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## **IMPACT OF PREVIOUS ABORTUS ON FETAL WEIGHT IN PALEMBANG CITY, INDONESIA**

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### **Abstract**

*Mothers with a history of abortion may have a risk of comorbidities during pregnancy, thus becoming one of the contributing factors of adverse pregnancy. The fetus that has experienced growth restriction will be low fetal weight. This study is using a crosssectional design and it used 752 samples in 25 health services. Samples required inclusion criteria was age of pregnancy*

above or equal to 24 weeks. An exclusion criterion has HIV / AIDS diseases. Our results found that there was a significant association between the history of abortion with incidence of low fetal weight. The prevalence of aborted women experienced a low of fetal weight is at 4,323 ( $P$  Value 0.001; 95% CI 2.028-9.216) greater than those never aborted. The odds of low fetal weight in previous abortus mothers were 20%.

### **Keywords**

Abortus, Low Fetal Weight, Low Brith Weight, Incident, Family Planning Program, SGA

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## **1. Introduction**

Abortion is as one of the factors causing pregnancy that is adverse. The result of Ruwanpathirana & Fernando (2014) showed that mothers who had never born a live baby got risk 2.47 times (CI 1.45 - 4.21) low fetal weight. Mothers who have had abortion experience uterine damage and cervical damage that cause some compilation in subsequent pregnancies (Elliot Institute, 2015). In addition, mothers having a history of abortion may have a risk of comorbidities during pregnancy such as pneumonia, severe anemia, toxoplasmosis virus infection (Yanti & Surtiningsih 2016).

The fetus with low-weight is referred to as the Small Gestational Age (SGA) or Low Fetal Weight (LFW). Low fetal weight is fetal fat that has weight below 10 percent according to the age of pregnancy. The prevalence range of SGA infants in the world is 3-10%. SGA contributors from low-income countries are estimated to have a 27% incidence. In Indonesia is found infants with SGA at 4.40% in 2005 (POGI, 2016).

Fetuses that experience growth barriers will be born with low weight. The prevalence of Indonesia's low birth weight in 2013 was 102 per 1,000 live births (Kemenkes RI, 2015). However this LBW number is the result of the passive routine recording received from the health service to the health service. When viewed based on the results of research, the LBW rate is divided higher because many netted. The results of the latest research in 2015 obtained the prevalence of weight babies in the city of Palembang is low of 196 per 1000 live births (Kumalasari, 2015). These LBW numbers are much higher rather than the national rate which has 102 per 1000 live births. Therefore, in Palembang there is problems such as neonatal health (Ernawati, Kartono & Puspitasri, 2011).

Improving human quality should start as early as possible since the fetal is stage in the womb. During this time intervention has been still dependent on the baby who was born due to

intervention of the baby was late. Will be optimal if prevention of LBW doing early at the stage still in the womb or fetus (Zhang, 2008). Refer on the above questions then this study was conducted to determine the impact of abortion on fetal weight.

## **2. Method**

### **2.1 Design and Samples**

This type of research was analytic with crosssectional study design. This design was used in accordance with the purpose of research to be able to know the actual fetal weight in the population. The study was conducted in the city of Palembang, at a health service that serves examination with ultrasonography or ultrasound. The population was pregnant women in the city of Palembang. The samples in this study were pregnant women who check their pregnancy at selected health service and sample fulfill the criteria of inclusion. Total of samples were 752 samples.

Health services taken were puskesmas and clinic which have facility of pregnancy examination with ultrasound (USG) with total of 25 health service. Method of gain sampling by accidental sampling. Every pregnant woman having the inclusion criteria that comes to selected health care and meets researcher will be sampled. While pregnant women who did not meet the researchers did not become a sample of research. The inclusion criteria were maternal and unaffected women for the attending disease and gestational age above or equal to 24 weeks. While the exclusion criteria is women who infected HIV / AIDS disease.

### **2.2 Procedure**

Data collection was used in this study by interviewing pregnant women who visited health service. The health worker in this study is a midwife or doctor who keeps the patient checked. Midwives and doctors measured the size of fetal weight, gestational age, and hypertension. Other variables were conducted by field surveyors. field surveyor is a young doctor from the Department of Public Health Medical Faculty Sriwijaya University. Some of the required variables of the recall were validated by looking at patient medical records and KMS books of pregnant women. Variables that have been delayed in the KMS book of pregnant women are age, education, occupation, height, body weight before pregnancy, parity, and abortion history.

### **2.3 Data Analysis**

This research, the researcher performs the data management of fetal weight variable using the calculator software of BB Fetus. This calculator as a tool to produce fetal BB output is checked whether normal or less. This calculator is made by researchers based on a standard

reference formulation of fetal weight and gestational age for the city population of Palembang. The value of fetal weight deficit by the formula:

$$\text{Deficit of fetal weight} = \frac{(\text{fetal weight measurement} - \text{Normal Fetal Weight} \times 100\%)}{\text{Normal Fetal Weight}} \dots\dots (1)$$

This formula to know the deficit status at all gestational ages. If a deficit of fetal weight (-) is 15%, the fetus is categorized as a low fetal weight. If more than that number then the fetal weight is normal. Furthermore, to know the correlation significance of the analysis is done by chi-square statistical test at alpha level of 5%.

### 3. Results and Discussion

**Table 1:** Distribution of Low Fetal Weight and Previous Abortus

Variabel	n	95 % Confident Interval	
		Lower	Upper
Low Fetal Weight	31 (4.1%)	2.9	5.6
Normal Fetal Weight	721 (95.9%)	94.4	97.1
Have Previous Abortus	56 (7.4%)	5.6	9.2
Have not Previous Abortus	696 (92.6%)	90.8	94.4

Based on table 1, it can be seen that the most of fetus weight of pregnant women in Palembang City is normal. However, the incidence of low fetal weight was found in 31 of 752 pregnant women or 4.1% with a range for actual occurrence in the population of 2.9% to 5.6%. while the incidence of mothers who had experienced abortion was 7.4% with the actual range of events in the population of 5.6% to 9.2%.

**Table 2:** Maternal Characteristic in Relation to Previous Abortus (n=752 Maternal)

Characteristic of Maternal	History of Abortus		PR (95 % CI)	P-Value
	Yes	No		
Maternal Age (years)	25.89±4.24	27.68±4.47	-	0.004
Mother education (years)	12.07±2.61	12.21±2.85	-	0.712
Unemployed	36 (9.1%)	358 (90.9%)	1.69	0.087
BMW before pregnant	20.83±2.02	20.66±1.58	-	0.541
Hipertension	6 (20.7%)	23 (79.3%)	3.5 (1.398-6.404)	0.006

Characteristic of Maternal	History of Abortus		PR (95 % CI)	P-Value
	Yes	No		
Interval Pregnancy	31.46±11.28	30.75±11.36	-	0.662

**Table 3:** Relation Previous Abortus with Low Fetal Weight

	Fetal Weight		P-Value	PR (95 % CI)
	Low	Normal		
Have Previous Abortus	9 (9.7%)	84 (90.3%)	0.001	4.85 (1.92 - 12.24)
Have not Previous Abortus	8 (2.0%)	393 (98.0%)		

**Table 4:** Logistic Regression of Relation Previous Abortus with Low Fetal Weight

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Previous Abortus	1.584	0.437	13.159	1	0.000	4.877	2.072	11.480
Constant	-3.376	0.212	253.515	1	0.000	0.034		

From the table above can be made a prediction model of the incidence of low fetal weight with abortion as follows:

For opportunities of low fetal weight occurrence of abortion as follows:

$$Y = -3.376 + (1.584 X) \quad R \text{ square} = 4.7\% \quad \dots\dots\dots (2)$$

$$P = 1/(1 + e^{-y}) \quad \dots\dots\dots(3)$$

$$P = 1/1 + 2.1781.792$$

$$P = 20\%$$

Characteristics of mothers at risk for abortion (seen in table 2) were age and hypertension proved to be significantly associated  $P < 0.05$ . The maternal age difference between have abortous and have not abortous was 1.79 years ( $P 0.004$ ). While hypertension women will be at risk of abortion of 3 times ( $P 0.006$ ). This study is consistent with Zhang's (2008) that increased 10 mmHg systolic and 3 mmHg diastolic will be increases the risk of abortion . While systolic

over 30 mmHg has a risk of 2-3 spontaneous births. According research by Eguchi, et.al (2015) was found systolic blood pressure above 10 mmHg increase for low fetal weights (OR 1.74, 95% (CI): 1.28-2.38,  $P < 0.001$ ). Increased systolic blood pressure by 30 mmHg or diastolic 15 mmHg is associated with a lower risk of low fetal weight (Eguchi, et.al 2015)

Table 3 shows that the incidence of low fetal weight is most prevalent in women with a history of abortion. Based on the results of statistical tests at alpha 5% obtained P-value 0.001 which means there is a significant relationship between abortion history with low fetal weight occurrence. The prevalence of aborted mothers experienced a low of fetal weight is 4,323 times (95% CI 2.028-9.216) greater than never abortion. From equation 2 it can be seen that the abortus variable can explain the incidence of low fetal weight only by 4.7%. For the high probability of low fetal weight in abortus mother is 20% can be seen in equation 3.

We found in previous studies that mothers who had a history of abortion were at risk twice (CI 1.3-3.3) (Catov, 2008). Mothers with a history of abortion may have a risk of comorbidities during pregnancy such as pneumonia, severe anemia, toxoplasmosis virus infection. Abortion is caused by growth abnormalities, chromosomal abnormalities, and the influence of harmful substances (radiation, smoking, alcohol, drugs) (Kemenkes RI, 2015).

Mothers who have had abortion experience uterine damage and cervical damage that may cause some complication in subsequent pregnancies. There was an influence between mothers who had abortion with placenta previa with a risk of 7-15 times. It has been described previously that placenta previa is an abnormal development of the placenta resulting from damage to the uterus thus increasing the risk of fetal abnormalities, perinatal death, and excessive bleeding during labor (Elliot Institute, 2015).

Another risk of abortion history is Pelvic Inflammatory Disease or pelvic inflammation. PID is caused by chamydia infection which due to less hygiene abortion process. Approximately 23% of chamydia mothers experience PID resulting in an etopic pregnancy. Ethopic pregnancy is a pregnancy that develops outside the womb. Mothers with abortion have an impact on health decline. Approximately 80% of mothers who had a year of experiencing abortion complained about health problems with the most reason is psychosocial. This psychosocial problem also affects the mother's dietary disorder. Some psychosocial disorders which due to abortion are a 59 percent increased risk of suicidal thoughts; 61 percent increased risk of mood disorders; 61 percent increased risk for social anxiety disorder; 261 percent increased risk of alcohol abuse;

and a 280 percent increased risk for substance use disorders (Elliot Institute, 2015; Krishnan, 2016).

Currently, the government already has a program to minimize the incidence of infant and maternal mortality. One of them is through family planning program or family planning. The main purpose of family planning program's is to plan for a mature pregnancy and distances the pregnancy. Indirectly, programs that have been launched long ago by the government can also prevent fetal death or abortion because it provides time to rest the womb when the mother had abortion to get pregnant again (Lausman & Kingdom 2013).

In developed countries there is a similar program with a family planning program called Healthy timing and spacing of pregnancy. This program is a new teaching method to explain to each of the different families for family planning. The main purpose of this program is for the health of women and children. The two main key messages of the program are that in order to make a woman and her child healthy, she has to wait 2 years after her child is born to become pregnant again; After having abortion, the mother has to wait at least 6 months to get pregnant again (USAID, 2006).

Some of the benefits that can be felt for children are: 1) .Reduce the incidence of low birth weight and the incidence of small gestational age or low fetal weight, making the baby grow big, strong and healthy; 2) Reduce the death of new infants, infants and children; 3) Provide an opportunity for the baby to breastfeed for 2 full years. While the benefits for maternal health are: 1) Provide 2 years of physical, emotional and financial readiness for the next birth. 2) Reduce the risk of pregnancy complications such as preeclampsia. Mothers who wait up to 2 years to return to childbirth have a low risk for death of labor. 3) Mothers who wait for up to 6 months for subsequent pregnancies from a miscarriage or abortion event will have a lower risk of subsequent miscarriage. 4) Helping mothers avoid common compilations for young mothers. Such an 18-year-old mother has a risk of high blood pressure due to pregnancy and complications, prolonged and delayed labor, iron deficiency anemia, and maternal death (USAID, 2006).

In addition to family planning programs, early breastfeeding is also good for health for children. Breastfeeding can be beneficial for normal-born babies especially babies with a history of low fetal weight (Anggraini, 2017). Mothers who have good preparation during pregnancy. This is indicated by Akbas (2017) study there is an attachment between mother and fetus during pregnancy.

## 4. Conclusion

There is a significant association between the history of abortion and the incidence of low fetal weight. The prevalence of aborted mothers experienced a low of fetal weight is 4,323 times (95% CI 2.028-9.216) greater than never abortion. The odds of low fetal weight in aborted mothers are 20%.

Limitations research in this study is using a crosssectional design so that a possible temporal bias exists in this study. The group of women with a history of abortion is also somewhat small in this study. The suggestion that can be given for further research is to do research with case-control design. Further research starting from a mother who had given birth to abortion and then seen the weight of the fetal. Further research can further this research, on the intervention model for pregnant women with low body weight on abortion factors that have been found in this study.

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## References

- Akbas, Meltem., Akbas, Turan., Akbas, Ozan., Akbas.Ibrahim Akbas. (2017). An Analysis Of Maternal-Fetal Attachment Level In Pregnant Women. LIFE : International Journal of Health and Life-Sciences. Vol 3.No 1.
- Anggraini, D. (2017) The Effect Of Breast Milk Toward Children's Growth: a Systematic Review. LIFE : International Journal of Health and Life-Sciences. Vol 3.No 1.
- Catov, J. M., Noh, E. A., Olsen, J., & Ness, R. B. (2008). Chronic Hypertension Related to Risk for Preterm and Term Small-for-Gestational-Age Births. *Obstet Gynecol Journal* . Vol 112:pp290-296 <https://doi.org/10.1097/AOG.0b013e31817f589b>
- Elliot Institute. (2015). *Abortion Risks and Complications*. Retrieved from <http://afterabortion.org/>:  
<http://afterabortion.org/1999/abortion-risks-a-list-of-major-physical-complications-related-to-abortion/>

- Ernawati, F., Kartono, D., & Puspitasri, D. S. (2011). Association of Antenatal Care with Low Birth Weight in Indonesia (Based on Riskesdas Data Analysis 2010). *Gizi Indonesia* .
- Eguchi, T. O., Takahashi, K., Suzuki, H., Kario, K., & Suzuki, S. M. (2015). Ambulatory BP monitoring and clinic B P in predicting small-for-gestational-age infants during pregnancy. *Journal of Human Hypertension* . Vol.30, pp 62-67  
<https://doi.org/10.1038/jhh.2015.20>
- Lee, A CC; Katz, J; Blencowe, H; Cousens, Si; Kozuki, N; et al (2013). National and regional estimates of term and preterm babies born small for gestational age in 138 low-income and middle-income countries in 2010. *Lancet Glob Health* ,Vol. 1, pp. 26-36. [https://doi.org/10.1016/S2214-109X\(13\)70006-8](https://doi.org/10.1016/S2214-109X(13)70006-8)
- Kemenkes RI (2015). *Indonesia Health Profile 2015*. Ministry of Republik Indonesia.
- Kumalasari, I. (2015). Risk Factor of Low Birth Weight in Dr. Mohammad Hoesin Palembang Hospital in 2014 Year. *Tesis* .
- Krishnan, K. K., Karalasingam, S., Jeganathan, R., & Sa'at, N. (2016). Small for gestational age babies from Malaysian tertiary hospitals:A 5 year cohort study from the National Obstetric Registry, Malaysia. *RCOG World Congress* .EP1a.036.
- Lausman, A., & Kingdom, J. (2013). Intrauterine Growth Restriction: Screening, Diagnosis, and Management. *Journal Obstet Gynaecol Can* . Vol 35:pp741-748  
[https://doi.org/10.1016/S1701-2163\(15\)30865-3](https://doi.org/10.1016/S1701-2163(15)30865-3)
- POGI (2016). Pedoman Nasional Pelayanan Kedokteran Pengelolaan Kehamilan Dengan Pertumbuhan Janin Terhambat. Indonesia : Perkumpulan dan Ginekologi Indonesia Himpunan Kedokteran Feto Maternal
- Ruwanpathirana, T., & Fernando, D. N. (2014). Risk Factors for 'Small for Gestational Age Babies'. *Indian J Pediatric*. Vol 81:pp1000-1004.
- USAID. (2006). ESD Strategy to Roll Out Healthy Timing and Spacing of Pregnancy. *The Extending Service Delivery (ESD) Project* .
- Yanti, L., & Surtiningsih. (2016). Risk factor Mother Characteristic with Low Fetal Weight. *Rakernas Aipkema*.
- Zhang, J. (2008). Blood Pressure Dynamics During Pregnancy And Spontaneous Preterm Birth. *American Journal Obstet Gynecol*. Vol 197(2): 162.e1–162.e6. <https://doi.org/10.1016/j.ajog.2007.03.053>