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Analysis of Socio-demographic Factors of Dental and Oral Hygiene among Pregnant Women

Enni Kustiyah[1], Sitti Nur Djannah[2], Lina Handayani[3], Intan Wahyuni Tukiyo[4]
[1]Master of Public Health Program, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta.
[2,3,4]Departement of Public Health, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta

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ABSTRACT

Dental and oral diseases still have a significant impact, especially on pregnant women. Pregnant women are vulnerable to dental and oral diseases such as periodontitis, gingivitis and dental caries. This study aims to determine the relationship between the characteristics of pregnant women and the oral hygiene of pregnant women at the Banguntapan II Public Health Center (PHC), Bantul District, Yogyakarta Province. This research uses an analytical observational method with a cross sectional design. The research population was pregnant women who were registered at the PHC in the last 3 months. The sample was taken using the accidental sampling technique totaling 90 people. Data collection was carried out using a social demographic questionnaire and the OHI-S (Oral Hygiene Index-Simple) questionnaire. The data obtained was analyzed using chi-square. The results of the study showed that there was no significant relationship between maternal age (p-value 0.222), education level (p-value 0.716) and employment status (p-value 0.763) on dental and oral hygiene of pregnant women. Therefore, socio-demographic characteristics have no relationship to oral hygiene during pregnancy. For this reason, it is necessary to test other variables to see the factors that cause dental and oral disease in pregnant women.

Email :
kustiyahenni@gmail.com
sitti.nurdjannah@ikm.uad.ac.id
Lina.handayani@ikm.uad.ac.id
Wahyuni.intan16@gmail.com

1. INTRODUCTION

The Global Oral Health Status of the World Health Organization outlines that dental and oral diseases affect nearly 3.5 billion people worldwide, with 3 out of 4 people affected by dental and oral diseases, including pregnant women living in middle-income countries [1]. Dental and oral health problems, especially dental caries or cavities, are a disease experienced by almost half of the world's population (3.58 billion people) [2]. Gum (periodontal) disease is the 11th most common disease in the world [3]. In Indonesia, the results of the 2018 Basic Health Research show that the prevalence of dental caries reached 88.80% and the prevalence of periodontitis was 74.10%, while the proportion who had problems with the teeth and mouth was 57.60%, and those who received treatment by medical dental personnel were 10.20 %. DIY Province is one of the provinces that has a proportion of problems with their teeth and mouth above the national figure, namely 65.60% and 16.40% who received treatment by medical dental personnel. The prevalence of dental and oral health problems in DI Yogyakarta Province in 2018 was relatively high compared to other provinces and greater than the percentage in Indonesia.

One of the populations that is susceptible to periodontal disease is the population of pregnant women [4]. Clinically, pregnant women often experience inflammatory changes in their gums [5]. This inflammation is found in 30% -100% of pregnant women, which is called pregnancy gingivitis. This gingivitis generally occurs in the second trimester of pregnancy and progressively increases with

increasing gestational age [6]. This increase in prevalence often occurs with increasing age and symptoms encountered in the entire population and one group that is prone to dental and oral hygiene problems is the group of pregnant women [7].

The pregnancy period is very vulnerable to the risk of disease, one of which is changes in hormones, behavior and level of knowledge. An increase in the hormone estrogen during pregnancy will affect dental and oral health due to changes in poor diet and lack of maintaining dental and oral hygiene. Not only that, this will also affect fetal growth [8]. The high risk of experiencing dental and oral health problems is due to the intensity of repeated vomiting during pregnancy [9].

A study conducted on 40 pregnant women found that oral mucosal lesions in the oral cavity were more common in pregnant women. This was because hormonal and vascular changes accompanied by pregnancy would increase the gingival response to bacterial plaque. Maintaining oral and dental health will reduce the incidence of gingivitis during pregnancy [10]. Dental and oral health of pregnant women because there is a relationship between pregnancy, only 49% of respondents visited the dentist. The role of pregnant women's awareness of the importance of maintaining oral and dental hygiene is very important. Apart from that, the health behavior of pregnant women also has a huge influence on themselves and the fetus (baby) [11].

Pregnant women recognize the symptoms of illness and play a role in maintaining health. Pregnant women's knowledge of dental and oral hygiene will determine the cleanliness status of their oral cavity. Nearly all periodontal disease is plaque related and it has been proven that plaque contains toxic bacteria. The bacteria that cause periodontal disease can indirectly cause various kinds of problems with the dental and oral health of pregnant women [12]. Based on this description, this study aims to determine the relationship between education level, maternal age and employment status of pregnant women with dental and oral hygiene of pregnant women at the PHC of Banguntapan II, Bantul Regency, Yogyakarta Province.

2. METHOD

This research is an observational analytical study with a cross sectional design. The research population for pregnant women was all pregnant women who were recorded as having visited the Banguntapan II Regional Health Center, Bantul Regency in the last 3 months who had carried out integrated examinations and visited the Banguntapan II Health Center, Bantul Regency, Yogyakarta Province.

The sampling technique in this study was carried out by accidental sampling, namely pregnant women who visited the dental and oral clinic. Activities were carried out in July-December 2022 with a total of 90 research participants. Data collection was carried out using a questionnaire with socio-demographic variables (occupation, age, and education) and the OHI-S (Oral Hygiene Index-Simplified) questionnaire by Greene and Vermillion. Dental and oral hygiene that often occurs in pregnant women is assessed using Oral Hygiene Index-Simplified (OHI-S) consisting of three categories, namely good, moderate and poor. Then, the data were analyzed descriptively and bivariate analysis using chi square with p value <0.05 and CI 95%. This research has been approved by the UAD ethics committee with number 012305065.

3. RESULTS AND DISCUSSION

Based on the results of this research, it was found that the largest age group was 21-30 years, with 53 pregnant women (58.9%), with the highest level of education being vocational school/high school, 43 pregnant women (47.8%), and 47 working as housewives. pregnant (52.2%).

Table 1. Distribution of characteristics of pregnant women in the dental and oral clinic

Variabel	N	%
Occupation		
Privat sector	29	32.22
Laborer	8	8.89

Housewife	47	52.22
Civil servants	6	6.67
Trimester of pregnant		
1	33	36.67
2	30	33.33
3	27	30
Age (Years)		
10-20	4	4.44
21-30	53	58.89
31-40	31	34.44
>40	2	2.22
Education		
Unknown	4	4.44
Primary school	2	2.22
Secondary school	12	13.33
Senior high school	43	47.78
Diploma 3	10	11.11
Bachelor degree	19	21.11
OHI-S		
Good	53	58.89
Middle	32	35.56
Poor	5	5.56
Total	**90**	**100**

In addition, 33 pregnant women were in the 1st trimester (36.7%) and 53 pregnant women (58.9%) had good OHI-S scores. Pregnancy is physiological, followed by hormonal changes, which can not only affect dental and oral health. Therefore, it is important to pay attention to maintaining the cleanliness of the teeth and mouth of pregnant women.

Table 2. Correlation of characteristic of respondents and OHI-S

Variables	OHI-S						P-value
	Good	%	Middle	%	Poor	%	
Age (Years)							
10-20	0	0	4	100	0	0	0.222
21-30	34	64.15	16	30.19	3	5.66	
31-40	18	58.06	11	35.48	2	6.45	
>40	1	50	1	50	0	0	
Education							
Unknown	3	75	1	25	0	0	0.716
Primary school	40	55.56	28	38.89	4	5.56	
Secondary school	10	71.43	3	21.43	1	7.14	
Occupation							
Yes	27	62.79	14	32.56	2	4.65	0.763
No	26	55.32	18	38.30	3	6.38	

Based on Table 2, the results show that maternal age (pvalue 0.222), education level (pvalue 0.716) and employment status (pvalue 0.763) do not have a significant relationship with the dental and oral hygiene of pregnant women. then, 21-30 year olds showed more good oral hygiene as many as 34 people (64.15%), followed by a high level of education as many as 40 people (55.56%) and working mothers who also had good oral hygiene as many as 27 people. (62.79%).

Based on the research results, it shows that the mother's education level has no influence on dental and oral hygiene, but descriptively pregnant women at the PHC of Banguntapan II have a high level of education. In contrast to research in Tanzania which reported that pregnant women who have

a high educational background will have a better impact on the frequency of cleaning their teeth compared to pregnant women with a low educational background. So, maintaining dental and oral health really needs attention [13].

Previous research shows that most pregnant women have insufficient knowledge about the impact of oral health during pregnancy. What needs to be considered is that pregnant women are susceptible to this disease due to the process of physiological, anatomical and hormonal changes [14]. Not only during pregnancy, insufficient knowledge in maintaining maternal dental and oral health influences poor dental and oral health which will have an impact on the child's caries status. The level of education will influence the status of dental and oral hygiene. because the better the level of education, the better the status of dental and oral hygiene. A mother has an important role in educating children, therefore mothers still have an obligation to seek knowledge [15].

This research also shows that pregnant women with high education have good OHI-S scores. A person's education level has an influence on the oral hygiene index, because in this study it was found that the best oral hygiene index was at the high school education level and the worst oral hygiene index was at the non-school education level. The same thing happens in Gianyar Regency, dominated by pregnant women with a high education level of 51.1%. However, the level of education has no effect on the toothbrushing behavior of pregnant women [16]. Mother's lack of knowledge is caused by low education (no schooling until junior high school). Thus, it can be said that mothers' lack of/low knowledge about dental and oral health examinations can be influenced by low education, resulting in less information obtained and difficulties in obtaining information from both health workers and other media [17].

It is known that the majority of pregnant women from this study were aged 21-30 years, amounting to 63.0%, 19 people. The young age of pregnant women also influences their experience in maintaining health during pregnancy. As pregnant women get older, the more experience they have, the more information they have, and the more they understand how to maintain healthy teeth and mouth during pregnancy. A previous study showed that the age of pregnant women was not related to the oral hygiene of pregnant women [18]. In contrast to other research, several factors that worsen periodontal disease during pregnancy, one of which is the age of the pregnant woman [19]. The frequency of dental and oral hygiene problems in pregnant women is significantly related to younger pregnant women. As many as 30.5% of women undergo dental care during pregnancy and it is significantly more frequent in younger women. However, oral problems are significantly more common in younger women [20]. This clearly proves that there are significant changes the mouth encounters during pregnancy that must be taken into account to avoid impact on general health as well as to prevent adverse pregnancy outcomes. To prevent periodontal disease in pregnancy, good oral hygiene must be maintained before and during pregnancy [21].

The results of this study also show that work is not related to the oral hygiene of pregnant women, but pregnant women who work have good dental and oral hygiene compared to pregnant women who do not work. The same study in Rwanda showed that the prevalence of periodontitis in pregnant women reached 60.5%, and one of the factors that had a significant influence was the employment status of pregnant women, with a risk of 7.3 times greater in pregnant women who did not work [22]. The same thing with a previous study that as many as 93.7% of pregnant women have jobs and work and 60.3% of them are covered by health insurance. It can be said that pregnant women who work have good oral and dental hygiene because they are supported by good health facilities[23]. Research in India also shows the same results, as many as 52.6% of pregnant women work as farmers, employees and entrepreneurs. Occupation is one of the factors related to good knowledge about dental and oral health care during pregnancy in pregnant women [24], [25]. Overall, this study found that the factors age, education level and employment status of pregnant women did not show a significant relationship with dental and oral hygiene. The limitations in carrying out this research are the narrow socio-demographic factors to show the relationship with dental and oral hygiene, the existence of information bias and the lack of strong statistical analysis so that it cannot show the dominant factors related to this research.

4. CONCLUSION

Based on the research results, it can be concluded that socio-demographic factors, namely education, age and employment of pregnant women, have no relationship to dental and oral hygiene during pregnancy. This can be caused by lack of knowledge during pregnancy, pregnant women should maintain oral hygiene during pregnancy. Therefore, further research on OHI-S can use other causal factors such as socio-cultural, food taboo, food consumption behavior, or other variables related to the consumption behavior of pregnant women.

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