ORIGINAL ARTICLE

The association of oral health knowledge with the behavior of pregnant women visiting the dentist based on the theory of planned behavior: Cross-sectional studies

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Received: 04 July 2024
Revised: 20 July 2024
Accepted: 26 July 2024
Published: 31 July 2024
DOI:10.24198/pjd.vol36no2.56007

p-ISSN 1979-0201
e-ISSN 2549-6212

Citation:
Rizqi, D. Suryanti, N. Suwargiani, AA. Andiesta, NS. The association of oral health knowledge with factors influencing the dental visit behaviour of pregnant women based on the theory of planned behavior. Padj J Dent, July. 2024; 36(2): 258-269.

ABSTRACT

Introduction: A lack of knowledge of oral health maintenance among pregnant women affects the behavior of maintaining poor oral health. It is important for pregnant women to visit the dentist due to their increased susceptibility to oral diseases, which can adversely impact pregnancy outcomes, including premature birth and low birth weight. According to the theory of planned behavior, a mother's knowledge can influence her health-related behavior. To determine the level of oral health knowledge among pregnant women and to examine the relationship between this knowledge and the factors that influence their behavior regarding dental visits. **Methods:** This study uses a correlational analytical design with a cross-sectional approach, focusing on pregnant women at the Cijerah Community Health Centerin Bandung City, Indonesia. A purposive sampling method resulted 67 participants. A new questionnaire assessed oral health knowledge (20 items) and factors influencinh visiting behavior based on the theory of planned behavior (26 items). Data analysis used the Spearman correlation test. **Results**: Most pregnant women (76.2%) had insufficient oral health knowledge, but showed a positive attitude towards dental visits in the first trimester and every six months (11.91 ± 2.66 and 11.65 ± 2.87). They also reported good subjective norm (28.73 ± 5.42 and 28.31 ± 5.19), good behavioral control (8.23 ± 1.67 and 8.32 ± 1.61) and good intention (3.94 ± 0.96 and 3.83 ± 1.06). **Conclusion:** The level of oral health knowledge is low, and althoughfactors influencing the dental visit behavior are positive, there is no correlation between this knowledge and factors that influence the behavior of visiting the dentist.

KEYWORDS

Pregnant women; oral health; health Behavior; patient acceptance of health ; dental care

INTRODUCTION

The health of pregnant women is crucial in supporting optimal fetal growth and development. It is important to consider not only general health conditionsbut also oral health.[1] During pregnancy, a person becomes susceptible to oral diseases due to an increase in the hormones estrogen and progesterone.[2] These hormonal fluctuations can lead to inflammation of the gums (gingivitis) and problems with the periodontal tissue. Additionally, the flow rate of saliva in pregnant women is also stimulated to increase, and these salivary changes are associated with risk

factors for dental caries.[2] According to the World Health Organization (WHO), 63% of pregnant women experience caries, and 71% experience gingivitis.[3]

In the last decade, numerous studies have shown that oral diseases are associated with high-risk pregnancies, including premature birth, low birth weight, preeclampsia, and fetal growth restriction.[1,4] Periodontal disease, in particular, has been shown to increase the risk of preeclampsia in pregnant women.[5] Furthermore, pregnant women with poor oral hygiene are 2.55 times more likely to give birth to a preterm low birth weight (LBW) baby compared to those who maintain good oral hygiene.[6]

The results of Leelavanthi's 2018 study on the knowledge, attitudes, and practices of pregnant women receiving treatment at Chanai Government Hospital regarding oral health during pregnancy indicated that a significant majority of pregnant women had low knowledge. Specifically, 97% of pregnant women surveyed were unaware of the use of interdental appliances for maintaining oral health.[7] In alignment with this, Dini's 2022 research, which involved 39 pregnant women in Central Java, also concluded that pregnant women generally lacked knowledge about oral health, with only 46.2% of respondents demonstrating sufficient understanding about oral health.[8]

Research conducted by Annisa in 2015 showed that the frequency of dental visits among pregnant women remained low.[9] This limited engagement with dental care contibutes to poor oral health conditions, which can lead to risky pregnancies.[9] Data from the Wirang Community Health Center in 2018 revealed that no pregnant women underwent dental examinations likewise with the following year. Additionally, other statistics shows 47.7% of registered pregnant women reported complaining toothache during their pregnancy. This data highlights an important issue: many pregnant women seek care primarily for their pregnancy, neglecting the importance of maintaining oral health, which is crucial for their overall well-being during pregnancy.[10]

Limited knowledge about the oral health of pregnant women, along with numerous misconcepstion held by them [11], can lead to reluctance in seeking dental check-ups during pregnancy. This is due to the assumption that problems that occur during pregnancy are normal and will resolve on their own after giving birth.[12]

Visits to dental health services by pregnant women in Indonesia are still very low, despite the necessity for regular dental check-ups every trimester, considering the significant influence of oral health on the health of the fetus.[13] This emphasizes the urgent need for effective solutions to address this problem. Many theories can be used to explain an individual's behavior and habits, with one of the most commonly used in the health sector being the Theory of Planned Behavior (TPB), developed by Ajzen.[14] The TPB explains three key constructs that predict behavioral intentions: attitudes, subjective norms, and perceived behavioral control.[14]

Previous research has found that attitudes, social norms, and perceived behavioral control can predict various oral health intentions and behaviors. However, to date, no research has analyzed the correlation between oral health knowledge and the factors influencing the behavior of pregnant women visiting the dentist using the application of the Theory of Planned Behavior. This theory can predict factors that can influence individual's behavior, including attitudes, subjective norms, and perceived behavior control.[14,15]

The study was conducted at the Cijerah Health Center in Bandung City. This health center offers dental health services and is also designated as one of the Basic Emergency Obstetric and Neonatal Health Centers. It provides services to manage obstetric and neonatal emergencies affecting pregnant women, women in labor or those in the postpartum period who are experiencing complications that pose a threat the lives of both the mother and her fetus. The Health Center, as a Basic Emergency Obstetric and Neonatal Service, represent a government initiative aimed at reducing the Maternal Mortality Rate and Infant Mortality Rate, and it involves cross-sectoral cooperation in managing high-risk cases.

This research aims to determine the association between oral health knowledge and the factors influencing dental visits among pregnant women. Additionally, , this research will analyze the correlation between the level of oral health knowledge and the factors that affect the behavior of pregnant women in seeking dental check-ups.

METHODS

The study employed a cross-sectional study design and was conducted with pregnant women at the Cijerah Community Health Center in Bandung City, Indonesia. Sampling was carried out using convenience sampling. The inclusion criteria consisted of pregnant women who visited the Maternal and Child Health Clinic and dental clinic at the Cijerah Community Health Center during the study period, were willing to complete a questionnaire, and who provided informed consent. The exclusion criteria included pregnant women who did not complete the questionnaire. The research was conducted from May 28 to May 30, 2024. A total of 67 pregnant women participated and met the inclusion criteria.

Oral health knowledge questionnaire assesses the importance of maintaining clean teeth from plaque, maintaining oral hygiene practices including the timing and frequency of tooth brushing, and dental hygiene aids), and the risks associated with untreated cavities and gum infections such as premature birth and Low Birth Weight (LBW) in babies. Furthermore, it higlights the importance of preventive dental visits and dental care during pregnancy. This questionnaire uses the Guttman scale (correct–incorrect) and consists of 20 question items with a scoring range of 0 to 20.

The questionnaire is designed to evaluate the factors influencing the behavior of pregnant women during dental check-ups include assessment of dental appointments in the first trimester of pregnancy and routine control conducted every six months. The analysis is based on the theory of planned behavior, which measures attitude through three question items using a 5-point Likert scale (unimportant – important, unnecessary – necessary, not required – required), with a total score range of 5 to 30. Subjective norm includes encouragement and motivation from various sources, including husband, parents, brothers or sisters, friends, midwives, obstetricians, and dentists. This is assessed using a 5-point scale (disagree – agree), with a total score range of 14–70. Perceived behavior control consists of 2 question items, including ease or obstacles in visiting the dentist, using a 5-point scale (disagree – agree, difficult – easy), with score range of 4 – 20. Intention is measured with 1 question item using a 5-point scale (disagree – agree), with a score range of 2–10.

The evaluation of factors influencing the behavior of dental visits among pregnant women, using the Theory of Planned Behavior has been assessed for content validity through discussions with experts (expert judgment).

Previously, a questionnaire assessing oral health knowledge and the factors influencing the dental behavior of pregnant women was evaluated for content validity through discussion with experts (expert judgment). Additionally, a content readability test (face validity) was conducted with five respondents. Subsequently, the construct validity of the questionnaire was assessed with a sample of 30 respondents.One week later, data collection was conducted again with the same questionnaire and the same respondents. For the oral health knowledge questionnaire, the validity metrics were as follows: Cronbach's alpha was 0.891 and the Pearson test-retest reliablility was 0.896. Regarding the questionnaire that examined the factors influencing the pregnant women's dental visit, based on the theory of planned behavior approach, the attitude variable achieved a Cronbach's alpha value of 0.970 and a Pearson test-retest reliability of 0.971. The subjective norm variable also reached a Cronbach's alpha value of 0.970 and a Pearson test-retest reliability of 0.971. The perceived behavioral control variable had a

Cronbach's alpha value of 0.971 and a Pearson test-retest reliability of 0.971. Similarly, the intention variable reached a Cronbach's alpha value of 0.971 and the Pearson test-retest reliability of 0.971. Each of these variables demonstrated valid validity values, with Cronbach's alpha values exceeding 0.300 and satisfactory reliability, as indicated by Pearson test-retest values greater than0.8.

The data were subjected to analysis through the application of the Spearman correlation test to determine the correlation between oral health knowledge and the factors influencing the behavior of pregnant women dutring their dental visits. Informed consent was collected from pregnant women participated in this study, and ethical approval of this research was obtained from the Padjajaran University Research Ethics Commission under the number 489/UN6.KEP/EC/2024.

RESULTS

The study included a total of 67 pregnant women as respondents. The characteristics of these respondents are presented in Table 1.

Table 1. Distribution of Respondent Characteristics (n=67)

Respondent Characteristics	Distribution	Percentage (%)
Age of pregnant woman (years)		
17 - 20	3	4.5
21 - 30	45	67.2
31 - 40	19	28.3
Last Academic		
Elementary School	7	10.4
Junior High School	19	28.8
Senior/Vocational School	36	53.9
College Graduate	5	7
Mother's job		
Housewife	49	73.1
Employees/laborers	16	23.9
Entrepreneur	2	3
Gestational age		
I-Trimester	14	20.9
II-Trimester	28	41.7
III-Trisemester	25	37.4
Pregnancy of child		
First	25	37.3
Second	25	37.3
Third	12	17.9
Fourth	5	7.5

Table 1 indicates that the majority of pregnant women were aged between 21 and 30 years. The highest gestational age was observed in the second trimester among those who were pregnant with their first or second child, had a high school education, and not working.

Table 2. Distribution of Respondents Based on Oral Health Knowledge (n=67)

Knowledge	Frequency	Percentage (%)
Good	3	4.4
Average	13	19.4
Below Average	51	76.2
Total	**67**	**100**

In Table 2, the majority of pregnant women, consisting of 51 individuals (76.2%), recognized that their oral health was inadequate. Meanwhile, 13 individuals (19.4%) had sufficient knowledge, and only three pregnant women (4.4%) showed good knowledge of oral health.

Table 3. Distribution of Pregnant Women's Knowledge Regarding Oral Health

Items	Correct		Incorrect	
	n	%	n	%
Frequency of brushing teeth (2x a day)	66	98.5	1	1.5
Time to brush the teeth in the morning	15	22.4	52	77.6
Time to brush the teeth at night	62	92.5	5	7.5
Dental hygiene aids	55	82.1	12	17.9
Purpose of brushing teeth	15	22.4	52	77.6
Clean the teeth from plaque by brushing	52	77.6	15	22.4
If cavities are not treated, there is an increased risk of miscarriage	20	29.9	47	70.1
If gum infections are not treated, there is an increased risk of premature birth and LBW	17	25.4	50	74.6
Vomiting can cause tooth decay	8	11.9	59	88.1
Pregnancy causes swollen gums	19	28.4	48	71.6
The importance of checking up with a dentist in the first trimester	39	58.2	28	41.8
The importance of checking up with a dentist every 6 months	53	79.1	14	20.9
Go to check up with the dentist	58	86.6	9	13.4
The right time to go to the dentist	48	71.6	19	28.4
Dental care must be complete	33	49.3	34	50.7
Don't delay dental care	39	58.2	28	41.8
Dental procedures in the first trimester	42	62.7	25	37.3
Dental procedures that need to be avoided in the first trimester	45	67.2	22	32.8
Dental care procedures in the second trimester	40	59.7	27	40.3
Dental x-rays during pregnancy	25	37.3	42	62.7

Table 3 illustrates the distribution of pregnant women's knowledge regarding oral health. Almost all pregnant women (98.5%) are aware of the correct frequency for brushing their teeth. However, when asked the appropriate time to brush their teeth in the morning, only 22.4% provided the correct answer. Additionally, a significant majority of pregnant women (70%) are unaware that untreated cavities and gum infections can adversely affect both the pregnancy and fetus. Furthermore, 80% of pregnant women do not know that pregnancy can lead to swollen gums and tooth decay. On a positive note, 60% of pregnant women understand the importance of visiting a dentist during the first trimester and and continuing check-ups every six months.

Table 4. Distribution of Mean Scores for Factors Influencing Pregnant Women's Dental Visits During the First Trimester and Every Six Months

Variable	Visit in the First Trimester	Category	Visit once every 6 months	Category
	Mean ±SD		Mean ±SD	
Attitude	11.91±2.66	Good	11.65±2.87	Good
Subjective norms	28.73±5.42	Good	28.31±5.19	Good
Behavior control	8.23±1.67	Good	8.32±1.61	Good
Intention	3.94±0.96	Good	3.83±1.06	Good

Table 4 illustrates the distribution of average dental visit behaviors among pregnant women in their first trimester. The of respondents' attitudes toward visiting the dentist are classified as good (11.91±2.66). The subjective norms of the respondentw are also quite favorable (28.73±5.42). Additionally, the respondents show good behavioral control when visiting the dentist (8.23±1.67). Their intention intention to visit the dentist is rated as quite good (3.94±0.96). The average score for the behavior of visiting the dentist once every six months, reflecting the respondent's attitudes toward dental visits, is classified as good (11.65±2.87). The subjective norms regarding respondents' dental visit are also rated positively (28.31±5.19). Furthermore, respondents showed good behavioral control during dental visits (8.32±1.61). Their intention to visit the dentist is quite good (3.83±1.06).

Table 5. Distribution of the Mean Score Reflecting the Support of Respondents' Closest Individuals for Pregnant Women's Dental Visits During the First Trimester and Every six months Intervals

Variable	Visit in the First Trimester	Visit once every 6 months
	Mean ± SD	Mean ± SD
Husband	4.19±0.92	4.11±0.84
Parent	3.98±0.92	3.97±0.86
Brother/sister	3.82±0.93	3.70±1.01
Friend	3.76±1.04	3.68±1.06
Midwife	4.28±0.90	4.29±0.81
Obstetricians	4.32±0.85	4.25±0.85
Dentist	4.35±0.94	4.28±088

Table 5 presents theaverage support scores from people closest to respondents regarding the behavior of pregnant women visiting the dentist in the first trimester. Respondents reported the highest motivation from husbands, midwives, obstetricians, and dentists, each receiving an average score of 4. Meanwhile, parents, brothers, sisters, and friends tend to be neutral, with an average score of 3. Additionally, the average support scores regarding the behavior of pregnant women visiting the dentist regularly every six monthsreveal the highest motivation derived from husbands, midwives, obstetricians, and dentists, each with an average score of 4. Conversely, parents, older siblings, siblings, and friends tend to be neutral, with an average score of 3.

Table 6. Spearman's Correlations among Oral Health Knowledge and Factors Influencing the Behavior of Pregnant Women Visiting the Dentist in the First Trimester and Every Six Months.

Variable	Visit in the first trimester				Visit once every 6 months			
	Att	SN	PBC	In	Att	SN	PBC	In
Knowledge	0.169	0.817	0.147	0.250	0.317	0.725	0.585	0.300

Table 6 presents the results of Spearman's analysis regarding the correlation between oral health knowledge and dental visit behavior during the first trimester and visits occurring every six months. These findings indicate that knowledge does not correlate with factors that can predict dental visit behavior, namely both with attitudes, subjective norms, behavioral control, and intentions.

DISCUSSION

The results of this study show that the average age of pregnant women surveyed was between 21 and 30 years, with most having completed high school education, and not currently working. The majority of respondents were not experiencing their first pregnancy, rather, they were in their second, third and fourth pregnancies, and with an average gestational age in the second trimester (see Table 1). This finding aligns with Ahmed's research conducted in 2022, which reported an average respondent age of 25 years old. Notably, 60% of the respondents were pregnant with their first or second child, and 95% of pregnant women were unemployed.[16] Table 2 illsutrates that the level of oral health knowledge among pregnant women attending the Maternal and Child Health polyclinic and dental clinic at the Cijerah Community Health Center in Bandung City, is, on average, poor. This is consistent with Murni's researchfrom 2017, which found that 50% of respondents exhibited poor knowledge regarding oral health.[17] Research by Wassihun in 2021 in Southern Ethiopia revealed a finding that indicated 65.90% of pregnant women having low oral health knowledge .[18]

Based on the findings of this study regarding the oral health of pregnant women, 66 respondents (98.5%) understood that brushing teeth should be performed twice a day. However, the timing of tooth brushing among pregnant women in this study was primarily incorrect; they tended to brush their teeth during

the morning rather than after breakfast and at night before bed. These results align with Radwan's research, which found that 68% of respondents brush their teeth twice daily but not at the appropriate time.[19] In this study, most respondents were unaware that oral health could affect their pregnancy. Only 25.3% knew that risks during pregnancy, such as premature birth and Low Birth Weight (LBW) babies, could be triggered by infections in the teeth and mouth. This result is consistent with research by Gomes (2015), which shows that the majority of pregnant women do not know the correlation between oral disease and premature birth.[20]

Various studies suggest that abnormalities in the gums and teeth can significantly impact the health of both the mother and her baby. However, dental examinations for pregnant women are often neglected.[21] Limited resources can also become obstacles to providing essential oral health education at health centers. Therefore, to ensure that pregnant women receive integrated care, general health care providers and dentists need to collaborate. Oral hygiene correlation with systemic health can be explained by obstetricians when pregnant women come to check their pregnancy, so that later for further dental health maintenance will be referred to the dentist. According to the World Health Organization (WHO), collaboration in maternal care is essential to provide comprehensive health services, especially in overcoming resource constraints in developing countries.[22]

The understanding of dental visits among pregnant women differs significantly. A survey revealed that 58% of respondents believed that visiting the dentist during the first trimester of pregnancy and routinely every six months is important. These results align with Arisanty's research, which reported that more than 50% of respondents considered checking up with a dentist during pregnancy necessary.[23] However, most pregnant women do not know that dental care procedures, including tartar cleaning, fillings, and extractions can be conducted during pregnancy, with only 37.3% having this knowledge. One of the reasons for this lack of awareness is the low education among pregnant women. This aligns with Bamanikar's research, which states that pregnant women's knowledge regarding the aforementioned dental care procedures during pregnancy (tartar cleaning, fillings, and extractions) is closely related to their level of education; specifically, 52.9% of respondents have a low educational background and do not have sufficient knowledge regarding oral health care during pregnancy.[24]

According to the theory of planned behavior, the dental visit behavior of pregnant women is influenced by their attitudes, subjective norms, perceived behavioral control, and the intention regarding dental check-ups.[25] The behavior assessed in this study was the visits during the first trimester and routine check-ups every six months. According to the Indonesian Ministry of Health's guidelines for maintaining oral health in pregnant women, it is recommended that a dental examination should be carried out when planning a pregnancy or as early as possible, ideally during the first trimester, to ensure the mother's oral health remains in an optimal condition throughout her pregannncy.[26] It is also essential for pregnant women to continue routine check-ups every six months so that any complaints can be addressed immediately.[26]

The research results regarding respondents' attitudes toward visiting the dentist are considered good. More than 50% of participants have a positive attitude, indicating that they believe visiting the dentist to check the condition of their teeth during pregnancy, both during the first trimester and every six months, is essential. This contrasts with Lusynta's 2022 research, which obtained results of 56.7%, or the majority of mothers being resistant to oral health checks.[27] Individual beliefs significantly influence this attitude.[23] If a mother firmly believes that having her teeth checked by a dentist during pregnancy will produce positive consequences-supported by reliable experience and information- her attitude toward this behavior will likely be positive. The more positive aspects and objects a person knows (knowledge, experience), the more positive the attitude towards that object will be.[28]

According to Ajzen, subjective norms, or the support from those around individuals, are considered strong predictors of behavioral intentions.[14] The research results presented in Table 5 show that the repondents perceived the support from their closest associates for visiting the dentist during pregnancy was considered good. Specifically, 73.2% of respondents believed that they received support from people around them to have their teeth checked by a dentist during pregnancy. However, it is different from Nabila's research in 2023, which reported only 30.2% of family members or closest relatives agreed that pregnant women should seek dental care.[29] In this study, pregnant women received favorable support, especially from their husbands, obstetricians, dentists, and midwives, and quite good support was obtained from parents, older siblings, and friends. This findings are in line with Gandomi's research conducted in 2017, which examined the preventive behavior regarding oral diseases in pregnant women, revealing that the majority of support received by pregnant women came from medical personnel (56%) and their closest companions, such as husbands and friends (48%).[30]

Behavioral control is shaped by an individual's past experiences with specific behaviors.Additionally, various other factors can affect their feelings about the behavior.[23] For instance, experience related to visiting a dentist during previous pregnancies, fear of dental procedure, and the ease of finding a dentist willing to provide treatment for pregnant women also play a role in this.[31] Mothers who are pregnant with their second or third child have more experience in maintaining oral health than their first child. Respondents' behavioral control over visiting the dentist during pregnancy was quite good. Maternal pregnancy experience, namely 62.7% of respondents, had experienced two or more pregnancies. This aligns with research conducted by Arisanty which indicated that the majority of respondents (72%) had experienced two or more pregnancies.[23] Therefore, these factors realted to behavioral control may facilitate mothers'visits the dentist. However, other unknown factors could hinder this behavior, such as long waiting times for appointments, limited dental staff, and insufficient information. Further research is needed to explore these issues.

The research results regarding respondents' intentions to visit the dentist were good. Previous studies indicate that behavioral intentions are significantly correlated with self-confidence and all components of the Theory of Planned ehavior, namely attitudes, subjective norms, and perceived behavioral control.[32] Gilang (2020) research states that the attitudes of pregnant women play a significant role in determining pregnant women's intentions regarding dental health behavior.[33] According to a study results, the positive attitude of pregnant women is likely to play a significant role in forming mothers' intentions to visit the dentist. These intentions will also be better if pregnant women receive support from family, friends, and health workers; therefore, the mother will show a greater desire to visit the dentist.[30] This is consistent with the results of this study, which classified mother's intentions as favorable. The emergence of these positive intentions can be supported by subjective norms, particularly thorugh the involvement of husbands, healthcare practitioners, and family members in encouraging pregnant women to visit the dentist.

The results of the study indicated that there is not significant correlation between pregnant women's knowledge about dental health and the factors influencing their behavior regarding dental visit . Low levels of oral health knowledge does not correlate with a positive attitude toward dental visits among pregnant women, whether during their first trimester or every-six-month visit. These results are in line with several previous studies. For instance, a study in Egypt by Mousa in 2019 found that the use of dental services during pregnancy was not related to the knowledge of pregnant women.[34] Additionally, research by Rani (2015) reported no significant correlation between pregnant women's oral health knowledge and their dental visits during pregnancy.[12]

Futhermore, the study's results showed that the attitude of pregnant women towards visiting the dentist, whether visiting in the first trimester or once

every six months, were generally positive. Several factors can influence a person's attitudes including personal experience, the influence of others, cultural background, mass media, and emotional factors.[35] In this study, it appears that positive attitudes among pregnant women are formed more by their experience than by knowledge . This is further supported by the results of the study, which shows that most mothers are in their second, third, or fourth pregnancy. Therefore, previous experience can be a reference for optimism that visiting the dentist is necessary. Information from healthcare practitioners, such as obstetricians and midwives, who have referred pregnant women to dental care, contribute to the formation of a positive attitude based on experience rather than knowledge. Meanwhile, knowledge about oral health is still low, particluarly the influence of oral health on pregnancy, pregnancy risks such as premature birth and Low Birth Weight (LBW) babies, and methods on how to maintain oral hygiene. This lcan be due to the fact that mothers have not received sufficient information about the risks of dental health to their baby's health.

Therefore, this positive attitude needs to be reinforced with a good understanding of dental and oral health, enabling pregnant women better to appreciate the importance of regular dental check-ups and to know the impact of the risks. Thus, this foundational knowledge will encourage to seek dental care. The results of research from Junghee Kim (2022), stated that individuals who have better knowledge tend to engage in health-related behaviors.[36] Lawrence Green's theory explains that knowledge is one of the predisposing factors in the formation of behavior.The PRECEDE-PROCEED model serve as an effective theoretical framework for health promotion interventions across diverse population groups, demonstrating sdignificant efficacy in terms of increasing knowledge.[36,37]

A positive attitude, when combined with good knowledge, will facilitate individuals' behavior of visiting the dentist. Moreover, the research indicates that pregnant women obtain subjective norms that can motivate midwives and obstetricians to monitor dental and oral health. When these behavioral control factors are positively present, such as the existence of experience in previous pregnancies and easy acces to dental health service centers, this further facilitates the the desire to schedule dental appointments. If these three factors are favorable, they will strengthen behavioral intentions. An individual's intention to engage in a behavior ultimately determines the decision whether an individual will follow through with it. Intentions are influenced by attitudes toward the behavior, social pressures (subjective norms) to engage in behavior, and perceived behavioral control.[14,15]

The limitations of this research include the failure to examine actual behavior, specifically the actual behavior that has been performed. This is due to the research focus, which emphasizes the correlation between the oral health knowledge of pregnant women and the factors influencing their decision to visit the dentist. Although these behavioral factors-attitudes, subjective norms, perceived behavioral control, and good intentions-are associated with dental visits in the first trimester and once every six months to the dentist, they must be investigated further to tranlate intentions into actual behavior. Intention plays a crucial role in determining an individual's decision to engage in or to refrain from ; however, they do not guarantee that the behavior will occur.[14,15] Aditionally, other research needs to be developed in order to determine the factors contributing to low maternal knowledge of oral health and the importance of visiting the dentist. These factors may includeeducation level, socio-economic status, geographical factors, access to healthcare facilities. Furthermore, the research design in this study does not establish a cause and effect relationship, and should be developed to include a larger population, as this research was only conducted in one area using convenient sampling.

The overall health of pregnant women, including their oral health, is crucial for the growth and development of the fetus. Therefore, it is essential for pregnant women to visit the dentist for regular check-ups. This understanding needs to be

supported by increased knowledge or awareness of the importance of oral health and the acssociated risks during pregnancy. By doing so, pregnant women will recognize the importance and necessity of visiting the dentist every six months, as well as during the first trimester of pregnancy.

CONCLUSION

The average level of knowledge regarding oral health among pregnant women falls into the low category. However, all factors influencing the behavior of pregnant women in visiting the dentist, such as attitude, social norms, perceived behavior control and intention are rated positively. This means that mothers have good attitudes, social norms, behavior control, and intentions towards visiting the dentist during their first trimester and every six months to check their oral health.

However, the correlation between knowledge about oral health and the factors influencing the behavior of visiting the dentist (based on the theory of planned behavior), did not reveal significant correlation for both first-trimester visits and biannual check-ups. This indicates that not all pregnant women with a strong knowledge of oral health also have positive attitudes, subjective norms, behavioral control, and intentions regarding dental visits during their first trimester, or their biannual check-ups.

The implications of this study underscore the importance of educating pregnant women about oral health and its associated risks to their noth pregnancy and baby. By understanding the risk factors, especially for the health of the mother and baby, mothers will be more aware of the importance of dental check-ups during pregnancy. This education should be given before the mother plans a pregnancy. In addition, it is essential to emphasize the need for effective collaboration or cooperation between general health service providers and dentists in managing the mother's during her pregnancy.

Acknowledgement: The authors of this study would like to thank all participants who took part in this study.
Author Contributions: Conceptualization,S.N.; methodology, S.N., A.AS, S.DR., validation, S.N., A.AS., S.DR.; formal analysis, S.N., A.AS, S.DR.; investigation, S.N., A.AS., S.DR.; resources,. S.N., S.DR.; data curation, S.N., A.AS., S.DR.; writing original draft preparation, S.DR., S.N., writing review and editing,. S.N., A.AS., S.DR.,; visualization, S.N., S.DR.,; supervision, S.N., A.AS.,; project administration, S.N., S.DR.; funding acquisition, S.N., S.DR.: All authors have read and agreed to the published version of the manuscript.
Funding: This research received no external funding.
Institutional Review Board Statement: This research has obtained research ethics permission from the Research Ethics Committee of Padjadjaran University with number 489/UN6.KEP/EC/2024.
Informed Consent Statement: nformed consent was obtained from all subjects involved in the study
Data Availability Statement: The availability of research data will be given with permission from all researchers via email correspondence by paying attention to ethics in research
Conflicts of Interest: The authors declare no conflict of interest.

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