

Correlation between Local-specific traditions of Women Agricultural Workers and the Incidence of Low Birth Weight in South Metro Sub-District, Metro City, Lampung Province, Indonesia

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Submission date: 16-Oct-2019 02:05PM (UTC+0700)

Submission ID: 1193894943

File name: H-33.docx (28.84K)

Word count: 1729

Character count: 9673

Correlation between local-specific traditions of women agricultural workers and the Incidence of Low Birth Weight in South Metro Sub-District, Metro City, Lampung Province, Indonesia.

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Abstract

Objectives: The objectives of this study were to investigate the correlation between local specific tradition of women agriculture workers and the Low Birth Weight in South Metro Sub-District, Metro City, Lampung Province, Indonesia.

Methods: This was observational study, with 99 samples women agriculture workers were all mothers who had given birth and lived in South Metro Sub-District, Metro City, Lampung Province, Indonesia in 2018. The independent variables were local specific tradition such as smokeless tobacco (tobacco chewing) and smoking. Baby birth weight was a dependent variable. Data collected through interview with questioner instrument. The data has been analyzed using Pearson Correlation and Rank Spearman.

Results: The result showed there was a significant negative correlation between the number of cigarettes smoked and the baby's birth weight ($p=0.005$ and pearson correlation= -0.283) and no correlation between smokeless tobacco and the incidence of Low Birth Weight ($p=0.585$).

Conclusions: There was negative correlation between the number of cigarettes smoked and the baby's birth weight. It's mean the more of numbers of cigarettes smoked it will lower the weight of the baby's birth

Key words: Low Birth Weight, Women agriculture workers, cigarettes smoked, smokeless tobacco

INTRODUCTION

² Low birth weight is defined by the World Health Organization (WHO) as weight at birth less than 2500 g (5.5 lb). Low birth weight continues to be a significant public health problem globally and is associated with a range of both short- and longterm consequences. Overall, it is estimated that 15% to 20% of all births worldwide are low birth weight, representing more than 20 million births a year¹. ⁶ There are multiple causes of low birth weight, including early induction of labour or caesarean birth (for medical or non-medical reasons), multiple pregnancies, infections and chronic conditions such as diabetes and high blood pressure. The

consequences of low birth weight include fetal and neonatal mortality and morbidity, poor cognitive development and an increased risk of chronic diseases later in life(1).

Metro City is one of the cities in Lampung Province with an infant mortality rate that has always increased. According to the Family Health Section of the Metro City Health Office, in 2014 there were 16 deaths or 4.7 per 1000 live births, in 2015 was increase, 17 deaths from 2,888 live births or 6 per 1000 live births and in 2016 there was increase again, there were 20 infants deaths from 3,261 live births or 6 per 1000 live births(2).

The number of Low Birth Weight incidents in Metro City in 2014 was 446 cases of total live births, in 2015 the number of LBW incidents in Metro City decreased slightly by as many as 353 cases, and in 2016 increased again with a total incidence of 477 cases of total live births(2).

South Metro Sub-District in Metro City, Lampung Province, Indonesia is an agricultural area with vegetable production(3). Women workers on agriculture in South Metro have the habit of smoking and smokeless tobacco (tobacco chewing). The habit of smokeless tobacco has been done since adolescence, although the habit of smokeless tobacco is rare for young women now, because they replace it with smoking. The local habits of smokeless tobacco and smoking has an impact on health, because the main elements are tobacco which contain nicotine. Nicotine has been known since long time ago, its negative impact on health. Nicotine has biological effect, which are widespread to all system in the body such as reproductive, cardiovascular, respiratory, immunological and renal system. Many studies have found its carcinogenic potential(4).

The objectives of this study was to investigate the correlation between local specific tradition of women agriculture workers (smoking and smokeless tobacco) and the Low Birth Weight in South Metro Sub District, Lampung.Indonesia.

METHODS

This was observational study, with cross sectional approach, The population in this study were all mothers who had given birth and lived in South Metro Sub-District, Metro City, Lampung Province, Indonesia, 2018. Secondary data for mothers who had given birth were from Summersari Bantul Primary Health Care and South Metro Primary Health Care. There were 286 mothers.

The sample size were 99 samples from Lemeshow formula:

$$n = \frac{Zx^2P(Q)N}{Zx^2P(Q) + e^2N}$$

$\alpha = 0.05$.

99 samples were all mothers who had given birth and they were women agriculture workers, lived in South Metro Sub-District, Metro City, Lampung Province, Indonesia, 2018. Sampling done by proportional random sampling. Data collected through interview with questioner instrument. The data has been analyzed by Pearson Correlation and Rank Spearman.

RESULTS

The youngest age of the respondents was 21 years, and the oldest was 34 years old, with the average age of the respondents was 26.98 years with SD \pm 3.34. Most of the respondents education was graduated from high school (77%). The Education of respondents were in Table 1.

Table 1. Frequency Distribution of Education

Education	Frequency (%)
Not Graduated From Elementary School	1
Graduated From Elementary School	2
Graduated From Junior High School	20
Graduated From Senior High School	77

Women workers on agriculture have a local specific tradition of smokeless tobacco and smoking, even though they are pregnant. Respondents that had habit of smokeless tobacco were 18%. Most respondents had a habit of smoking (69.7%). The frequency distribution of local specific tradition were in Table 2.

Table 2. Frequency Distribution of Local Specific Tradition

Variables	Frequency (%)
Smokeless tobacco	
-Not smokeless tobacco	81.8
-Smokeless tobacco	18.2
1x	1
2x	2
4x	11
5x	4
Smoking	
-Not Smoking	30.3
-Smoking	69.7
1x	17.2
2x	36.4
3x	10.1
4x	6.1

The local specific tradition of smokeless tobacco and smoking at the respondent were different. Some respondents had a habit of smokeless tobacco 1 per day, but another respondent had a habit of smokeless tobacco 5 per day. Most respondents had a habit of smoking 2 cigarettes per day (36.4%)

Table 3. Frequency Distribution of Low Birth Weight

Low Birth Weight	Frequency (%)
Not Low Birth Weight	66.7
Low Birth Weight (BBLR)	33.3

The baby's birth weight minimum was 1800 grams and maximum weight 3400 grams with the average weight was 2697.98 gram. Respondents with the low birth weight babies 33.3%.

Table 4. The Correlation between Local Specific Traditions and Low Birth Weight

Variables	p value	Correlation Coefficient
Smokeless tobacco	0.585	0.056
Smoking	0.279	- 0.114

There was no correlation between local specific tradition of smokeless tobacco, smoking and Low Birth Weight.

Table 5. The Correlation between Frequency Use of Local Specific Traditions and Baby's Birth Weight

Variables	p value	Pearson Correlation
Frequency smokeless tobacco per day	0.545	0.062
Number of cigarettes smoked	0.005	- 0.283

There was no correlation between frequency smokeless tobacco per day and baby's birth weight, but there was negative correlation between the number of cigarettes smoked and the baby's birth weight.

DISCUSSION

Low birth weight is complex and includes preterm neonates (born before 37 weeks of gestation), small for gestational age neonates at term and the overlap between these two situations – preterm, small for gestational age neonates, who typically have the worst outcomes. These three groups have their own subgroups, with individual components linked to different causative factors and long-term effects, and distributions across populations that depend on the prevalence of the underlying causal factors.⁽¹⁾

Maternal smoking exposure and Nicotine/cotinine level are associated with low birth weight⁽⁵⁾. Study in Okinawa Japan confirmed the association between maternal smoking during pregnancy and risk low birth weight⁽⁶⁾. Smoking in pregnancy is also associated with cognitive disabilities in the newborn, slower fetal growth, abortion and premature birth⁽⁷⁾.

In India, tobacco chewing known as Smokeless tobacco. Smokeless tobacco use in pregnant women reduces birth weight and increases the number of low birth weight babies. It shortens the gestational period and increases the number of preterm deliveries. These adverse outcomes are dose dependent and similar to those associated with maternal smoking. Smoking during pregnancy reduces birth weight by an average of 250 g⁽⁸⁾.

The others study said that birth weight decreased as the category of cigarette number per day increased, with a significant weight reduction(7). Although the mechanism have not been fully understood, nicotine plays an important role in the mechanism of negative effect of smoking during pregnancy(7). Nicotine/cotinine can cross the placenta barrier and affect the fetal growth, resulting in the subsequent loss of weight in babies at birth(5). ⁴ Nicotine causes reduction in uteroplacental circulation, leading to lower maternal weight gain and in turn, negative fetal outcomes, such as small size for gestational age, low birth weight, short stature and compromised fetal neurological development(7).

CONCLUSSIONS

There was negative correlation between the number of cigarettes smoked and the baby's birth weight. It's mean the more of numbers of cigarettes smoked it will lower the weight of the baby's birth

CONFLICT OF INTEREST

No conflict of interest for this article to publish

ACKNOWLEDGEMENTS

Thanks are due to Summersari Bantul Primary Health Care and South Metro Primary Health Care for the companied our research.

ETHICAL CLEARANCE

Ethical Clearance was approved by Ethic Commission Public Health Faculty, Diponegoro University. No. 044/EC/FKM/2018.

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