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Determinants of Postnatal Care Service Utilization in Indonesia: A Secondary Analysis Using the Indonesian Health and Demographics Survey

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Determinants of Postnatal Care Service Utilization in Indonesia: A Secondary Analysis Using the Indonesian Health and Demographics Survey

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Abstract

Background: The postnatal complication that occurs in the first week after childbirth is one of the causes of maternal death in Indonesia. However, it can be prevented with postnatal care (PNC). This study aims to analyze the determinants of PNC service utilization in Indonesia.

Methods: This quantitative study employed a cross-sectional study design and used secondary data from the Indonesian Health and Demographics Survey of 2017. The sample consisted of 14,724 women aged 15–49 years. We assessed the predictors of PNC service utilization using multivariate logistic regression models.

Results: About 78.4% of the respondents utilized PNC services. The factors that have a significant association with PNC service utilization include the following: college and secondary of level education, working status, high economic status, residence in the Java–Bali region, delivery assistance by a health worker, delivery by cesarean section, and complete antenatal care during pregnancy. Among these, residence in the Java–Bali region is the most dominant factor associated with PNC service utilization in Indonesia.

Conclusions: The difference area is a key factor in PNC service utilization. Government efforts to improve PNC service utilization must consider the equitable distribution of health facilities and health workers throughout the country.

Keywords: female, Indonesia, postnatal care, pregnancy, service utilization

INTRODUCTION

One indicator of the degree of public health in a country is the maternal mortality rate. One of the targets in the Sustainable Development Goals in 2030 is to reduce the maternal mortality rate to 70 per 100,000 live births. In 2017 the World Health Organization (WHO) estimated that the maternal mortality rate in the world would reach 211 per 100,000 live births.¹ According to the WHO, every day, 830 mothers die from illnesses or complications related to pregnancy. Nearly 75% of the causes of maternal death are due to bleeding, which often occurs after childbirth, postpartum infections, hypertension during pregnancy, prolonged labor, and unsafe abortion.² Furthermore, most postpartum maternal deaths occur within the one-month postpartum period, and 66% occur in the first week postpartum.³ To prevent complications that may occur in the postpartum period, such as bleeding and infection, the WHO has implemented a postnatal care (PNC) service program that aims to manage mothers' physical and mental health after giving birth.

According to a 2015 BPS (Indonesian Statistics) report, maternal mortality rate in Indonesia reached 305 per 100,000 live births.⁴ In order to accelerate maternal mortality reduction, the Ministry of Health of the Republic of Indonesia has exerted efforts to ensure that every mother can access quality maternal health services, one of which is PNC for mothers and babies. The policy related to childbirth service itself has been stated in Permenkes No. 97 of 2014, which regulates maternal health services, including PNC service. The utilization of PNC services is crucial, especially in preventing unwanted events after birth. Data reveal that the coverage of PNC visits in Indonesia reported in 2017 reached 87.36%, but this decreased to 85.92% in the following year.⁵

The conceptual framework of the current study is based on Andersen's theory.⁶ Andersen described the health system belief model known as the behavioral model of health service utilization. There are three determinant factors in service utilization health, namely, predisposing characteristics, enabling factor, and need factor.⁶

According to research, several factors can influence a person to utilize PNC services. For example, Gebrehiwot *et al.* reported a relationship between employment status, birth history and knowledge of childbirth services, on the one hand, and the utilization of PNC services⁷ on the other hand. A research conducted in Malawi showed that factors related to the utilization of PNC services included

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age, working mothers, urban living, cesarean delivery, history of antenatal care (ANC), and receiving tetanus injections.⁸ The research conducted by Mon *et al.* revealed that education, income level, husband's involvement in deciding childbirth service, birth order, and mothers concerned with recognizing childbirth danger signs are factors related to the utilization of PNC services.⁹

In comparison, research on the extensive use of PNC services in Indonesia is still limited. The current study, therefore, included several regional variables. These variables are necessary for seeing differences in the utilization of PNC services among various regions in Indonesia. Some studies have studied associations between regions and health maternal utilization. For example, a study in Indonesia used 2013 data and found disparities in maternal deaths among districts/cities in the country, with the highest risk of maternal deaths occurring in Eastern Indonesia. The risk factors that most influenced maternal mortality were population density and delivery by health workers.¹⁰ Another study reported disparities in ANC utilization among various regions of Indonesia. In particular, women in the Nusa Tenggara, Java-Bali region, Sumatra, Kalimantan, and Sulawesi are 4.365, 3.607, 1.370, 2.232, and 1.980 times more likely to make ANC visits, respectively, compared to women in the Papua region.¹¹ For this reason, it is important to explore PNC service utilization in Indonesia by adding the regional variable.

Another reason why it is important to study whether regional differences are linked to postnatal healthcare utilization is the extensive geographic and economic diversity of Indonesia. To illustrate, the Java-Bali area is the most densely populated region in the country where over 60% of the population live. The remaining provinces in outer Java-Bali spanning from Sumatra to the Eastern Islands are much less densely populated with greater population diversity.¹² Poverty rates for the Eastern Islands range from 20.2% to 31.5%.¹³ Whether these demographic differences are associated with differences in accessibility to postnatal healthcare utilization remains largely unknown. Therefore, the current study aims to analyze the determining factors that affect the utilization of PNC services in Indonesia.

METHODS

The current study used a quantitative method with a cross-sectional study design. Mainly, we used the Indonesian Demographic and Health Survey (IDHS) data for the year 2017. IDHS is a survey conducted jointly by the Central Statistics Agency (Indonesian Statistics), *BKKBN* (Indonesian National Population and Family Planning Agency), and the Ministry of Health of Indonesia. The nationwide survey was held from 24 July to 30 September 2017. The IDHS program was funded by the U.S. Agency for International Development.

The unit of analysis of this study included respondents from 34 provinces in Indonesia, who were successfully interviewed by the IDHS team. The sample comprised 14,724 respondents, who were selected based on the inclusion and exclusion criteria. The independent variables in this study were education, employment, economic status, region of residence, insurance ownership, delivery assistance, cesarean delivery, and ANC visits.

Data analysis involved univariate and bivariate analyses. The analyses were completed using the statistical package SPSS 23.0 for Windows. The variables were first summarized with descriptive statistics. Then, the multivariate logistic regression models were used to adjust the determinants of PNC service utilization. This study passed the ethics review of the Ethics Review Center of the Faculty of Public Health, Sriwijaya University, and was issued a Letter of Ethical Qualification No. 020/UN9.1.10/KKE/2020.

RESULTS

The results of this study were obtained from secondary data featured in the 2017 IDHS, in which the study subjects were women aged 15–49 years who had given birth. The characteristics of the respondents and their use of childbirth services in Indonesia can be seen in Table 1.

As shown in Table 1, 74.8% of the respondents utilize PNC services. Based on education level, they are mostly at the secondary education level (58.6%). The majority of respondents are working (51.5%) and have insurance (58.8%). The majority of respondents live in the Java-Bali region (57.6%). Those who come from a high socioeconomic status comprise most of the respondents (20.7%). Most of the respondents' delivery assistants consisted of health workers (86.3%). The majority did not deliver via cesarean delivery (82.1%) and had complete ANC visits during pregnancy (91.7%).

Table 2 shows the result of bivariate analysis using chi-square test that education, occupation status, region, economic status, delivery assistant, delivery by cesarian section, and ANC visits all have a significant relationship with the utilization of PNC services ($p < 0.05$). In contrast, the health insurance variable does not have a relationship with PNC service utilization ($p > 0.05$).

As shown in Table 3, the most influential variable, which is the region variable, is determined based on the largest adjusted prevalence ratio (PR) value. The multivariate analysis results show that the region's influence could be seen from the PR value of 1.967 (95% confidence interval (CI) 1.727–2.241). This means that respondents living in Java/Bali are 1.96 times more likely to utilize PNC services compared to respondents living in the East Region with a CI range of 1.727–2.241 after controlling for variables of

education, employment, cesarean delivery, and ANC visits.

TABLE 1. Characteristics of respondents (N=14,724)

Variables	N	%
Postnatal care service utilization		
Yes	11,017	74.8
No	3,707	25.2
Level of education		
College	2,188	14.9
Secondary education	8,634	58.6
Primary education	3,902	26.5
Having health insurance		
Yes	8,661	58.8
No	6,063	41.2
Region		
Sumatera	3,282	22.3
Java/Bali	8,477	57.6
East Region	2,965	20.1
Occupation status		
Working	7,585	51.5
Not working	7,139	48.5
Economic status		
Richest	2,829	19.3
Richer	3,054	20.7
Middle	3,053	20.7
Poorer	2,980	20.2
Poorest	2,808	19.1
Assistant delivery		
Health worker	12,702	86.3
Non-health worker	2,022	13.7
Delivery by cesarean section		
Yes	2,632	17.9
No	12,092	82.1
Antenatal care visit		
Complete	13,501	91.7
Not complete	1,223	8.3

DISCUSSION

The results show that region is the most dominant factor influencing the utilization of PNC services, with respondents living in Java-Bali having a 1.96 higher likelihood of PNC service utilization. This can be explained by the fact that the Java-Bali region is the center of government in Indonesia. It has facilities and infrastructures that offer access to better health services, especially PNC services compared to the East and Sumatra regions. Furthermore, the Java-Bali area is the most densely populated region in the country in which over 60% of the population reside. The remaining provinces in outer Java-Bali spanning from Sumatra to the Eastern Islands are much less densely populated with more diverse populations.¹² This is in line with a research conducted in Zambia, which revealed that mothers living in the Lusaka region tend to have a higher chance of utilizing PNC services, because Lusaka is the capital and largest city in Zambia.¹⁴ The disparity in access to health services between the Java-Bali region and those outside

the region, including the East and Sumatra regions, has long been considered a problem. Development that is oriented and focused on Java has had a devastating effect on maternal health outcomes throughout Indonesia. Difficulties gaining access to health facilities and the limited availability of maternal healthcare facilities cause low coverage of maternal health services in the East region. In turn, this has an impact on the high number of maternal deaths in some districts/cities in Eastern Indonesia.¹⁰ Furthermore, health workers (doctors, nurses, and midwives) are still concentrated in provincial capitals and major cities in Indonesia and are not evenly distributed throughout the country. The high inequality in the number of midwives in the provinces of East Nusa Tenggara, West Kalimantan, East Kalimantan, and Papua, and in the number of healthcare practitioners (doctors, nurses, and midwives) in the province of East Nusa Tenggara also have an impact on the achievement of maternal health outcomes, including the scope of utilization of PNC services in Indonesia.¹⁵

Another factor influencing the utilization of PNC services is education. This study reveals that mothers with college education are 1.3 times more likely to utilize PNC services. This is in line with research conducted by Sisay *et al.*, who reported that mothers with low education levels are 0.55 less likely to utilize PNC services compared to mothers with higher education levels.¹⁶ Owing to their low education level, they have limited knowledge of the importance of post-delivery services. Other studies have also shown that mothers with secondary or higher educational status are 3.6 times more likely to utilize PNC services than mothers with low education levels.¹⁷ Another research conducted by Akibu *et al.* also reported that the majority of mothers who utilize PNC services have a secondary education (26.9%). Similarly, another study reported that mothers with secondary education are 3 times more likely to utilize PNC services compared to those with low education.¹⁸ This is because people with high educational level tend to have more access to written information and possess a more modern cultural perspective compared to those who have a low educational level. Therefore, it can be concluded that the level of education can shape character and mindset, affecting all aspects of individuals' lives, including the utilization of health services, especially the use of PNC services.

Meanwhile, having health insurance has been found to have no relationship with the utilization of PNC services. The results of this study are in line with other studies, which stated that there is no relationship between insurance and maternal health services. In other words, respondents who have health insurance do not use health services in collaboration with the insurance company. They choose other health facilities, because they feel comfortable with the place selected even if they have to separately pay for such health services.¹⁹

TABLE 2. Bivariate analysis of postnatal care service utilization

Variables	Yes		p	PR (95% CI)
	N	%		
Level of education				
College	1,701	77.7	0.000	1.374 (1.169-1.614)
Secondary education	6,516	75.5	0.003	1.209 (1.065-1.373)
Primary education	2,801	71.8		
Having health insurance				
Yes	6,529	75.4	0.142	1.075 (0.967-1.183)
No	4,488	74.0		
Region				
Sumatera	2,312	70.4	0.000	1.250 (1.083-1.443)
Java/Bali	6,761	79.8	0.000	2.066 (1.814-2.353)
East Region	1,945	65.6		
Occupation status				
Working	5,743	75.7	0.043	1.103 (1.003-1.212)
Not working	5,274	74.1		
Economic status				
Richest	2,173	76.8	0.000	1.537 (1.292-1.826)
Richer	2,393	78.4	0.000	1.681 (1.442-1.960)
Middle	2,334	76.5	0.000	1.508 (1.292-1.761)
Poorer	2,199	73.8	0.000	1.307 (1.128-1.513)
Poorest	1,918	69.3		
Assistant delivery				
Health worker	9,575	75.4	0.011	1.229 (1.048-1.441)
Non-health worker	1,443	71.4		
Delivery by cesarean section				
Yes	2,144	81.5	0.000	1.593 (1.387-1.829)
No	8,873	73.4		
Antenatal care visit				
Complete	10,304	76.3	0.000	2.302 (1.968-2.693)
Not complete	713	58.6		

TABLE 3. Multivariate logistic regression analysis

Variables	p	PR (95% CI)
Level of education		
College	0.041	1.185 (1.007-1.394)
Secondary education	0.159	1.095 (0.965-1.243)
Primary education	Ref	
Region		
Sumatera	0.003	1.245 (1.077-1.394)
Java/Bali	0.000	1.967 (1.727-2.241)
East Region	Ref	
Occupation status		
Working	0.03	1.115 (1.010-1.230)
Not working	Ref	
Delivery by cesarean section		
Yes	0.000	1.438 (1.248-1.675)
No	Ref	
Antenatal care visit		
Complete	0.000	1.916 (1.641-2.338)
Not complete	Ref	

Another factor that can influence someone's use of insurance is perception of insurance. If a person's perception of insurance is good, then she will tend to use

it. A study in Manado reported that the number of National Health Insurance participants in the working area of Paniki Mapanget primary healthcare is the highest in the city of Manado. However, the coverage of service utilization by participants at the primary healthcare shows a low percentage. This is due to the community's negative perception regarding the quality of services provided, which discourages the community members from using primary healthcare services.²⁰

Occupation status is one of the factors that influence the utilization of PNC services. This study shows that mothers who work have a 1.1 times higher chance of taking advantage of PNC services than mothers who do not work. This finding is in line with a research conducted in Ethiopia, which reported that mothers with working status in the formal sector have a 1.5 times greater likelihood of utilizing PNC services compared to mothers who do not work, and that the majority of those who use PNC services are working mothers (73.38%).²¹ Our finding is also in accordance with a research conducted by Neupane and Doku, who revealed that work status has a statistical relationship with the utilization of PNC services with a p-value less than alpha (0.05) and that the majority of

mothers utilizing PNC services are working (96.2%).²² Several factors can influence the tendency of working mothers to take advantage of PNC services. Working mothers can increase their financial capacity to take advantage of the promotion of good health and can make independent decisions to utilize health services. Furthermore, the position of women in working households is a factor that can influence decisions in using health services: women who work more independently are more likely to use health services compared to those who are dependent on their husbands or other family members.²³

Economic status is also one of the factors that influence the utilization of PNC services. This research shows that those with a high economic status results in a 1.68 times higher chance of utilizing PNC services compared to respondents with low economic status. This is in line with other studies, which reported that mothers with rich economic status have a 3.6 times greater chance of utilizing PNC services than those with very poor economic status.²⁴ Another research conducted in Ethiopia revealed that economic status is significantly related to the use of PNC services: mothers with higher economic status are 1.1 times more likely to use PNC services.²⁵ This is because they have more ability to overcome the problems of access, especially that in terms of costs, in the use of PNC services. In comparison, mothers with low economic status are more likely to be unable to avail of services due to limited access to fees.

Indeed, economic disparity is still an important issue in accessing health services. Since 2011 Indonesia has issued a program, namely, Jampersal (delivery insurance), to guarantee the financing of ANC up to PNC services. However, in reality, the program has not been running well. This is evidenced by the lack of promotion of activities related to jampersal policies in both the regency and city government levels and the implementation unit as well as the lack of information dissemination related to the substance, objectives, and impacts of the jampersal to the community, making the jampersal program largely ineffective.²⁶

Meanwhile, delivery assistance by health workers can also affect the utilization of PNC services. This study shows that mothers who give birth with the assistance of health workers have a 1.2 times chance of taking advantage of PNC services compared to those who did not deliver with the assistance of health workers. Research conducted in Nepal shows that the majority (83.9%) of mothers who utilize PNC services give birth with health workers.²⁴ Another research conducted by Chaka *et al.* revealed that the presence of birth attendants has a significant relationship with the utilization of PNC services: mothers who give birth with health workers are 3.1 times more likely to utilize PNC services compared to those who give birth with the assistance of non-health workers.²⁷

Similarly, a study in India also found that giving birth with a health worker is one of the factors influencing PNC service utilization; in particular, mothers who give birth with help from a health worker are 2.1 times more likely to use of PNC services compared to those who give birth with assistance from non-health workers.²⁸ This is because mothers who give birth with health workers undergo a health examination after giving birth and are given proper education related to the importance of PNC in avoiding complications or health problems after delivery.²⁹ Therefore, educational efforts to encourage mothers to choose to give birth with assistance from health workers must be increased in order to encourage the utilization of PNC services.

Delivery by cesarean section has also been found to be one of the factors affecting the utilization of PNC service services. This research shows that mothers who delivered by cesarean section have a 1.5 times higher chance of utilizing PNC after giving birth. In line with a research conducted in Tanzania, mothers who gave birth by cesarean section have a 2.9 times greater likelihood of utilizing PNC after birth.³⁰ This is because mothers who deliver by cesarean section tend to be more vulnerable to various postpartum complications, such as bleeding, infections, and other problems. In fact, a study has shown that women who have a cesarean delivery are more at risk of postpartum bleeding.³¹ Thus, doing PNC properly is one way of reducing the risk of complications and preventing maternal death due to complications during the postpartum period.

Finally, complete ANC visit is also known to be a strong factor influencing the utilization of PNC services. This study shows that mothers who undertake complete ANC visits during pregnancy have a 2.3 higher chance of utilizing PNC services. Research conducted in Tigray also showed that mothers who complete ANC visits during pregnancy have a 4.1 times greater likelihood of utilizing PNC service.³² This can be attributed to the fact that mothers who use ANC services during pregnancy tend to interact more with health workers, who can influence the decisions of mothers in the use of PNC services. In particular, the education and counseling provided by health workers during ANC visits can increase mothers' desire to utilize sustainable maternal health services, including giving birth with the assistance of health workers and availing of PNC services.³³ At the same time, the information provided during the ANC visit is a major factor influencing a mother's decision to utilize PNC services. The Ministry of Health Indonesia has a policy of promoting and educating the community about the importance of ANC and skilled attendance at birth through health worker and cadres.³⁴

This study has some limitations that need to be discussed. First, this study used secondary data, so it only explored the available variables in the dataset. Several other

variables, such as the mother's awareness of the puerperium's danger signs, place of delivery, sequence birth, and knowledge of the mother about postpartum services, were not included in this study due to data limitations. Second, this study used a cross-sectional study design, so it is possible to have information bias when requesting data. Furthermore, this research design can only see the relationship between the variables studied without being able to see a causal relationship among them.

CONCLUSIONS

Our study finds that the variables that are significantly related to the utilization of PNC services are education, region, occupation status, economic status, delivery assistance, delivery by cesarean section, and complete ANC visit during pregnancy. Mothers from the Java-Bali region tend to have better PNC service utilization than their counterparts from other parts of the country. We also find that difference area is a key factor in PNC service utilization. In line with these findings, it is recommended that government efforts to improve PNC service utilization must ensure the equitable distribution of health facilities and health workers throughout the country.

CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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