

Factors Associated with Dental Care Utilization among Pregnant Women at Klapanunggal Health Centre, Bogor, Indonesia

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ABSTRACT

Background: Oral health care during pregnancy is important for the health of the mother and child. During pregnancy, many changes occur in oral cavity that can be linked to periodontal disease, including gingivitis and periodontitis. Oral health condition of pregnant women may adversely bring impacts such as preterm low birth weight (PLBW) and premature birth. Pregnant women need to regularly check oral health to a dentist. However, the number of utilization of dental service which is indicated by pregnant women's dental visit data in Indonesia is still very low. This study aimed to determine factors associated with dental care visit among pregnant women.

Subjects and Method: This was a cross-sectional study conducted at Klapanunggal health center, Bogor, Indonesia. A sample of 60 pregnant women was selected by consecutive sampling. The dependent variable was dental care utilization. The independent variables were oral health problem and knowledge. The data were collected by questionnaires and analyzed by a multiple logistic regression.

Results: Most of pregnant women claimed that their oral health was good (35%) or average (35%). On the contrary, most of them admitted of having had at least one oral health problem (55%), including bleeding gum (35%), dental cavity (33.3%), and painful teeth (10%). However, only 23.3% of pregnant women visited dentist during the current pregnancy. Factors associated with dental visit were existence of oral health problem (OR=6.41; p=0.019) and oral health knowledge during pregnancy (OR= 4.03; p=0.050) after controlling education, employment, income, and health insurance.

Conclusion: utilization of oral health care service among pregnant women was low. Pregnant women who reported dental visit were more likely to be those who had oral health problem and who had good oral health knowledge during pregnancy.

Keywords: oral health, pregnancy, antenatal care, dental visit

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BACKGROUND

Physiological conditions during pregnancy can cause some changes in oral health. Immunological factors, diet and behavior related to pregnancy are believed to be contributing factors. Pregnant women are very susceptible to gingival and periodontal disease. They may not experience symptoms until the advanced disease stage, thereby unconsciously increasing perinatal risk. Perinatal risks include preterm birth, low

birth weight (LBW), preeclampsia, gingival tissue ulceration, granulomas, and dental carries (Sajjan et al., 2015).

Low birth weight (LBW) and premature birth is when the birth weight is less than 2,500 grams and is born before 37 weeks of gestation. In pregnant women with periodontitis, infected periodontal tissue is a reservoir of bacteria and bacterial products can spread to the fetal placenta. Pregnant women with severe periodontitis,

infectious agents and products activate extra-oral inflammation, including in the fetus-placenta, which not only causes pre-term birth but also causes preeclampsia and limits the growth of the baby in the uterus (Zi et al., 2015)

Nowadays all pregnant women are recommended to receive a comprehensive oral health evaluation and risk assessment during pregnancy. There is still debate about the benefits of periodontal treatment in preventing adverse pregnancy conditions. However, it is clear that dental care during pregnancy is safe and can significantly improve maternal oral health and prevent the risk of early caries in infants (George et al., 2013)

Recent studies show that around 50% of pregnant women do not visit the dentist, even when they feel a complaint in the teeth and mouth. The results of another recent study conducted in South India revealed that despite dental pain, the utilization of dental care by pregnant women is still very low (Gambhir et al., 2015). Various factors are said to be a barrier for pregnant women in obtaining dental care during pregnancy. These factors include socio-economic and socio-cultural factors, lack of public awareness about the importance of oral health, and also the concerns about fetal safety during dental care (George et al., 2013)

In many countries special programs have been developed to improve oral health, increase the knowledge of pregnant women about oral health during pregnancy, and oral health for their children. In Indonesia, oral health care for pregnant women is regulated in Minister of Health Regulation No. 89 of 2015 (Minister of Health Regulation RI Number 89 of 2015) which explains that dental and oral health service activities for pregnant women can be carried out at first-level health facilities in the form of counseling, preliminary examina-

tions, and referrals as steps to cure oral and dental diseases (Ministry of Health, 2015).

In Bogor, according to community health center report in 2017, there were 1,557 LBW (1.28%) out of a total of 131,446 babies born. From the report 100% of LBW cases had been handled by health facilities, but there were 44 infants (2.83%) of infant deaths due to LBW (Bogor District Health Office, 2018). In 2003, the Indonesian Dental Association (PDGI) stated that gingival inflammation was problems of teeth and mouth that are often experienced by pregnant women where 5-10% experience swelling of the gums. Another study by Anggraini at Serpong Health Center (2015) also showed that from 32.4% of pregnant women had never been to a dentist in their lives, 35.5% had last visited a dentist 1 year ago, and 32.4% had not seen a dentist for a long time (Anggraini et al., 2015).

Little is known about the oral health condition of pregnant women in Bogor. However, existing study shows that pregnant women have lack information about the implications of poor oral health during pregnancy as well as barriers to accessing dental services during the pregnancy period. Dental and oral health strategies can be implemented for pregnant women. Moreover, it is necessary to further investigate the utilization of dental and oral health services among pregnant women attending antenatal care at the Klapanunggal Health Center.

SUBJECTS AND METHOD

1. Study Design

This was a cross sectional study conducted at the Klapanunggal Health Center, Bogor, on April 2019.

2. Population and Sampling

A total 60 pregnant women was selected for this study with the inclusion criteria of this study were pregnant women with a gesta-

tional age of more than 2 weeks and the pregnancy is positif based on the results of a midwife or doctor's examination.

3. Study Variables

The dependent variable was dental care visit by pregnant women. The independent variables included maternal age, formal education of the mother, maternal employment status, family income, health insurance, dental and oral health problems experienced, and knowledge about oral health.

4. Data Analysis

Frequencies and percentages for categorical variables were calculated and tabulated. Multivariable logistic regression model was used to calculate Odds Ratio (OR) and 95% confidence intervals (95% CI) to find factors related to dental visits to pregnant women.

5. Research Ethics

The research ethics used in this study was the consent formsigned by the research

subjects, anonymous, confidentiality, and research benefits.

RESULTS

Table 1 shows the sociodemographic characteristics of the respondents. Most pregnant women who were the respondents aged less than 35 years were 51 people (85%). As many as 51.7% of respondents had a senior high school education, 26.7% had an elementary school education, 20% had a junior high school education, and only 1.7% had no formal education. Most respondents did not work (91.7%) and had a family income below the minimum wage (53.3%) and most had health insurance in the form of Social Insurance Administration Organization (BPJS) (80%) the rest did not have health insurance (20%). Most respondents (43.3%) were second pregnancies, and 45% were in the third trimester of pregnancy.

Table 1. Characteristics of Pregnant Women

Characteristics	n	%
Age of pregnant women		
<35 years	51	85%
>35 years	9	15%
Maternal Age		
Uneducated	0	0%
Junior High School	12	20%
Senior High School	31	51.7%
Maternal employment status		
Unemployed	55	91.7%
Employed	5	8.3%
Family income		
Under the Regional Minimum Wage	32	53.3%
Above the Regional Minimum Wage	28	46.7%
Health Insurance		
Do not have	12	20%
Social Insurance Administration Organization (BPJS)	28	80%
Other	0	0%
Pregnancy:		
First pregnancy	19	31.7%
Second pregnancy	26	43.3%
Third pregnancy	14	23.3%
≥fourth pregnancy	1	1.7%
Gestational age		
1 st Trimester	10	16.7%
2 nd Trimester	23	38.3%
3 rd Trimester	27	45%

Table 2. Dental and Oral Health according to Respondents' Perception

Variable	n	%
Dental and oral health status		
Good	21	35%
Average	21	35%
Poor	17	28.3%
Very poor	1	1.7%
Dental and oral health problems		
There is no dental problem	27	45%
There is 1 or more dental problems	33	55%
Types of dental and oral diseases		
Bleeding gums	21	35%
Cavity	20	33.3%
Sensitive teeth	6	10%
There is no disease	13	21.7%
Tooth and mouth disease that interferes with eating		
Never	29	48.3%
Sometimes	24	40%
Often	7	11.7%
Perceptions about oral health		
Very important	2	3.3%
Urgent	24	40%
Indifferent (neutral)	33	55%
Not important	1	1.7%

Table 2 shows the majority of pregnant women stated that their oral health was in average to good condition (70%). 55% had at least 1 or more oral and dental health problems and 45% did not have dental and oral health problems. The most common dental and oral problems felt by respondents were bleeding gums by 35%, followed by cavities by 33.3%. 48% of pregnant women

never felt that the condition of their teeth and mouth interfered with eating. Most respondents as many as 33 people (55%) stated that oral health is normal (neutral) for complete body health, 24 people (40%) stated it is important, 2 people (3.3%) stated it is very important and 1 person (1.7 %) stated that dental health is not important.

Table 3. Maintenance of oral health in pregnant women

Variables	n	%
Dentist Visits		
Never	46	76.7%
Ever (<1 year)	14	23.3%
The Obstacles of Dentist Visits		
Cost	10	16.7%
Time	5	8.3%
Safety during pregnancy	18	30%
Afraid	16	26.7%
Not a priority	11	18.3%
Brushing Teeth		
Once a day	6	10%
Twice a day	47	78.3%
More than twice a day	7	11.7%
Dental Health Products used		
Toothpaste	57	95%
Mouthwash	3	5%
Dental floss	0	0

Table 3 shows that there were only 14 respondents (23.3%) of pregnant women visited the dentist for less than 1 year. The obstacles for pregnant women in visiting dentists: 18 people (30%) stated that it was because of safety during pregnancy, 16 people (26.75%) stated that it was because they were afraid, 11 people (18.3%) stated that it

was because it was not a priority, 10 people (16.3%) stated that it was because of cost constraints, and 5 people (8.3%) stated that it was due to time constraints. Toothbrush frequency was mostly twice a day. The majority of 57 people (95%) used only toothpaste, and 3 people (5%) added mouthwash in addition to toothpaste.

Table 4. Knowledge of Dental and Oral Health

Knowledge of Dental and Oral Health	n	%
Poor knowledge	35	58.3
Good knowledge	25	41.7

Table 4 shows that 35 (58.3%) respondents had poor oral health knowledge, and the remaining 25 (41.7%) respondents had good oral health knowledge. The next stage is each independent variable (maternal age, maternal education, maternal employment

status, family income, ownership of health insurance, dental and oral health problems and knowledge) is associated with the dependent variable of dentist visits for at least one past year. The bivariate selection results are as follows.

Table 5. Bivariate Analysis Results

Variables	OR	p
Maternal age	1.82	0.457
Education	0.01	0.257
Employment status	2.39	0.384
Family income	1.73	0.370
Health insurance	4.09	0.135
Oral and dental health problems	4.00	0.037
Dental and oral health knowledge	2.27	0.182

Table 6. Results of Multiple Logistic Regression Analysis

Variables	b	OR	95% CI	p
Health insurance	1.55	4.70	0.48 to 45.74	0.183
Oral and dental health problems	1.86	6.41	1.35 to 30.37	0.019
Dental and oral health knowledge	1.39	4.03	0.99 to 16.25	0.050

observation = 0.187
Nagelkerke R^2 = 0.283

From the results of multivariate analysis, the variables that were significantly associated with dental visits of pregnant women were the variable of oral and dental health problems and oral health knowledge. While the health insurance variable was as a controlling variable. The results of the analysis showed that the presence or absence of the

most dominant dental and oral health problems was associated with the dentist visits of pregnant women. The odds ratio (OR) of the variable oral and dental health problems was 6.4. It means that mothers who have 1 or more oral and dental health problems are 6 times more likely to visit the dentist than mothers who do not have den-

tal and oral problems, after being controlled by the guarantee variable health and knowledge of dental and oral health.

DISCUSSION

The results showed that more than half of respondents (55%) had oral and dental health problems which were bleeding gums (35%), cavities (33.3% of respondents) and sensitive teeth (10% of respondents). One of the causes of poor dental and mouth conditions during pregnancy is due to hormonal and dietary changes (George et al., 2013).

The overall actions of maintaining oral health of the respondents were good. 78.3% respondents brushed their teeth twice a day, 95% used only toothpaste, and 3% added mouthwash in maintaining oral health during pregnancy. This is consistent with the study of Bamanikar et al. (2013) which stated that 100% of respondents routinely brush their teeth (Bamanikar and Kee, 2013). However, the time when they were brushing their teeth was not asked further in this study. Basic Health Research (2013) encouraged people to practice brushing their teeth every day, but people who brush their teeth at the right time after breakfast and before going to bed at night are only 3.8% and 27.3% (Ministry of Health, 2013).

Most of the respondents 76.7% had never done a dental examination during pregnancy. This is in line with a study in Sydney that reported that more than half of respondents experienced oral and dental health problems, but only less than a third visited dentists (George et al., 2013). Obstacles to visiting dentists in this study were because of safety during pregnancy (30%), afraid (26.7%), oral health was not a priority (18.3%), cost constraints (16.7%), and time constraints (16.7%). Based on the results of this study, dentists are expected to

deliver Dental Health Education (DHE) to pregnant mother patients. Dentists are expected to convey that untreated dental and oral health can have an impact on the fetus (LBW and premature babies) and dental care is safe to be done during pregnancy (Ministry of Health, 2012).

Fear is the second biggest obstacle for pregnant women in visiting dentists. In epidemiological studies in United States, the prevalence of dental fear is 13.1-19.8%, but gender differences are not reported. Things that cause fear, among others: due to bad experiences that cause trauma, experiences or stories of others, dentists who are not empathic, fear of tools (needles and burs), fear of machine noises, and sensitive personal traits (Armfield, 2009).

The next inhibiting factor, amounting to 18.3% of respondents considered oral health was not a priority. This feeling is called the perceived need originating from the patient's side on the basis of beliefs about a disease that is subjective (Armfield, 2009). Based on the results of Basic Health Research (2013), only 25.9% of the population felt that dental and mouth health was problematic, but those who did dental examinations did not reach 50% (Ministry of Health, 2013).

Previous studies conducted by Bianca (2009) stated the the results of logistic regression tests. Factors that significantly associated with the behavior of dentists visits include personal factors (marital status, dentist visits before pregnancy, and the use of inter-proximal cleaning tools) (Mwaiswelo, 2007). This is in line with this study, where the results of the bivariate analysis showed that factors that were significantly associated with dentist visit included health insurance, dental and oral problems and knowledge. 80% of respondents have health insurance in the form of Social Insurance Administration Organization (BPJS)

that can cover the oral health of the participants (Thabrany, 2014).

However, from the multivariable logistic regression test the existence of dental and oral health problems had a significant association with dentist visit of pregnant women (OR= 6.4; $p= 0.019$). Pregnant women with dental and mouth health problems 6 times have the opportunity to see a dentist compared to pregnant women who have no dental and oral health problems. This is in line with the study conducted by Chung et al. (2014). It was in California that pregnant women who visited dentist more than 6 months ago, had poorer dental and oral health status (marked by higher BOP, PI and DMF-T (Chung et al., 2014)

Another factor that was significantly associated with dental visits was knowledge of oral health during pregnancy (OR= 4.02; $p= 0.05$). Pregnant women who have good oral health knowledge are four times more likely to see a dentist than those who lack knowledge. This is consistent with a study in East China in 2014 which showed a low percentage of dental and oral care utilization in pregnant women who had low oral health knowledge related to pregnancy (Sun et al., 2014)

The results of this study can be concluded that the utilization of dental and oral health services among pregnant women is still low. Pregnant women make dental visits because those who have oral health problems and who have good oral health knowledge during pregnancy with obstacles that include the safety of obtaining dental and oral care during pregnancy, fear, and consider oral health is not a priority.

AUTHOR CONTRIBUTION

Itsna Widita collected the data, examined the data, and wrote the manuscript.

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There was no external fund.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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