The effect of dental health programs in pre-pregnancy into low birth weight at brati public health center

Nira Ardlina, Rahmadika Kemala Firdausia***

** Faculty of Dentistry, Department of Oral Public Health, UNISSULA*
*** Brati Public Health Center*

Correspondence: niraardlina@unissula.ac.id

Received 15 October 2023; 1st revision 15 October 2023; Accepted 20 October 2023; Published online 24 October 2023

Keywords ;

Dental Health Programs; Pregnancy; Pre-pregnancy; Low Birth Weight; Dental Treatment

ABSTRACT

Background: *The pregnancy period is prone to various dental health conditions that can affect pregnant women's health and cause growth and development problems for the fetus. Neglecting dental health during pregnancy causes complications at birth, including low birth weight. This study aims to determine the effect of dental health programs for pre-pregnancy women into low birth weight at Brati Public Health Center.*
Method: *This research used secondary data from 80 women who participated in dental health programs for pre-pregnancy women and Antenatal Care (ANC) participants at Brati Health Center who were monitored until birth between January 2020 – June 2023. The data obtained was assessed in a questionnaire regarding the completeness of the dental health programs for pre-pregnancy women, consisting of education, examination, and dental care carried out before and after pregnancy. The data analysis used was the Mann Whitney test.*
Result: *Pre-pregnancy women who completed the dental health programs had a higher average birth weight (3.095 kg) than those who did not complete the program (2.076 kg). Mann Whitney test result revealed an effect between the completeness of dental health programs on pre-pregnancy to birth weight (p=0.000).*
Conclusion *The dental health programs for pre-pregnancy women affect the birth weight. Dental health programs for pre-pregnancy women should be carried out before pregnancy occurs, starting from the examination and education of the prospective bride. Collaboration between antenatal and dental health service providers is needed to increase access to dental prevention and treatment services needed by pre-pregnancy dan pregnant women.*

doi: http://dx.doi.org/10.30659/odj.10.0.42-46
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Odonto : Dental Journal accredited as Sinta 2 Journal (https://sinta.kemdikbud.go.id/journals/profile/3200)
How to Cite: *Ardlina et al*. The Effect of Dental Health Programs in Pre-pregnancy into Low Birth Weight at Brati Public Health Center. Odonto: Dental Journal, v.10, special issue1, n.0, p.42-46, October 2023.

INTRODUCTION

The pregnancy period is prone to various dental health conditions which can affect the health condition of pregnant women and problems with the growth and development of the fetus. Neglecting dental health during pregnancy causes problems at birth including low birth weight.[1] Low birth weight is defined as neonatal weight at birth less than 2500 grams.[2] Riset Kesehatan Dasar (Riskesdas) revealed 6.2% of children aged 0-59 had low birth weight. The result from Riskesdas also showed that 45.3% of the population had damaged teeth or cavities on their teeth, while 13.9% of the population had bleeding gums, and 14% of the population had swollen gums and/or abscesses.[3]

Many physiological changes occurred during pregnancy, one of which is hormonal and metabolic changes.[4] Several oral manifestations that commonly experienced during pregnancy include dental caries, pyogenic granuloma, gingivitis, and periodontitis. Decreasing salivary pH decrease during pregnancy lead to an increase of dental caries incidence. Inflammation of the periodontal tissue took place due to increased biofilm formation during pregnancy.[5] Epidemiological data showed that maintaining healthy teeth and mouth during pregnancy is beneficial for both mother and baby.[6]

During pregnancy it is recommended to take preventive measures to prevent and treat dental and oral problems in pregnant women.[1] Research performed by Anggraini and Andreas (2015) stated that there is a significant relationship between oral dental health problems and patient visit and knowledge of dental health in pregnant women.[7] Participation of prenatal and dental health service providers in promoting evidence-based oral health promotion practice, as well as collaboration in and dental health can increase access and utilization of preventive and dental treatment services by pregnant women.[8] This study aims to determine the effect of the program dental health of pre-pregnancy women on birth weight at Brati Public Health Center.

METHOD

This research used secondary data from 80 women who participated in a dental health programs for pre-pregnancy women and Antenatal Care (ANC) participants at Brati Health Center who were monitored until the delivery process at the Brati Community Health Center in January 2020 – June 2023.

The data obtained was assessed using a questionnaire regarding the completeness of the dental health programs for pre-pregnancy women. The questionnaire consists of 6 items which include education and oral health checks for the bride, holistic dental care for the bride, education and oral health checks for ANC participants, as well as weighing the baby's birth weight. Assessment of the completeness of the dental health program for pre-pregnancy women is based on the completeness of each item, the highest total score on this scale is 6 and the lowest is 0. Scores were divided into two categories, where a score of 6 was categorized as complete while a score <6 was deemed incomplete. Analysis was performed using the IBM SPSS program. The Mann Whitney test was used to analyze the effect of the completeness of dental health program for pre-pregnancy women into baby birth weight.

RESULTS

This study showed 23.8% were categorized as Low Birth Weight (LBW). From the questionnaire on the completeness of dental health program for pre-pregnancy women, most respondents were designated into complete category (76.3%). The complete characteristics of the respondents are listed in Table 1.

Table 1. Respondents' characteristics

	Category	N	%
Age	<20-year-old	11	13.8
	21 – 25-year-old	23	28.8
	26 – 30-year-old	27	33.8
	31 – 35-year-old	15	18.8
	>36-year-old	4	5
Birth weight	Low birth weight	19	23.8
	Normal	61	76.3
Dental health program for pre-pregnancy women	Incomplete	19	23.8
	Complete	61	76.3

Descriptive analysis of the average birth weight listed in Table 2 showed that pre-pregnancy women with complete dental health programs had a higher average birth weight (3.095 kg) compared to those with incomplete programs (2.076 kg).

Table 2. Birth weight based on completeness of pre-pregnancy women's dental health programs

	N	Mean	Min	Max
Complete	61	3095*	2600*	3800*
Incomplete	19	2076*	900*	2400*

Notes: *in grams Mann Whitney test results showed there was a significant effect on the completeness of dental health programs for pre-pregnancy women into birth weight (p=0.000) listed in Table.

Table 3. Comparison of pre-pregnancy women's dental health and birth weight

		N	p-value
Pre-pregnancy women's and dental health programs	Complete	61	0.000*
	Incomplete	19	
Birth weight	Normal	61	
	Low birth weight	19	

Notes: Mann Whitney test; *p<0.05

In this study, 61 respondents completed dental health programs for pre-pregnancy women. The dental health programs for pre-pregnancy women included education and dental health examinations for the pre-pregnancy women, holistic dental care for pre-pregnancy women, education and dental health examination for ANC participants and weighing baby birth. Regulation from the Minister of Health of the Republic of Indonesia number 89 of 2015 concerning dental health practices stated that dental health services for pregnant women were carried out blended in the examination of pregnant women since the first visit

DISCUSSION

Dental caries and gingivitis are more common in pregnant women than non-pregnant women.[9] A study conducted by Azofeifa et al (2016) showed a significant difference in the prevalence of untreated caries in women aged 15-24 years which were higher in pregnant women compared to non-pregnant women.[10] Pregnant women with poor oral hygiene status and practices, and inadequate knowledge of oral health were two to three times more likely to develop dental problems.[9] Caries in pregnant women impacted fetal growth in the womb.[11] A literature review study by Baliung et al. (2021) stated a significant relationship between

periodontal disease in pregnant women and the incidence of LBW.[12]

These services included health counseling sessions in the form of providing dental health communication, information and education, examination for early detection of dental and oral disorders/disease and referring pregnant women in need of a curative approach for dental and oral conditions.[13] The result derived from this study were in accordance with result from Silk et al. (2008), where prevention and dental care during pregnancy can reduce adverse prenatal impacts.[14] Improving the management of dental examination program services for pregnant women is crucial to achieve optimal health goals for pregnant women by integrating Maternal Child Health and dental health at the primary health center.[15]

Pregnancy is one of several moments when women had a higher motivation to adopt healthy behaviors.[9] Pregnant women are advised to get an examination to find out the risk of oral disease, counseling session on how to maintain good oral hygiene, the safety and importance of oral health care during pregnancy and receive referrals for dental treatment if needed.[14,16] Dental treatment procedures such as extraction, restoration and periodontal treatment are safest to do in the second trimester.[14] Obstetricians understand the importance of good dental health during pregnancy, however, most do not follow up regarding this matter. Increased training of health workers on the importance of oral health, recognizing oral health problems, and knowledge about safe procedures during pregnancy can make physicians more comfortable in assessing oral health so that they are more likely to provide referrals.[17]

CONCLUSION

The dental health programs for pre-pregnancy women affects the birth weight. Dental health programs for pre-pregnancy women should be carried out before pregnancy occurs, starting from the examination and education of the prospective bride. Collaboration between antenatal and dental health service providers is needed in conducting dental health education and increasing access to dental prevention and treatment services needed by pre-pregnancy dan pregnant women.

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