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Research Article

The Connection Between Parity and the Incidence of Abortion in Reproductive Health Studies

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Abstract: Abortion remains a significant reproductive health issue worldwide, with around 20 million cases recorded annually, leading to approximately 70,000 maternal deaths each year. In Southeast Asia, including Indonesia, approximately 4.2 million abortion cases occur annually. In Indonesia, spontaneous abortion accounts for 10-15% of all pregnancies, while induced (provoked) abortion is estimated to range from 750,000 to 1.5 million cases per year. Several factors can influence the incidence of abortion, one of which is parity the number of previous pregnancies a woman has carried to a viable gestational age. This study aims to analyze the relationship between parity and the incidence of abortion, contributing to a better understanding of how reproductive history impacts abortion rates. The research used an analytical design with a cross-sectional approach, involving a sample of 122 mothers selected through simple random sampling. The findings revealed that 45.9% of the mothers had safe parity, while 54.1% had unsafe parity. Regarding the type of abortion, 97.5% of respondents experienced spontaneous abortion, while 2.5% underwent induced abortion. Data analysis was conducted using the chi-square test at a significance level of 0.05, which produced a p-value of 0.562, indicating no significant relationship between parity and the incidence of abortion. These results suggest that parity is not a significant factor influencing abortion incidence in this sample. While other factors may contribute to abortion risk, further research is needed to explore additional variables that may play a role. This study underscores the complexity of abortion incidents and highlights the need for broader investigations to understand the diverse influences on reproductive health outcomes, beyond parity alone.

Keywords: Abortion; Parity; Pregnancy; Provoked Abortion; Spontaneous Abortion

1. Introduction

Mortality and morbidity in pregnant women and mothers in labor are serious health problems, especially in developing countries. Death during childbirth is often the main cause of death in women of productive age, thus impacting family welfare and national development (Dewi & Sunarsih, 2011). One of the main indicators of a country's health status is the Maternal Mortality Rate (MMR). In Indonesia, the high MMR is still a challenge in achieving national health development targets. Based on the Indonesian Demographic and Health Survey (SDKI), the 2007 MMR was recorded at 228 per 100,000 live births (Sukriani & Sulistyaningsih, 2010).

Maternal deaths are classified into direct obstetric deaths, indirect obstetric deaths, and accidental deaths that occur during pregnancy or childbirth but are not directly related to both. Direct obstetric deaths are generally caused by complications of pregnancy, childbirth, or the postpartum period and inadequate treatment. In developing countries, the main causes of maternal death include bleeding, infection, preeclampsia/eclampsia, and abortion (Winkjosastro, 2006).

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Abortion or miscarriage is the termination of pregnancy before the fetus reaches the age of viability (<20 weeks or weight <500 grams). It is estimated that around 20 million cases of abortion occur annually in the world, and 70,000 women die from abortion complications. In Southeast Asia, including Indonesia, there are around 4.2 million cases of abortion each year. In Indonesia itself, spontaneous abortion occurs in 10–15% of around 6 million pregnancies each year (600,000–900,000 cases), while induced abortion (artificial abortion) is estimated to reach 750,000–1.5 million cases per year, with around 2,500 related deaths (Alnshor, 2006).

Spontaneous abortion is generally difficult to detect because it is accompanied by mild signs and symptoms, so many women do not realize that they have miscarried. In fact, in very early pregnancy, the symptoms are often mistaken for late menstruation (Winkjosastro, 2006). The frequency of spontaneous abortion in Indonesia ranges from 10%–15%, but this figure can reach 50% if it includes pregnancies that occur very early and are not realized (Sukriani & Sulistyaningsih, 2010). Spontaneous abortion is usually caused by natural factors, without medical or mechanical intervention. Around 15%–20% of all pregnancies end in spontaneous abortion (Joseph & Nugroho, 2010).

Some risk factors that contribute to spontaneous abortion include abnormalities in the growth of the conceptus, placental abnormalities, maternal disease, disorders of the genital tract, maternal age, endocrine disorders, malnutrition, anemia, and exposure to hazardous substances such as cigarettes, alcohol, caffeine, and radiation (Sukriani & Sulistyaningsih, 2010).

Parity, which is the number of live births a woman has ever had, is also one of the factors thought to influence the incidence of spontaneous abortion. The higher the parity, the greater the possibility that a woman will experience uterine muscle weakness due to repeated pregnancies and deliveries, which has the potential to increase the risk of miscarriage (Prawirohardjo, 2010). Therefore, it is important to analyze the relationship between parity and the incidence of abortion as an effort to identify early risks and prevent complications in pregnancy.

2. Research Methods

This research is an analytical study, namely a study that seeks to explore how and why a health phenomenon can occur. Furthermore, an analysis of the dynamics of the correlation between phenomena is carried out, both between risk factors and effect factors. What is meant by effect factors is the consequences arising from the presence of risk factors, while risk factors are conditions or phenomena that can cause these effects.

This study uses a cross-sectional survey design, namely a study that studies the dynamics of the correlation between various risk factors and effects through an observation approach or simultaneous data collection at one point in time (point time approach) (Notoatmodjo, 2010).

The population in this study were all registered mothers, namely 2,102 people. If divided into a period of 12 months, the average population per month is around 175 people.

In this study, the researcher used the Simple Random Sampling sampling technique, namely simple random sampling with a lottery technique from all members of the population (Notoatmodjo, 2005). The number of samples obtained based on the sample calculation formula was 122 respondents.

3. Results and Discussion

3.1. Distribution of Mothers Based on Parity Category of Mothers Who Experience Abortion

Table 1. Distribution of Mothers Based on Parity Category of Mothers Who Experience Abortion

Parity	N	%
Safe	56	45.9
Not Safe	66	54.1
Total	122	100

Based on Table 1, it is known that of the 122 mothers who experienced abortion, most were in the unsafe parity category, as many as 66 people (54.1%), while mothers with safe parity were 56 people (45.9%). These results indicate that the number of abortions is higher in mothers with unsafe parity.

Unsafe parity refers to the number of pregnancies or births that are too frequent, too many, or too close together, which can increase the risk of pregnancy complications, including abortion. This is in line with the theory put forward by Prawirohardjo (2010) that high parity can cause decreased uterine muscle tone and vascularization disorders, which ultimately increase the possibility of miscarriage. In addition, repeated pregnancies that are too frequent can worsen the mother's general health condition, especially if not accompanied by optimal recovery of nutrition and reproductive organ function.

However, the results of the statistical test in this study showed a p value > 0.05 (p = 0.562), which means that there is no significant relationship between parity and the incidence of abortion. This indicates that parity is not the only factor that influences abortion. Other factors such as maternal age, health conditions, infections, genetic disorders, and environmental factors also have the potential to play a role in the occurrence of abortion (Sukriani & Sulistyaningsih, 2010).

3.2. Distribution of the Abortion Event

Table 2. Distribution of the Abortion Event

Abortion Event	N	%
Spontaneous abortion	119	97.5
Provocatus abortion	3	2.5
Total	**122**	**100**

Based on Table 2, it is known that of the 122 respondents who experienced abortion, 119 people (97.5%) experienced spontaneous abortion, and only 3 people (2.5%) experienced induced abortion. This shows that the incidence of spontaneous abortion is much more dominant than induced abortion in the population studied.

Spontaneous abortion is the termination of pregnancy before the fetus reaches the age of viability, which occurs without medical or mechanical intervention, and is usually caused by natural factors such as genetic abnormalities, embryonic developmental abnormalities, hormonal disorders, or maternal diseases (Winkjosastro, 2006). The high prevalence of spontaneous abortion is also supported by the findings of Joseph & Nugroho (2010), which states that around 15%–20% of all pregnancies end in spontaneous abortion, and can be even higher if including undetected early miscarriages.

Risk factors often associated with spontaneous abortion include fetal chromosomal abnormalities, infections, chronic maternal diseases such as diabetes and hypertension, malnutrition, and uterine anatomical disorders (Sukriani & Sulistyaningsih, 2010). In addition, lifestyles such as alcohol consumption, smoking, severe stress, and exposure to toxic substances also increase the risk of spontaneous abortion (Prawirohardjo, 2010).

Meanwhile, the incidence of induced abortion in this study was relatively small (2.5%), which may be due to the social, ethical, and legal sensitivities surrounding the practice of artificial abortion in Indonesia. Many cases of induced abortion are not officially reported because they are carried out secretly and not through formal health facilities (Alnshor, 2006).

Thus, the dominance of spontaneous abortion in this data indicates the need for increased early detection of pregnancy, routine antenatal monitoring, and education about risk factors and prevention of abortion from early pregnancy.

3.3. Distribution of the Most Frequent Parity in the Incidence of Abortion

Table 3. Distribution of the Most Frequent Parity in the Incidence of Abortion

No	Parity	Number of abortion		Total
		Spontan abortion	Provocatus abortion	
1	Secure parity	55 (45.1%)	1 (0.8%)	56 (45.9%)
	Unsafe parity	64 (52.5%)	2 (1.6%)	66 (54.1%)
Total		**119 (97.6%)**	**3 (3.24%)**	**122 (100%)**

Based on Table 3, it can be seen that of the total 122 respondents who experienced abortion, the majority of cases occurred in mothers with unsafe parity, namely 66 people (54.1%), compared to 56 people (45.9%) in mothers with safe parity. In more detail, spontaneous abortions occurred most often in mothers with unsafe parity, namely 64 people (52.5%), while in safe parity there were 55 people (45.1%). For provoked abortions, there were 2 cases (1.6%) in unsafe parity, and 1 case (0.8%) in safe parity.

These findings indicate that both spontaneous abortions and provoked abortions are more common in mothers with unsafe parity. This is in line with the theory put forward by Prawirohardjo (2010), that the higher the parity, the greater the possibility of disruption to

the function and strength of the uterus due to repeated pregnancies and childbirth, which can increase the risk of abortion.

Unsafe parity is often associated with pregnancies that are too frequent, too close together, or too numerous. This situation can cause physiological fatigue and reduced uterine regenerative capacity, thus increasing the risk of pregnancy complications, including miscarriage (Sukriani & Sulistyaningsih, 2010).

Although the results of statistical tests in this study showed no significant relationship between parity and the incidence of abortion ($p = 0.562$), the frequency distribution still showed a tendency that abortions occurred more often in unsafe parity. Therefore, parity still needs to be considered as a potential risk factor in efforts to prevent abortion, especially through promotive and preventive approaches such as preconception counseling and pregnancy spacing.

This study shows that the parity of mothers who most often experience abortion is unsafe parity, but in mothers with safe parity there is also an abortion incident of 45.9%. From the results of the study, most abortion incidents occurred in mothers with unsafe parity who are considered to be at greater risk of abortion. However, it was not statistically significant ($p = 0.562$).

This result is not in accordance with the theory that states that women who have been pregnant or given birth four times or more are more likely to experience disorders such as looseness in the uterine wall, so that the strength of the uterus to be a place for fetal growth and development is reduced and can ultimately cause abortion (Rochjati, 2003).

This discrepancy may be due to the fact that in unsafe parity there were two mothers who experienced induced abortion, namely abortion that was intentional and had a clear cause. Provoked abortion is usually not caused by parity, but rather by medical indications for example, if the pregnancy endangers the mother's life or by criminal abortions that are carried out due to unwanted pregnancies and are carried out illegally (without medical indications).

Meanwhile, mothers who experience spontaneous abortion in the delivery room are most likely not caused by parity risk factors, but by other factors not examined in this study, such as maternal age, anemia, infectious diseases, hypertension, abnormalities of the genital tract, and abnormalities of conception growth.

According to Winkjosastro (2006), factors causing spontaneous abortion include abnormalities in the growth of the conception product, abnormalities in the placenta, maternal diseases, and abnormalities in the genital tract. Meanwhile, according to Cunningham (2005), other factors causing spontaneous abortion include: maternal age, infectious diseases, chronic diseases, endocrine disorders, malnutrition, anemia, gestational age, use of drugs, and environmental factors such as alcohol consumption, smoking, caffeine, and radiation exposure.

The results of this study are in line with research conducted by Siti Mulyati in five hospitals in Jakarta in 2003 which found that pregnant women with parity 3 had a 1.2 times risk of abortion compared to pregnant women with parity 1-2, but statistically it was also not significant (p = 0.447).

Based on the results of this study, it can be concluded that the incidence of abortion is not caused by parity factors alone, but is likely influenced by other risk factors that were not revealed in this study. The cause of abortion is often an interaction of various interrelated risk factors, not just a single factor.

4. Conclusions

This study shows that most mothers who experience abortion are in the unsafe parity category (54.1%), while mothers with safe parity who experience abortion are 45.9%. The most common type of abortion is spontaneous abortion (97.5%), while provoked abortion only occurs in a small number of cases (2.5%).

Although the frequency of abortion is higher in mothers with unsafe parity, the results of statistical tests showed no significant relationship between parity and the incidence of abortion (p = 0.562). This indicates that parity is not the only risk factor that influences abortion.

The incidence of abortion is most likely caused by various other risk factors such as maternal age, growth abnormalities of the conceptus, infection, chronic disease, malnutrition, or environmental factors, which were not examined in this study. Therefore, a more comprehensive approach is needed to understand the causes of abortion as a whole.

References

Afik, A. (2018). The relationship between response time and patient survival with emergency treatment by the Code Blue Team. *Indian Journal of Public Health Research & Development, 9*(11), 1803-1807. https://doi.org/10.5958/0976-5506.2018.01707.2

Boa, G. F., Bata, V. A., Saghu, M. M. P., & Widyastuti, R. (2024). The knowledge and socio-economic relationships of mothers with exclusive breastfeeding. *Journal of Maternal and Child Health, 10*(10), 1009-1015. https://doi.org/10.33024/jkm.v10i10.17868

Carretero-Krug, A., et al. (2024). Nutritional status of breastfeeding mothers and the impact of diet and dietary supplementation: A narrative review. *Nutrients, 16*(2), 1-28. https://doi.org/10.3390/nu16020301

Gallo, M. F., Schumacher, F. L., Lawley, M., Keim, S. A., Dupper, A. C., & Keder, L. (2024). Potential effect of immediate postpartum use of injectable contraception on lactogenesis. *Contraception, pp. 1-17.* https://doi.org/10.1016/j.contraception.2024.110726

Gilley, S. P., & Krebs, N. F. (2020). Infant nutrition. In *Present knowledge in nutrition: Clinical applications and topics in nutrition* (pp. 3-22). Elsevier. https://doi.org/10.1016/B978-0-12-818460-8.00001-0

Hastuti, A. (2023). Exclusive breastfeeding: Indonesian mothers' awareness in providing exclusive breastfeed. *Akademika Jurnal Mahasiswa Humanis, 3*(1), 1-9. https://doi.org/10.37481/jmh.v3i1.567

Malwela, T. (2018). Midwifery practice guidelines to promote quality care of preterm babies in resource-limited obstetric units of Limpopo Province, South Africa. [Thesis]. *University of Venda.* Available at https://univendspace.univen.ac.za/handle/11602/1169

Mardhika, A., Altas, R. I., Fadliyah, L., Sulpat, E., Tyas, A. P. M., & Medawati, R. (2022). Description of knowledge in exclusive breastfeeding mothers at Sukomulyo Community Health Center, Gresik. *Journal of Vocational Nursing, 3*(2), 110-115. https://doi.org/10.20473/jovin.v3i2.39399

Maritalia, D., Tambunan, H., & Malia, A. (2025). The influence of parity status on mother's behavior in providing exclusive breastfeeding. *Journal of Health Sciences, 13*(1), 43-48. https://doi.org/10.36858/jkds.v13i1.738

Maskur, S. U., Budiman, B., & Lestari, A. (2021). The relationship between knowledge and dietary habits with the incidence of chronic energy deficiency in pregnant women in the Talise City health center working area, Palu. *International Journal of Health Economics & Social Sciences, 3*(1), 19-27. https://doi.org/10.56338/ijhess.v3i1.1423

Nathalia, A., Rahmawati, D., Nastiti, K., & Salmarini, D. D. (2024). Factors influencing the occurrence of exclusive breastfeeding failure in six-month-old infants. *Health Science International Journal, 2*(2), 96-103. https://doi.org/10.71357/hsij.v2i2.31

National Center for Biotechnology Information (NCBI). (2021). Medroxyprogesterone acetate drug levels and effects in breastfed infants. *MD, pp. 1-6*.

Singhal, S., Sarda, N., Gupta, S., & Goel, S. (2014). Impact of injectable progestogen contraception in early puerperium on lactation and infant health. *Journal of Clinical Diagnostic Research, 8*(3), 69-72. https://doi.org/10.7860/JCDR/2014/7775.4110

Szyller, H., et al. (2024). Child's health and development, literature review. *Nutrients, 16*(10), 1487. https://doi.org/10.3390/nu16101487

Wahyuni, R. S., & Hutasoit, E. S. (2023). The correlation of the use of hormonal contraception devices and breastfeeding production in breastfeeding mothers at Puskesmas Rejosari Pekanbaru. *Proceeding 2nd Payung Negeri International Health Conference, 2*(1), 299-304.