Research Article

The Relationship Between Early Marriage and The Incidence of Retained Placenta

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Abstract: According to the World Health Organization (WHO), in 2015 the global maternal mortality rate (MMR) reached 303,000 deaths. In Indonesia, the MMR for the same year was 305 maternal deaths per 100,000 live births, significantly higher than the national target of 75 per 100,000 live births. The top five causes of maternal death in Indonesia include hemorrhage (30.3%), hypertension in pregnancy (27.1%), infection (7.3%), prolonged labor (1.8%), and abortion (1.6%). One complication that can contribute to maternal morbidity and mortality is placental retention, a condition in which the placenta fails to be delivered within 30 minutes after childbirth. In 2016, 51 cases of placental retention were reported in the study area, raising concerns about its prevalence and contributing factors. This study aimed to determine the relationship between maternal age and the incidence of placental retention. An analytic survey method was applied using secondary data, with a total population of 398 mothers and a sample of 80 respondents selected through purposive sampling. Data analysis employed chi-square testing. The findings revealed that the majority of respondents were not in the at-risk age group (61 respondents or 76.2%), and most did not experience placental retention (64 respondents or 80%). However, statistical analysis demonstrated a significant relationship between maternal age and placental retention, with a p-value of 0.001, indicating that age is a contributing factor. In conclusion, maternal age plays a significant role in the occurrence of placental retention, emphasizing the importance of adequate maternal health education, early antenatal care, and close monitoring during delivery, especially for those in high-risk age categories. Targeted interventions to address age-related risks may help reduce maternal complications and contribute to lowering the maternal mortality rate.

Keywords: Age; Delivery; Maternal; Mortality; Retention

1. Introduction

Maternal Mortality Rate (MMR) is an indicator of the success of health services in a country. According to the World Health Organization (WHO) report in 2015, the global Maternal Mortality Rate (MMR) was 303,000 deaths. The MMR in Southeast Asian countries was as follows: Indonesia 190 per 100,000 live births (LB), the Philippines 120 per 100,000 LB, Vietnam 49 per 100,000 LB, Malaysia 29 per 100,000 LB, and Brunei 27 per 100,000 LB. According to the Indonesian Demographic and Health Survey (IDHS) in 2012, Indonesia's MMR was 359 per 100,000 LB. The five leading causes of maternal mortality in Indonesia were hemorrhage (30.3%), hypertension during pregnancy (27.1%), infection (7.3%), prolonged labor (11.8%), and abortion (11.6%).

Retained placenta is one cause of hemorrhage in delivering mothers. Retained placenta in delivering mothers can be influenced by age and parity. The ages at risk of experiencing retained placenta are under 20 years old and over 35 years old. (Kholtijah, Midwifery Academy YLPP Purwokerto, D3 Midwifery program). Age is the individual's age calculated from birth until the current age in years (Nursalam, 2011 in Elindang, 2011, Akbid Griya Husada Surabaya).

Retained placenta is defined as a placenta that has not been expelled within half an hour after the baby is born. (Rukiyah, 2009, p. 152). Placenta that is difficult to expel with active management of the third stage of labor is usually caused by strong adhesion between the placenta and uterus. It is also called placenta accreta when implantation penetrates the basal decidua and Nitabuch layer; placenta increta when the placenta penetrates the myometrium; and placenta percreta when the villi invade through the myometrium (Prawirohardjo, 2010).

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Predisposing factors for placenta accreta include placenta previa, cesarean section scars, previous curettage, age, and multiparity.

If a small part of the placenta remains in the uterus, it is called retained placenta and can cause primary or secondary postpartum hemorrhage. The third stage of labor is preceded by the placental separation stage, characterized by vaginal bleeding (Duncan method) or partial placental detachment without vaginal bleeding (Schultze method), until the expulsion stage, where the placenta is delivered (Prawirohardjo, 2010).

In some cases, retained placenta can cause habitual retained placenta, and the placenta must be removed because it can cause hemorrhage and infection due to dead tissue, leading to placenta incarcerata, placental polyp, or malignant degeneration such as choriocarcinoma (Molchtar, 2011, p. 206).

The functional causes of retained placenta can occur due to insufficient uterine contractions (main cause) and placenta that is difficult to release due to its location (insertion at the uterine scar), shape (membranous placenta, annular placenta), and size (very small placenta). Placenta that is difficult to release due to these causes is called adhesive placenta (Rukiyah, 2010, p. 297).

Regarding the incidence of retained placenta, in 2023 there were 44 cases, increasing to 69 cases in 2015, and in 2024 there were 511 cases.

This study conducted an initial survey using secondary data from medical records. From 115 cases of retained placenta, 6 cases (40%) occurred in patients aged over 35 years. Based on the background described above, the researcher is interested in investigating the relationship between maternal age and the incidence of retained placenta.

2. Research methods

The research method used is an analytic survey with a cross-sectional approach, which is a study method used to examine the dynamics of correlations between risk factors and effects through approaches such as observation or data collection (Notoatmodjo, 2012, p. 38). The population in this study consists of all normal delivering mothers, totaling 470 individuals. The sample in this study was selected by systematic sampling. The first sample was chosen randomly, and subsequent samples were taken by using a predetermined interval.

The data used are secondary data, namely data on normal delivering mothers obtained from medical records. Data processing in this study was conducted by computerization, including editing, coding, data entry, and cleaning processes.

The analysis in this study used univariate analysis to determine the frequency distribution of maternal age with the incidence of retained placenta. Bivariate analysis was conducted using the Chi-square formula and assessed with a P-value of 0.05. In this case, the hypothesis is accepted if the P-value > 0.05, meaning there is no significant relationship (H0 accepted), and if the P-value < 0.05, it means there is a significant relationship (H0 rejected).

3. Result and Discussion
Univariate Analysis

Table 1. Frequency Distribution of Maternal Age

Age	Frequensy	Percentage (%)
At risk	19	23,8
Not risk	61	76,2
Total	80	100

The majority of mothers with non-risk age were 611 people (76.2%).

Table 2. Incidence of Retained Placenta

Incidence of Retained Placenta	Frequensy	Percentage (%)
Rentained Placenta	16	20
Retained Placenta	64	80
Total	80	100

The majority of mothers did not experience retained placenta, totaling 64 people (80%).

Bivariate Analysis

Frequency Distribution of the Relationship Between Maternal Age and the Incidence of Retained Placenta

Table 3. Frequency Distribution

Incidence of Retained Placenta

Age	Reteained Placenta		No Retained Placenta		Total		P Value
	n	%	n	%	n	%	
At Risk	9	11,25	10	12,5	19	23,8	
Not At Risk	7	8,75	54	67,5	61	76,2	0,001
Total	16	20	64	80	80	100	

The majority of mothers with non-risk age and no occurrence of retained placenta amounted to 54 individuals (67.5%). The statistical test using the Chi-square test resulted in a P-value of 0.001 ($\alpha = 0.05$), indicating that there is a significant relationship between maternal age and the incidence of retained placenta (P-value < 0.05).

4. Discussion

Univariate Anaysis

a. Distribultion Of Maternal Age Frequlency

The majority of mothers with at-risk age (20–35 years) amounted to 611 people (76.2%), while mothers who were not at risk totaled 119 people (23.8%). The majority of mothers who experienced retained placenta were 116 people (20%), and mothers who did not experience retained placenta were 464 people (80%).

According to the study assumptions, the majority of respondents aged 20–35 years in this study are because this age range is the productive age group, and most pregnancies occur in this age group. Based on theory and existing research results, the study found that most respondents (76.2%) were in the healthy reproductive age group and categorized as non-risk age.

This is consistent with the research by Darmayanti (2014), titled "Factors related to the incidence of retained placenta at RSUD Dr. H. Moch. Ansari Saleh Banjarmasin," which stated that the majority of respondents in the non-risk age group amounted to 77.2%.

According to Wawan (2011, p. 117), age is the time period calculated from birth until the current age. The older the age, the more mature the cells become in thinking and working. In terms of community trust, more mature individuals are trusted more than those who are less mature. This greatly affects experience and mental maturity.

According to Widyastuti (2014, p. 108), the healthy and safe reproductive age is 20–35 years. For pregnancies under 20 years old, physical and psychological conditions are still immature, for example, attention to the intake of nutrients during pregnancy.

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b. Frequency Distribution of Retained Placenta Incidence

Based on the research results, the majority of mothers with retained placenta who are at risk amounted to 116 people (20%), and the majority of mothers with retained placenta who are not at risk also amounted to 116 people (20%). Meanwhile, the majority of mothers without retained placenta who are at risk were 64 people (80%), and the majority of mothers without retained placenta who are not at risk were also 64 people (80%).

According to the research assumptions, the incidence of retained placenta is influenced by several factors, including age, premature birth, history of retained placenta, weak uterine contractions (a main cause), very small placenta size, and placental implantation factors.

This is in line with a study by Endang (2012) titled "The relationship between maternal age and parity with the incidence of retained placenta," which stated that the majority of respondents (67.5%) did not experience retained placenta.

Retained placenta is defined as when the placenta does not detach or detaches more than 30 minutes after delivery (Maryulnani, 2013, p. 160). Retained placenta is caused by various factors, including maternal factors and uterine factors. Maternal factors include advanced maternal age. Uterine factors include a history of cesarean section, previous curettage, history of retained placenta during previous deliveries, and endometritis. Retained placenta is also caused by multiparity and placental factors such as placental implantation abnormalities including placenta adhesive, placenta accreta, placenta increta, and placenta percreta (Manulaba, cited in Endang, 2011).

c. Bivariate Analysis of the Frequency Distribution of the Relationship Between Maternal Age and the Incidence of Retained Placenta

From the chi-square test results, it was found that the p-value = 0.001 (p-value < 0.05), meaning there is a significant relationship between maternal age and the incidence of retained placenta.

According to the study assumptions, pregnant women aged over 20 years have reproductive organs that are optimally developed, so uterine contractions become less intense. Meanwhile, at age over 35 years, there is already a decline in reproductive organ function, such as thinning of the uterine wall, causing uterine contractions to weaken. This leads to the occurrence of retained placenta.

This study is also consistent with Khotijah (2014), entitled *The Relationship between Age and Parity with the Incidence of Retained Placenta in Delivering Mothers*, which stated that there is a significant relationship between age and the incidence of retained placenta (p-value: 0.028).

Risk ages are under 20 years and over 35 years. In pregnancies under 20 years old, both physical and psychological development are still immature, such as inadequate attention to nutritional intake during pregnancy. Meanwhile, in women over 35 years old, the aging process and the decline in immune system function as well as various diseases that often occur at this age affect pregnancy (Widyastuti, 2014, p. 108).

Excessively advanced maternal age can become a predisposing factor for retained placenta. This is because the age affects uterine function, where frequent tissue fibrosis occurs, causing the uterine muscles to be unable to contract and retract optimally (Rochjati in Endang, 2011).

4. Conclusions

a. The majority of respondents are in the non-risk age group.
b. The majority of respondents did not experience retained placenta.
c. There is a relationship between age and the incidence of retained placenta

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