



DETERMINING FACTORS IN THE UTILIZATION OF DELIVERY PLACE IN SOUTH CENTRAL TIMOR DISTRICTS

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ABSTRACT

Background: In Indonesia, many mothers gave birth not using health facilities and helped by traditional birth attendants (TBAs) is still a phenomenon, which can have an impact on high maternal mortality. South Central Timor Districts is one of regencies in East Nusa Tenggara Province with the highest maternal mortality rate of 290/100,000 live births. Additionally low access to health facilities is a problem due to affordability and difficulty of health care location, lack of type and quality of services and affordability of information (WHO, 2008). Methods: Observational analytic with cross sectional design. Total sample of 95 respondents. The sampling technique is systematic random sampling. Data analysis using SPSS software. Descriptive analysis is to describe the frequency distribution of each variable, the chi-square test used for bivariate analysis and multivariate logistic regression. Statistical test with significance level of 5%. Results: Maternal age has a p-value of 0.001 (OR 0.076; 95% CI: 0.014 to 0.396), maternity education with p-value 0.006 (OR 0.117; 95% CI: 0.023 to 0.603), husband's occupation with a p-value 0,008 (OR 0.130, 95% CI: 0.030 to 0.553), family income with p-value 0,702 (OR 1.370; 95% CI: 0.316 to 5.932) and parity with a p-value of 0.006 (OR 8.540; 95% CI: 1,658 to 43.979). Multivariate analysis showed that maternal education was the strongest determinant variables to use birth place compared to other variables with a p-value 0,008. Conclusion: Determinant factors in the utilization of delivery place in health facilities are maternal age, maternal education, husband's occupation and parity. Education is the strongest determinant variables to use birth place compared to other variables.

Keywords: Maternal age, maternal education, husband's occupation, family income, parity, and the delivery place.

INTRODUCTION

Maternal death mostly occurred during gave birth, namely in the postpartum period and puerperal, with the main causes of bleeding, eclampsi, and infections (Unicef-Indonesia, 2012; Say, 2014). Those three main causes contributed approximately 60.0% of the total number of maternal deaths. Additionally, factor of three delays, which are too late to know the danger signs and take a decision, delayed access to health facilities and too late to get help at health facilities, also contributed to the maternal death (Thaddeus and Maine, 1994).

Most of the women experiencing delays to know the danger signs, take decisions and delayed access to health facilities, are caused by social factors, poverty and demographics (Shah et al., 2009). World Health Organization (2004), stated that the majority of maternal deaths could be prevented if women had access to health care facilities and take advantage of skilled care during pregnancy, childbirth and puerperal.

Based on the Health Profile of East Nusa Tenggara Province in 2014, the maternal mortality rate is of 169/100,000 live births. The maternal mortality rate in East Nusa Tenggara Province since 2010 to 2014 tended to decrease even though the gap is still quite far from the target of the national maternal mortality rate. Central South Timor Districts is one of the districts with the highest maternal mortality rate of 290/100,000 live births. This was due to implementation of the Maternal and Child Health Revolution program not supported by internal factor, such as: health facility has not been adequate and not in accordance with the standards needs of the community and still more concentrated in urban areas than in rural and less competent of human resources.

The number of pregnant women and percentage of health facility deliveries continued to rise from 2010 (60.2%) to 2013 (86.0%), and decreased in 2014 (77.9%), whereas non health facility deliveries has decreased (in 2013: 13.9%) but in 2014 actually increased (22.1%). These circumstances due to the increasing number of deliveries by TBAs. The percentage is still very low when compared to the national target. Whereas in South Central Timor District, the percentage of delivery in health facility continued to increase since the year 2010-2013, while from 2014 until october percentage is also still quite high (84.7%). But there are still deliveries by TBAs (15.3%). This shows that there are still many areas that use TBAs, especially in the villages. The condition is due to social and cultural factors in each region that still contribute to or influence on society and maternity tradition by TBAs.

Studies of Oligbo Community in Southern Nigeria by Osubor et al., (2005), found that private maternity facilities is the most preferred place for the birth of a child, followed by birth attendants and government health facilities. The use of health facility during labor is very low and maternal mortality rate is still a public health problem. This may be influenced by many factors including demographics, socioeconomic, cultural, obstetric and health systems (Khalid, 2006). A number of research has been done in the developing countries on demographic factors and socio-cultural that affect the use of maternal health services showed that age, length of marriage, education, employment, family income, parity, and the distance was significantly associated with the use of maternal health services (Celik and Hotchkiss, 2000; Addai, 2000; Ojong et al., 2011). The purpose of this study was to analyze the determining factors the utilization of delivery place.

MATERIALS AND METHODS

This study was conducted in South Central Timor Districts, East Nusa Tenggara Province starting in April 2016 to July 2016. Analytic observational research with cross sectional design. The study sample was 95 mothers giving birth. Inclusion criteria of this study covering all pregnant women in health facility or non-health facility, stay permanently more than one year, and willing to become respondents. Exclusion criteria is that mothers who are not in place when the research take place. Data collection using questionnaires. The analysis was with SPSS software. Descriptive analysis is to describe the frequency distribution of each variable, the Chi-square test is used for bivariate analysis and multivariate logistic regression. Statistical test with significance level of 5%.

RESULT AND DISCUSSION

Research variables measured in this study include the independent variables, maternal age, maternal education, husband's occupation, family income, and parity. The dependent variable is the

utilization of delivery place. The results of the frequency distribution can be seen in Table 1.

Table 1 Distribution of respondents in South Central Timor District in April to July 2016

Categories	Frequency	%
Maternal age (in years):		
1. Risk	25	26.3
2. Not at risk	70	73.7
Maternal education:		
1.Low education	32	33.7
2.High education	63	66.3
Husband's occupation :		
1.Does not work	17	17.9
2.Work	78	82.1
Family income:		
1.Low income	69	72.6
2.High income	26	27.4
Parity:		
1. Low parity	63	66.3
2. High parity	32	33.7
Place of birth:		
1. Health facilities	86	90.5
2. Non-health facilities	9	9.5

As Table 1 shows that, the majority of respondents (73.7%) including a no-risk age group. Most respondents with a higher education level, husband's occupation (82.1%), but with low income (72.6%), low parity (66.3%) and mostly deliver at health facilities (90.5%). Relations maternal age, maternal education, husband's occupation, family income, and parity with the utilization of delivery place can be seen in Table 2.

Table 2 Relationship maternal age, maternal education, husband's occupation, family income, and parity with the utilization of delivery place

Categories	Place of birth				Total		p-value	OR (95% CI)
	Health facilities		Non health facilities					
	f	%	f	%	f	%		
Maternal age (in years):								
1. Risk	18	72.0	7	28.0	25	100	0.001*	0.076 (0.014-0.396)
2. Not at risk	68	97.1	2	2.9	70	100		
Maternal education:								
1. Low education	25	78.1	7	21.9	32	100	0.006*	0.117 (0.023-0.603)
2. High education	61	96.8	2	3.2	63	100		
Husband's occupation :								
1. Does not work	12	70.6	5	29.4	17	100	0.008*	0.130 (0.030-0.553)
2. Work	74	94.9	4	5.1	78	100		
Family income:								

1. Low income	63	73.3	23	26.7	86	100	0.702	1.370
2. High income	6	66.7	3	33.3	9	100		(0.316-5.932)
Parity:								
1. Low parity	61	96.8	2	3.2	63	100	0.006*	8.540
2. High parity	25	78.1	7	21.9	32	100		(1.658-43.979)

* Significant: p value <0.05

As Table 2 shows that, the variables maternal age, maternal education, husband's occupation, and parity has a significant correlation to the utilization of delivery place with p-value < 0.05. While the variable income families have a significant relationship to the utilization of delivery place because the p-value > 0.05.

A multivariate logistic regression was done to see/learn the relationship several variables (more than one variable) significant independent with one dependent variable) at the same time.

Table 3 Multivariate logistic regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.742	.199		8.754	.000
Age	-.167	.064	-.251	-2.611	.011
education	-.152	.056	-.246	-2.733	.008
occupation	-.145	.071	-.189	-2.023	.046
parity	.119	.058	.192	2.064	.042

a. Dependent Variable: delivery place

As Table 3 shows that, the variables of age, education, occupation and parity had no significant relationship with the utilization of delivery place with p-value < 0.05. Education is the strongest determinant variables on the utilization of deliveries in health facilities compared to other variables.

DISCUSSION

1. Relationship of maternal age with the utilization of delivery place

As Table 2 shows that maternal age is not at risk (age 20-30 years), the majority (97.1%) delivered in a health facility, otherwise risk of maternal age (age < 20 years and > 30 years) non-health facility (28.0%). The results of the same study done by Rahman et al., (2008), found that age has a significant connection with the use of the service. Each individual with different age have a a tendency utilize the different health services.

Age 20-30 years is a healthy reproductive age, which is the physical condition of the mother is in top shape, the uterus was able to give the maximum protection or conditions for pregnancy and childbirth, while age (age < 20 years and > 30 years) was age group at risk for complications can occur both the mother and fetus conceived or born. Mother young and old the chance for premature birth, poor fetal growth, fetal distress and severe preeclampsia. For some complications, young women a chance to increase chorioamnionitis and endometritis while women older an increased likelihood of hypertension in pregnancy and preeclampsia (Cavazos-Rehg et al., 2015).

Age is often served as a proxy for the accumulation of experience, including in the use of health services. Women who are older may be more confident and influential in decision-making in the household than younger women. Additionally older women may be told by health personnel to give birth in health facility because including age at risk (Navaneetham and Dharmalingam, 2002; Bell, Curtis and Alayon, 2003). Age strongly correlated with parity and education (Magadi, Agwanda, Obare, 2007).

2. Relationships maternal education with the utilization of delivery place

The results Table 2 shows that, birth mothers with higher education (\geq High School) more to deliver at health facilities (96.8%). Whereas the multivariate analysis showed that variables education is the strongest determinant variables of the utilization of place of birth. In contrast to mothers with low education (\leq Junior High School) at most non-health facility (21.9%). The mother's education is one of the contextual determinants causes of maternal death.

Education is taken by a person is one of the demographic factors that is very influential the health condition of individuals and communities. Formal education would increase the reasoning capability and increase motivation to accept. Mother's formal education is one determinant of the most frequently found in the use of maternal and child health services including the dimensions of socioeconomic status (Levine and Rowe, 2009; Fotso et al., 2014).

The study by Moore, Alex-Hart and George (2011), the results showed that, 90.0% of mothers had no formal education and this makes it possible to utilize the service facility deliveries in health facilities. This further emphasizes the importance of education in making decisions. Maternal education significantly contributes to the improvement of health care utilization. Low levels of education and are supported by a low ability to take decisions that affect the mother's ability to access quality services. While the highly educated mothers have a higher likelihood for healthy behavior, tend to be more attention to their own health, which allows women more actively and independently determine the attitude decided the best thing for him, including access to health services. Education serves as a proxy for information, cognitive skills, values, and give effect to the health care seeking behavior (Hodgkin, 1996; Celik and Hotchkiss, 2000).

3. Relations husband's occupation with the utilization of delivery place

The results in Table 2 shows that, working husband bring his wife more often to give birth in health facility (94.9%). The non working husband brought his wife to give birth in non-health facility (29.4%). The results are consistent with research Etukudo and Inyang (2014), namely that the most important factor affecting the use of maternal health services, one of which is the demographic factors is the status of the job, in which the working husband more use of public health facilities.

Jobs associated with economic status, affordability and improved health (Nigatu et al., 2014). Working husbands will open women's access to services and deliveries in health facilities. It is related with the ability in terms of financing. The husband who works with a large enough income, it is easier to be able to pay the cost of deliveries in health facilities and also include the use of health insurance that makes the search cheaper services (Gabrysch and Campbell, 2009). Maternal deaths are common in the poor, uneducated, living in remote areas and those who do not have the ability to fight for his own life.

4. The relationship of family income with the utilization of delivery place

The results Table 1 shows that, the majority (72.6%) of family income is included in the low

category. High or low family income, do not affect the selection or use of a good birth in a health facility or in non-health facility. It is also supported by the use of health insurance (childbirth assurance) to obtain service deliveries in health facilities with ease. The results of this study contrasts with several studies that Rahman et al., (2008), show that the income, service charges and insurance had a significant association with the use of the service. Research by Sabiti, Amoateng and Ngake (2014), found that family income are associated positive and allows mothers to give birth in a health facility compared the low income.

Family income either high or low, is not a problem or is not the deciding factor in utilizing delivery places. Instead is at issue is physical, geographical, financial, language, social, culture, customs, beliefs and beliefs related to childbirth and the mother has no authority in decision-making (Moyer et al., 2013; Valley et al., 2013). Socio-economic problems identified as one of the deciding factor that make mother is not able to take the decision to seek care, so before deciding, they calculate costs involved in traveling to a health facility (Dever, 1984; Wiley, 2002; Nagdeve and Bharati, 2003; WHO 2008; Bredesen, 2013). But Thaddeus and Maine (1994) found that, compared with other factors, the cost to receive care is often not the major determinant of the decision to seek care.

Qualitative studies in general stated that the cost as crucial barrier to modern health care. TBAs are generally considered affordable for poor families because the payment can be negotiated (Amooti-Kaguna and Nuwaha, 2000). In this study, low family income mothers, deliveries in non-health facility that is equal (26.7%).

5. Relationship parity with the utilization of delivery place

The results Table 2 shows that, mothers with low parity (≤ 2 child) mostly (96,8%) to deliver at a health facility. Instead of high parity mothers (> 3 child), even in non-maternity health facilities that is equal 21.9%. Parity is the number of live births which is owned by a woman. Parity can be divided into primiparous, multiparous and grande multipara. Primiparas is a woman who has given birth to a child, which is big enough to live in the outside world. Multiparas were women who had given birth to a child more than one time. Grandemultipara is a woman who has given birth to five children or more (Arnot, 2008). Parity including maternal reproductive conditions that can lead to complications of pregnancy if the mother has a high parity (McCarthy, James, and Maine, 1992).

According to previous research by Majoko et al., (2004), found that women nullipara have an increased risk of hypertensive disorder, delivery by operative and births with low birth weight babies, while women with high parity without the complications of pregnancy or low risk for complications develop that recommended for deliveries at health centers. Thus it can be said to bring parity has a significant influence on the utilization of maternal health services with a value $\beta = -0.14$, $p = 0.016$ (Olayinka et al., 2014).

These results are consistent with most research elsewhere that show that women are significantly more likely to use the health services for the first delivery than the next ones. The reason is that woman expecting her first child, is more tend to have difficulties during labor compared with high parity. This can cause low parity women become more motivated to gave birth in medical health facility than women of high parity. Utilization of delivery in health facility is lower for mothers with two or more children compared to one child. It is probably because the mother had faith and believed that modern health care is not needed because it has a lot of experience and knowledge with the previous childbirth. Another condition is the majority of mothers with high parity living in rural areas (Adekunle et al., 1990; Mekonnen and Mekonnen, 2002). Parity related with the mother in childbirth experience. Increasing number of deliveries, will add to the experience of mothers in

childbirth, thus affecting to make decisions on the use of the place and birth attendants. Maternal experience with the use of health facilities (hospitals, health centers and private midwives) can cause mothers to health facilities confidence. Thus possible to deliver at a health facility in the next delivery.

CONCLUSION

The study show that determining factors in the utilization of delivery place in health facilities in South Central Timor Districts are maternal age, maternal education, parity, and husband's occupation. Education is the strongest determinant variables to use delivery place compared to other variables. While the family income is not significant to the utilization of the deliveries in health facilities.

RECOMMENDATIONS

First, that education was found to have an important impact on the use of maternal healthcare services in the district of South Central Timor District, efforts to improve educational opportunities for women in the area can have a big impact on improving the utilization of deliveries in health facilities. But these efforts as long-term investments. As a short-term alternative is a health program to attract women need to focus both high and low education. The second suggestion is to mothers with high parity were found to tend to her labor underutilization of health facilities so that parity should be one of the criteria targeting health education campaign about the benefits of safe motherhood program in South Central Timor District. Third, birth mothers are less likely to use modern health services means that maternal health service program should be expanded and improved in South Central Timor District along with health education campaigns in accordance with local community culture.

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