are summarized in Table 3. A few things are immediately evident from Table 3. One of them is the coincidence of sample size and the findings of Mahmud *et al.* (2014),

Table 3: Spectrum of Oral Health Problems Identified in Pregnant Women at Different Localities in Bangladesh by Various Researchers.

Sample size (n), and study period	Oral Health Problems									Locality of subjects (Sampling technique), References.
	Caries (%)	Gingivitis (%)	Calculus (%)	Periodontitis (%)	Apthous ulcer (%)	Dental erosion (%)	Gum bleeding (%)	Loose tooth (%)	Halitosis* (%)	
n = 102 (Jan 2012-June 2012)	87.3	94.1	96.1	-	-	-	-	-	-	MCWCs** of North Bengal, (Purposive). Rahman <i>et al.</i> , 2013.
n = 147 (Sept. 2013 - Jan 2014)	54	100	-	27	16	52	-	-	-	Hospital and Healthcare centers of Mirpur, (Purposive). Mahmud <i>et al.</i> , 2014.
n = 147 (Jan 2013 -Apr 2013)	54	100	-	27	16	52	-	-	-	AMCH*** Training Institute at Azimpur, (Purposive). Nabi <i>et al.</i> , 2020.
n = 170 (Mar 2018 - Aug 2018)		52.4	-	43	-	-	-	-	-	Antenatal clinics of Dhaka, (Purposive). Chowdhury & Islam, 2021.
n = 170 (Mar 2018 - Aug 2018)	31.2	-	-	43	-	-	71.2	2.9	64.1	Antenatal centers of Dhaka, (Convenience). Chowdhury <i>et al.</i> , 2022.
n = 111 (Dec 2010 - May 2011)				100		91				Maternity care units of five different medical college hospitals in Dhaka City, (Purposive). Ahmed <i>et al.</i> , 2023.

Halitosis*: Bad breath, MCWCs**: Mother and Children Welfare Centers, AMCH***: Azimpur Maternal and Child Health.

and Nabi *et al.* (2020), although their subjects were from two different areas, Mirpur and Azimpur, respectively. The sample size could coincide, but the concurrence of findings in five different aspects is statistically unexpected. Therefore, it is important to check whether it was merely a coincidence or for any other reason.

Actually, it could be detected and reported during the review process, especially out of the concerned papers, the ones that were published at a later date. Thus, the duty to verify the aspect primarily goes to the publisher of the obsessed paper. Next, regardless of the authors, the sample size was not large, and it was in the range of 102-170 (Table 3). However, most of them did not explain the sample size determination, and even those who properly determined the sample size (Nabi *et al.*, 2020; Chowdhury and Islam, 2021) took less number of subjects than the determined sample size, citing the excuse of time and resource constraints. Moreover, none of them mentioned whether their respective studies were representative of the study population. It is noticeable that all the authors used the purposive sampling technique (Table 3), and this fact is not surprising as every author focused on the dental care aspects of pregnant women. Lastly, almost all the authors identified caries (Rahman *et al.*, 2013; Mahmud *et al.*, 2014; Nabi *et al.*, 2020; Chowdhury & Islam, 2021; Chowdhury, Islam, & Sony, 2022), gingivitis (Rahman *et al.*, 2013; Mahmud *et al.*, 2014; Nabi *et al.*, 2020; Chowdhury & Islam, 2021), and periodontitis (Mahmud *et al.*, 2014; Nabi *et al.*, 2020; Chowdhury & Islam, 2021; Chowdhury, Islam, & Sony, 2022; Ahmed *et al.*, 2023) in pregnant women in selected areas of Bangladesh. If Chowdhury, Islam, and Sony (2022) had not labeled gum bleeding separately (Table 3), they would have reported it under gingivitis. However, it is not clear why Rahman *et al.* (2013) did not observe periodontitis, a common oral health problem, in their study subjects.

Tooth decay is more common during pregnancy due to various reasons, including an upturn in the acidic environment of the oral cavity, increased sugar levels, and carelessness towards oral health. The acidic environment and cariogenic bacteria are the protagonists for triggering dental caries during pregnancy (Nassem *et al.*, 2016; Silk *et al.*, 2008). This could be the reason, among others, for finding 87.3% (Rahman *et al.*, 2013), 54% (Mahmud *et al.*, 2014), 54% (Nabi *et al.*, 2020), and 32.1% (Chowdhury *et al.*, 2022) of caries (Table 3) in pregnant women (Fig. 1) in the respective areas studied in Bangladesh. The higher percentage of caries (87.3%, Table 3) observed by Rahman *et al.* (2013) and the lowest percentage (31.2%, Table 3) by Chowdhury *et al.* (2022) could be attributed to the difference in literacy prevalence in the studied areas, as well as the increase in oral health awareness over time through mass media (Nabi *et al.*, 2020). The effect of oral health awareness over time is more evident due to the systematic decrease in dental caries with the elapse of time (Fig. 1) in pregnant women. Children of mothers who have high dental caries are more likely to develop caries (Berkowitz, 2003). Therefore, pregnant women should use fluoride toothpaste twice a day and avoid eating too much sugar to reduce their risk of developing caries in their teeth. At the same time, they need to see dentists for definitive care for their dental caries and related complications (Silk *et al.*, 2008).

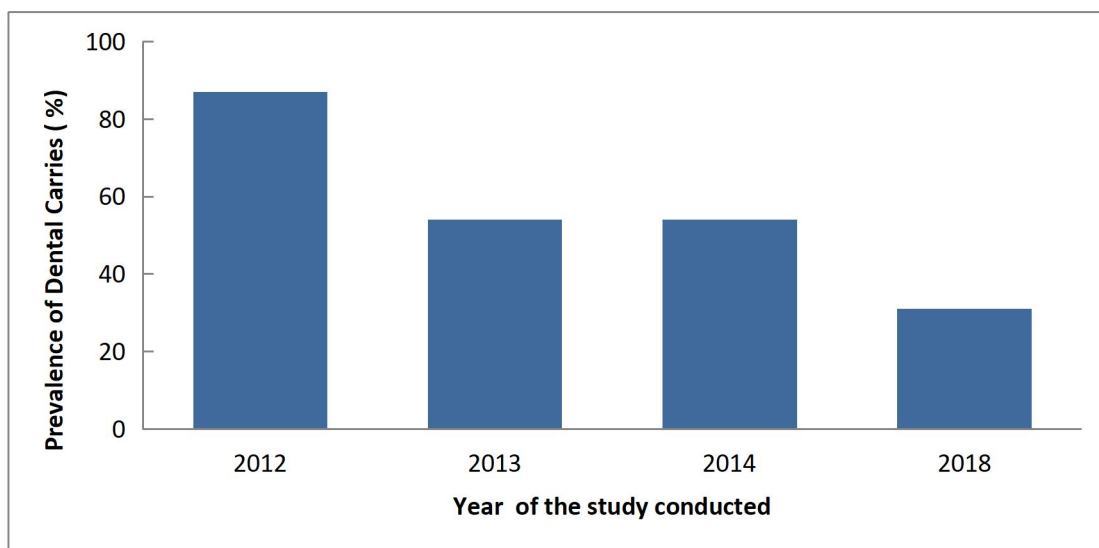


Fig. 1: Decrease in Caries Over Time in the Population of Some Areas of Bangladesh

The inflammation of the gum is referred to as gingivitis. The prevalence of 94.1% (Rahman *et al.*, 2013), 100% (Mahmud *et al.*, 2014), 100% (Nabi *et al.*, 2020), and 52.4% (Chowdhury & Islam, 2021) gingivitis was found in pregnant women (Table 3) from different areas of Bangladesh. Remaining food debris (Hey-Hadavi, 2002) among the tooth spaces, use of an unclean and sharp toothpick, etc. could be the precursors for the occurrence of gingivitis in pregnant women. The reason for the 50% reduction in gingivitis among pregnant women from 2013 to 2018 (Fig. 2) can be attributed to the awareness of dental hygiene (Nabi *et al.*, 2020) that was developed over five years in the populations of the studied areas. On the other hand, at first glance, it is difficult to understand why, unlike dental caries, the prevalence of gingivitis remained almost

constant in pregnant women from 2012 to 2014 (Fig. 2). Here, if we look at the actual study period from Table 3, there is basically a difference of only one year - a very short time to see the impact of dental hygiene awareness.

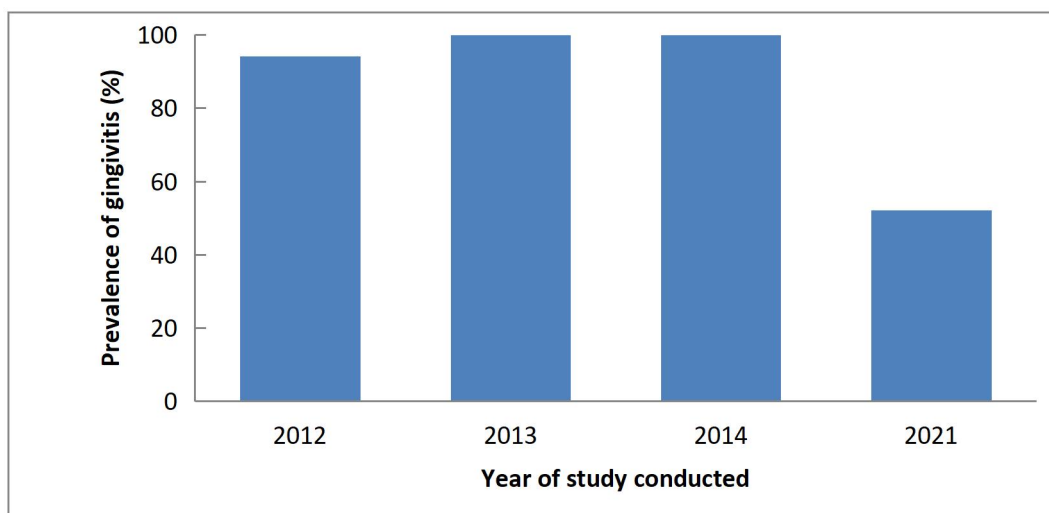


Fig. 2: Prevalence of Gingivitis in Different Years among Pregnant Women in Various Localities in Bangladesh.

Periodontitis refers to the inflammation and destruction of the periodontium, i.e., the tissues around the teeth that firmly anchor them. The literature review reveals that 27% (Mahmud *et al.* 2014; Nabi *et al.*, 2020) pregnant women in Mirpur as well as the Azimpur areas, and 43% (Chowdhury & Islam, 2021; Chowdhury *et al.*, 2022) pregnant women in Dhaka city were suffering from it (Table 3). Although the prevalence of periodontitis decreased over time, its trend was not systematic (Fig. 3). The observed fluctuation could be related to the sample size of the research, the level of education of pregnant women, income of the study subjects, etc. Toxins produced by the bacteria infiltrated in the periodontium cause it to break down and be destroyed. As a result, pockets are created in the periodontium, and it thus gets infected and causes illness. Preterm birth, low birth weight, or both are linked to periodontitis (Clothier *et al.*, 2007; Ahmed *et al.*, 2023). Early detection and deep root scaling are the cornerstones of periodontitis management during pregnancy.

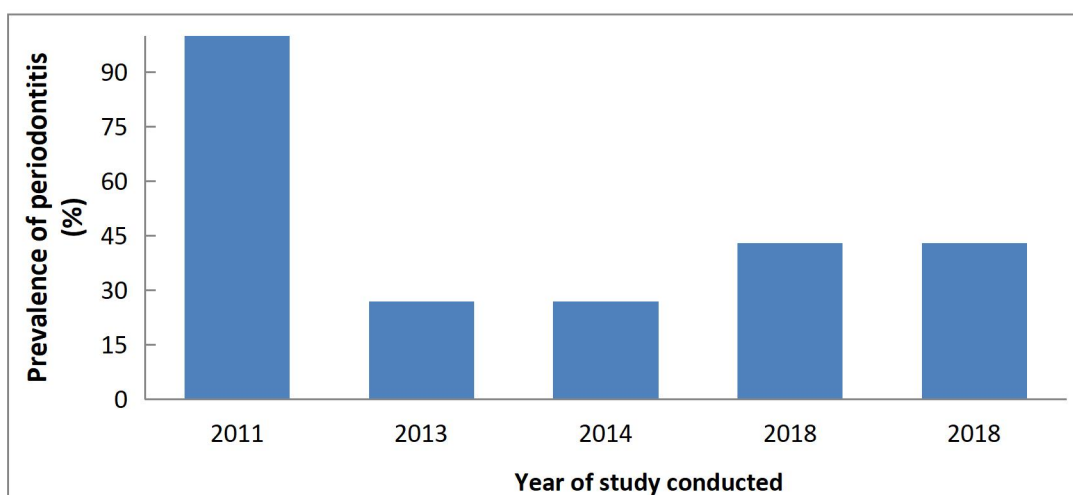


Fig. 3: Prevalence of Periodontitis in Different Years in Pregnant Women at Different Localities in Bangladesh

Besides the dental problems mentioned and discussed above with Bangladeshi pregnant women from different areas, the following dental issues were also reported from time to time: Calculus was found in 96.1% (Rahman *et al.*, 2013) of pregnant women. Gum bleeding was experienced by 71.2% pregnant women in the area where the study was conducted (Chowdhury *et al.*, 2022) in Bangladesh. Dental erosion was observed in 52% (Mahmud *et al.*, 2014) and 52% (Nabi *et al.*, 2020) pregnant women from the respective studied locality in Bangladesh. Halitosis was detected in 64.1% of pregnant women (Chowdhury *et al.*, 2022), while aphthous ulcers were found in 16% (Mahmud *et al.*, 2014; Nabi *et al.*, 2020) of pregnant women. Two point nine percent (2.9%) of pregnant women were detected with loose teeth (Chowdhury *et al.*, 2022).

IV. Conclusions:

The mean age of pregnant women was reported to be between 21 and 23 years, with an approximate standard deviation of 4 years from the Bangladesh perspective. No representative study with an adequate sample size has been performed in the past on the oral health of pregnant women in Bangladesh. The authors recommend carrying out such research. The present review work has led the authors to conclude that pregnant women are susceptible to various dental diseases, ranging from simple bad breath to aphthous ulcers. The most commonly identified dental problems in pregnant women were dental caries, gingivitis, and periodontitis. Other dental issues reported were calculus, gum bleeding, dental erosion, halitosis, aphthous ulcers, and loose teeth. Periodontitis is reported to be associated with preterm birth and low birth weight. Children of mothers with high caries levels are more likely to develop caries. Therefore, the maintenance of oral health during pregnancy is essential for the good health of both the mother and child. Health education and awareness regarding oral health problems are crucial. Oral healthcare and regular checkups are highly recommended for specific dental problems such as dental caries, gingivitis, and calculus during pregnancy. This can be accomplished if comprehensive guidelines are adopted pertaining to dental and oral healthcare for pregnant women in Bangladesh.

Recommendations for oral and dental treatment for pregnant women (Rahman *et al.*, 2013; Silk, 2008; Chowdhury SF, and Islam, 2021):

After vomiting, rinsing the mouth with a teaspoon of baking soda in a cup of water can counteract acid and lessen the depletion of enamel.

It is safest and most effective to perform dental procedures, such as extractions, periodontal therapy, diagnostic radiography, and restorations, during the second trimester.

When applied late in pregnancy and/or during the postpartum phase, xylitol and chlorhexidine are safe topical agents that can lower the oral bacterial load in mothers and reduce the transmission of bacteria to infants. The integration of preventive dental health programs into prenatal and postpartum care is recommended.

Conflict of interest:

The authors have no conflicts of interest to declare.

References:

- [1]. Acog Practice Bulletin. Diagnosis and Management of Preeclampsia and Eclampsia. *Obstet Gynecol.* 2002; 99(1): 159-167.
- [2]. Ahmed N, Haque MU, Humayun A, Soomro T, Mallah MA, and Aslam R. Epidemiology of Maternal Periodontal Disease and Preterm Birth among Patient Attending in some Selected Hospital in Dhaka City. *Pakistan Journal of Medical & Health Sciences.* 2023; 17(2): 596-604.
- [3]. Berkowitz RJ. Acquisition and Transmission of Mutans Streptococci. *J Calif Dent Assoc.* 2003; 31(2): 135-138.
- [4]. Chowdhury SF, and Islam MN. Periodontal Diseases Among Pregnant Women Attending an Antenatal Clinic at Dhaka, Bangladesh. *J Oral Res.* 2021; 10(5): 1-10. Doi:10.17126/Joralres.2021.067.
- [5]. Chowdhury SF, Islam MN, and Sony SA. Evaluation of Oral Health Status Among Pregnant Women Using Oral Hygiene Index-Simplified (Ohi-S) Score. *International Journal Of Human and Health Sciences.* 2022; 6(3): 298-303.
- [6]. Clothier B, Stringer M And Jeffcoat MK. Periodontal Disease and Pregnancy Outcomes: Exposure, Risk and Intervention. *Best Pract Res Clin Obstet Gynaecol.* 2007; 21(3): 451-466.
- [7]. Dörtbudak O, Eberhardt R, Ulm M, Persson GR. Periodontitis, A Marker of Risk In Pregnancy for Preterm Birth. *J Clin Periodontol.* 2005; 32(1): 45-52.
- [8]. Eke Pi, Timothe P, Presson Sm, And Malvitz Dm. Dental Care Use Among Pregnant Women in the United States Reported in 1999 and 2002. *Prev Chronic Dis.* 2005; 2(1): A10.
- [9]. Hemalatha V, Manigandan T, Sarumathi T, Aarthi Nisha V and Amudhan A. Dental Considerations in Pregnancy – A Critical Review on the Oral Care. *J Clin Diagn Res.* 2013; 7: 948.
- [10]. Hey-Hadavi Jh. Women's Oral Health Issues: Sex Differences and Clinical Implications. *Women's Heal Prim Care.* 2002; 5(3): 189-99.
- [11]. Lydon-Rochelle MT, Krakowiak P, Hujuel PP, and Peters RM. Dental Care Use And Self-Reported Dental Problems In Relation To Pregnancy. *Am J Public Health.* 2004; 94: 765–71.
- [12]. Mahmud SZ, Begum F, and Uddin MM. Assessment Of Common Oral And Dental Diseases Among Pregnant Women At Dhaka City In Bangladesh. *South American Journal of Medicine.* 2014; 2(2): 165-177.
- [13]. Nabi M, Karim AMMM, and Rashid SMMU. Pattern of Oral Diseases and Associated Contributing Factors In Pregnant Women Attending A Maternity Center in Dhaka City, Bangladesh. *Journal of Preventive and Social Medicine,* 2020; 39(1): 50–59. <https://doi.org/10.3329/jopsom.V39i1.51862>.
- [14]. Naseem M, Khurshid Z, Khan HA, Niazi F, Zohaib S, and Zafar MS. Oral Health Challenges in Pregnant Women: Recommendations for Dental Care Professionals. *The Saudi Journal For Dental Research.* 2016; 7(2): 138-146. <https://doi.org/10.1016/J.Sjdr.2015.11.002>.
- [15]. Onigbinde O, Sorunke M, Braimoh M, Adeniyi A. Periodontal Status And Some Variables Among Pregnant Women In A Nigeria Tertiary Institution. *Ann Med Health Sci Res.* 2014; 4(6): 852-7.
- [16]. Rahman MM, Hassan MR, Islam MZ, Ahmad MS, Alam MM, and Islam KMM. Oral Health Status of Pregnant Women attended the Mothers and Children Welfare Center (MCWC) in Bangladesh. *City Dent. Coll. J.* 2013; 10(2): 1-4.
- [17]. Silk H, Douglass AB, Douglass JM, and Laura S. Oral Health in Pregnancy. *American Family Physician.* 2008; 77 (8): 1139-1144. www.aafp.org/afp.
- [18]. Tarsitano BF and Rollings RE. The pregnant dental patient: evaluation and management. *Gen Dent.* 1993; 41(3): 226–34.