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Important Factors Affecting Labor and Childbirth Readiness Among Primigravida Women in Jakarta, Indonesia

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ABSTRACT
Maternal complications are the leading cause of maternal mortality worldwide, most of which are preventable. Birth planning is necessary to encourage the readiness to give birth. Particularly for primigravida, the moments of pregnancy, childbirth and even breastfeeding are first experiences for them, primigravida mothers need more attention. Aim: This study aimed to identify factors associated with the readiness of primigravida mothers in facing labor and childbirth. This research identifies knowledge as the most crucial factor in labor and childbirth readiness among primigravida mothers, highlighting its predominance over other variables such as age and education. This cross-sectional study was conducted in 2023. The research sample was primigravida pregnant women who were in the independent practices of midwives in DKI Jakarta Province. The sample size was 128 participants selected by stratified random sampling. Data were collected using a two-part questionnaire: demographic data and childbirth readiness, then analyzed using SPSS software. Descriptive statistics, cross tabulation, and multiple logistic regression were used for statistical analysis. Variables associated with labor and childbirth readiness are: age, level of education, knowledge, and exposure to information (p-value <0.05) which come up as the predictors to the readiness of the participants. Possessing knowledge about labor and childbirth preparation was the most dominant factor in predicting the mothers' readiness (OR: 11.3). This study concludes that knowledge was the most important factor to influence mother readiness. Improving knowledge of pregnant women is the key to be more prepared in dealing with labor, childbirth, and beyond.

Keywords: Birth, Readiness, Primigravida

INTRODUCTION
Many women experience problems during pregnancy and childbirth, and even in the period after giving birth which may lead to maternal death. Whereas, maternal mortality is a priority issue that must be resolved immediately, for the reason that maternal health is an indicator of the health condition of the nation's generation. Maternal mortality is caused by poor delivery preparedness and handling of complications in the community. But with the right care at the right time, the vast majority of maternal deaths can be prevented [1]. As reported by the World Health Organization (2019), maternal complications are the largest contributor to the maternal mortality rate (MMR) in the world. The incidence of untreated maternal complications will cause death due to late recognition of danger signs so that it is late to make decisions, late to refer, and late in getting services at health facilities [2].

According to the data of Jakarta Health Department, in 2020, pregnant women with complications experienced a slight decrease compared to 2019. Of the total 191.360 pregnant women in 2019, 20% of them (38.272 pregnant women) experienced complications. Meanwhile, in 2020, out of 183.617 pregnant women in DKI Jakarta Province, 19.99% (36.723) experienced obstetric complications. Although there is a downward trend, the

incidence of complications must still be suppressed in order to reduce MMR in Indonesia and around the world [3].

For these reasons, Indonesia has a program encouraging the reduction of maternal complications and mortality, namely planning and prevention of complications program (P4K). The planning and prevention of complications program is an Indonesian government program that aims to prepare for childbirth and prevent complications [4]. This program is consistent with WHO recommendations that interventions to prepare for childbirth and to prevent complications are an important part of antenatal care (ANC) [5]. An analysis study by Himalaya & Maryani (2020) proves that pregnant women who do not prepare childbirth by applying P4K tend to have complications and vice versa [6]. It can be said that birth preparation is essential.

Preparing for childbirth and preventing complications should be planned from the time of pregnancy. As recommended by WHO (2015), the preparation consists of: preferred place for delivery, who will assist with delivery (birth attendant), the nearest health facility as a referral in case of complications, preparation for the cost of labor and complications (if any), items to bring to the health facility, labor and birth companions, support from family willing to take care of the house and children, a vehicle to get to the health facility during labor or referral in case of complications, and potential blood donors willing to donate at any time if needed [5, 7]. All of these components need to be discussed and planned well with the pregnant woman's partner and the closest family members [5].

In addition to the above, the psychological aspect must also be in place. For primigravida mothers, especially, a lot of things have to be carefully planned and prepared in the face of labor and delivery. As stated in the findings of Alatawi, et al (2021), approximately 65% of primigravida mothers had a moderate level of knowledge regarding preparing for childbirth, almost 97% had a good attitude towards labor preparation, but only about 58% of them had a good level of practice in preparing for childbirth [8]. These findings show that considering that pregnancy, childbirth and even breastfeeding are first experiences for them, primigravida mothers need more attention.

Therefore, authors were fascinated to identify factors associated with birth readiness among primigravida women. The main objective of this study was to find out important factors related to the readiness of primigravida mothers in facing labor and childbirth.

This is a quantitative study using cross-sectional study design. This research has been carried out in 2023 and was located in independent practices of midwives in the DKI Jakarta Province area, consisting of five cities. The population of this study were pregnant women who were in the independent practices of midwives in the DKI Jakarta Province area. The research sample was primigravida pregnant women who were in the independent practices of midwives in the DKI Jakarta Province area. Primigravida mothers who were not able to follow the entire research series to completion became the exclusion criteria for this study. In order to address potential sources of bias, stratified random sampling was carried out in the sample selection in this study. There are 657 independent midwife practices in the DKI Jakarta area, which are divided into 34 in Central Jakarta, 93 in North Jakarta, 186 in West Jakarta, 132 in South Jakarta and 236 in East Jakarta.

To calculate the sample size, the calculation formula was used according to Lemeshow et al. (1997), as shown in Figure 1.

$$n = \frac{\left\{ z_{1-\alpha/2}\sqrt{2\bar{P}(1-\bar{P})} + z_{1-\beta}\sqrt{P_1(1-P_1)+P_2(1-P_2)} \right\}^2}{(P_1-P_2)^2}$$

Fig 1. Sample Size Calculating Formula

Hence, the sample size in this study was 128 respondents, included 7 respondents in Central Jakarta, 18 in North Jakarta, 35 in West Jakarta, 25 in South Jakarta and 43 in East Jakarta.

A questionnaire was used to collect the data, including demographic data and questions about childbirth readiness. Demographic data questions identified age, education level, occupation, and obstetrics history. Whilst, the childbirth readiness questionnaire was adapted and modified based on Indonesia program, namely Childbirth Planning and Complication Prevention Program (Program Perencanaan Persalinan dan Pencegahan Komplikasi/P4K). It measures the mother's readiness to face childbirth, including physical, psychological, financial, information/knowledge, transportation, potential blood donors, place of delivery, and birth attendants.

As many as 128 respondents filled questionnaires were collected. There was no missing data in the questionnaires of this study. Data was analysed utilizing SPSS software. Characteristics of the respondents was analysed using descriptive statistics. In order to determine if there is statistical relationship between dependent and independent variables, cross tabulation was used. Whereas, to identify dominant factors affecting mother readiness, this study used multiple logistic regression. This study has obtained ethical review from the Research Ethics Committee at the University of Respati Indonesia (No: 416/SK.KEPK/UNR/VII/2023). The research subjects were given information about the research to be carried out including: procedures, inconvenience, benefits, volunteerism, confidentiality of compensation data, and contact persons who can be contacted if there are things that need to be discussed about the research. This study gave respondents the freedom to participate or refuse to participate in research without affecting their rights as clients. Research subjects were free to determine their participation in the study. If they had decided to participate, but at the time of carrying out the intervention and filling out the research instrument, they felt uncomfortable, the research subject was free to resign at any time without conditions.

RESULTS AND DISCUSSION

This study collected quantitative data using questionnaire for third trimester of first-time pregnant women in five cities of Jakarta Province Indonesia. The quantitative results in this study are presented in Table 1.

Table 1. Characteristics of the Respondents in Jakarta Province (n=128)

Characteristics	n	%
Mothers' Age		
≥20 years old	109	85,2
<20 years old	19	14,8
Education		
High	110	85,9
Low	18	14,1
Occupation		
Occupied	65	50,8
Not occupied	63	49,2
Knowledge Level		
Good	105	82,0
Less	23	18,0
Information Exposure		
Exposed	108	84,4
Not exposed	20	15,6

Source: Primary data, 2023

Table 2 explains that most of mothers' age (85.2%) were at 20-35 years old and most of the mothers' education level was high (at least senior high school or higher), as much as 85.9%. In the occupation variable, half of the respondents (50.8%) were working mothers. The majority of pregnant women had good knowledge (82.0%). In the variable of information exposure, though most of respondents were exposed to information, it was still found that primigravida mothers who were not exposed to information about

labor and childbirth, counted as many as 20 respondents (15.6%).

Based on the Table 2, there is a relationship between the age of the mother and the readiness of primigravida mothers in facing labor as indicated by a p-value of 0.000 (<0.05). The statistical test results on the education variable obtained a p-value of 0.001 which means there is a significant relationship.

The results of statistical tests on occupation obtained a p-value> 0.05 which means there is no significant relationship with maternal readiness. In the variable knowledge and exposure to information, the statistical test results obtained a p-value of 0.000, which means that knowledge and exposure to information have a significant relationship to the readiness of primigravida mothers in facing labor.

Table 2. Bivariate Test Result of Respondents' Characteristics with Primigravida Mother's Readiness to face Childbirth in the DKI Jakarta

Variable	Mother Readiness				Total		p-value	OR 95% CI
	Ready		Unready					
	N	%	N	%	n	%		
Age								
≥ 20 years old	94	86,2	15	13,8	109	100	0,000	8,617
< 20 years old	8	42,1	11	57,9	19	100		(2,981-24,903)
Education Level								
High (at least senior high school)	93	84,5	17	15,5	110	100	0,001	5,471
Low (junior high school or lower)	9	50,0	9	50,0	18	100		(1,898-15,770)
Occupation								
Occupied	56	86,2	9	13,8	65	100	0,104	2,300
Not occupied	46	73,0	17	27,0	63	100		(0,938-5,640)
Knowledge Level								
Good	96	91,4	9	8,6	105	100	0,000	30,222
Less	6	26,1	17	73,9	23	100		(9,526-95,886)
Information Exposure								
Exposed	96	88,9	12	11,1	108	100	0,000	18,667
Not exposed	6	30,0	14	70,0	20	100		(6,036-57,731)

Source: Primary data, 2023

From the Table 3, it is found that primigravida mothers who were <20 years had lower readiness in facing labor 4.7 times than mothers who were ≥ 20 years old. Likewise, mothers with low education had lower readiness 4.7 times compared to mothers with higher education. Next up, first-time pregnant mothers who had less knowledge had lower readiness in facing labor 11.3 times than mothers with good knowledge. Respondents were categorised as having low knowledge if their score on the childbirth preparation questionnaire was lower than the mean score for all respondents, whereas respondents were categorised as having high knowledge if their score on childbirth preparation was higher than the mean score for all respondents. Primigravida pregnant women who were not exposed to information had

the readiness 4.8 times lower than mothers who are exposed to information in readiness to face labor.

Table 3. Multivariate Test Results of the Relationship between Age, Education, Knowledge and Information Exposure with the Readiness of Primigravida Mothers in Facing Labor in the DKI Jakarta Region

Variable	P-value	OR	95% CI	
			Lower	Upper
Age	0,032	4,7	1,413	19,630
Education level	0,038	4,7	1,087	20,839
Knowledge	0,001	11,3	2,766	46,496
Information exposure	0,048	4,8	1,017	23,570

Source: Primary Data, 2023

This study involved primigravida mothers as the participants to identify their readiness in facing labor and childbirth. The findings of this study provide information that there are several variables associated with labor and childbirth readiness: age, level of education, knowledge, and exposure to information which come up as the predictors to the readiness of the participants.

Firstly, mothers' age is broadly an indicator of maturity in every decision making that refers to each of their experiences. In this study, the age of the pregnant mothers significantly influenced their readiness in facing labor and childbirth. Specifically, pregnant women who were at least 20 years old were more probable to be ready in the face of labor and childbirth. Being old enough to enter into marriage and pregnancy will help a person in maturity in dealing with problems, in this case facing pregnancy and changes during pregnancy. In addition, previous literature has shown that they are more likely to have a positive experience of giving birth than younger mothers [9].

Conversely, with an age of less than 20 years, the possibility of maturity of thought and behavior is also lacking, especially facing changes and adaptations during pregnancy. Besides that young age, the reproductive system is immature, so there may be a risk of disturbances or complications during pregnancy [10]. This will have an impact on minimal preparation for childbirth and can have a negative impact during the delivery process. Furthermore, the adolescent pregnancies have a higher risk of complications for both mother and child [11], including more likely to give birth prematurely and higher risk of neonatal death [10].

The findings of this study show that neither working nor not working mother did significantly influence mothers' readiness in facing labor and childbirth. Work describes how a person's activities and the level of economic welfare obtained from these activities. However, Dartiwen & Yati Nurhayati's in their study reported that working mothers have a better level of knowledge than non-working mothers. This is because working mothers have chance to interact with each other among their coworkers, so they are more likely to get information about what they are going through [12].

The mother's readiness for childbirth also depends on her level of education. Education is a process of teaching and learning for everyone which the result is a set of behavioural changes. This is in agreement with a study in Ghana that one of the reasons that most pregnant women were not adequately prepared for childbirth was low educational attainment [13]. A person with a lower education will have a different behaviour from a person with a higher education [14]. In addition, the high level of education of respondents affects the willingness and ability of mothers to seek information related to health problems that may be experienced [15].

The level of education is also one of the factors that influence the ease of receiving information so as to support the knowledge possessed. Nonetheless, for some things the knowledge possessed depends on the amount of information obtained. Even though someone has a low level of education, the more information received, the better knowledge he has [16]. Particularly, third trimester pregnant women who are active in attending antenatal care, actively consulting with midwives or actively digging up information about childbirth, will obtain a lot of information so that the knowledge they have is getting better even though their education level is low.

Importantly, based on the findings of this study, the most powerful factor affecting maternal readiness is knowledge. Good knowledge about childbirth is very beneficial for pregnant women. According to the finding of this study, possessing good knowledge about labor and childbirth is the highest predictor influencing the mothers' readiness. This is in compliance with a study by Aritonang, et al (2020) which reveal that sufficient knowledge about labor and childbirth, and supported by good support from family and health workers can reduce anxiety in third trimester pregnant women [17]. A lack of worry is one of important aspects of maternal readiness.

The knowledge that pregnant women have about labor and childbirth affects their behavior in preparing and facing labor. A good attitude in the face of labor and childbirth will form a positive response about childbirth, so that the mother is able to respond to what they are needed both physically and mentally in the face of labor [18]. And this contributes to prevent complications that may occur in the process of labor [18]. This is also accordance with a literature which demonstrate that increasing pregnant women's knowledge about safe pregnancy through the process of labor and postpartum is one of the factors that can optimize efforts to reduce the incidence of complications and deaths of mothers, infants, and young children [6].

Thus, improving knowledge of pregnant women is the key to be more prepared in dealing with labor, childbirth, and beyond. Further studies should initiate a strategy to educate pregnant women about planning for childbirth and preventing complications.

Limitations of the Study

This study has limitations. The population in this study represents only one province in Indonesia, namely DKI Jakarta, consisting of 5 administrative cities. Therefore, the study included small number of samples that is 128 respondents. However, this study used stratified random sampling in order to minimize the bias.

CONCLUSION AND RECOMMENDATION

This study concludes that primigravida mothers who had better knowledge about labor and childbirth, were shown to have much better readiness in facing labor and childbirth. In other words, having more knowledge is proven to be the best predictor for primigravida to be well-prepared in facing labor and childbirth. The fact that there are still pregnant women who are not exposed to information about childbirth preparation is an issue that must be resolved so that midwives and health workers should improve exposure to more massive information and education in order to increase the coverage of maternal readiness.

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