

Risk Factors for Neonatal Death in Female Workers Mothers in Indonesia

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Abstract

Female worker mothers have a greater risk of neonatal death during childbirth. The study aimed to analyze the risk factors for neonatal death among female worker mothers in Indonesia. The study used data of the 2017 Indonesia Demographic and Health Survey. With stratification and multistage random sampling, 18,061 female worker mothers aged 15-49 years old with live births in the last 5 years were sampled. The final analyzed using a binary logistic regression test. The results of the study found that female worker mothers with the wealth status of the poorer category had 0.738 times the probability of experiencing neonatal death compared to the poorest. Female worker mothers with wealth status in the middle category have a probability of 0.702 times compared to the poorest to experience neonatal death. Meanwhile, the richest female worker mothers had a probability of 0.662 times compared to the poorest to experience neonatal death. Meanwhile, female worker mothers who made ANC visits ≥ 4 times had a probability of 0.331 times compared to female worker mothers who made ANC visits < 4 times. It could be concluded that there were 2 factors which are the risk factors for neonatal death among female worker mothers in Indonesia, namely poverty and ANC visits < 4 times.

Keywords: Neonatal death, maternal health, female worker, risk factor.

Introduction

The third goal of the Sustainable Development Goals, which was formulated and agreed upon to be achieved by all countries without exception, is to ensure a healthy life and support the welfare of all for all ages. One of the targets set to achieve this goal is to reduce the neonatal mortality rate to at least less than 12 per 1,000 births by 2030¹.

Neonatal mortality is death that occurs before the baby is 28 days old. Neonatal Mortality Rate is the number of live births that died within the first 28 days of

life, per 1,000 live births in a given year. Based on the age group of infants, neonatal mortality is categorized into two, namely early neonatal mortality and late neonatal death. Early neonatal mortality is the death of a live-born baby within the first week of life or 7 days after birth, which is also called perinatal death (infants aged 0-7 days). Late neonatal mortality is the death of a live-born baby at the age of more than 7 days to 28 days, that is, the second to the fourth week of life. In general, neonatal mortality is caused by endogenous factors, namely factors that the child carries from birth, which is obtained from the parents at conception or during pregnancy, as well as conditions during and after delivery such as the occurrence of nosocomial infections from the ward or due to bleeding diseases in newborn baby².

Global data in 2018 shows that 2.5 million children die in their first month of life, of which around 7000 newborn deaths occur every day with about one-third dying on the day of birth and nearly three-quarters

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of them dying within the first week of life. Neonatal mortality decreases more slowly than mortality in children 1-59 months of age³. Meanwhile, Indonesia recorded a fairly high neonatal mortality rate. Analysis of the Indonesian Demographic and Health Survey in 2017 reports that the Neonatal Mortality Rate in Indonesia reaches 15 neonates per 1000 live births. This achievement is higher than the achievement recorded by countries in the region⁴.

Female workers are suspected of having a greater risk of experiencing neonatal death because of their dual duties to support daily family needs and pregnancy care. A previous study informed that female workers had a 1.52 times greater risk of experiencing neonatal death than non-female workers⁵. Meanwhile, another study informed that women who do not work are more likely to experience neonatal pulse 0.576 times compared to female workers⁶. Based on the background description, the study was aimed at analyzing the risk factors for neonatal death among female worker mothers in Indonesia.

Materials and Method

The study used data from the 2017 Indonesian Demographic Data Survey (IDHS) as analysis material. The 2017 IDHS sample was determined through stratification and multistage random sampling. The unit of analysis in this study was female worker mothers, 15-49 years old, who had given birth in the last 5 years. Several 18,061 respondents were sampled.

Neonatal death is death in the neonatal period or the first twenty-eight days of life. Other variables analyzed as independent variables were a place of residence, age groups, education level, wealth status, parity, antenatal care (ANC), complication during pregnancy, childbirth assistance, and place of delivery. Place of residence divided into urban and rural. Age is the respondent's

last birthday. The education level is the last educational certificate the respondent has.

Wealth status was a wealth of respondents compiled based on the index of goods ownership quintile stated by the respondent. The five categories were the poorest (quintile 1), poorer (quintile 2), middle (quintile 3), richer (quintile 4), and richest (quintile 5). Parity is the number of living children a woman has ever born. In this study, parity was divided into two, namely primiparous (<2 children), and multiparous (≥ 2 children).

Complications during pregnancy were the respondent's acknowledgment of complications experienced during pregnancy until delivery. These problems consist of: prolonged labor, vaginal bleeding, fever, convulsions, baby in the wrong position, swollen limbs, faint, breathlessness, tiredness, and others⁴. Childbirth assistance was divided into two categories, namely non-health workers and health workers. Meanwhile, the place of delivery consists of non-healthcare facilities and healthcare facilities.

Statistical analysis using chi-square was carried out to select the variables. Estimates were performed using binary logistic regression because of the nature of the dependent variable. All statistical analyses were carried out using SPSS 22 software.

Results and Discussion

The information in Table 1 shows that in both categories, neonatal death is dominated by female worker mothers who live in rural areas. The two categories of neonatal death were also dominated by female worker mothers in the 35-39 age group who had secondary education. Based on wealth status, the two categories of neonatal death were dominated by the poorest female worker mothers.

Table 1. Descriptive statistics of female worker mothers characteristics in Indonesia (n = 18,061)

Variables	Neonatal Death				P
	No		Yes		
	n	%	n	%	
Place of Residence					0.056
Urban	8211	46.6%	178	41.9%	
Rural(ref.)	9425	53.4%	247	58.1%	

Variables	Neonatal Death				P
	No		Yes		
	n	%	n	%	
Age groups					0.686
15-19 yo.	93	0.5%	2	0.5%	
20-24 yo.	1001	5.7%	20	4.7%	
25-29 yo	2939	16.7%	67	15.8%	
30-34 yo.	4716	26.7%	108	25.4%	
35-39 yo.	5030	28.5%	119	28.0%	
40-44 yo.	3037	17.2%	86	20.2%	
45-49 yo. (ref.)	820	4.6%	23	5.4%	
Education level					***<0.001
No education (ref.)	556	3.2%	21	4.9%	
Primary	5199	29.5%	156	36.7%	
Secondary	8125	46.1%	184	43.3%	
Higher	3756	21.3%	64	15.1%	
Wealth status					***<0.001
Poorest (ref.)	5358	30.4%	177	41.6%	
Poorer	3045	17.3%	67	15.8%	
Middle	2937	16.7%	59	13.9%	
Richer	2987	16.9%	65	15.3%	
Richest	3309	18.8%	57	13.4%	
Parity					***<0.001
Primiparous	2088	11.8%	20	4.7%	
Multiparous (ref.)	15548	88.2%	405	95.3%	
ANC					***<0.001
< 4 times (ref.)	11214	63.6%	358	84.2%	
≥ 4 times	6422	36.4%	67	15.8%	
Complication during pregnancy					0.078
No	5744	82.0%	65	74.7%	
Yes (ref.)	1259	18.0%	22	25.3%	
Childbirth assistance					***<0.001
Non-health worker (ref.)	10305	58.4%	318	74.8%	
Health worker	7331	41.6%	107	25.2%	
Place of delivery					***<0.001
Non-Healthcare (ref.)	11532	65.4%	339	79.8%	
Healthcare	6104	34.6%	86	20.2%	

Note: * p <0.05; ** p <0.01; *** p <0.001.

Table 1 shows that the two categories of neonatal death are also dominated by multiparous female worker mothers, and have incomplete ANC visits (<4 times).

Meanwhile, based on complications during pregnancy, the two categories of neonatal death were dominated by female worker mothers who did not experience

complications during pregnancy. The two categories of neonatal death are also dominated by female worker mothers who are accompanied by health workers during childbirth, and who do childbirth in non-healthcare.

Table 2 provides the results of the multivariate test with binary logistic regression. There are 6 variables

included in the final stage of determining risk factors for neonatal death among female worker mothers in Indonesia. The results of the analysis found that 2 variables were proven as risk factors for neonatal death among female worker mothers in Indonesia.

Table 2. The result of binary logistic regression of the risk factors for neonatal death among female worker mothers in Indonesia (n=18,061)

The Predictors	The Neonatal Death			
	Sig.	OR	CI (95%)	
			Lower Bound	Upper Bound
Education status: No education	-	-	-	-
Education status: Primary	0.798	0.941	0.589	1.502
Education status: Secondary	0.607	0.882	0.545	1.425
Education status: Higher	0.344	0.768	0.445	1.326
Wealth status: Poorest	-	-	-	-
Wealth status: Poorer	*0.043	0.738	0.550	0.991
Wealth status: Middle	*0.027	0.702	0.514	0.960
Wealth status: Richer	0.191	0.812	0.594	1.109
Wealth status: Richest	*0.020	0.662	0.468	0.937
Parity: Primiparous	0.245	0.745	0.454	1.223
Parity: Multiparous	-	-	-	-
ANC:< 4 times	-	-	-	-
ANC:≥ 4 times	***<0.001	0.331	0.229	0.480
Childbirth assistance: Non-health worker	-	-	-	-
Childbirth assistance:Health worker	0.917	1.025	0.640	1.643
Place of delivery: Non-healthcare	-	-	-	-
Place of delivery: Healthcare	0.520	1.175	0.718	1.922

Note: *p <0.05; **p <0.01; ***p <0.001.

First, female worker mothers with the wealth status of the poorer category had 0.738 times the probability of experiencing neonatal death compared to the poorest (OR 0.738; 95% CI 0.550-0.991). Female worker mothers with wealth status in the middle category had a probability of 0.702 times compared to the poorest to experience neonatal death (OR 0.702; 95% CI 0.514-0.960). Meanwhile, the richest female worker mothers had a probability of 0.662 times compared to the poorest to experience neonatal death (OR 0.662; 95% CI 0.468-0.937).

Information on the results of this analysis indicates that poverty is one of the risk factors for neonatal death among female worker mothers in Indonesia. The same findings of information were also found in the previous studies^{7,8}. The results of the analysis informed that the richest group also had a risk of neonatal death, although the number was less than the other groups. This finding contradicts most studies which reveal that the low economic status (poorest, poorer, middle) is more at risk of neonatal mortality⁹⁻¹¹. This information suggests that the economic status of the family, at any level, is likely to increase the risk of neonatal mortality. So that a more

comprehensive program approach is needed to reduce neonatal mortality.

The reason female workers leave their children to return to work early after childbirth is the demand to make a living for their families^{12,13}. This condition also explains a large number of neonatal mortality rates in the group of working mothers with the poorest, poorer, and poor economic status. The pressure to make a living is greater in this group. The provision of paid leave for working mothers is one of the initiatives in the neonatal mortality reduction program recommended by WHO and ILO. Output in the form of maternal and neonatal health levels was found to be better for working mothers who received paid maternity leave for longer^{14,15}.

Second, female worker mothers who performed ANC completely (≥ 4 times) were 0.331 times more likely than female worker mothers who performed ANC incompletely (OR 0.331; 95% CI 0.229-0.480). The results of this analysis inform that doing ANC incompletely, or < 4 times, is one of the risk factors for neonatal death among female worker mothers in Indonesia.

The findings of this analysis are in line with the recommendation of the Indonesian government which states that the ANC during pregnancy is done at least 4 times, namely in the first trimester 1 time, in the second trimester 1 time, and in the third trimester 2 times¹⁶. This information also confirms the results of previous studies in several countries that ANC is a positive determinant for preventing neonatal death¹⁷⁻²⁰. Meanwhile, a study in Afghanistan informed that ANC by skilled providers reduced the risk of neonatal death to 0.7 times compared to non-skilled providers²¹.

Conclusions

Based on the research results, it could be concluded that 2 factors are the risk factors for neonatal death among female worker mothers in Indonesia. These two factors were poverty and incomplete ANC.

It is recommended that the government issue a policy that can encourage companies that employ female worker mothers to facilitate the ANC process when they are pregnant, especially for poor female worker mothers. Working mothers in the formal sector need to be paid maternal leave for at least 12 weeks after giving birth to provide opportunities for mothers to care for their babies. For mothers working in the informal

sector, it is necessary to think about providing a social safety net in the form of maternal cash benefits that can be implemented together with the National Health Insurance. This policy is needed to reduce neonatal death in Indonesia.

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