The correlation of mother’s knowledge as a risk factor for preterm delivery, study in: Puskesmas Pamitran, Pekalangan, Astanagarib, and Pulasaren in Cirebon City

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Abstract. Preterm birth is birth that takes place less than 37 weeks. The incidence of preterm birth is still quite high, with the number of preterm birth estimated and around 15 million every year in the world. This study aims to determine the relationship between mother’s knowledge as a risk factor of preterm birth in Puskesmas Pamitran, Pekalangan, Astanagarib, and Pulasaren Cirebon. This research is Descriptive and Analytic using Case Control design. The population of this study were mothers with a history of preterm birth at Puskesmas Pamitran, Pekalangan, Astanagarib, and Pulasaren Cirebon City in 2015-2016. The description of mother’s knowledge with birth history of preterm in good category is 17 (89,5%) and less category is 2 (10,5%) and mother’s knowledge with normal birth history mostly in good category that is 31 (81,6%) and less as much as 7 (18,4%), maternal birth history mostly normal. The result using Chi-square correlation obtained P value of 0.703, it can be concluded that no relation between mother’s knowledge to the risk of preterm birth in Puskesmas Pamitran, Pekalangan, Astanagarib and Pulasaren in Cirebon City.

1. Introduction
Preterm birth is birth that occurs at the pregnancy age 37 weeks or less. Preterm birth remains a big problem in the world with an estimated of 15 million preterm births yearly worldwide [1]. The number of preterm births differs from country to country. In developed countries in Europe, preterm births are between 5 to 11%. In the US, in the 2000s, one in nine babies were born preterm (11.9%), and in Australia, preterm birth is around 7%. Meanwhile, in developing countries, such as India, the preterm birth rate is around 30%, South Africa with 15%, and Sudan 31% [2].

WHO recorded that preterm births in Indonesia in 2010 is 15.5 per 100 live births and put Indonesia in position 9 from 184 countries. Preterm births in Indonesia in 2016 is 4.1% [3]. Thus, to predict the likelihood of preterm birth, several conditions that can cause contractions should be examined, causing preterm birth or a doctor forced to end the pregnancy at the time of pregnancy is not enough months [4].

Etiology and risk factors for preterm birth is a multifactorial process. Combination of obstetric, sociodemographic, and medical factors have effects on the occurrence of preterm birth. Individual risk includes uterine extensive distention, premature rupture of membrane, and/or trauma. Many of the preterm births are a result of pathogenic processes from biochemical mediators that have an impact on uterine contractions and cervical changes, such as activation of the hypothalamic-pituitary-adrenal gland
axis both in the mother and fetus due to stress to the mother or fetus, desidua-chorioamnion or systemic inflammation due to ascending infection of the genitourinary tract or systemic infection, decidual bleeding, pathological uterine stretch, uterine or cervical abnormalities [5]. Conditions during pregnancy are at risk for preterm birth, such as [5]:

A) Maternal factors

- Age of pregnant women
- Parity
- Diseases in the mother
- Psychological stress
- A history of preterm birth
- Trauma
- Diabetes mellitus
- Preeclampsia
- Eclampsia
- Intrauterine and extra uterine infections.

B) Fetal and placental factors

- Antepartum bleeding (placenta previa, placental abruption)
- Early rupture of membranes (KPD)
- Stunted fetal growth
- Fetal congenital defects
- Gemelli pregnancy and also influenced by

C) Lifestyle factors

- Smoking
- Alcohol
- Stress

Knowledge according to Notoatmodjo is the result of "know" and this occurs after people sense a particular object. Knowledge or cognition is a very important domain in shaping one's actions or with others, which means that knowledge has an influence as an initial motivation for someone to behave. The level of knowledge is the result of human sensing, or the result of knowing someone to an object through their senses (eyes, nose, ears, etc.) [6].

Previous study by Sri Wahyuni found that many mothers did not know about preterm, resulting in preterm birth. Seeing the negative impact of preterm labor not only on perinatal death but also on morbidity, potential future generations, mental disorders and economic burdens for families and nations, Indonesia must be determined to reduce the incidence of preterm births, which if successful, pregnant women can find out what risks cause preterm birth and affect the incidence of preterm births that will decrease [6].

The level of maternal knowledge and the factors that affect the level of knowledge of mothers are not all the same, but different [6].

A) Level of mother's knowledge

- Know
- Understanding
- Application (application)
- Analysis (analysis)
- Synthesis
- Evaluation (evaluation)
B) Factors that affect the level of knowledge of the mother

- Education
- Mass media or information sources
- Socio-cultural and economic
- Environment
- Experience

In a previous study examined by Purnomo, there were 38.3% of the preterm incidence in Cirebon city obtained from 4 Puskesmas in Cirebon City consisting of 10.8% Pamitran Health Center, 10.8% Pekalangan Health Center, Astanagarib Health Center 5.83%, and Pulasaren Health Center 10.8% [7].

Based on the description above the incidence of preterm births in Cirebon City is still quite high, the researchers wanted to conduct a study on the relationship between the level of maternal knowledge and the risk of preterm birth.

2. Materials and method

This is an analytical descriptive using the case-control research design. The level of maternal knowledge as a risk factor for preterm birth in the Pamitran, Pekalangan, Astanagarib, and Pulasaren Health Centers in Cirebon City using primary data taken from the questionnaire. The subjects were pregnant mothers with the fulfilled the inclusion criteria of mothers with a history of preterm birth in the work area of Pamitran, Pekalangan, Astanagarib, and Pulasaren Health Centers in Cirebon City in 2015-2016. Subjects were excluded if they are not willing to be respondents. Control group were recruited from mothers who have a term (normal) children in Pamitran, Pekalangan, Astanagarib, and Pulasaren Health Centers in Cirebon City in 2015-2016.

The study was conducted in January-February 2018. The results of the research were carried out in the Pamitran, Pekalangan, Astanagarib, and Pulasaren Health Centers in Cirebon City with total sampling. The independent variable in this study is the level of knowledge of the mother. The dependent variable in this study was preterm birth.

This research has received an ethical clearance commission approval with NO.77/EC/FK/XI/2017 by the Medical Faculty of Universitas Swadaya Gunung Jati.

3. Results

3.1. Univariate analysis

Mothers with a history of preterm birth shows in the table 1.

| Preterm History Birth | F    | %     |
|-----------------------|------|-------|
| Moderate to late      | 11   | 57.9  |
| Very Preterm          | 7    | 36.8  |
| Extremely Preterm     | 1    | 5.3   |
| Total                 | 19   | 100.0 |

Table 1 above shows that mothers with a history of preterm birth were mostly in the moderate to late category with 11 (57.9%), preterm births in the very preterm category were 7 (36.8%) and only 1 within the extremely preterm birth category (5.3%).
3.2. Bivariate analysis

The level of knowledge of mothers with a history of preterm birth shows in Table 2.

Table 2. Frequency distribution of mother's level of knowledge regarding preterm in Pamitran, Pekalangan, Astanagarib and Pulasaren Health Centre’s in Cirebon City.

| History Birth | Knowledge Preterm | Total | P value |
|---------------|-------------------|-------|---------|
|               | F     | N     | F     | N     | F     | N     |         |
| Less          | 7     | 18,4% | 2     | 10,5% | 9     | 15,8% | 0.703   |
| Good          | 31    | 81,6% | 17    | 89,5% | 48    | 84,2% |
| Total         | 38    | 100,0%| 19    | 100,0%| 57    | 100,0%|

Table 2 above shows that the level of knowledge of mothers with a history of preterm birth is mostly in the good category, as many as 17 (89.5%) and less that is 2 (10.5%) and the knowledge level of mothers with normal birth history is mostly in the good category that is as many as 31 (81.6%) and less that is as much as 7 (18.4%).

3.3. Relationship between mother's knowledge levels as risk factors for preterm birth

The results of the statistical test using Chi-square test showed p-value of 0.703 with a significant level of 0.05, the value of p value 0.703 ≥ 0.05, it can be concluded that there is no relationship between the level of knowledge of mothers as the risk of preterm birth in Pamitran, Pekalangan, Astanagarib and Pulasaren in Cirebon City.

4. Discussion

The results of the study showed that the history of preterm birth showed that mothers with a history of preterm birth were mostly in the moderate to late category of 11 (57.9%), preterm births in the very preterm category were 7 (36.8%) and preterm births in the extremely preterm category were 1 (5.3%). The existence of mothers who experience extremely preterm births shows that births in the city of Cirebon still need special attention, especially in Pekalangan Health Center. Mothers who experience preterm birth within the extreme category have age 29 years with a high school education background, age 29 years is a safe age for pregnancy and childbirth.

The results of the study illustrate the level of maternal knowledge about preterm, indicating that the level of knowledge of mothers with a history of preterm birth was mostly in the good category, as many as 17 (89.5%) and less (10.5%) and the level of knowledge of mothers with normal birth history mostly in the good category as many as 31 (81.6%) and less that is as much as 7 (18.4%). The results of the statistical test using Chi-square test showed that the value of most value 0.703 with a significant level of 0.05, the value of p value 0.703 ≥ 0.05, it can be concluded that there is no relationship between the level of knowledge of mothers as the risk of preterm birth in Pamitran, Pekalangan, Astanagarib and Pulasaren in Cirebon City.

In contrast to the results of research conducted by Sri Wahyuni, it was shown that there was a knowledge relationship with preterm birth in the Maternity Room at Meuraksa Hospital in Banda Aceh City (p = 0.030). There was also a relationship between the attitude with preterm labour in the Maternity Room at the Meuraksa General Hospital in Banda Aceh City (p = 0.001). While the results of this study, there was no correlation between the level of maternal knowledge as the risk of preterm birth in Pamitran, Pekalangan, Astanagarib and Pulasaren Health Centre’s in Cirebon City. The difference in research results could occur due to differences in the location of the study, the location of Puskesmas in the City, the number of Puskesmas was only 4 Puskesmas and the number of respondents was only 57 respondents obtained from the case group i.e. mothers with a preterm birth history of 19 respondents and the control group i.e. mothers with a birth history 38 respondents were normal, and the level of
knowledge of mothers in the 4 health centre’s was in a good category, which caused a difference in results.

From the results of this study, there was no relationship between the level of knowledge of mothers as a risk factor for preterm birth. Factors affecting preterm birth, such as placenta previa, preeclampsia and eclampsia, may play a more important role because it endangers the lives of mothers and their babies and medical intervention may cause preterm birth [4].

Research conducted by Purnomo showed a relationship between maternal age and the incidence of preterm labour. That pregnant women with ages below 20 years or above 35 years are at risk of having preterm labour. From the results of this study, there was no relationship between the level of knowledge of mothers as a risk factor for preterm birth [7].

Age 20-35 years is a good age for pregnancy because it has a small risk of preterm birth. Women under the age of 20 experience risks in pregnancy because their reproductive organs or organs are not ready to accept pregnancy and childbirth, so the risk of preterm birth is higher [8,9,10].

Women over the age of 35 years and above, at that age women begin to experience the aging process, where reproductive organs experience a decline in function that can affect the acceptance of pregnancy and childbirth so that it is risky to give birth to a preterm baby [8].

While the results of this study found that mothers who experienced preterm birth with the category of extreme preterm having the age of 29 years with a high school education background, the age of 29 years is a safe age for pregnancy and childbirth.

Based on the results of data processing and the results of the discussion regarding the relationship between the level of maternal knowledge as a risk factor for preterm birth, it can be concluded that there is no relationship between the level of maternal knowledge of the risk of preterm birth in Pamitran, Pekalangan, Astanagarib and Pulasaren Health Centre’s in Cirebon City.

5. Conclusion
No correlation between mother's knowledge as risk factor of preterm birth in Puskesmas Pamitran, Pekalangan, Astanagarib and Pulasaren in Cirebon City.

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