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Oral and dental care practices and attitude of pregnant women in lalitpur, Nepal

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Abstract

Hormonal changes during pregnancy accelerate estrogen and progesterone which is the main reason for periodontal diseases among pregnant women. Lack of oral hygiene maintenance and decreased awareness of routine professional dental checkup further complicate the oral health problems during pregnancy. Oral health is often neglected during examination and counseling compared to other components during antenatal visit of pregnant women in Nepal. Thus, the aim of present study is to identify the practice and attitude regarding oral and dental hygiene maintenance among pregnant women of Lalitpur district in Nepal. A descriptive cross-sectional study was conducted from July 2019 to February 2020 among 114 pregnant women who attended the out patients department for antenatal checkup at Lubhu Primary Health Care Center and Imadol Health Post, Lalitpur, Nepal. By using a structured questionnaire, an interview was conducted for all the participants of the study and inferential statistics was used to analyze the data. The findings revealed that 68.4% of the pregnant women had moderate level of knowledge, 98.2% of the respondents had positive attitude and 92.1% of them had insufficient practice regarding oral hygiene maintenance during pregnancy. The study revealed that there was a significant association between education status of respondents (p=0.001) with the level of knowledge and level of practice (p=0.005). However, no significant association was found between selected socio-demographic variables with the level of attitude regarding maintaining oral hygiene during pregnancy i.e. age, gravida and education. The association between attitude and practice Pearsons' Correlation(r) was found to be significant (r = 0.214, p=0.020). Although most of the pregnant women in this study exhibit reasonable positive attitude to oral health, it was not revealed in their practices. It is necessary to incorporate oral health as an integral component of routine antenatal checkup and oral health counseling is recommended during the visits.

Keywords: oral health, dental care, antenatal, practices, attitude, pregnant women, Nepal

1. Introduction

Pregnancy is a special state for women and is associated with a myriad of physiological and emotional changes. Various pathologies and conditions occur in the oral cavity during pregnancy [1]. Pregnancy bring about physical and hormonal changes in a women's body leading to several oral health problems including gingivitis and even severe periodontal infections [2]. Pregnancy gingivitis has been attributed to the increased secretion of estrogen and progesterone hormones during pregnancy [3, 4]. Periodontal infections during pregnancy do not only affect the mother, but may also have adverse effects to the fetus if left untreated for longer period of time. Numerous studies had shown that maternal periodontitis increases the likelihood of adverse pregnancy outcomes such as premature deliveries, preterm low birth weight and low birth weight infants [5].

American College of Obstetricians and Gynecologists and the American Academy of Periodontology encourage women to consult their dentist or oral health care provider very early into their pregnancy [6, 7]. However, in Nepal the practice of visiting a dental professional during their pregnancy is very poor. Out of the 11.7% of the women had dental visits, among which majority of the respondents owed the visit to some form of oral health problems: 57.1% with gum bleeding, 28.5% with gum bleeding and swelling and 14.2% with gum swelling as a reason for visiting the dentist during this pregnancy [8]. Regular dental check-up for mechanical tooth cleaning and oral hygiene education may diminish the advancement of dental caries and periodontal infections during pregnancy [9].

The main problem in the Nepalese society is the lack of adequate knowledge regarding dental and oral health that often results in inappropriate oral hygiene behavior [10]. Majority of the oral health related problems and associated complications arising during pregnancy can be prevented by reinvigorating pregnant women in their knowledge, attitude and practice regarding oral hygiene maintenance. Such study provides a small insight into the country's current situation on oral and dental healthcare seeking behavior among pregnant women, and the findings will help to raise awareness on the importance of good oral and dental healthcare not only among pregnant women, but also around the general public [11]. Hence, this study aims to investigate the oral and dental care attitude and practice among pregnant women in Lalitpur, Nepal.

2. Materials and Methods

A descriptive cross-sectional study design was used for the

study. Altogether 114 pregnant women (primiparous or multiparous) attending an Out Patient Department (OPD) for their antenatal checkup at Lubhu Primary Health Centre (PHC) and Imadol Health Post (HP), Lalitpur which was selected purposively. The sample size was calculated using Slovin's formula: n = N/ (1+Ne2) where, n= Number of samples N= Total population e= Error tolerance Or, N= total population =242 e= error tolerance=8 % confidence level = 95% n =sample size By using Slovin's formula, n = N/1+Ne2 =242/1+242×(0.008)2 =242/2.5488 =94.94 ~95 Now, considering 20% non-response rate n(final) = 95+(0.2×95) = 114. The data was collected from July 2019 to February 2020. A structured interview schedule was developed to measure the oral health practice and attitude among pregnant women during their pregnancy. The questionnaire consisted of three sections (socio-demographic information, self-construct 5 questions on practice and 6 questions on attitude based on another study [1] regarding maintaining oral hygiene during pregnancy. Overall adequacy of attitude and practice was graded according to the following criteria. Based on scores, practice was measured on 2 levels. If results scored < 50% insufficient practice and if it scored > 50% sufficient practice based on mid-value or percentile method. Attitude was measured in 2 levels. If it scored < 10% (i.e. <50%) – negative attitude and if it scored ≥ (≥50%) - positive attitude based on mid-value or percentile method. The pretesting of the instrument was done with 14 (10%) of the total sample size at Harisiddhi Sub- Health Post, Lalitpur for refining the questions to help facilitate the subsequent interview. Data was entered in Statistical Package for Social Science (SPSS) 20 version. Descriptive statistics such as frequency, percentage, mean, median, standard deviation was used. Inferential statistics such as Fisher's exact Test was used to find out the association between selected socio-demographic variables with attitude and practice regarding maintaining oral hygiene during pregnancy. Pearson correlation was also used to find out the interrelationship between attitude and practice. P-value of <0.05 was considered statistically significant. The Ethical approval was obtained from the Nepal Health Research Centre (Register No. 1507), Kathmandu, Nepal.

3. Results

A total 114 pregnant women were included in this study. The majority of the respondents 66.7% belonged to age group of upto 25 years with 24.54±4.00 years on average. Regarding ethnicity 38.6% of the respondents were Newars as the two health posts were situated close to the Newar Community. The majority of the respondents 62.3% were primigravida. Regarding educational status 47.4 % of the respondents had studied up to secondary level. The results showed that 78.1% of the respondents obtained information regarding health and hygiene practice from schools followed by television 29.8%, health professionals 23.7%, radio 13.2% and 3.5% respectively.

Table 1: Respondents' Practice towards Oral Hygiene

Variables	Frequency	Percentage
	(f)	(%)
Frequency of brushing teeth		
Once	63	55.3
Twice**	47	41.2
More than twice	4	3.5
Using toothpaste containing fluoride		
Yes**	19	16.7
Don't know	95	83.3
Rinse mouth with antiseptic mouthwash		
Yes**	1	0.9
No	113	99.1
Dental visit during pregnancy		
Yes**	1	0.9
No	113	99.1
If yes, the reason behind it: (n=1)		
Dental caries	1	100
Tools used to clean the teeth*		
Tooth brush and paste	110	96.5
Toothpick	1	0.9
Fingers	5	4.4
Salt	8	7.0

Note: *Multiple Response

Table 1 revealed that more than half of the participants brushed once daily while only 41.2% of the respondents practiced the recommended twice daily mode of toothbrushing. Only 16.7% of the respondents used a toothpaste that contained fluoride. Almost all the respondents (99.1%) didn't rinse their mouth with antiseptic mouthwash during pregnancy nor did they visit a dentist during the course of their pregnancy. Likewise, almost all of the respondents (96.5%) used a tooth brush and toothpaste to clean their teeth. Table 2 illustrates that there was a significant association of level of practice with the individuals educational status (p=0.0056). There was no significant association of level of practice with age (p=0.157) and gravida (p > 0.999).

Table 2: Association between Respondents' Practice Score and Selected Variables

Variables	Level of Practice		p-value
	Insufficient	Sufficient	

Age			
Upto 25	72	4	0.157
Above 25	33	5	
Gravida			
Primigravida	65	6	>0.999
Multigravida	40	3	
Educational Status			
Upto Primary	34	0	0.0056*
Secondary and above	71	9	

Note: * p-value <0.05= statistically significant; Using Fisher's Exact Test

Table 3 illustrates that less than half of the respondents (42.1%) were uncertain that pregnancy is one of the causes of gum problems. Similarly, less than half of the respondents (44.7%) disagreed that it is not necessary to undergo a dental visit during pregnancy. Majority of the respondents (76.3%) disagreed that pregnancy caused tooth loss while (53.5%) of them disagreed that every painful teeth should be extracted. The majority of the respondents (72.8%) agreed that dental treatment is always distressful. Similarly, 78.0% of the respondents agreed that fruits and vegetables don't cause any harm to teeth.

Table 3: Respondents' Attitude towards Oral Hygiene

Statements	Agree	Uncertain	Disagree
	(%)	(%)	(%)
Pregnancy is one of the causes of gum problems	28(24.6)	48(42.1)	38(33.3)
It is not necessary to do dental visit during pregnancy	41(36.0)	22(19.3)	51(44.7)
Pregnancy causes tooth loss		27(23.7)	87(76.3)
Every painful tooth should be extracted	45(39.5)	8(7.0)	61(53.5)
Dental treatment is always distressful	83(72.8)	7(6.1)	24(21.1)
Fruits and vegetables don't cause any harm to teeth	89(78.0)	15(13.2)	10(8.8)

Table 4: Association between Respondents' Attitude Score and Selected Variables

Variables	Level of Attitude		p-value
	Negative	Positive	
Age			
Upto 25	1	75	>0.999
Above 25	1	37	
Gravida			
Primigravida	2	69	0.526
Multigravida	0	43	
Education			
Upto Primary	0	34	>0.999
Secondary and above	2	78	

Note: * p-value <0.05= statistically significant; using Fisher Exact test

Table 4 shows that there was no significant association of level of attitude with age (p >0.999), gravida (p=0.526) and education (p>0.999) and Table 5 reveals that there is a significant relationship between practice with attitude (r= 0.214) at 95% confidence level (p=0.02)

Table 5: Interrelationship between Attitude and Practice regarding Oral Hygiene

Variables	Coefficient of Correlation	p-value
Practice vs Attitude	0.214	0.02

*Significant p-value <0.05, Pearsons' Correlation

4. Discussion

Regular tooth brushing habits and frequent dental visits to professionals is required to ensure proper oral hygiene maintenance and avoid any unwanted periodontal problems during pregnancy [12]. The socio-demographic findings of the study revealed that majority of the respondents 66.7% were aged up to 25 years with 24.54±4.00 years on average. This finding was consistent with a similar study done in Chandigarh, India which reported a mean age of 25±3.44 years, with the majority of population lying between the age of 17-25 (59.47%) and 26-30 (33.68%) year's old categories [13]. The majority of the respondents in the study (62.3%) was primigravida with 47.4% of them undergoing secondary level of education. Regarding ethnicity of the respondents, the present study revealed that 38.6% of them were from the Newar cast a local ethnic community in the Kathmandu valley. Out of the respondents 78.1% of them had received information regarding maintaining oral hygiene during pregnancy from their school and only 23.7% of them from a health personnel. The government of Nepal conducted oral health program in every government school with practical sessions and also has incorporated oral health components in the curriculum which could be a major factor for imparting this knowledge however oral health education during antenatal and postnatal visits by health personnel is still lacking across the health system [8].

With regards to their tooth brushing practice, 55.3% of the women brushed their teeth once a day regularly; whereas 41.2% of them brushed twice daily. This reflects the area which can be improved where increased level of awareness level facilitates implementation into practice among pregnant women. In a study done in Spain, 45.7% of the participants brushed twice daily which although is slightly more than the current study result, however, is still low when taken account the development index of the country including the literacy level [14]. Comparatively Nigerian (62%) and Iranian women (73.1%) had a higher prevalence of brushing twice daily compared to women from other countries [1, 9]. In our study only 16.7% of the respondents used fluoridated toothpaste while the remaining 83.3% had no idea of what fluoride and its use was; almost all of the respondents 99.1% had never rinsed their mouth with an antiseptic mouth wash. The very low level of use of regular antiseptic mouthwash in our study (0.9%) is in line with the finding that a very few respondents (3%) use mouth wash in Denmark too [15]. This lower level of practice could be not

only attributed to the cost of such tools including antiseptic mouthwash but also the level of awareness regarding the importance of fluoridated toothpaste and antiseptic mouthwash in maintaining good oral health [8].

The majority of pregnant women did not visit a dentist or a dental professional during their pregnancy with just one (0.9%) visiting a dental clinic for treatment of carious tooth during their pregnancy. This practice in Nepalese women was found to be very low when compared to a similar groups across the world. In Egypt 25.2% of the pregnant women had visited a dentist during last two trimester of their pregnancy [16]. Similarly in a postnatal survey done in Australia, 30% of the women attended a dental clinic during pregnancy which is also higher than the findings of this study [12]. Even in Brunei 55.9% of the pregnant women underwent a routine dental checkup during their pregnancy [11]. All these comparative findings suggest that dental visit practice during pregnancy is indeed very poor in Nepal. This variation of findings might be due to the existing myths among pregnant women [17] and the elderly women in the society suggesting that dental treatment might bring about untoward complications during or post pregnancy such as excessive blood loss and stress during procedures resulting in miscarriage or professional cleaning further weakening the teeth.

The respondents in the study portrayed a good practice of using the right tools for cleaning their teeth with more than 95% of them using a toothbrush and toothpaste to clean their teeth. The others used the traditional form of tooth brushing which included salt, fingers and even toothpicks. A similar finding was found among Nigerian women where 94.2% of the pregnant women attending a teaching hospital used toothbrush for maintaining their oral hygiene followed by chewing stick 2.4 % and other tools 3.6% [1].

Regarding the attitude of the women surveyed, only 24.6% agreed that pregnancy could cause gum problems which is in line with the finding of another study done in India where only 22% of the women believed that hormonal changes during pregnancy results in women experiencing dental or gum problems [18]. Another crucial finding in this study was that 36.0% agreed that dental visit during pregnancy is not necessary. This result is similar with the finding of a study done among women in UK, where 39% did not visit a dentist during pregnancy despite dental care being free for all pregnant women. The reasons behind not accessing the benefit included ignorance where the pregnant women thought seeing a dentist wasn't necessary, or phobia regarding dentists from their past experiences [19]. In a study done in a hospital setting of South Sydney, among the 241 pregnant women enrolled, 26.1% felt that dental treatment should be avoided during pregnancy unless it was an emergency [20].

In this study majority of the pregnant women (76.3%) disagreed pregnancy causes tooth loss which is similar to the finding done in Chandigarh India where 82.3% of the pregnant women disagreed that pregnancy caused tooth mobility [21]. This is in congruent with the study of Shabbir *et al*. who reported that the majority of women disagreed that pregnancy predisposes to tooth loss [22]. Another finding in this study was the belief among women that 39.5% believed that all painful teeth should be extracted. This finding is similar to the study done in Egypt where 44.7% of the pregnant women agreed that painful tooth should undergo extraction [16]. In India also 40.5% of the pregnant women had an opinion that every painful tooth should be removed. And although most of the women displayed a reasonable level of oral health knowledge and positive attitude to oral health, it was not reflected in their oral hygiene practices [18].

In our study 72.8% of the women agreed that dental treatment is always distressful. This finding is contrast with the finding of the study done in Nigeria where only 9.1% of the respondents agree that visits to the dentist are always stressful [1]. Pain being a personal level of experience, perceived sensations have been described using many different terms [23]. In developing countries the focus of medical and dental care is more on the curative side than the control or management of symptoms, preventive activities or even patient comfort through counseling or alternate pain management procedures [24]. Regarding attitude on eating fruits and vegetables for oral health majority pregnant women 78% agreed that fruits and vegetables are not harmful to teeth which is not similar with the finding to another study done among pregnant women in Nigeria where only 31.3% agree on it [1].

With regards to the level of knowledge attitude and practice, 68.4% of the pregnant women had moderate level of knowledge, followed by 22.8% with inadequate level of knowledge and only 8.8 % had adequate knowledge regarding proper oral hygiene maintenance during pregnancy. Regarding the respondents attitude level almost all of the respondents had positive attitude and only 1.8% had negative attitude towards oral hygiene maintenance during pregnancy which is consonant with the finding of a Nigerian study in a similar population [1]. Likewise, most of the respondents had insufficient practice whereas only 7.9% of respondents have sufficient level of practice regarding maintaining oral hygiene during pregnancy. Although most of the pregnant women in this study exhibit a reasonable positive attitude to oral health, it was not revealed in their oral hygiene knowledge and practices [18].

Regarding the association of selected socio-demographic variables with knowledge attitude and practice regarding maintaining oral hygiene during pregnancy, there is significant association between education status of respondents ($p = 0.001$) with the level of knowledge whereas there is no significant association between age ($p=0.269$), ethnicity ($p=0.070$) and gravida ($p= 0.141$) at 95% confidence level. This finding is in the same line with the study done among pregnant women in Brunei where there was significant association between knowledge related to oral and dental treatment during pregnancy with the level of education ($p = 0.001$) whereas there was no significant association with age ($p=0.928$) [11]. Those who have higher education have adequate knowledge and sufficient practice regarding maintaining oral hygiene during pregnancy. The finding is supported by the Nigerian hospital study comparing the mean knowledge scores using ANOVA the respondents level of education ($p=0.000$) was significantly related to the respondents oral health knowledge. The more educated women are they appear to have a better understanding compared to the less educated ones [1]. In the matter of the association of level of practice with selected demographic variables, there was a significant association between education status of the respondents ($p= 0.005$) whereas there is no significant association between age ($p=0.157$) and gravida ($p= 0.999$) with the level of practice at 95% confidence level. This finding is congruent with

another study done among pregnant women in Egypt where there was a significant relationship between practices of teeth cleaning daily and women's educational level (p =0.000001) whereas there was no significant relationship with age (p=0.6) [16]. This finding is also in line with Afshar *et al*. where they found a significant association between oral health practice and the educational level of the women [25].

In the association between selected socio-demographic variables with the level of attitude regarding maintaining oral hygiene during pregnancy there is no significant association with age (p= 0.999), gravida (p = 0.526) and education (p= 0.999) at 95% confidence level. The finding is not congruent with the result of Assiut Women Health hospital study comparing the mean attitude scores of pregnant women toward oral health with the respondents level of education (p= 0.03*) was significant whereas similar to the finding age (p= 0.3) was not significant [16]. These findings are also in consonant with the South Australian pregnant women study, where there was a significant association between dental knowledge and practices with both education and socio-economic status (p < 0.02) [26].

Regarding the association between knowledge, attitude and practice, Pearsons' Correlation(r) was used to find out the association between knowledge attitude and practice. The result indicate that there is significant relationship among practice with knowledge(r=0.435) at 95% confidence level (p=0.001) and attitude (r = 0.214) at 95% confidence level (p=0.020) however knowledge and attitude are statistically insignificant (r=0.008) at 95% confidence level (p value =0.936). These findings are also in similar with the South Australian pregnant women study, where there was a significant association between dental knowledge and practices with both education and socio-economic status (p < 0.02) [26]. That means those who have inadequate knowledge related to having insufficient level of practice and vice versa. Similarly, those who have positive attitude also have sufficient practice and vice versa regarding maintenance of oral hygiene during pregnancy. This finding is in consonant with the study done by in Brunei [11] in which comparison between knowledge and practice of oral and dental healthcare, knowledge about frequency of brushing, flossing and brushing after meals was significantly associated with practice (all p<0.001). The findings of this study concluded that proper education on oral health care among the pregnant women may lead to correct practice in oral health. Although Nepalese pregnant women have a positive attitude towards oral hygiene dental checkup during pregnancy, using preventive measures such as a dental mouthwash and fluoride containing toothpaste is relatively very poor. Improving knowledge by incorporating oral hygiene in antenatal health teaching and promoting routine dental checkup during all antenatal examination will aid in enhanced oral health practice eventually better pregnancy outcomes [21, 8].

5. Conclusion

The study findings showed that pregnant women in Nepal had moderate level of knowledge. Likewise; the women had positive attitudes but insufficient practice regarding maintaining oral hygiene during their pregnancy. Furthermore the education status of women and its influence on the level of knowledge as well as practice of oral hygiene maintenance during pregnancy is well understood. There is significant relationship among practice with knowledge and attitude however knowledge and attitude are statistically insignificant. Therefore improving knowledge on oral hygiene also improves practice and reinforces positive attitude among pregnant women. This would inadvertently lead to reduced complication during and after pregnancy thereby contributing to an improved quality of life among women during one of their crucial biological periods. All in all eventually sound oral health contributes to improved holistic life of the women especially during their pregnancy when they are the most vulnerable.

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7. References

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