DENTAL CARIES STATUS OF PREGNANT WOMEN IN THE WORK AREA OF CIBEUNYING HEALTH CENTER BANDUNG DISTRICT

(STATUS KARIES GIGI IBU HAMIL DI WILAYAH KERJA PUSKESMAS CIBEUNYING KABUPATEN BANDUNG)

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ABSTRACT

Riset Kesehatan Dasar (Riskesdas) stated in 2018 that Indonesia's most significant dental problem was tooth decay/cavities/pain (45.3%). Pregnant women are susceptible to dental and oral diseases such as caries and gingivitis if they do not maintain dental and oral hygiene conditions. The study aimed to determine the DMF-T index of pregnant women in Cibeunying Health Center, Bandung Regency, West Java. The study's population was a cross-sectional study of all pregnant women who came to the KIA poly and Posyandu in the working area of the Cibeunying Health Center. A random sampling technique was used to select the subjects. The DMFT index measured the caries index. The results of this study showed that the DMF-T index of pregnant women in the working area of the Cibeunying Health Center was 7.68. Based on the study's results, it was concluded that the caries index in pregnant women is high.

Keywords: DMF-T index; health center; pregnant women

ABSTRAK

Riset Kesehatan Dasar (Riskesdas) tahun 2018 menyatakan bahwa masalah gigi terbesar di Indonesia ialah gigi rusak/berlubang/sakit (45,3%). Ibu hamil rentan terkena penyakit gigi dan mulut seperti karies dan gingivitis apabila ibu hamil tidak menjaga kondisi kebersihan gigi dan mulutnya. Tujuan penelitian untuk mengetahui gambaran indeks DMF-T pada ibu hamil di wilayah kerja Puskesmas Cibeunying, Kabupaten Bandung, Jawa Barat. Jenis penelitian yang digunakan adalah deskriptif. Populasi dari penelitian ini adalah seluruh ibu hamil yang datang ke poli KIA dan Posyandu wilayah kerja Puskesmas Cibeunying. Pengambilan responden menggunakan teknik random sampling dengan jumlah responden sebanyak 103 ibu hamil di wilayah kerja Puskesmas Cibeunying. Indeks karies diukur dengan indeks DMFT. Hasil Penelitian didapatkan indeks DMF-T ibu hamil di wilayah kerja Puskesmas Cibeunying sebesar 7,68. Berdasarkan hasil penelitian dapat disimpulkan bahwa indeks karies pada ibu hamil termasuk pada kriteria sangat tinggi

Kata kunci: *ibu hamil; indeks DMF-T; puskesmas*

INTRODUCTION

Pregnant women are a group that is susceptible to dental and oral diseases.[1–3] Dental and oral health problems experienced by pregnant women are usually caused by dental caries. The 2018 Basic Health Research (Riskesdas) results stated that the biggest dental problem in Indonesia is tooth decay/cavities/sickness (45.3%). Pregnant women are more at risk of developing caries than women who are not pregnant. About 74% of pregnant women have dental caries.[4] Hartati et al.'s research (2011) stated that from 60 examinations, 39 respondents experienced caries and showed that pregnant women were very susceptible to caries.[2]

Dental caries is a disease that occurs due to the interaction of acid-producing bacteria with the host (teeth) and

substrate (food) and develops over time. The acid produced by bacteria will cause a decrease in pH. If there is a repeated decrease in pH within a particular time, demineralization will occur on the tooth surface, resulting in caries.[5] Caries was found to begin with plaque formation. Pregnant women are at high risk of caries due to various factors, including consuming sweet foods, increasing acidity of the oral cavity, and lack of awareness of maintaining oral health.[4]

Public attention to maternal health during pregnancy is increasing, but this attention does not coincide with dental and oral health in pregnant women. Lack of awareness of dental and oral health can occur due to lack of public knowledge about dental and oral health during pregnancy.[2,6–8]Pregnant women do not know that pregnancy can experience changes in almost all organs of the body during the fetus in the womb, including the oral cavity caused by hormones.[6.8]

Pregnant women experience changes in the hormones estrogen and progesterone as well as mechanical pressure from the enlargement of the uterus from other organs, which results in changes in conditions such as nausea and vomiting so that the condition of the oral cavity becomes acidic and can cause damage such as caries.[6–8] Pregnant women who have problematic oral health will have a negative impact on pregnancy and fetal development.[4.9] Kumar and Semelson (2006) stated that pregnant women who have caries cause an increase in the number of bacteria in the oral cavity. Oral bacteria can be transmitted to the fetus through the blood or amniotic fluid, so the fetus is at risk of premature birth, low birth weight (LBW), and infection in newborns.[9]

The severity of caries can be seen using the DMF-T index *(*Decayed, Missing, Filling Teeth), which can be used on permanent teeth, and the def-t index (decayed, extracted, filling teeth), which can be used on primary teeth. The index is issued by WHO (World Health Organization) to describe a person's caries experience in a population.[5]

Research conducted by Munadirah (2017) suggests that the behavior of pregnant women towards dental and oral health in Sapaya Village, Bunganya District, Gowa Regency was classified as poor, caries in pregnant women is high, and the level of dental and oral hygiene of pregnant women is in the poor category. In this research, the researcher wants to conduct a study on the description of the DMF-T index in pregnant women in the working area of the Cibeunying Health Center, Bandung Regency, West Java.

METHOD

The research was conducted in the Cibeunying Public Health Center, Bandung Regency, a working area from March 10, 2022, to March 24, 2022. This study is a cross-sectional study to determine the DMF-T index of pregnant women in the working area of the Cibeunying Health Center, Bandung Regency. The number of samples in this study was 103 people. Sampling in this study was done by random sampling. Random sampling is a part of the sampling technique in which each sample has an equal probability of being chosen. Respondents used in this study were pregnant women in Cibeunying Health Center, Cibeunying Posyandu, Ciburial Posyandu, and Padasuka Posyandu. Respondents used in this study were pregnant women in the 1st trimester, 2nd trimester, and 3rd trimester; pregnant women who were willing to participate in this study and were cooperative during the study; Pregnant women who were not present or not at the location when the examination was carried out were excluded from the criteria.

This research was conducted by examining DMF-T in pregnant women. Pregnant women who have come to the study site are then invited to sit at the examination site. The researcher introduces himself first and then explains the aims and objectives. Informed Consent is carried out before the examination is conducted to determine the respondents' willingness. Then, the DMF-T index was examined with the DMF-T index scoring criteria. The scoring criteria used, namely D (Decayed) are teeth that have one or more signs of caries attack, caries that are not patched or which have been patched but can still be filled; M (Missing) is a tooth that has been lost (self-destructed) or has been extracted due to caries or an indication for extraction due to caries; F (Filled) is a tooth that already has one or more fillings that are still good, and there is no caries in the filling place. If a tooth has one or more fillers, but there is a caries attack in a new place on the filled tooth, it is counted as D and F.

The results of the examination were recorded in the DMF-T examination form. DMF-T calculation was based on 28 permanent teeth. The teeth that were not counted were third molars, unerupted teeth, missing teeth due to congenital abnormalities and excess teeth, missing teeth not due to caries such as impaction or orthodontic treatment, dentures caused by trauma, aesthetics, and bridges and milk teeth that have not fallen out.

The formula used to calculate DMF-T:

$$DMF\text{-}T = D + M + F$$

The formula used to calculate average DMF-T: Average

$$\text{DMF-T} = \frac{\text{Sum of D+M+F}}{\text{Number of people examined}}$$

The classification of the incidence of dental caries (DMF-T index) according to WHO is as follows:

1. Very low; 0.8 – 1.1
2. Low: 1.2 – 2.6
3. Medium: 2.7 – 4.4
4. High: 4.5 – 6.5
5. Very high: >6.5

Data obtained from the examination results were then processed and analyzed using Microsoft Office Excel software to get an overview of the DMF T index in pregnant women in the Cibeunying Health Center, Bandung work area Regency.

RESULT

Description of Respondents

Based on the results of research conducted in the Cibeunying Health Centre working area located in Bandung Regency, there were 103 pregnant women. The highest number of respondents came from Posyandu in Padasuka Village, with 44 (42.7%) pregnant women, and the lowest number of respondents came from Posyandu in Ciburial Village, with 13 (12.6%) pregnant women (Table 1).

Table 1. Distribution of research samples by location

No	Location	Frequency	Percentage (%)
1	Posyandu Cibeunying	24	23,3
2	Posnyandu Ciburial	13	12,6
3	Posyandu Padasuka	44	42,7
4	Puskesmas Cibeunying	22	21,4
	Total	**103**	**100**

The highest number of respondents came from the third trimester, as many as 56 (54.3%) pregnant women, and the lowest number of respondents came from the first trimester, as many as 11 (10.7%) pregnant women (Table 2).

Table 2. Distribution of study samples by trimester of pregnancy

No	Trimester	Frequency	Percentage (%)
1	Trimester 1	11	10,7
2	Trimester 2	36	35
3	Trimester 3	56	54,3
	Total	**103**	**100**

The highest respondents came from the age range of 26-35 years, with as many as 60 (58.2%) pregnant women, and the lowest respondents came from the age

range of 36-45 years, with as many as 17 (16.6%) pregnant women (Table 3).

Table 3. Distribution of research samples by the age of pregnant women

No	Age (Years)	Frequency	Percentage (%)
1	17-25	26	25,2
2	26-35	60	58,2
3	36-45	17	16,6
Total		**103**	**100**

The highest number of respondents came from pregnant women who did not work, as many as 90 (87.4%) pregnant women (Table 4).

Table 4. Distribution of research samples by occupation

No	Occupation	Frequency	Percentage (%)
1	Working	13	12,6
2	Not Working	90	87,4
Total		**103**	**100**

DMF-T Index

Examination of caries status in pregnant women in the work area of the Cibeunying Health Center, Bandung Regency, which was carried out using the DMF-T method, obtained 103 respondents. Research data regarding DMF-T caries status are presented in tabular form. Table 5 shows the caries status of 103 respondents. The results of respondents with cavities in 103 respondents were as many as 618 teeth with cavities, 155 teeth that had been extracted or had indications for extraction, and 19 teeth that had been filled with fillings in 103 respondents in the work area of the Cibeunying Health Center, Kabupaten Bandung.

Table 5. DMFT Indeks Index

No	Location	Pregnant Woman	Dental Status			Total	Index DMF-T
			D	M	F		
1	Posyandu Cibeunying	24	134	20	2	156	6,5 (High)
2	Posyandu Ciburial	13	80	21	2	103	7,9 (Very high)
3	Posyandu Padasuka	44	232	80	11	323	7,3 (Very high)
4	Puskesmas Cibeunying	22	172	34	4	210	9,6 (Very high)
	Total	**103**	**618**	**155**	**19**	**792**	**7,68** (Very high)

DISCUSSION

The results of research on 103 pregnant women revealed that most of the pregnant women were in the early adult age group (26-35 years old), as many as 60. The result is in line with Hamzah's 2016 research which says that most pregnant women are found in this age group.[11] The large number of pregnant women in this age group is due to the productive period of women in that age group.[12]

The most common gestational age found in this study was in the 3rd trimester, with as many as 56 pregnant women. It is in line with Warongan's 2015 research because the more significant the gestational age, the more concerned pregnant women will be about their pregnancy.[13] Most of the pregnant women in this study did not work

as many as 90 pregnant women.

Table 5 shows that the most common DMF-T index severity criteria found in this study were in the very high category, with a DMF-T index of 7.68 in pregnant women who were examined in the Cibeunying PKM work area. Table 5 also shows that component D (Decay) is an enormous value compared to component M (Missing) and component F (Filling).

Component D is a tooth that has been damaged (decayed) and has not been filled with as many as 618 teeth. The results of the above study indicate that the DMF-T index value is 7.68, meaning that there are damaged teeth, missing teeth, and teeth filling due to caries, as many as 7-8 teeth per pregnant woman. The DMF-T index value is included in the very high category based on the severity criteria according to WHO.

In a study by Shamsi et al. in 2013, the average DMFT index in pregnant women was higher than in other community members. For example, the index determined in the Brazilian study of pregnant women was 10, whereas that of pregnant women in Ahvaz, Iran, was 6.3 ± 23.01. For pregnant women in Arak, Iran, the average DMFT was 5.2 ± 4, 83.[14] in research conducted by Elham et al. in 2018 found 152 pregnant women with an average DMFT in this sample was 15.5 ± 4.5 and an average DMFS of 31.8 ± 21. According to the World Health Organization (WHO), categorized in the "Extremely High" dental caries experience.[15]

These results are higher when compared to the effects of research conducted by Ajeng Pinanty et al. in 2020 on pregnant women at the KIA Polyclinic of Sukajadi Health Center, which is 6.82 with the same severity criteria, which is very high. Socio-economic conditions influence lifestyle patterns, differences in geographical location, and the influence of poor knowledge of pregnant women, namely regarding the early signs of cavities. When treating cavities, pregnant women do not come to the dentist to treat or treat cavities. Filling cavities and understanding plaque and the relationship between dental plaque and cavities.[16] This factor causes the DMF-T index value for pregnant women at the Cibeunying Health Center to be 7.68.

Oral health maintenance during pregnancy is essential for pregnant women's and the fetus's health. Pregnancy causes nausea and vomiting. Vomiting can cause the oral cavity to become acidic, making it easier for pregnant women to experience dental and oral health problems. Pregnant women were advised to rinse their mouths with water after vomiting because water can neutralize the atmosphere in the oral cavity caused by vomiting. [17] This is

also one of the factors causing caries, tooth erosion, and gingivitis in pregnant women.[18]

An increase in estrogen and progesterone, t also causes dental and oral health problems during pregnancy. This increase triggers an increase in blood flow in the oral cavity so that it can cause the gums to bleed easily.[19,20] research conducted by Mital et al. In 2013 it was stated that pregnant women are more susceptible to dental caries and gingivitis than women who are not pregnant. Pregnant women with poor oral hygiene status, poor oral health knowledge, and actions in maintaining poor oral and dental hygiene have a three times greater risk of developing dental and oral diseases. Therefore, understanding and efforts are needed to maintain oral health in pregnant mothers.[21]

Overall, this study shows that pregnant women have high caries. Therefore, the cooperation of all health workers, especially dentists, midwives, and posyandu cadres, is needed to promote oral health, especially in pregnant women, to reduce the DMF-T index value for pregnant women at the Cibeunying Health Center.

CONCLUSION

The dental caries index in pregnant women in the working area of the Cibeunying Health Center, which is 7.68, showed a very high index. The highest DMF-T index was found in pregnant women examined at PKM Cibeunying. The survey results show that pregnant women are very susceptible to caries. Therefore, it is necessary to educate the community about dental and oral health, especially pregnant women in the working area of the Cibeunying Health Center.

CONFLICT OF INTEREST

We declare that there is no conflict of interest in the scientific articles.

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