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Purpose: To know dental health for midwives for promo and more dental health for pregnant women in Makassar City.

Material and Method: Studies are observed by cross-sectional study designs. The midwife sample came from midwives working in 15 health centers, 10 hospitals and 6 maternity hospitals in Makassar, resulting in a total sample of 173 midwives.

Result: Average age = 32.29 years and average length of work as a midwife = 8.77 years. The percentage of midwives who recommend when to visit the dentist for a 1-year-old baby is 56.6%, the percentage of midwives who provide information about periodontal disease in pregnant women as much as 82%.

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Knowledge of Midwives about Dental Health Education and Recommendations for Pregnant Women in Makassar City. Indonesia

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Conclusion: Midwives' knowledge of dental health and midwives provide recommendations to pregnant women about the importance of low dental care.

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1. INTRODUCTION

So far, health workers, especially midwives, rarely provide information about the importance of oral health services to pregnant women or caused by pregnant women who have clear signs of oral disease, usually do not seek or receive dental care [1]. For in many cases, both pregnant women and health workers do not understand that oral healthcare is an important component of a healthy pregnancy [2, 3, 4].

During pregnancy, changes in the oral cavity associated with hormonal changes, changes in diet,

changes in behavior and various complaints such as cravings, nausea, vomiting [5, 6, 7]. Pregnant women become very vulnerable to gingival disease and periodontal disease due to the habit of ignoring dental, and oral hygiene. Changes in pregnancy to have an impact on the quality of life of pregnant women [7].

Poor maternal health is associated with an increased risk of preterm birth and low birth weight babies, especially among women from lower socioeconomic backgrounds [8].

Pregnant women are a group that needs special attention with about their oral health and the health of their prospective babies. It is important for pregnant women to be aware of maintaining oral health during pregnancy for themselves and the fetus to prevent disease mouth that can affect pregnancy [9].

Based on the Basic Health Research (Riskesdas) in 2018, the prevalence of dental and oral health problems in Indonesia was 57.6%, up from the 2013 report of 25.9%, one of which is South Sulawesi Province, which is equal to 70%. Residents who experience dental and oral health problems, of course, include pregnant women [10]. Dental care services for midwives in the implementation are based on guidelines issued by the Government through the Ministry of Health of the Republic of Indonesia [11].

In line with this, improving dental and oral health and health promotion can reduce oral diseases. This is also in line with the goals of the Millennium Development Goals (MDGs) in point 5, they improve and improve the health of the teeth and mouth of pregnant women, because poor dental and oral health for pregnant women can affect the fetus such as premature babies and low birth weight in addition to the health of the baby's teeth and mouth [12].

Therefore, taking preventive measures to improve the oral health of pregnant women by telling them about maintaining the oral health of pregnant women and their children's oral hygiene can reduce susceptibility to dental caries. Good maternal oral health can protect the health and quality of life of pregnant women in general; added, it will minimize the risk of their babies experiencing early dental caries through reducing transmission of maternal cariogenic bacteria [13].

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There is also much discussion about the role of antenatal care providers, which are closely related to the role of midwives in promoting maternal oral health. The close relationship between providers of antenatal care and pregnant women provides an opportunity to motivate and change the practice of oral health for pregnant women [13]. Therefore, it is internationally recommended that all antenatal care providers offer oral health education, assessment, and referral to pregnant women to carry out dental examinations early in their pregnancy. Based on the background above, the authors are interested in the knowledge of midwives in promoting dental health for pregnant women in Makassar City, Indonesia

II. MATERIALS AND METHODS

1. Types and Design of Research

This study was a descriptive observational study with a cross-sectional study design.

2. Determination of Research Locations

Before the determination of the research location, the permit application given by the Makassar City Health Office had received ethical approval from the Faculty of Dentistry, Hasanuddin University. The total sample was 173 midwives. The sample is a midwife who

works at the Community Health Center, hospital and maternity hospital in the city of Makassar. The selection of Community Health Centers is based on the sub-district area, 1 District Health Center is chosen so that there are 15 Community Health Centers. The location of the hospital, and maternity hospital was randomly determined so that ten hospitals and six maternity hospitals were obtained.

3. Assessment criteria

a. *Assessment of midwife recommendations regarding dental and oral health*

These assessment criteria are for midwife recommendations for pregnant women and infants regarding dental health with seven questions. The assessment for the essay question is done with the answer Yes: a value of 1; No: value of 2

b. *Assessment of midwife's knowledge and its relationship to dental and oral health*

The assessment criteria for knowledge of midwives used in this study are in by the assessment criteria carried out by George et al [3][12]. Knowledge of midwives is assessed by presenting 10 questions related to oral and dental health for pregnant women. The correct answer is given a value of 1, while the value 2 is for the wrong answer (Table1).

Table 1: Questionnaire for midwife knowledge about oral and dental health

No.	Question	True	False
1.	Is bad breath a sign of poor oral health (Right)		
2.	Does a mother who suffers from gum inflammation before pregnancy feel better during pregnancy (wrong)		
3.	Do mothers who experience morning sickness should be encouraged to brush their teeth immediately after vomiting (wrong)		
4.	Is it safe to undergo dental treatment during pregnancy (correct)		
5.	Can the mother transmit the bacteria that causes dental caries to her baby (right)		
6.	Whether before the baby's teeth appear, parents must be instructed to clean the baby's gums with wet washcloth after eating and before going to bed (correct)		
7.	Generally, the gums tend to bleed during pregnancy (right)		
8.	Are babies who have healthy teeth not important because the baby's teeth will be replaced (wrong)		
9.	Whether giving a sweet snack only at mealtime is a good way to prevent cavities in children (correct)		
10.	Do parents have to use the same spoon to taste and feed their children (wrong)		

III. RESULT

The average age of midwives is 32.29 years, with the highest percentage of age <40 years (83.2%), while the average working life is 8.77 years and the most with working period < 15 years is 85.5%. Employment status is 69.5% as a permanent worker in public health centers, hospitals or maternity hospitals (Table 2).

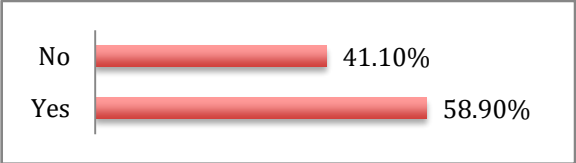
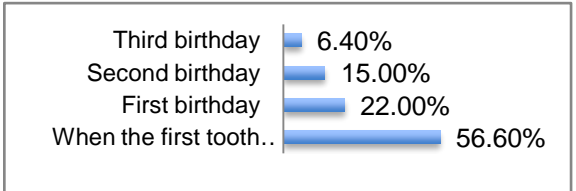
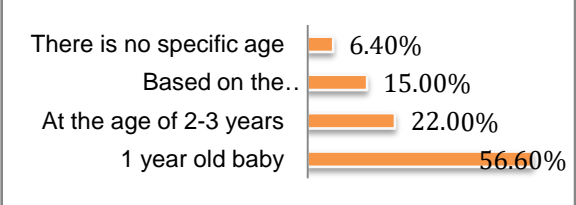
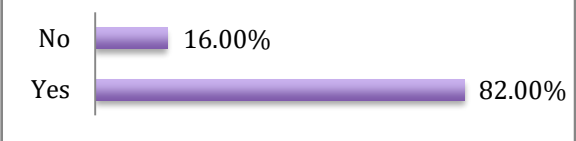
Table 2: Characteristics of research respondents based on age, work experience and employment status

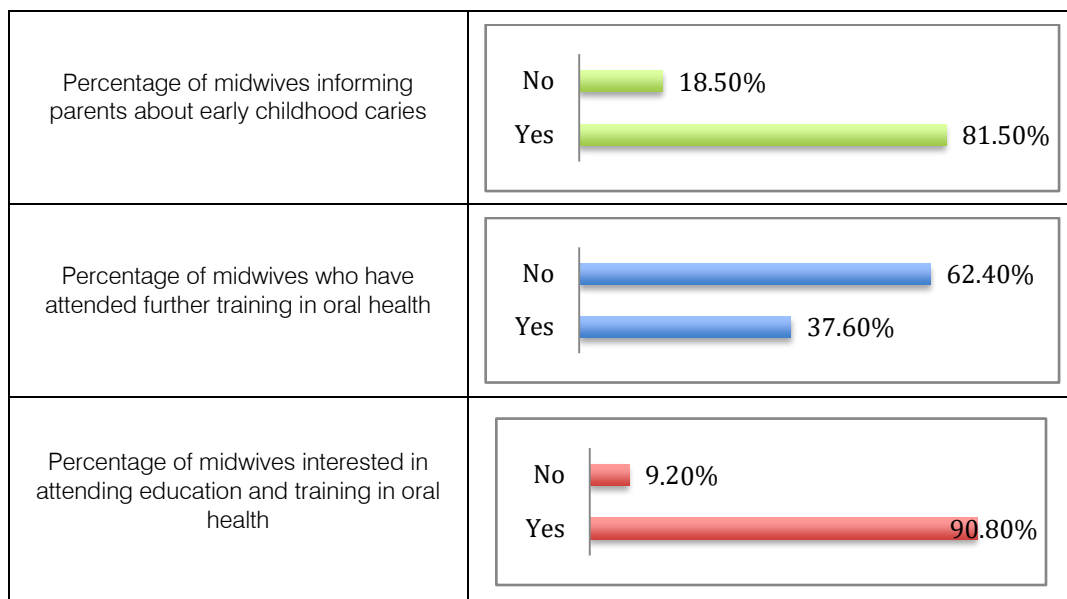
Karakteristik		n	%	Mean	SD
Age	< 40 years	144	83,2	32,29	8,48
	≥ 40 years	29	16,8		
Experience	< 15 years	148	85,5	8,77	6,90
	≥ 15 years	25	14,5		
Employment status	Personal Practice	2	1,2		
	Employed	120	69,4		
	Volunteer	25	14,5		
	education and training	3	1,7		
	Personal and Employed Practices	23	13,3		
Total		173	100,0		

The Percentage of Midwives recommends to pregnant women about dental care during pregnancy by 58.9% and recommend the time of the baby's visit to the dentist at the age of 1 infant year as much as 56.6%, The percentage of midwives who provide information

about periodontal disease to pregnant women is 82%, the percentage of midwives who had attended further training in dental and oral health was 37.6 and respondents wanted or interested in training on dental health issues by 90.8% (Table 3).

Table 3: Percentage of midwife recommendations for dental health for pregnant women

Recomendations	Result
Percentage of midwife recommendations about dental care during pregnancy	 <p>No 41.10%</p> <p>Yes 58.90%</p>
Percentage of midwife's recommendations about when to brush teeth should be done on infants	 <p>Third birthday 6.40%</p> <p>Second birthday 15.00%</p> <p>First birthday 22.00%</p> <p>When the first tooth.. 56.60%</p>
Percentage of midwife recommendations about when to visit the dentist for infants	 <p>There is no specific age 6.40%</p> <p>Based on the.. 15.00%</p> <p>At the age of 2-3 years 22.00%</p> <p>1 year old baby 56.60%</p>
Percentage of midwives who provide information about periodontal disease in pregnant women	 <p>No 16.00%</p> <p>Yes 82.00%</p>



The percentage of knowledge midwives answered that bad breath was a sign of oral health by 90.8%. Still, the but the knowledge of brushing teeth immediately after vomiting for pregnant women answered correctly only 35.8%. The mother's knowledge about transmitting bacteria that originated from the

mother and caused dental caries in babies was answered by 48.6%, and the correct answer percentage of 40.5% who gave sweet snacks only while eating was a good way to prevent cavities in the child. Overall, the average correct answer of ten questions is 64.12% (Table 4).

Table 4: Percentage of answers to questions regarding midwife's knowledge about dental and oral health

No.	Question	True %	False %
1.	Is bad breath a sign of poor oral health (Right)	90,8	9,2
2.	Does a mother who suffers from gum inflammation before pregnancy feel better during pregnancy (wrong)	76,9	22,5
3.	Do mothers who experience morning sickness should be encouraged to brush their teeth immediately after vomiting (wrong)	35,8	63,6
4.	Is it safe to undergo dental treatment during pregnancy (correct)	63,6	36,4
5.	Can the mother transmit the bacteria that causes dental caries to her baby (right)	48,6	51,4
6.	Whether before the baby's teeth appear, parents must be instructed to clean the baby's gums with wet washcloth after eating and before going to bed (correct)	65,9	34,1
7.	Generally, the gums tend to bleed during pregnancy (right)	85,0	15,0
8.	Are babies who have healthy teeth not important because the baby's teeth will be replaced (wrong)	69,4	30,6
9.	Whether giving a sweet snack only at mealtime is a good way to prevent cavities in children (correct)	40,5	59,5
10.	Do parents have to use the same spoon to taste and feed their children (wrong)	64,7	35,3
	Mean	64,12	35,76

Dental care recommendations during pregnancy about the time of first dental care in a child, when you recommend started brushing the child's teeth to pregnant women obtained there is a significant association with the age group and the length of time working as a midwife where $p < 0.05$ (Table 5).

IV. DISCUSSION

The physiological condition of a pregnant woman will naturally undergo very substantial changes, including hormonal changes [14, 15]. These changes can affect the microbiological conditions of normal flora in the oral cavity. Thus, it can increase susceptibility to caries, periodontitis, xerostomia, and teeth erosion due

to vomiting, which is more common during pregnancy [2, 3].

Poor oral and dental health during pregnancy can cause perinatal complications, such as low birth weight and premature birth and poor oral health in children [8] [16]. Thus, midwives must have adequate knowledge about oral health due to their close relationship with pregnant women. This knowledge will later become a topic to provide education and recommendations to pregnant women regarding their oral health [17].

In this study, midwives recommend several things, including dental care during pregnancy. The results of this study that midwives recommend dental care during pregnancy (58.9%), recommendations for treatment of periodontal diseases (82%). Percentage recommendations of midwives informing parents about early childhood caries (81.5%). Midwives' recommendations on when to brush the baby's teeth as much as 56.6%. The results of this study are no different from the results of research conducted in Germany [17], Sidney [13], which states that midwives more often recommend dental and oral care for pregnant women. Maternal behavior during pregnancy can contribute to developing children's oral health. Thus, interventions in early pregnancy can modify behavior and outcomes for both mother and child. This recommendation is important because it relates to the duties of midwives who often communicate with pregnant women, so midwives play an important role in providing dental health education earlier than a dentist. Knowledge of pregnant women about contamination with infants can cause transmission of bacteria from mother to her baby, especially bacterial infection *Helicobacter pylori*, streptococcal mutants, through vertical or horizontal transmission [18, 19, 20].

The importance of midwife knowledge about oral health because midwives are one of the health workers who are in direct contact with pregnant women and can provide information about oral health for pregnant women themselves and for their babies. This is in accordance with guidelines for the maintenance of dental and oral health of pregnant women and toddlers for health workers especially Midwives that midwifery service providers are encouraged to integrate dental and oral health into pregnancy services [21] [22] [23].

Research conducted in Germany in 2015 also shows the same results as this study that brushing and dental care for babies begins when the first teeth begin to grow. However, ideally, baby dental care should start when the baby is 2-3 years old. This shows that there is still a lack of midwife knowledge about the time of dental care for babies. Percentage of answers to questions about midwife knowledge about oral health of ten questions with an average correct answer of 64.12%. This means that there are still many midwives who do not know about dental and oral health knowledge for

pregnant women. The health policy issued a guide book for pregnant women by the Ministry of Health of the Republic of Indonesia [11]. Such is the case in Australia that the oral health program initiated by Midwives is mainly for low-income families because it addresses many of the obstacles that exist for dental care [4].

V. CONCLUSION

Midwives' knowledge of dental health is still low and midwives' ability to provide recommendations to pregnant women about the importance of low dental care. Need to increase knowledge about dental health for midwives through workshops.

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Conflict of Interest: The authors declare no conflicts of interest.

Data Availability: The data used to support the findings of this study can be made available upon request to the corresponding author.

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