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Maternal Health-Care Access and Utilization in Sidoluhur, Lawang

Ifan Deffinika, Wahyu Tyas Pramono, Khairunnisa B A, M. Noval A, Biffanca A. Kennedy, Mitsalina N A, and Daniar Y

Department of Geography, Faculty of Social Science, Universitas Negeri Malang, Indonesia

Abstract

The geographical conditions influence infrastructure development, such as public health services. The utilization of facilities depends on the socio-economic characteristic of the community itself. Accessing and utilizing health services would maternal mortality. This study aims to describe the maternal health behavior and to assess the correlation between access and utilization with regards to socio-economics maternal characteristics. This research used a quantitative method and samples 75 women of childbearing age. This study uses cross-sectional primary data, and analysis was performed using descriptive and inferential statistics nonparametric. Correlation analysis was performed using the *Kendal Tau correlation* to determine the relationship of independent variables to the dependent variable. The influence of independent variables on dependent variables measure using logistic regression. The results of this study were 31% of respondents still carrying out traditional births through an attendant called ”dukun”. Public health service availability is sufficient, although not everyone can access easily. While in traditional services, traditional birth attendants come to patients so they preferred this method because it’s effortless. Access to health services and access to information simultaneously give a 72.2% impact towards maternal behavior of ante-natal care.

Keywords: socio-economics characteristic, maternal healthcare utilization, maternal delivery

Corresponding Author:
Ifan Deffinika
ifan.deffinika.fis@um.ac.id

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1. Introduction

The geographical condition influences infrastructure development, specifically on the availability and accessibility of facilities. Human development and infrastructure development in both the education and health sector become key to achieving national development [11]. As one of the compilers of the Human Development Index, health is an important dimension issue. Health development also becomes an important issue in the Sustainable Development Goals [13]. One of SDGs target is to reduce the risk of maternal mortality represent by maternal mortality rate (MMR). MMR is quite related to country health status and represents a country’s socio-economic conditions [6]. The

lower maternal mortality rate, means a country's or region's socioeconomic status is in good condition.

Maternal mortality rates remain an unresolved problem in Indonesia, from the MDGs to the SDGs in Indonesia. There are so many factors cause high maternal mortality rates in Indonesia. Some of these include the quality of health services, health referral systems, implementation of National Health Insurance and local government policies [3]. Also, socioeconomic and cultural factors can give an effect on maternal mortality such as gender inequality, too young birth age. There are a lot of mothers in Indonesia that still hold the principle that women could not make their own decisions, including every decision about pregnancy and birth.

High quality of health services can minimize the occurrence of maternal and infant. Information about pregnancy and birth can be access easier in line with technological development [7]. Technological development is also influenced maternal behavior, accessing health care services that are far away from home does not become any problem. Access to health services and information utilization is two preventive efforts in dealing with maternal deaths. Access to services of ease in reaching information and ease in enjoying health facilities quality.

Many regions in Indonesia still have high maternal mortality rates [1]. In East Java Province, there are three districts with high maternal mortality rates, namely Jember Regency, Sidoarjo Regency and Malang Regency [2]. According to data from the Indonesian Ministry of Health, a high maternal mortality rate in Malang Regency is influenced by the low quality of health and nutritional status. Pregnancy consultation is one strategy in suppressing maternal mortality [4]. Efforts to introduce information technology on pregnancy and birth will be introduced to the public to reduce the high maternal mortality rate. Therefore, this study raises the theme "Maternal Health-Care Access and Utilization in Sidoluhur, Lawang" which will be conducted in Malang Regency.

2. Methods

This study examines maternal health care and utilization in Sidoluhur Village, Lawang District, Malang Regency, East Java Province, Indonesia. Primary data in this study collected using structured interviews. The population was women aged over 15 years who have been married. The sample framework is made with the criteria for the entire population who have experienced pregnancy and childbirth. The total population in this study was 764 inhabitants. The number of samples in this study was determined using Slovin's method. The minimum number of samples to be taken in this study is 72 women

of childbearing age, but this study will take as many as 75 in anticipation if there are data errors. The selection of respondents was carried out using the purposive sampling method. Criteria for respondents are women of childbearing age (15-49 years old) who are married and have experienced pregnancy until the early trimester. Variables in this study adopted the framework of Mc.Charty and Maine, the variables and indicators in this study are as follows: (1) Antenatal Care, (2) Pregnancy knowledge and (3) Pregnancy consultation. Independent variable can be seen in Table 1.

TABLE 1: Independent Variable

Independent Variable	Indicator	Score
Antenatal Care	Number of Visit	< 4: 1; ≥ 4: 2
Pregnancy knowledge	Knowledge about:	
	Nutrition Fulfillment	No: 1; Yes: 2
	Activity during pregnancy	No: 1; Yes: 2
	Potential problems during pregnancy	No: 1; Yes: 2
	Potential problems during delivery	No: 1; Yes: 2
Pregnancy consultation	Doing Consultation	No: 1; Yes: 2

This study is quantitative research with cross-sectional. Data analysis was performed using non-parametric descriptive and inferential statistical methods, correlation and logit regression. Correlation analysis is performed using the Kendal Tau correlation method to determine the relationship of the independent variable to the dependent variable. As for analyzing the effect of independent variables on the dependent variable using logistic regression. Logistic regression is a non-linear regression model that produces an equation where the bound variable is categorical or dichotomous. Binary logistic regression is used when there are only 2 possible dependent variables (Y), in this study modern delivery (1) or traditional delivery (0). Logistic regression can be applied in cases where the variable X is of type interval, ratio, nominal or ordinal. If the value of sig. > 0.05 then there is no influence of the independent variable on the dependent variable, whereas if the value of sig. <0.05 then there is the effect of the independent variable on the dependent variable.

3. Results and Discussion

This research was conducted based on the theory that was coined by Mc. Charty and Maine [10], the cause of maternal death using socioeconomic and cultural variables. However, the framework created in this study does not purely use the theory of Mc. Charty and Maine. Maternal healthcare accessibility and utilization measured using

maternal delivery as a dependent variable and ANC attendance, pregnancy knowledge and pregnancy consultation as an independent variable.

The availability and affordability of facilities and infrastructure are the main keys to the utilization of health facilities. One of the highest maternal mortality rate village in East Java Province is Sidoluhur Village. Low level of health and nutritional status is a major problem in maternal mortality [9]. This can be minimized through monitoring nutritional status through routine checks during pregnancy. Maternal mortality can be minimized by increasing the accessibility and utilization of health services to pregnant women. Accessibility is closely related to physical condition and infrastructure availability while utilization is closely related to maternal characteristics. Maternal characteristics measured by age, marriage age, education and occupation. Result of maternal characteristics can be seen in table 2.

Table 2: Maternal characteristic in Sidoluhur Village

Maternal Characteristic	Frequency (n=75)	%
• Age		
≤ 24	21	28.00
25-29	30	26.70
≥ 30	34	45.30
• First Marriage Age		
Early Marriage (≤ 18)	53	70.70
Ideal Marriage (> 18)	22	29.30
• Education		
Primary	55	67.33
Secondary	20	26.67
• Occupation		
Employee (informal)	44	58.67
Housewife	31	41.33

Table 2 shows that 45.3% of mothers age more than 30 years old. Almost 70% of mothers in Sidoluhur classified in the early marriage age. In this study early marriage age is defined as marriage under the age of the standard age of state regulations, which is 18 years. Maternal education level in this research is measured by the completed education level. As many as 67.33% of mothers in the study sites only used primary education (not graduating from elementary school). As many as 58.67% of mothers in the research location work in the informal sector as traders or tailors. However, the work is done in-house so that the mother can still be at home.

Maternal characteristics measured correlate with ANC Attendance, pregnancy knowledge and pregnancy consultation. The number of ANC Attendance is classified into (1)

≤ 4 and (2) > 4. Classification consideration is a minimum number of visits 1 time in the initial trimester, 1 time in the middle trimester and 2 times in the last trimester. The measurement of maternal characteristic and ANC Attendance show that the number of mothers who carry out the ANC attendance ideal is 80%. The ideal number ANC Attendance of mothers to visit is dominated by mothers over 30 years old. ANC attendance not correlate with each indicator of maternal characteristic.

Pregnancy knowledge is measured by using knowledge about Nutrition Fulfillment, Activity during pregnancy, Potential problems during pregnancy and Potential problems during delivery [8]. The results of the answers to each question are then processed using scoring. Measurement of pregnancy knowledge is categorized into high, medium and low-level knowledge. The high category is 63%, the medium category is 28% and the low category is 9%. Measurement of the correlation between pregnancy knowledge with maternal characteristics gives the result that there is a correlation between pregnancy knowledge and maternal education. The correlation coefficient is 0.335 with a significance level of 0.003. This result shows that the higher the maternal education level, the higher the pregnancy knowledge is.

Pregnancy consultation is measured by the category of consulting or not. As many as 86% of study respondents had consulted pregnancy [5]. Pregnancy consultation is done with a doctor or midwife. Measurement of the correlation between pregnancy consultation and maternal characteristics gives the result that there is a correlation between pregnancy consultation and age and education. The correlation coefficient between pregnancy consultation and age is 0.293 with a significance level of 0.011. while the correlation between pregnancy consultation and maternal education level.

This study describes health-care access and utilization by interpreting maternal delivery, then measured by using the correlation between maternal delivery with ANC attendance, Pregnancy knowledge and pregnancy consultation. Correlation was measured by using Kendall's Tau B. The result of a measurement can be seen in table 3.

Table 3: Result summary of the correlation between the dependent and independent variable

Kendall's Tau B Correlations			
Delivery	**ANC**	**Knowledge**	**Consultation**
Correlation Coefficient	.762**	.524**	.562**
Sig. (2-tailed)	0.000	0.000	0.000
N	75	75	75
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 3. shows correlation between dependent and each independent variable. Explanation of the correlation between the dependent variable and independent variables are as follows:

- The measurement between the variables of maternal delivery and ANC Attendance indicates that there is a correlation between those two variables. Maternal delivery and ANC Attendance have a correlation coefficient of 0.72 and significant 0.000. It means that these two variables have a strong level correlation.
- The measurement between the variables of maternal delivery and pregnancy knowledge indicates that there is a correlation between those two variables. Maternal delivery and pregnancy knowledge have a correlation coefficient of 0.52 and significant 0.000. It means that these two variables have a medium level correlation.
- The measurement between the variables of maternal delivery and pregnancy knowledge indicates that there is a correlation between those two variables. Maternal delivery and pregnancy knowledge have a correlation coefficient of 0.56 and significant 0.000. It means that these two variables have a medium level correlation.

The more comprehensive analysis used by logistic regression to determine the influence of the independent variable on the dependent variable. All independent variables included in the equation because all variables have a significant correlation with the dependent variable. Independent variable and dependent variable regressed with, ANC Attendance, Pregnancy knowledge and Pregnancy consultation. The result of measurement logit regression can be seen in table 4.

Table 4 shows that measurement results using logistic regression showed the influence of all independent variables on the dependent variable. Omnibus Test shows the significant value of 0.000. Thus it can be interpreted that the overall independent variables that use give a significant influence on the dependent variable. Coefficient significance Goodness of Fit (GoF) obtained through Hosmer and Lemeshow. GoF measurement results in regression models give a significant value of 0.342. This value is greater than 0.05 so it can be said that the model is fit for use. Measurement Nagelkerke R Square showed a value of 0.722 so it can be said that the influence of the independent variables on the dependent variable is 72.2%. There are 27.8% of other factors that influence maternal delivery in Sidoluhur village. Measurement of maternal delivery and independent variables can be partially seen in coefficient B. Coefficient B shows that the overall value of the independent variable coefficient is positive.

Table 4: Result summary of logit regression

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	47.058	3	.000
	Block	47.058	3	.000
	Model	47.058	3	.000

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	30.693[a]	.466	**.722**

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than.001.

Step	Chi-square	df	Sig.
1	47.058	3	.342

Classification Table[a]					
	Observed		Predicted		
			Birth		Percentage Correct
			Modern	Traditional	
Step 1	PDelivery	Modern	55	4	93.2
		Traditional	2	14	87.5
	Overall Percentage				92.0

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Consultation	1.580	1.400	1.274	1	.259	4.853
	ANC	4.064	1.000	16.513	1	.000	58.214
	Knowledge	1.238	.803	2.379	1	.123	3.449
	Constant	-10.884	2.453	19.696	1	.000	.000

a. Variable(s) entered on step 1: Consultation, ANC, Knowledge.

The utilization of maternal healthcare access has a strong correlation with ANC Attendance. The greater number of visits can be representing the better utilization [12]. ANC attendance is an attempt by the mother to carry out a pregnancy check. Theoretically, ANC attendance influences the accessibility and availability of health-care [14]. Utilization and understanding of pregnancy and birth are inseparable from maternal characteristics. Accessibility is not always related to distance factors. This concept is more related to the ease of reaching a location. Areas with a high degree of accessibility or easily accessible, tend to develop more quickly. Generally, accessibility in line with economic and technological development, whereas places with very low affordability will find it difficult to achieve progress and develop the economy. The meaning of accessibility in information and health services places more emphasis on its availability and utilization. Maternal health-care access and utilization, represent by maternal delivery, have a positive influence on all independent variables. The most

influential variable is ANC Attendance, while the smallest effect number Pregnancy knowledge. So the regression model generated in this study are:

$$Y = -10.884 + 4.064X1 + 1.580X2 + 1.238X3$$

Information

Y = Maternal delivery

X1 = ANC Attendance

X2 = Pregnancy Consultation

X3 = Pregnancy knowledge

4. Conclusions

There are many mothers in Sidoluhur Village still carrying out traditional births through an attendant called “dukun”. Maternal delivery in traditional medical personnel will certainly give the perception that birth is unsafe. Maternal mortality can be minimized by increasing the accessibility and utilization of health services to pregnant women. Accessibility is closely related to physical condition and infrastructure availability while utilization is closely related to maternal characteristics. Public health service availability is sufficient, although not everyone can access easily. While in traditional services, traditional birth attendants come to patients so they preferred this method because it’s effortless. Access to health services and access to information simultaneously give a 72.2% impact towards maternal behavior of ante-natal care

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