Majalah Kedokteran Gigi Indonesia
Vol 5 No 3 – December 2019
ISSN 2460-0164 (print), ISSN 2442-2576 (online)
Available online at https://jurnal.ugm.ac.id/mkgi
DOI: http://doi.org/10.22146/majkedgiind.45958

RESEARCH ARTICLE

Oral health knowledge and practices of antenatal mothers in Hospital Universiti Sains Malaysia

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Submitted: 20th May 2019; Revised: 20th November 2019; Accepted: 26th November 2019

ABSTRACT

Mothers play a very significant role in influencing the oral health status of the family. Many studies have highlighted the importance of good oral health during pregnancy. This study aimed to assess knowledge, self-perceived oral health status, and practices of antenatal mothers in Hospital Universiti Sains Malaysia, Kelantan, Malaysia. A total of 76 antenatal mothers visiting Obstetrics & Gynaecology specialist clinic at Hospital USM were involved in this cross-sectional survey study. The questionnaires contained items related to oral health knowledge, self-perceived dental problems, barriers to seeking dental care, oral hygiene habits, perceptions of oral health, and access to dental care. Majority (98.7%) agreed that their oral health was important as part of general health. About 58% of them had answered correctly regarding oral health knowledge. Most respondents had self-perceptions of having dental problems during pregnancy, including cavitated teeth (34.4%) and sensitive teeth (20.5%). Regarding practice, only 35.3% visited a dentist in the last six months. Time constraints (52.4%) and safety concerns regarding dental treatment (26.2%) were the main barriers to seek dental care. Many (90%) brushed their teeth at least twice daily with adult fluoridated toothpaste, while some used mouthwash daily (36.8%) and flossed their teeth (11.8%). Antenatal mothers had an average level of knowledge regarding oral health, experienced dental problems during pregnancy and lacked awareness of a regular dental visit. Hence, there is a need for more vigorous oral health promotion, which also include antenatal care providers, to improve oral health awareness among antenatal mothers.

Keywords: antenatal mother; oral health knowledge; practice; pregnancy

INTRODUCTION

Mothers in general, play a very important role in influencing the attitude and practice of other members in the family pertaining to the general health care, including oral health. Their positive attitudes and knowledge in relation to oral health care are associated with professionally recommended twice daily toothbrushing practice and sound dentition among their children.[1,2] Ministry of Health Malaysia had included antenatal mothers as one of the target groups for their oral health program, which comprises various activities or events such as oral health screening, professional talks, exhibition and relevant demonstration pertaining to antenatal mother's oral conditions and oral health care of new-born.[3]

Pregnancy increases the risk of certain oral diseases in antenatal mothers, such as periodontal disease and dental caries. A review had suggested that the fluctuation in oestrogen and progesterone hormonal levels during pregnancy exerts the influence of subgingival microbiota and inflammatory mediator responses in gingival tissues which indirectly contributes to increased gingival inflammation, although the exact mechanisms are still unknown.[4] The incidence of gingival inflammation in antenatal mothers has been reported to range between 36% and 100%.[5]

Majalah Kedokteran Gigi Indonesia. December 2019; 5(3): 131 – 138
ISSN 2460-0164 (print)
ISSN 2442-2576 (online)

Meanwhile, advanced periodontal disease has been found to cause neonatal sepsis and increase the likelihood of pre-term delivery and low birth weight.[6]

This study aimed to assess the oral health knowledge and practices among antenatal mothers visiting the Obstetrics and Gynaecology (O&G) Specialist clinic at Hospital USM. Specifically, the aims were to assess knowledge of antenatal mothers regarding perinatal oral health, to assess self-reported oral hygiene habit and practice of antenatal mothers and their experiences of accessing dental service during pregnancy, to compare the profiles of antenatal mothers who had visited a dentist in the last six months with those otherwise.

MATERIALS AND METHODS

This study was a cross-sectional, descriptive and analytical survey of antenatal mothers visiting the Obstetrics and Gynaecology (O&G) specialist clinic at Hospital USM from July to August 2017. A previous validated self-administered questionnaire was used, which was translated from English to Malay version.[7] It contained items related to oral health and care, self-reported dental problems, frequency of dental visits, barriers to seeking dental care, oral hygiene habits, perceptions of oral health, knowledge about oral health and access to dental care. Two standardized items which were reliable in other studies were also included in this recent questionnaire.[8] (1) Do you have bleeding gums, toothache, cavities, loose teeth, sensitive teeth, or other problems in your mouth? (2) Have you had a dental visit in the last six months?

A total of 80 antenatal mothers were selected using a convenience sampling method, and 76 of them or 95% responded to participate in this study. The inclusion criteria of the respondents include the antenatal mother who attended the Obstetrics & Gynaecology clinic at Hospital USM, had sufficient English or Malay language proficiency and did not display any apparent cognitive impairment. On the other hand, the exclusion criteria include antenatal mother who had participated earlier in the same survey, were unable or refused to complete the questionnaires given. The ethical clearance was obtained from the institutional board of review of Research and Ethics Community (HUMAN) Universiti Sains Malaysia (USM/JEPeM/17040207).

The data collected were analysed using SPSS Version 24.0. Descriptive statistics had been used to describe the demographic background of the antenatal mother, such as mean and standard deviation for continuous variables as well as frequency and percentage for categorical variables. Chi-square test was used to compare the difference in the profiles of antenatal mothers who visited a dentist in the last six months with those otherwise, and association of dental visit with oral health status. For all the comparisons, statistical hypotheses were tested using the two-tailed tests; p-values <0.05 were considered statistically significant.

RESULTS

A total of 76 antenatal mothers had completed the survey, giving a 95% response rate. The majority (38.2%) was in the age range from 31-35 years old (Table 1). All the participants were Malaysians with the majority or 94.7% of them were Malay ethnic group. Less than a third, the participants (26.3%) were not employed, and less than one quarter (13.2%) had no formal education qualification. Over half of the participants (67.1%) were from low to middle-income families, of which the household income was less than RM3000 per month, and only less than half of them (42.1%) had health insurance. About 67.2% of the antenatal mothers surveyed were in their third trimester of pregnancy and had a history of previous pregnancy.

The mean of the total correct responses for the ten oral health knowledge items was 58.8%, which indicates that the antenatal mothers had average knowledge about maternal and infant oral health, especially pertaining to good oral hygiene habits during the perinatal period. However, an analysis of individual knowledge items in Table 2 showed that antenatal mothers had inadequate knowledge about the potential impact of poor maternal oral health. Less than a third of these women were aware that tooth decay could spread from the mother to the baby's mouth (23.7%) and that a mother's poor oral

health may contribute to the incidence of low birth weight baby (10.5%). There was also evidence of some confusion which existed among these antenatal mothers regarding the importance of accessing dental care both during their pregnancy period and at early age of their new-borns. Less than a third of the antenatal mothers (19.7%) were unsure about the recommended time for a baby to have his or her first dental visit. Surprisingly, 15.8% (n=12) of them acknowledged that the best time for babies to have their first dental visit was between 2-3 years of age. About 21.1% (n=16) of these antenatal mothers felt that dental treatment should be avoided during pregnancy unless deemed as an emergency.

Most of these antenatal mothers claimed that their oral health status was average to good (90.8%) with only over half of them [51.3% (n=76)] reported having at least one oral health problem during their current pregnancy. Figure 1 shows that the most common oral health problems were tooth cavity [34.5% (n=26)], bleeding gums [27.4% (n=20)] and tooth sensitivity [20.5% (n=15)]. About 26.3% (n=20) reported that oral health problems sometimes affected both their eating habit and general health. More than 90% of these antenatal mothers admitted that their oral health was important or extremely important to their general health.

Less than half (35.3%) of the antenatal mothers surveyed had seen a dentist in the last six months, while the majority only had seen a dentist in the last 12 months. No dental consultation was done by those who had reported having a dental problem during the pregnancy period. The main barriers to seeking dental care for these antenatal mothers, as shown in Figure 2, include time constraints (52.5%), safety concerns regarding dental treatment during pregnancy (26.3%) and oral health not perceived as a priority (12.1%). Table 3 shows that there was a significant association of education level and gestation period with the activity of visiting a dentist in the last six months. However, there was no significant association in comparing dental visit with self-perceived oral health status and self-reported oral health problems as presented in Table 4. In terms of oral hygiene habits, more than two-thirds of antenatal mothers [97.4% (n=74)] claimed that they brushed their teeth at least twice daily, and the majority [98.7% (n=75)] used adult fluoridated toothpaste. Unfortunately, less than half of these antenatal mothers (36.8%) used mouthwash regularly. The majority of them did not use dental floss (88.2%) and sugar-free gum (98.7%) as supplemental oral hygiene tools.

Table 1. Sociodemographic data of antenatal mothers at Hospital USM (n = 76)

	Variable	No.	%
1)	Age		
	<20 years old	3	3.9
	21-25 years old	5	6.6
	26-30 years old	17	22.4
	31-35 years old	29	38.2
	36-40 years old	21	27.6
	>40 years old	1	1.3
2)	Race		
	Malay	71	94.7
	Chinese	2	2.6
	Others	3	2.7
3)	Highest qualification achieved		
	SPM/SPMV	26	34.2
	STPM	5	6.6
	Diploma	20	26.3
	Degree	15	19.7
	Others	10	13.2
4)	Employment status		
	Full time	47	61.8
	Part time	9	11.8
	Not working	20	26.4
5)	Average monthly household income		
	<RM1000	14	18.4
	RM1000-3000	37	48.7
	RM3001-5000	18	23.7
	>RM5000	7	9.2
6)	Health insurance		
	Yes	32	42.1
	No	44	57.9
7)	Period of gestation		
	1st trimester	3	3.9
	2nd trimester	22	28.9
	3rd trimester	51	67.2
8)	Parity		
	Primipara	14	18.4
	Multipara	62	81.6

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ISSN 2460-0164 (print)
ISSN 2442-2576 (online)

Table 2. Knowledge of antenatal mothers at Hospital Universiti Sains Malaysia regarding perinatal oral health (n=76)

Variables	Correct responses (%)
Flossing should be done daily to clean in between teeth (True)	57.9
Routine dental visits help keep teeth and gums healthy (True)	98.7
Pregnant women should avoid dental treatment unless it is an emergency (False)	57.9
Dental decay or cavities can spread from the mother to the baby's mouth (True)	23.7
A mother's poor oral health may contribute to low birth weight (LBW) baby (True)	10.5
The first toot usually appears at around 6 months of age (True)	84.2
Sleeping with a bottle containing formula could cause holes on a baby's teeth (True)	78.9
Cavities on baby teeth are OK because they will fall out anyway (False)	65.8
When is the best time for a baby to have the first dental visit? (1-2years of age)	35.5
A baby drops a pacifier on the floor. The mother puts it in her mouth to clean it and then puts it in her baby's mouth. Is this acceptable or not acceptable to do? (Not ok)	94.7

Table 3. Comparison of profiles of antenatal mothers at Hospital USM who had visited a dentist in the last six months with those otherwise (n=76)

Variables	Dental visit in last 6 months {%(n)} Yes	No	X^2 value (df)	P value
1) Hisghest education level				
SPM/SPMV	15.8 (12)	18.6 (14)	11.77 (4)	0.019*
STPM	2.6 (2)	3.9 (3)		
Diploma	3.9 (3)	22.4 (17)		
Degree	3.9 (3)	15.8 (12)		
Others	9.2 (7)	3.9 (3)		
2) Perio of gestation				
1st trimester	0 (0)	10.7 (8)	11.151 (2)	0.004*
2nd trimester	4.0 (3)	17.3 (13)		
3rd trimester	18.7 (14)	49.3 (38)		

*significant p-value <0.050

Table 4. Comparison of oral health status of antenatal mothers at Hospital Universiti Sains Malaysia who had visited a dentist in the last six months with those otherwise (n=76)

Variables	Dental visit in last 6 months Yes (%) n=27	No (%) n=49	X^2 value (df)	P value
Oral health status				
Excellent	1 (1.3)	3 (14)	1.506 (3)	0.681
Good	15 (19.7)	29 (3)		
Fair	9 (11.8)	16 (17)		
Poor	2 (2.6)	1 (1.3)		
Self reported oral health problems				
None	15 (19.7)	22 (28.9)	2.931 (2)	0.231
One problem	9 (11.8)	25 (32.9)		
Two or more problems	3 (3.9)	2 (2.6)		

*significant p-value <0.050

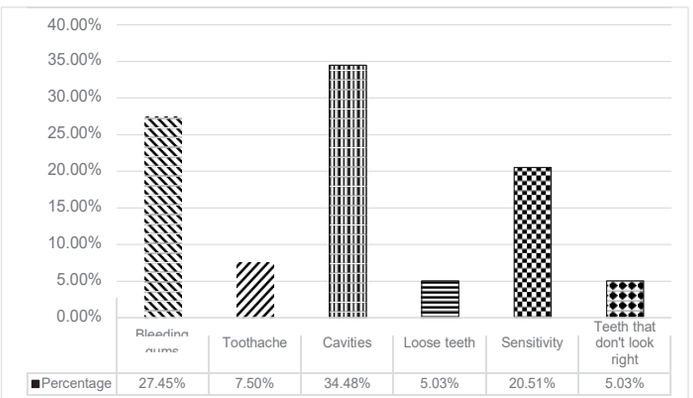

Figure 1. Types of oral health problems reported by antenatal motherat Hospital USM (n=76)

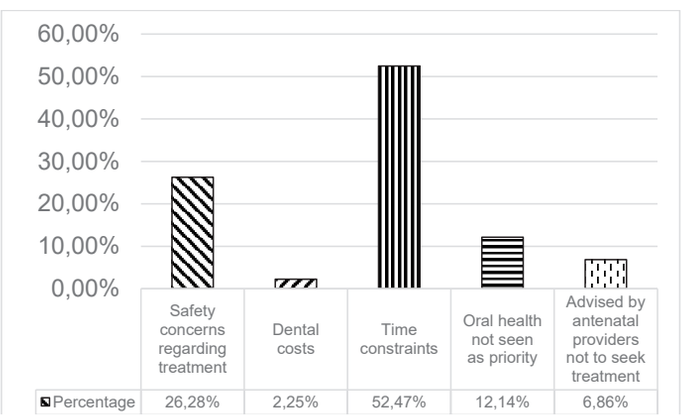

Figure 2. Barriers in seeking dental treatment among antenatal motherat Hospital USM (n=76)

DISCUSSION

This study attempted to provide further insight regarding the perceived oral health status, practices, and oral health knowledge among the antenatal mothers at Hospital USM. An analysis of individual knowledge items showed that nearly 90% of mothers had inadequate knowledge, specifically regarding the impact of maternal and infant oral health care. For example, a mother's poor oral health may contribute to low birth weight baby, tooth decay or cavities can spread from the mother to the baby's mouth and when is the best time for a baby to have his or her first dental visit. This finding is concurrent with a study done by Chacko et al. (2013),[9] showing that the majority of antenatal mothers had a poor understanding about the relationship between maternal oral health and infant oral health. During pregnancy, the majority of antenatal mothers women do not receive information about oral health and do not understand the importance of dental care.[10] Lack of advice from prenatal care providers is one of the reasons for poor knowledge among antenatal mothers.[9] In contrast, a study done in the United Arab Emirates reported that about 85.2% of gynaecologists did recommend their pregnant patients to visit a dentist, indicating a high level of awareness among health personnel.[11]

The majority of the antenatal mothers self-reported of having good oral health, but more than 50% claimed to have a dental problem during the pregnancy period. This recent result is supported by another study that indicates 75.5% of the antenatal mothers claimed to have average to good oral hygiene and only over half reported to have at least one oral health problem during their current pregnancy.[7] It is known that self-perceived data may lead to a risk of bias compared to other methods such as an interview. Standardized dental examination to respondents by calibrated operators

is a better choice to retrieve the respondents' current oral health status.[12]

In Malaysia, dental examination and professionals indicated that therapeutic intervention has been recommended to be done at least once during pregnancy.[3] This recent study showed that only 35.3% of the antenatal mothers visited a dentist within the last six months. Other studies also reported low uptake of dental visit within the recommended period of time.[1,7,13] This implies that antenatal mothers did not perceive their oral health problem as an urgent need and would rather delay a dental visit until post-delivery. According to this recent study, the low uptake of dental services among the antenatal mothers can be attributed to several factors, mainly due to time constraints. Time constraint is the most well-known limiting factor to access dental services.[1,10] A possible reason why time constraint becomes a limiting factor is that the majority of women have to take care of other children or handle other daily chores, plus many are employed. Hence, they will not leave entitlements to seek dental treatment.[7] The latter survey also reported that a private dental service was a more convenient option than public service among antenatal mothers. This is due to easily accessible dental service after office hours and during the weekend, relatively short waiting time and guaranteed access to immediate dental treatment.

Misconception about oral health care among antenatal mothers during pregnancy is one of the barriers that prevent them from seeking dental care. This includes believing that poor oral health is normal during pregnancy or that dental treatment can harm fetus.[7] Unfortunately, the majority of antenatal mothers across all socioeconomic backgrounds have these misperceptions.[9] Another particularly alarming finding in this study was that nearly a third of the antenatal mothers avoided to seek dental treatment due to safety concerns regarding the fact that dental treatment and oral health were deemed as non-priority need. These misconceptions about the safety of dental treatment need to be corrected through oral health education for antenatal mothers, oral care providers and prenatal care providers.

This study also showed a comparison of the profiles of antenatal mothers who had visited a dentist within the last six months with those otherwise. Surprisingly, antenatal mothers with low level of education were more aware of dental visit within the last six months. Hectic schedule among the antenatal mothers with higher education and job may be the cause of low level of awareness of a regular dental visit. However, this is in contrast with the finding from previous studies, which stated that the influence of the level of education was not significantly apparent.[7,13] A study also showed that there was a significant relationship between education level and oral health practice, but no further details were provided to focus on a dental visit during pregnancy.[8]

About 44.7% of antenatal mothers who claimed to have occasional gingival bleeding had never visited a dentist during their gestational period.[14] This present study showed that almost half of the antenatal mothers (n=32) who had claimed to have good to excellent oral health status, admitted that they did not visit any dentist for the last six months even though 61.8% self-perceived to have none or only one dental problem during pregnancy. Similarly, perceived oral health status, self-reported oral health problems and access to dental care were not significantly different between the groups.[7] A study with a large sample size commenced in Tehran, Iran found that antenatal mothers who did not visit a dentist in the previous years had significantly less DMFT and missing teeth.[15]

This study had a limitation of relying on self-reported data by the respondents and therefore was subject to bias. Furthermore, the study was carried out only in one healthcare facility. Hence the results may not be sufficient to be generalized to of the whole antenatal population in Malaysia. Therefore, a multicentre study should be conducted for conclusions with better generalization. A larger sample size and longer study duration are needed for more significant findings and their relevant correlations. Even though a previous study by George et al. (2013) had their questionnaire validated, it is necessary to validate the Malay language version of the questionnaire used in this

current study prior to being distributed among the respondents.[7] A pilot study may be valuable to test the validity of the translated questionnaires.

CONCLUSION

Oral health knowledge among the antenatal mothers is still inadequate particularly regarding the impact of maternal and infant oral health care. Even though the majority self-perceives as having good oral hygiene, but still they admit that they experience dental problems such as gingival inflammation and dental caries throughout their pregnancy. Lack of awareness of a regular dental visit is high with time constraint as the main reason. Continuous oral health care education for antenatal mothers is essential. It is known that dental health practitioner plays a vital role in imparting oral health education among antenatal mothers. However, the role of other medical counterparts in promoting oral health care is also indeed undeniably important.

ACKNOWLEDGMENT

The authors would like to thank the Department of Obstetrics and Gynaecology, Hospital Universiti Sains Malaysia, Kelantan, Malaysia for their limitless assistance and support.

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