Maternal Death Development Based on MC Carthy and Maine Theory in Jember Regency

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ABSTRACT: Maternal death according to the International Statistical Classification of Disease, Injuries and Causes Edition X (ICD - X) is the death of a woman during pregnancy, childbirth and childbirth 42 days caused by pregnancy itself or during treatment. Obstetric complications are complications in the mother during pregnancy, maternal and childbirth 42 days (Suriani, 2010). Obstetric complications as the leading cause of maternal death. One approach model that can be used in identifying risk factors that affect outcomes in maternal death is model theory from Mc Carthy and Maine. This theory discusses the three determinants of the cause of maternal death that is the determinant of proxy or outcome, the determinant between and the determinant konstektual. This type of research is analytical with case control research design. This study was conducted at district public health center ember, June 2018. Using secondary data of maternal deaths in 2016 and 2017. Sampling method total sampling, so the sample of 164 consisted of 82 case population and 82 control population. The result of research using smartPLS 3 shows the influence between the determinant factor far to the determinant factor between and the determinant factor between to the determinant factor close to the value of p value 0,000 meaning ≤ 0.05. The status of maternal anemia, maternal disease history, prenatal care, maternal age and education are factors of maternal death.

KEYWORDS*: Determinant, Maternal Death*
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I. INTRODUCTION

Maternal Mortality Rate (MMR) is the number of maternal deaths during pregnancy, maternal and childbirth 42 days caused by the complication of pregnancy itself and when handling in every 100,000 births. Obstetric complications are complications in the mother during pregnancy, maternal and childbirth 42 days (Suriani, 2010). Maternal mortality shows the measure of progress and success of maternal health efforts, meaning that it can be seen how the status of maternal health, so the risk of death that occurs can be detected early. Maternal mortality in Indonesia as a developing country is still quite high, although there has been a decline from 1991 to 2007, from 390 to 228 per 100,000 KH. Data of Indonesia Demographic Health Survey in 2012, that there is a significant increase to 359 per 100,000 KH. In 2015 there was a 305 return decrease per 100,000 KH, but this figure is high since Sustainable Development Goals have a target in 2030 of maternal mortality to 70 deaths per 100,000 KH.

Based on the Indonesian Health Profile of 2016, most maternal deaths were caused by bleeding (28%), preeclampsia (24%), infection (11%), complications (8%), old partus (5%), obstetric trauma (5%), and obstetric embolism (3%). Causes of maternal complications of maternal mortality anemia by 51%, too young by 10.3%, too old 11%, too many children 19.3% too densely <24 months 24% and 36% <36 months (Budijandro, 2016).

The maternal mortality rate in East Java boasts the last three years, but in 2016 it rose again. By 2016, the mother age of East Java Province is 97.39 per 100,000 live births. Health profile in East Java 2016, showing data of Jember District has the number of second mother death cases after Surabaya. Maternal mortality in the city of Surabaya amounted to 37 in Jember regency of 33 (Budijanto, 2016). In 2017 Jember regency is the largest and most first maternal mortality in East Java. From 2014 to 2017, there are always cases of maternal deaths in Jember regency, increasing from year to year. Based on the results of AKI preliminary study in Jember District that is well-connected during pregnancy, childbirth and childbirth.

One approach model that can be used in determining factors that affect outcome in maternal death is model theory from Mc Carthy and Maine. This theory discusses three factors causing maternal death that is determinant of proxy or result, determinant between and determinant konstektual. Not only Mc Carthy and Maine model theories, L. Lewis Wall also analyzes maternal deaths. L. Lewis Walls know maternal maternal factors of distance determinants,

middle determinants and acute clinical determinants. Researchers combine both theories, namely, three factors of the cause of maternal death is the determinant, the determinant between and the determinant away. Determinants are the immediate factors leading to maternal deaths, namely pregnancy complications from pregnancy complications (abortion bleeding, impaired ectopic pregnancy, anterpartum haemorrhage, preeclampsia and infection in pregnancy), complications of labor (postpartum and old partum bleeding) and postpartum complications bleeding) and postpartum infections).

II.   METHOD

The research design used was analytic observational with case control approach. This research was conducted at Puskesmas of Jember Regency where there was maternal death. Total sample 164 consisted of 82 case samples and 82 control samples. Results of research using smartPLS 3 with $\alpha = 0.05$.

III.   RESULT

a. Results Output correlation between indicators with construct as in the picture and structural table below:
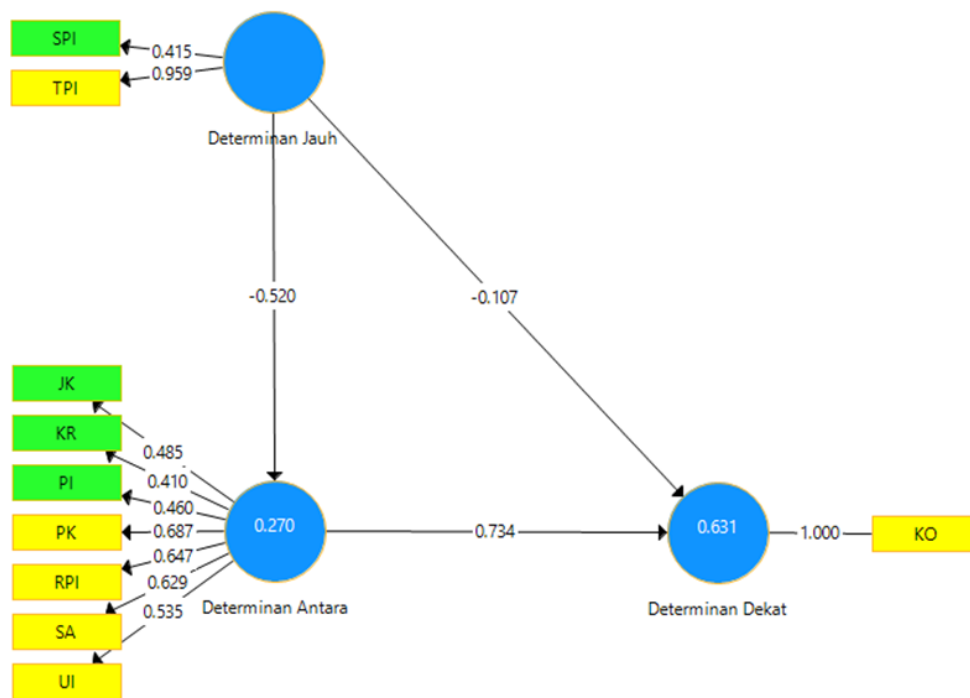

Figure 1 First Factor Loading Factor Testing

Table 1 Convergent Validity Test First Stage

Variable Constructs	Variable Inductor	Outer Indicator	Loading Code	Description
Derterminan Far	Education Level Mother	TPI	0,959	Valid
	Job Status	SPI	0,415	Not Valid
Determinant Between	Pregnancy Distance	JK	0,485	Not Valid
	Referral Delay	KR	0,410	Not Valid
	Parity Mom	PI	0,460	Not Valid

	Pregnancy test	PK	0,735	Valid
	History of Mother's Disease	RPI	0,640	Valid
	Anemia status	SA	0,670	Valid
	Mother's Age	UI	0,609	Valid
Determinant Near	Obstetric Complications	KO	1,000	Valid

Table 1 and Figure 1 are an outer loading test to analyze the indicator's validity to be able to measure a construct. The mother's job status indicator (SPI) is not valid in forming the determinant construct, because it has a loading factor value <0.5. Indicator of pregnancy distance (JK), delay of reference (KR), parity of mother (PI) is not valid in measuring construct determinant between. Invalid indicators (SPI, JK, KR, PI) should be removed from the model, after removal from the model then the output of the outer loding model is as follows:
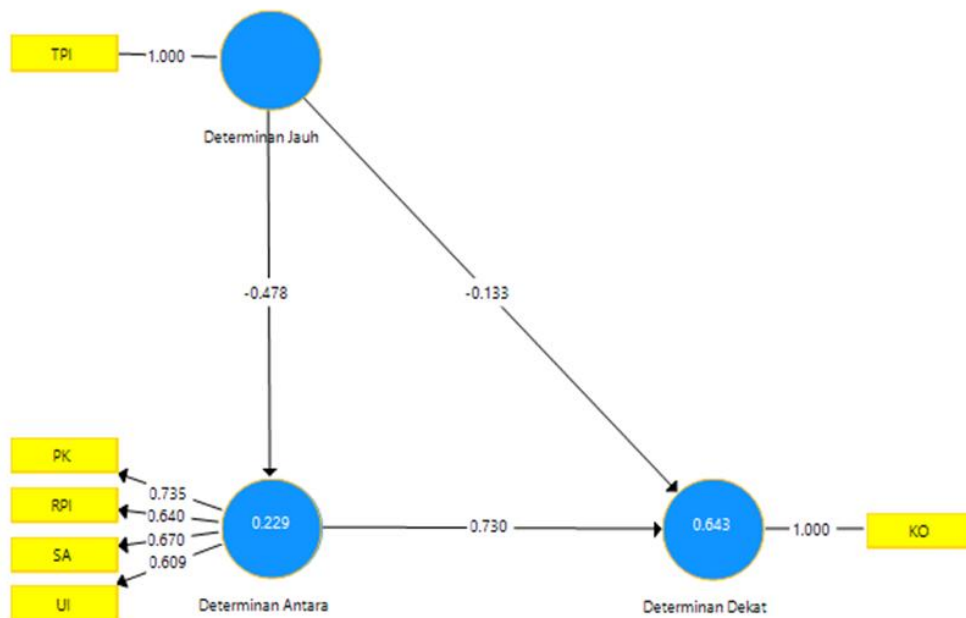

Figure 2 second stage Loading Factor Testing

Results of processing by using SmartPLS 3 can be seen in Figure 4.1 value outer model or correlation between constructs with variables already meet the convergent validity because all indicators have the value of outer loading factor above 0.50

Table 2Test *Convergent Validity*

Variable Constructs	Variable Inductor	Outer Indicator	Loading Code	Description
Derterminan Far	Education Level Mother	TPI	1,000	Valid
	Pregnancy test	PK	0,735	Valid
Determinant Between	History of Mother's Disease	RPI	0,640	Valid
	Anemia status	SA	0,670	Valid
	Mother's Age	UI	0,609	Valid
Determinant Near	Obstetric Complications	KO	1,000	Valid

Table 2 shows that all values on the indicator variables are above 0.50, so there is no convergen validity problem in the model under test. In addition to the factor loading values, convergent validity can also be seen from the Average Variance Extracted (AVE) value in table 2.

b. Evaluation result of hypothesis testers

To test a hypothesis, the resulting t-statistic value is compared with the t-table value. On hypothesis testing criteria with a significant level (α) 5% ie if the value of t arithmetic> t table or more than 1.96 then the hypothesis is accepted but if the value of t arithmetic <t table or less than 1.96 then the hypothesis rejected. The result of t-statistic estimation can be seen in table

Table 3 result test Hipotesis

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Determinantbetween-> Determinant near	0,730	0,732	0,045	16,041	0,000
Determinantfar-> Determinantbetween	-0,478	-0,481	0,059	8,092	0,000
Determinantfar-> Determinantnear	-0,133	-0,130	0,059	2,254	0,024

Based on table 3 shows the influence of determinants between the close determinants is significant where the value of t statistics of 16.041 means ≥ 1.96 and p value 0,000 means ≤ 0.05, so it can be concluded that the determinant between directly affect the determinant significantly between. The influence of the far determinant to the intermediate determinant is significant where the statistical t value of 8.092 means ≥ 1.96 and the value of p value 0,000 means ≤ 0.05, so it can be concluded that the determinant far directly affects significantly between. The influence of the far determinant to the near determinant is significant where the value of t statistics of 2.254 means ≥ 1.96 and the value of p value 0.024 means ≤ 0.05, so it can be concluded that the determinants far directly influence significantly to the near determinant.

IV.   DISCUSSION

Respondents without obstetric complications consisted mostly of those with high school education, whereas nearly half of those without obstetric complications were nearly half composed of those with junior high school education. Education plays an important role in seeking health information especially on maternal health. The results of this analysis are in line with Pradono's (2013) research which has a positive effect of duration (years) of education with consistent health, arguing that the length of the school year can develop an effective living capacity and ultimately affect health.

Mantra (2013) states that the higher a person's education the easier it is to receive information, with higher education then someone will tend to get information both from others and from the mass media. The more information that comes in the more knowledge acquired, also includes knowledge about health. Knowledge insights are increasing in line with one's education, with high education motivating curiosity and recognizing the importance of maintaining pregnancy so that pregnancy can proceed smoothly so that the baby's mother is born healthy and safe. The level of education of the mother greatly affects how a person to act and find the cause and the solution in his life. A highly educated person will usually act more rationally and more readily accept new ideas, as well as a highly educated mother will check her pregnancy regularly in order to keep her and her child's health in their womb (Mariza, 2016).

The study was supported by Oster (2010) who said that the higher the education level (long school) of a person, the easier it is to receive healthy living independently, the higher the education the higher the awareness of the mother to maintain the pregnancy so that obstetric complications can be prevented. Conversely low education makes the mother has no idea, no curiosity how to keep pregnancy. Low education makes the mother indifferent and do not listen to advice or information provided by midwives related conditions of pregnancy.

Antenatal period is a condition that is physically and psychologically prepared for birth and parenthood. In this period, especially healthy women will seek guidance and care regularly (Susanti, 2012). An antenatal care is the visit of

a pregnant mother to a midwife or doctor as early as possible since she feels she is pregnant to get antenatal care so that she is able to optimize mental and physical health to face the process of childbirth until the puerperium. Antenatal care is to prevent obstetric complications whenever possible and to ensure that complications are detected as early as possible and adequately addressed (Susanto, 2016). According to Manuaba (2010) and Rochjati (2013) the correct risk approach is performed early in pregnancy, during pregnancy until it approaches labor indirectly as an application of antenatal care. The results of this analysis are consistent with Retnaningsih (2015) study, which says maternal deaths 3.5 times occur in women who have never or less than 4 times a pregnancy check compared to women who have had their pregnancies examined.

Anemia in pregnant women is a condition of mothers with hemoglobin (Hb) levels in the blood less than 11 g%, anemia during pregnancy due to an increase in blood volume (Kepmenkes RI, 2013). Hb levels less in blood berarati blood ability in binding and emmbawa oxygen will be reduced, as well as nutrients brought by red blood cells will also be reduced. Lack of iron nutrient intake can cause anemia in pregnant women which is a health problem in Indonesia with high prevalence (Winknjosastro, 2002). Anemia in pregnancy is directly caused by malnutrition, lack of iron and chronic diseases (TB, malaria, etc.). Indirectly can be caused by the age of the mother during pregnancy, knowledge about anemia in pregnancy, parity, and so forth. Pregnant women with anemia are at risk for fetal growth disorders and even at risk for labor.

The results of the analysis in accordance with the study of Ika (2015) said that the risk of maternal death in women who have a history of disease is 95% greater than the mother who has no history of disease. A history of maternal illness is defined as a disease that has been suffered by the mother before pregnancy or childbirth or illness that arises during pregnancy that is not related to a direct obstetric cause, but is aggravated by the physiological effects of pregnancy resulting in a worse maternal condition. This study shows that most women with obstetric complications have a history of the disease before pregnancy. The results of this study are in line with research conducted by Fibriana (2014) that the risk for maternal deaths in women with a history of disease was 210.2 times greater than those with no history of disease.

The results of this study confirmed by Rochjati (2013) pregnant under age ≤16 years have a risk because the uterus and pelvis of the mother often has not grown to reach the size of adult consequences can occur obstetric complications both during pregnancy, childbirth and childbirth. Not only physical, psychological and socio-economic is also no readiness. While the first pregnant woman at the age of ≥ 35 years easy to happen disease and organs and aging and birth canal is also increasingly stiff. Maternal age affects the incidence of maternal complications. The results of this study in line with research conducted by Wiyati (2016) states otherwise, that the age of mothers <20 years and> 35 years have three times the risk to experience maternal death. The safest age for a woman to get pregnant and give birth is between the ages of 20-35 years, because they are in a healthy reproductive period. Maternal deaths in pregnant and maternal mothers at <20 years and 35 years of age will increase significantly, as they are exposed to both medical and obstetric complications that can endanger the mother's life (Siswosudarmo and Emilia, 2009).

V. CONCLUSION

a. Determinant factors include the level of maternal education affect the determinant factors include the status of maternal anemia, history of maternal disease, maternal age and examination of pregnancy.
b. Determinant factors include mother's maternal status, maternal disease history, maternal age and pregnancy examination have an effect on close determinant factor that is obstetric complication

Suggestion

A. For Academics

Further research is needed on the determinants of maternal mortality risk factors using non retrospective methods which are analyzed not only quantitative studies but also qualitative studies so that the data is not only primary and secondary but can be directly linked with health personnel and stakeholders.

B.For the Midwife Profession

The midwives profession should innovate, the theory renewal program, the skill renewal program, improve the good cooperation among the various sectors, be more active to the community, especially pregnant women, maternal and childbirth so it is expected that maternal death can be prevented and detected early.

C. For the Community

The community especially pregnant women are expected to always check their pregnancy at posyandu, puskesmas, private midwife and doctor so that the development of mother and fetus can be monitored and if obstetric complication is handled immediately. The people are expected to be pro-active to participate in reducing maternal mortality.

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