

Prevalence And Determinant Of Maternal Near Miss In Indonesia

Rini Mutahar¹, Suci Destriatania¹, Sindu Setia¹

¹ Faculty Public Health, Sriwijaya University, Palembang, Indonesia

Email: riniMutahar@gmail.com

Abstract— Maternal near miss is a woman who nearly died but survived the complications that occur during pregnancy, childbirth or during the 42 days after delivery. In fact, the incidence of maternal near miss cases more than the incidence of maternal mortality, incidence of maternal near miss has characteristics similar to the incidence of maternal mortality. Women who experienced maternal near miss can provide information that is more sensitive and accurate that describes the state of the women experiencing complications during pregnancy, childbirth, and postpartum. This study aims to determine risk factors that influence maternal near miss incidence in Indonesia.

The study use the secondary data sourced from the Indonesia Demographic Health Survey (IDHS) 2007 which have cross sectional as the design. Therefore, population and sample in this study population and the sample included in the study IDHS 2007. The sample unit is ever married women aged 15-49 years who had delivered babies alive five years before the survey and a single birth. Data analysis techniques with univariate and bivariate statistical test chi-square and weighted the attention cluster and strata.

The results showed that the prevalence of maternal near miss is 2.3%. Independent variables revealed statistically associated with the incidence of maternal near miss are mother education (OR = 1.45 and 95% C I = 1.02 to 2.05), births spacing (OR = 1.81 and 95% C I = 1, 19 to 2.75), place of birth (OR = 0.55 and 95% C I = 0.33 to 0.90) and mode of delivery (OR = 1.67 and 95% C I = 1.06 - 2.61)

Some of the variables associated with the incidence of maternal near miss can be modified by increasing the antenatal care visits for detecting at-risk mothers. So it can minimize the effect of maternal near miss events. Recommendation: It's suggested to make epidemiological surveillance of maternal near miss that available data such as reporting the incidence of maternal near miss that could be used as a reference to create prevention programs. Also, improve emergency obstetric care through both technology and quality medical care and the provision of recording the incidence of maternal near miss.

Keywords—maternal; Near Miss; pregnancy (*key words*)

I. INTRODUCTION

Indonesia's maternal mortality rate is still relatively high at birth 228/100.000 life [1]. It is inversely proportional to the developed countries maternal mortality is low. Rarity of maternal mortality in developed countries triggered developed countries to develop research on maternal near miss that could

be used as an indicator of obstetric care (obstetric). According to WHO (2009) Maternal near miss is a "woman who nearly died but survived from complications that occur during pregnancy, childbirth or during the 42 days after delivery" [2]-[3]. In fact, the incidence of maternal near miss cases more than the incidence of mortality mother, the comparison with the incidence of maternal near miss maternal mortality events in Brazil by 37 : 1 [4].

So far the mortality rate and causes of maternal deaths is estimated by the method of interview with mother's sister who died, but this method is often not clearly describe what is experienced by a mother who suffered death [4]. Incidence of maternal near miss has characteristics similar to the incidence of maternal mortality [2]. Women who experienced maternal near miss may provide more sensitive and accurate information that describes the state of the women experiencing complications during pregnancy, childbirth, and postpartum [5]-[6]. By studying the incidence of maternal near miss information is known about risk factors, and the factors that need to be avoided and also factors to be associated with improved maternal near miss. So that by knowing these factors can be taken action to reduce maternal mortality and long-term consequences of maternal morbidity caused.

II. METHODS

This study is a further analysis of secondary data IDHS 2007 using cross-sectional design and analytic methods. Inclusion criteria were women aged 15-49 were married, pregnant /gave birth to the last child for a period from 2002 to 2007, having or not having signs of complications of pregnancy and childbirth. Whereas exclusion criteria were women who did not have complete data about the signs of pregnancy and childbirth complications. The minimum sample size was calculated using OR proportion of previous research and take into account the effect of design and obtained the largest sample size of at least 7,724. Based on all the inclusion and exclusion criteria in this study population were sampled. So that the total number of sample 14920.

The dependent variable in this study was the incidence of maternal near miss pragmatically identified through variable signs of complications of pregnancy and childbirth. The

independent variable is the socio-demographic characteristics, reproductive status, antenatal visits, where labor and labor history.

Data obtained from the 2007 IDHS website www.dhsmeasure.com. Missing variables were tested with list wise and pair wise analyzes. Missing value is random and that no treatment is performed using the pairwise method. Analyses were performed using univariate and bivariate. Univariate done to see the frequency distribution of each variable while bivariate conducted to see the relationship between the dependent variable, the independent and outcome variables. Statistical analysis using a computer with the help of complex samples procedure by considering weighting, strata and clusters.

III. RESULTS AND DISCUSSIONS

Incidence of maternal near miss pragmatically was identified by a combination of at least 4 of the 13 variable signs of complications of pregnancy and childbirth. Prevalence of maternal near miss is 2.3 %. Cases of maternal near miss were as many as 23 out of 1,000 live births. Table I below can be seen the distribution of each variable.

TABLE I. FREQUENCY DISTRIBUTION OF MOTHER CHARACTERISTICS

Variables	N=14,920	Percentage (%)
Age		
≤ 19	446	3
20-34	10,779	72.2
≥ 35	3,695	24.8
Education		
No education	486	3.22
Primary and junior high school	6,136	41.1
Senior high school	7,116	47.6
University	1,180	7.9
Occupation		
Yes	6,829	45.8
No	8,054	53.9
Type of residence		
Rural	8,636	57.9
Urban	6,284	42.1
Marital Status		
No married/divorce	3,76	2.5
Yes married	14,544	97.5
Parity		
1	5,170	34.6
2-3	6,972	46.7
≥ 4	2,778	18.6
Birth space		
<24 month	1,083	7.2

24-58 month	3,949	26.5
≥ 59 month	4,684	31.4
Antenatal Care Visit		
No visit	682	4.6
1-3 times	2,038	13.7
≥ times	12,200	81.7
Place of birth		
Home	7,731	51.8
Public Health facilities	1,564	10.5
Private Health facilities	5,612	37.6
Mode of delivery		
Caesar	1,083	7.3
Normal	13,767	92.3

From the table it can be seen that many respondents were aged 20-34 (72.2%), high school educated (47.6%), not working (53.9%), rural (57.9%), married (97.5), parity 2-3 (46.7%), space of birth ≥ 59 months (48.2%), antenatal care visits ≥ 4 times (81.7%), delivery at home (51.8%), and have normal delivery (92.3%).

The following table is presented the relationship between the independent variables with the incidence of maternal near miss.

TABLE II. THE RELATIONSHIP BETWEEN THE INDEPENDENT VARIABLES WITH THE INCIDENCE OF MATERNAL NEAR MISS

Variables	P Value	RP CI (95%)
Age		
High risk	0.087	1.36 (0.95-1.94)
Low risk		1
Education		
Low	0.034*	1.45 (1.02-2.05)
High		1
Occupation		
Yes	0.440	0.87 (0.61-1.23)
No		1
Type of residence		
Rural	0.13	1.30 (0.91-1.68)
Urban		1
Marital Status		
No married/divorce	0.927	1.03 (0.47-2.26)
Yes married		1
Parity		
1 or ≥4	0.784	1.01 (0.71-1.55)
2-3		1
Birth space		
< 24 month	0.005*	1.81 (1.19-2.75)
≥ 24 months		1
Ante natal care visit		
<4 times	0.986	1.00 (0.64-1.57)
≥4 times		1
Place of birth		
Home	0.016*	0.55 (0.33-0.90)
Health facilities		1
Mode of delivery		

Caesar	0.024*	1.67 (1.06- 2.61)
Normal		1

*p value<0.05

Based on the above table shows that the results of the bivariate analysis through Chi-Square test p-value obtained, Prevalence Ratio (PR) and 95% Confidence Interval, so it can be concluded that of the 10 independent variables studied there are only 4 independent variables are declared no relationship a statistically significant level of education, birth spacing ≥ 59 months, place of birth and mode of delivery.

The results showed no significant relationship between age with the incidence of maternal near miss. In line with the findings of Souza JP, et al who stated that there was a significant association between maternal age > 35 years with the incidence of maternal near miss [7]. Other research suggests that mothers aged > 35 years 1.46 times likely to have the incidence of maternal near miss [8]. In Brazil, it was found that there is a relationship with the mother's age 40-49 years the incidence of maternal near miss [9]. Pregnancy in adolescents aged 15-19 years and women aged > 35 years had a higher risk for experiencing the incidence of maternal near miss. In general, when women aged youth (15-19) reproductive organs have not grown to the maximum, while in women aged > 35 years had a physical condition that decreases or no chronic disease [10].

This relationship may lack of significance because of other factors can contribute to the incidence of maternal near miss such a lack of knowledge and education about pregnancy and mental attitude, especially in an unplanned pregnancy. Meanwhile in women aged > 35 years if accompanied by high parity may also increase the risk of maternal near miss events.

The results showed no significant relationship between respondents' education with maternal near miss incident. Other studies have suggested there is a link between education and the incidence of maternal near miss [9]. According to Chauhan, mother's education level influences in maintaining health [11]. In general, pregnant women with a higher education level usually will visit antenatal care services, understand the appropriate nutrition for health and the baby. Mothers who had higher levels of education will indirectly own more confident and social status for example in contributing to thinking about the number of children desired, the selection of labor and gender equality between the mother's husband [12]. With increasing knowledge of mothers about the dangers of risk factors and complications of pregnancy and childbirth counselling services through antenatal care then the danger of pregnancy complications can be anticipated. So that in the event of complications of pregnancy and childbirth, mothers were required to understand what is done to address the situation.

The results showed no significant relationship between the incidences of maternal pregnancy spacing near the miss birth spacing recommended by the Health Department is 24 months, so that the mother can recuperate after childbirth and lactation. In addition, if the birth sapce is close to the gestational maternal nutrient reserves will be reduced and may affect mother's nutritional status [13]. Meanwhile, Agudelo and JM

stated Belizan spacing is less than 6 months can improve maternal death, third trimester bleeding, premature babies, and anemia [14]. On the spacing of more than 59 months was associated with an increased risk preklamsia and eclampsia and diabetes mellitus during pregnancy. In fact high-risk birth spacing affects perinatal outcomes such as low birth weight, early neonatal death, and fetal death.

The results are consistent with studies Ali (2011) in the Sudan and Souza opinion that there is no relationship between antenatal care visits with maternal near incidence miss [9] [15]. Antenatal care services aim to detect as early as possible factors complication of pregnancy and prepare for safe delivery and to provide education to pregnant women. To achieve that goal then the mother should make a visit to the antenatal care more than three times [16]. Based on data from Demographic and Health Survey 2007 mothers who visited antenatal care enough (> 4) more likely to have complications of pregnancy and childbirth scene.

IV. CONCLUSION

The results showed that the prevalence of maternal near miss is 2.3%. Independent variables revealed statistically associated with the incidence of maternal near miss are mother education (OR = 1.45 and 95% C I = 1.02 to 2.05), births spacing (OR = 1.81 and 95% C I = 1, 19 to 2.75), place of birth (OR = 0.55 and 95% C I = 0.33 to 0.90) and mode of delivery (OR = 1.67 and 95% C I = 1.06 - 2.61)

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