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## RESEARCH ARTICLE

### Knowledge of Five Different Types of Indonesian Health Workers Regarding Oral Health Services for Pregnant Women

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#### Abstract:

##### Background:

Oral health care for pregnant women is often not provided by five health professionals in Indonesia: dentist, general practitioner, gynaecologist, promotion health officer, and midwives. While pregnant women also neither seek nor receive oral health treatment, even with apparent oral disease signs. This condition might occur due to a lack of understanding regarding the importance of oral health care for a healthy pregnancy.

##### Objective:

This study aimed to determine the knowledge of five different types of Indonesian health workers regarding oral health services for pregnant women.

##### Methods:

A cross-sectional study was conducted on a population of five types of health workers in Indonesia. The sampling technique used was non-probability sampling with consecutive sampling technique from August until September 2019. The sample size was 191 health workers; calculation of sample size was conducted using the survey population to estimate the population proportion formula. The research data was collected using Google® Form questionnaire, which consisted of questions regarding regulations and socialisation about the oral health of pregnant women, the minimum number of visits of pregnant women to health service facility during pregnancy, the necessity for oral health examination during pregnancy, oral health treatment package for pregnant women, advisory for pregnant women to have an oral health examination, maternal and child health manual book. The questionnaire was distributed online to the five types of health workers in Indonesia. Data were analysed using Microsoft® Excel and presented in tabular form.

##### Results:

Nine out of thirteen knowledge criteria were in the 'less' category, which means 69% of health workers lacked knowledge regarding oral health services for pregnant women. Likewise, the number of respondents who knew the correct knowledge was found in 9 of the 13 criteria, indicated that only a small proportion of health workers had adequate knowledge regarding oral health services for pregnant women.

##### Conclusion:

Five different types of Indonesian health workers are not knowledgeable enough regarding the importance of oral health services for pregnant women. Only a small portion of Indonesia's health workers have adequate knowledge regarding appropriate oral health services for pregnant women.

**Keywords:** Knowledge, Indonesia, Health workers, Oral health, Oral health service, Pregnant women.

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## 1. INTRODUCTION

Pregnancy brings complex physiological changes which adversely affect oral health. Therefore, health professionals

must give adequate knowledge to the pregnant women they serve regarding the importance of oral health care for a healthy pregnancy [1].

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Dental caries in pregnant women might cause early childhood caries in children because caries-causing bacteria are mostly obtained from mothers. Thus, the oral health of

expectant and new mothers can be improved by providing oral health counselling to promote healthy behaviours that may reduce the transmission of such bacteria to minimize the caries risk [1, 2]. Oral health care for pregnant women, however, is often not provided by many health professionals. At the same time, pregnant women also neither seek nor receive oral health treatment, even with apparent oral disease signs. This condition might occur due to a lack of understanding regarding the importance of oral health care for a healthy pregnancy [2].

The knowledge of the relationship between periodontal disease and pregnancy outcome is mainly known among gynaecologists. However, there are still misconceptions regarding dental treatment during pregnancy. More oral health knowledge needs to be counselled to pregnant women and the medical community to provide better oral health care. Furthermore, misconceptions regarding what types of dental treatments can be provided during pregnancy must be clarified [3].

Thus, punctual and proper oral health care is essential for pregnant women served by health professionals such as dentists, dental hygienists, physicians, nurses, midwives, nurse practitioners, and physician assistants. This care must also include oral health education [2]. Dentists, physicians, allied health professionals, and community organisations must work together as partners to build the foundations of preventive education and oral health care, to establish the guidelines for perinatal and infant oral health care, including caries risk assessment, anticipatory guidance, preventive strategies, and therapeutic interventions, as the basis of oral health policy. The foundation of preventive education and oral health care for perinatal and infant will enhance the opportunity for a lifetime free from the preventable oral disease [4].

Oral health care for pregnant women in Indonesia is often not provided by five prominent health professionals related to pregnant women, i.e., dentists, general practitioners, gynaecologists, promotion health officers, and midwives. However, oral health education and preventive measure are essential and integral parts of oral health preventive service. This study was aimed to determine the knowledge of five different types of Indonesian health workers regarding oral health services for pregnant women.

## 2. MATERIALS AND METHODS

The primary materials used in this research was Google® Form questionnaire, which consisted of questions regarding regulations and socialisation about the oral health of pregnant women, the minimum number of visits of pregnant women to health service facility during pregnancy, the necessity for oral health examination during pregnancy, oral health treatment package for pregnant women, advisory for pregnant women to have an oral health examination, maternal and child health manual book.

The method of this research was a descriptive survey [5] using an online questionnaire. The population was five prominent health professionals related to pregnant women, i.e., dentists, general practitioners, gynaecologists, promotion health officers, and midwives. The sampling technique used was non-probability sampling with consecutive sampling

technique from August until September 2019. The current study recruited 191 willing participants. Prior to this study, ethical clearance was provided by the Universitas Padjadjaran Research Ethics Committee. Every procedure and ethical aspect of the current research conducted was entirely under the World Medical Association Declaration of Helsinki. All participants gave written consent for their participation in the current study [6]. As required of this research, the study was conducted concerning the ethical guidelines for research and health development, and all respondents have received, filled out, and returned the informed consent to the research team.

### 2.1. Sample Size Calculation

Sample size calculation was conducted using the survey population to estimate the population proportion formula  $n = p(1 - p) \left( \frac{Z_{1-\alpha}}{d} \right)^2$ . As information (n) and sample size (p) were a taxonomy of high proportion of knowledge regarding oral health services for pregnant women to health workers,  $Z_{1-\alpha}$  was the standard deviation value of Z obtained from the standard normal distribution table for the  $1-\alpha$  confidence level, and d was the tolerable margin of error. In this study, the p-value was not known, then the maximum p-value (1 - p) was taken, i.e., 0.25 (p = 0.5), to get the maximum sample. The confidence level's size was chosen as 95% ( $Z_{q-\alpha} = 1.96$ ), and the amount of d was determined by the study to be 8%. From the sample size formula, the n-value was obtained as  $0.25 \left( \frac{1.96}{0.08} \right)^2 = 150$ . A minimum sample size of 150 health workers was required. However, in this research, the research sample exceeded expectations, which reached 191 health workers.

Sample must fulfill the inclusion and exclusion criteria. The inclusion criteria were respondents with mobile phones, able to access the Google® Form questionnaire, and willing to participate in this research. The exclusion criteria were health workers who did not complete the questionnaire.

### 2.2. Research Variable

The research questionnaire was given consisted of questions regarding regulations and socialisation about the oral health of pregnant women, the minimum number of visits of pregnant women to health service facility during pregnancy, the necessity for oral health examination during pregnancy, oral health treatment package for pregnant women, advisory for pregnant women to have an oral health examination, maternal and child health manual book.

### 2.3. Data Analysis

Data collection was conducted using an online Google® Form questionnaire distributed online to the five types of health workers throughout Indonesia. Data were analysed using Microsoft® Excel and presented in tabular form.

Data were categorised into criteria according to Arikunto [7] by dividing the categories as follows: 'good' criteria if the percentage of knowledge ranges from 76% - 100%; 'fair' criteria if the percentage of knowledge is 60% - 75%; and the 'less' criteria if the percentage of knowledge is <60%. Furthermore, the calculation results were interpreted using the following criteria: none of the respondents knows if the

percentage is 0%; very few respondents know if the percentage is 1% - 19%; a small proportion of respondents know if the percentage is 20% - 39%; some respondents know if the percentage is 40% - 59%; most respondents know if the percentage is 60% - 79%; almost all respondents know if the percentage is 80% - 99%; and all respondents know if the percentage is 100% [7].

### 3. RESULTS

One hundred ninety-one respondents were willing to take part in the research and answer all questions thoroughly. The health workers consisted of dentists (49.6%), general practitioners (12.5%), midwives (27.6%), health promotion officers (8.3%), and gynaecologists (2%) (Table 1).

Respondents were originated from 36 cities and regencies in Indonesia. City origins were Aceh Besar, Banda Aceh, Bandung, Bangka Tengah, Batam, Bekasi, Bogor, Bondowoso,

Cimahi, Depok, Jakarta Barat, Jakarta Pusat, Jakarta Timur, Garut, Indramayu, Purwakarta, Jayapura, Tangerang, and Tasikmalaya. While regency origins were Bandung Regency, Cianjur, Bogor Regency, Bandung Barat Regency, Karawang, Lebak, Luwu Utara, Malaka, Malang, Palembang, Samarinda, Siak, Subang, Tangerang Selatan, Tanjung Pinang, Tegal and Yogyakarta.

Of the 191 health workers who filled out the questionnaire, only 14.1% mentioned that they were knowledgeable enough regarding the law, governor's regulations, or regent/mayor regulations regarding pregnant women's oral health. In comparison, 85.9% of them said that they did not have any knowledge at all. Another question related to the knowledge of health workers on the socialisation of government regulations such as presidential regulations and their instruments showed that only 21.5% of respondents were aware of the socialisation, while 78.5% did not (Table 2).

**Table 1. Research respondents' distribution.**

Type of Indonesian Health Worker	N	%
Dentist	95	49.6
General practitioners	24	12.5
Gynaecologist	52	27.6
Health promotion officers	16	8.3
Midwives	4	2
<b>Total</b>	<b>191</b>	<b>100</b>

**Table 2. Knowledge of five health workers, categories of knowledge, and qualitative criteria of knowledge.**

No	Knowledge of Health Workers	Percentage of Knowledge'	Categories of Knowledge	Qualitative Criteria of Knowledge
1	The governor's law, or regulations, or the regent/mayor's regulations regarding the oral health of pregnant women	14.1	Less	Very few respondents know
2	Socialisation of government regulations such as presidential regulations and their instruments regarding the oral health of pregnant women	21.5	Less	A small proportion of respondents know
3	Minimum number of visits of pregnant women to health services during pregnancy	77	Good	Most respondents know
4	Minimum number of visits of pregnant women to the Integrated Healthcare Centre (Posyandu) during pregnancy for getting oral health care	34.4	Less	A small proportion of respondents know
5	Particular desk for consultation services or oral health screening for pregnant women in the Integrated Healthcare Centre (Posyandu)	36.1	Less	A small proportion of respondents know
6	The necessity of oral health examination during pregnancy	90.6	Good	Almost all respondents know
7	Prenatal examination treatment package for pregnant women	27.6	Less	A small proportion of respondents know
8	The necessity to advise pregnant women to have an oral health examination	84.9	Good	Almost all respondents know
9	The book of manuals for maintaining oral health for pregnant women	24.1	Less	A small proportion of respondents know
10	Socialisation regarding the book of manuals for maintaining oral health for pregnant women	4.7	Less	Very few respondents know
11	Training regarding the implementation of the book of manuals for maintaining oral health for pregnant women	3.7	Less	Very few respondents know
12	Maternal and child health manual book	86.9	Good	Almost all respondents know
13	The presence or absence of oral health care treatment package in the maternal and child health manual book	31.1	Less	A small proportion of respondents know

A total of 77% of five types of health workers who filled out the questionnaire stated that they have knowledge in terms of the minimum number of visits of pregnant women to health services during their pregnancy, while 23% of them did not. Regarding the knowledge of health workers about the desks in the Integrated Healthcare Centre, and whether there was any particular desk for consultation services or oral health screening, only 36.1% had any knowledge of specific matters, while the majority (63.9%) of health workers had no such knowledge. Similar results were also shown related to the necessity for oral health examination during pregnancy, and only 9.4% of health workers had this knowledge, while 90.6% did not (Table 2).

However, prenatal examination treatment packages for pregnant women were known to 72.4% of five types of health workers, with only 27.6% had no knowledge of the specific matter. Also, 84.9% of health workers knew that they should advise pregnant women to have oral health examinations, and only a few of them (15.1%) did not know about it (Table 2).

Only a small proportion of health workers had knowledge regarding the book of manuals for maintaining oral health for pregnant women (24.1%), while the rest of them (75.9%) did not know about it. Also, only 4.7% of health workers knew the socialisation regarding the book of manuals for maintaining oral health for pregnant women, while most of them (95.3%) did not know about the socialisation. Knowledge about training regarding the implementation of the book of manuals for maintaining oral health for pregnant women was only owned by 3.7% of respondents, and 96.3% of respondents were not aware of such training (Table 1).

However, knowledge about the presence or absence of maternal and child health books was owned by most respondents, which was 86.9%, and only 13.1% of them did not have the same knowledge. Differences were observed in health workers' knowledge regarding the presence or absence of oral health care treatment package in the maternal and child health manual book, which was only 31.3%, while 68.9% did not (Table 1).

Nine out of thirteen knowledge criteria were in the 'less' category, which means 69% of health workers lacked knowledge regarding oral health services for pregnant women. Likewise, the number of respondents with the proper knowledge was found in 9 of the 13 criteria, which included a small portion of the 'knowing' respondents, and indicated that only a small proportion of health workers knew the appropriate oral health services for pregnant women.

#### 4. DISCUSSION

Five types of health workers in this research were dentists (49.6%), general practitioners (12.5%), midwives (27.6%), health promotion officers (8.3%), and gynaecologists (2%) (Table 1). The dentist's response in this study was higher because the dentist got more online questionnaire links compared to other health workers.

##### 4.1. The Participants Responses

Fincham [8] stated that response rates are the number of

usable responses returned divided by the total number eligible in the sample chosen and emphasized the importance of the high value of response rate ( $\pm 60\%$ ) as a determinant of the questionnaire's success in raising respondent's return. However, Mitchell [9] suggested that the number of undeliverable questionnaires from the initial sample should also be calculated to obtain the denominator because a 60% response rate is equivalent to a 40% nonresponse rate. Mitchell [9] also stated that this rate calculation only determines the questionnaire's success in the survey returned response but not masks potential significant sample selection bias.

##### 4.2. Five Types of Indonesian Health Workers' Knowledge Regarding Oral Health Services for Pregnant Women

The knowledge of the health workers regarding the law, or governor's regulations, or regent/mayor regulations regarding the oral health of pregnant women, and also, regarding the socialisation of government regulations such as presidential regulations and their instruments regarding the oral health of pregnant women was in the 'less' criteria. These circumstances were similar to what Berman *et al.* [10] suggested that the policymakers lack understanding regarding the science-based public health policies. We may realise that science and policy will never be fully aligned. However, vital public health advances can still happen if scientists and other stakeholders synergise informing policy [10]. The occurring gaps can hamper public health progress, especially for the group of pregnant women.

Most respondents knew the minimum number of visits of pregnant women to health services during pregnancy. Thus, the knowledge regarding such matter was in the 'good' criteria. The minimum visit during pregnancy is four times, as stated in the Republic of Indonesia Health Law No. 97 of 2014 regarding oral health care during pregnancy [11]. Oral health services during pregnancy are performed at least four times during the gestational period. Once in the first trimester, once in the second trimester, and twice in the third trimester [11]. There is a positive relationship between health care worker counselling through sharing sessions with pregnant women concerning the oral health care measure and its importance for a healthy pregnancy [12].

The health workers' knowledge regarding a particular desk for consultation services or oral health screening of pregnant women in the Integrated Healthcare Centre was in the 'less' category. These results are consistent with the research's findings conducted by Didah [13], which stated the lack of knowledge regarding Desk IV in the Integrated Healthcare Centre. Implementation of services in the Integrated Healthcare Centre is held in the five-desks system that includes: Desk I, which serves the registration and recording of infants, toddlers, pregnant women, nursing mothers, and spouses of childbearing age; Desk II, which serves the weighing; Desk III, which serves the filling of the Growth Chart (Kartu Menuju Sehat - KMS) based on the weighing results; Desk IV, which serves information on whether or not a baby or toddler is gaining weight, high-risk pregnant women, couples of childbearing age who are not yet acceptors of Family Planning Contraception (KB), health education and supplementary feeding services,

oral rehydration therapy, vitamin A, iron tablets, condoms, Family Planning Contraception pills for repeated visits; Desk V, which provides immunisation, pregnancy check-ups, medical check-ups and medication, and Family Planning Contraception intrauterine device (KB IUD) services or injections [13]. From interviews and observations, it was revealed that health workers rarely used these Integrated Healthcare Centre desks, and in this case, Desk IV, to provide oral health consultation or screening services. Also, the desks in the Integrated Healthcare Centre are often not fully available [13].

The health workers' knowledge regarding the necessity of oral health examination during pregnancy and to advise it to the pregnant women were in the 'good' category. These results, however, are different from the findings suggested by Muralidharan and Merrill [12], that only a few health care workers converse with pregnant women regarding oral health care during pregnancy [12], whereas this is very important to be done due to the insufficient knowledge related to oral care among pregnant women. Bamanikar and Kee [14] also stated that most (96.8%) pregnant women agree that they should have oral health examination during pregnancy; however, not all of them (55.9%) practice it, which raises serious concern since extra oral care for pregnant women is necessary due to susceptibility to gingival disease, which may induce low birth weight babies and premature births [14].

Knowledge of health workers regarding oral health care manual for pregnant women was found in the 'less' category. This result was shown from the fact that only 1 out of 191 health workers had any knowledge regarding this book, and this result also indicates that the goal of this book is not achieved, which should be a guideline for the maintenance of oral health in pregnant women and children under five for health workers in health service facilities, and used as a reference in the implementation [15].

In this study, only a few health workers had any knowledge of socialisation and training regarding manuals for maintaining oral health for pregnant women. This result, however, was not consistent with the research conducted by Suwargiani *et al.* [16], which stated that manuals with no socialisation and training would not increase the knowledge of an individual.

The health workers' knowledge regarding maternal and child health manual book was in the 'good' category. This result was supported by the research conducted by Khuzaiyah *et al.* [17], which also found that health workers are always encouraged to use the maternal and child health manual books as educational media for mothers and their families to motivate them to utilise the manuals more optimally. Knowledge of maternal and child health books is essential because comprehensive and integrated antenatal health services in public and private health facilities and private practitioners/clinics are necessary. This effort must include promotive, preventive, curative, and rehabilitative programs, and the manuals are amongst the instrument for reducing infant/maternal mortality [17].

The maternal and child health manual book contains

essential information regarding maternal and child health. The maternal and child health manual book is not only used as a medium for documenting midwifery services but can also be used by mothers and families to increase knowledge regarding maternal and child health. Maternal and child health manuals are given to predetermined targets as an educational medium for midwives, to mothers and families to increase knowledge and attitudes so that their families can jointly raise the mother and children's health [17].

As many as 69% of health workers did not know about oral health services for pregnant women. This knowledge level was consistent with the Committee on Health Care for Underserved Women [18], which analysed postpartum survey data obtained from the Pregnancy Risk Assessment Monitoring System in 10 states. During pregnancy, 56% of mothers never had any oral treatment, and even 60% of them never brushed their teeth during their most recent pregnancy. This may be due to the lack of counselling from the health workers serving them in their chosen health facilities [18, 19]. Although most obstetricians acknowledged a dire need for oral health care during pregnancy, 80% of them never performed oral health screening interviews in every prenatal visit, while 94% did not refer all of their patients for a routine oral health examination [20]. Most obstetricians and dentists agreed that oral health service for pregnant women is necessary. However, many dentists were also concerned with the safety of dental procedures and medications [17, 20].

Patient-centred care must be emphasised to be delivered by all health professionals as interdisciplinary team members. This treatment emphasizes evidence-based practice and also quality improvement and informative approaches. In the 21<sup>st</sup>-century health care system, providing patient-centred care is one of the core competencies that all health workers should possess. The health workers must be able to identify, respect, and care for the patients' differences, values, preferences, and expressed needs. This care system intends to relieve the patients' pain and suffering and provide continuous and coordinated treatment. The health workers need to listen, respond with precise information, and educate patients with two-way communication. Shared decision-making and management between health workers and patients must be implemented in any stage of treatment, as well as the continuous advocacy of disease prevention, wellness, healthy lifestyle, which includes a focus on population health [21].

#### **4.3. Implications for Behavioural Health**

Knowledge of health workers regarding oral health services for pregnant women needs to be enhanced to improve the oral health service system for pregnant women in Indonesia. The oral health service system for pregnant women must be solid to protect pregnant women from the effects of the oral cavity infection through caries and chronic periodontal diseases with focal infections and complications.

Nine out of thirteen knowledge items regarding oral health care for pregnant women in five types of health workers are noted in the poor level. These results indicate the need to improve particular knowledge because appropriate oral health care will decrease the focal infection risk, which, in turn, will

increase the quality of life of pregnant women and prevent the incidence of premature babies and low birth weight babies. Increasing knowledge of health issues can simultaneously increase the knowledge, attitudes, and practices of pregnant women to maintain their oral health and have positive effects on their infants' health.

#### 4.4. Study Limitations

This study's limitation is the limited health workers type; thus, this study might not describe the overall condition of health workers in Indonesia. Many health workers are reluctant to write down their factual knowledge. Also, the samples were taken by accidental sampling, not randomly, with the sample frame.

#### CONCLUSION

Five different types of Indonesian health workers are not knowledgeable enough regarding the importance of oral health services for pregnant women. Only a small portion of Indonesia's health workers have adequate knowledge regarding appropriate oral health services for pregnant women. In the future, the government must provide motivation and encourage education regarding the importance of a similar survey, which will be useful in reducing the reluctance of health workers to participate in other supporting studies.

#### ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study has been approved by the Health Research Ethics Committee, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia (Number 873/UN6.KEP/EC/2020).

#### HUMAN AND ANIMAL RIGHTS

No animals were used in this research. Every procedure and ethical aspects involving human subjects were entirely under the World Medical Association Declaration of Helsinki.

#### CONSENT FOR PUBLICATION

Informed consent was taken from the participants to be involved in this study.

#### STANDARDS OF REPORTING

STROBE guidelines and methodology were followed

#### AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of the article are available from the corresponding author [A.A.S] on reasonable request.

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None.

#### CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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Declared none.

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