

Full Length Research Paper

The Relationship between Behavioural factors of Pregnant Women with Preeclampsia and Health Status of Newborns in Delivery Rooms of Prof. Dr. W. Z. Johannes Kupang Hospital

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Abstract

Neonatal mortality is still high during perinatal or below first month of pregnancy. Three quarters of these deaths occur in the first week of pregnancy. The causes of deaths are asphyxia, birth trauma, infection, prematurity, congenital abnormalities, and other causes. The aim of this study is to analyze the relationship between behaviour of pregnant women with preeclampsia and health status of newborns in delivery rooms of Prof. Dr. W. Z. Johannes Kupang Hospital. The study was conducted from January to March 2015. The sample was 50% of the population or 35 respondents that was taken using consecutive sampling with cross sectional study design. The research field was delivery rooms of Prof. Dr. W.Z. Johannes Kupang Hospital. The bivariate test results with Chi-Square showed that these factors was significantly related to the health status of the newborn, they are gestational age (p-value=0.031), a health history (p value=0.035), family income (p value=0.035) and weight gain (p value=0.021). Enabling factors such as health service points (p value=0.051), ANC visits (p value=0.011) and MNH book holders (p=value 0,031) also contributed significantly to health status of newborn babies. The reinforcing factors such as healthcare staff (p value=0,031) also significantly related health status of newborn babies.

Keywords: Behavioral Factors, Health Status of Newborns, Preeclampsia.

INTRODUCTION

Various efforts have been done to lower maternal and neonatal mortality rate but it is still higher than the target of Millenium Development Goals (MDGs). Currently, the status of maternal and neonatal health in Indonesia is still bad because of high Maternal Mortality Rate (MMR). Maternal mortality rate (MMR) in Indonesia is 307/100,000 of Live Birth (LB). The surveys by

Indonesian Health Democratic Survey (SDKI) in 2017 showed that MMR in 2007 was 228/100,000 of LB, while in 2012 showed that MMR was 359/100,000 of LB. The MMR in Malaysia was 62/100.100 of LB, Srilanka was 58/100.000 of LB and Philippine was 230/100.000 of LB. Similarly, Infant Mortality Rate (IMR) in 2004 dropped to 34/1000 of LB and in 2012 was 32/1000 of LB.

In East Nusa Tenggara Province (NTT), there were 159 maternal deaths per 100,000 live births up to 2014, while, neonatal mortality rate was fluctuated. In 2012, neonatal deaths increased to 1,350 cases. The neonatal deaths dropped to 1,286 cases in 2013 and fell to 1,283 deaths

per 1,000 live births (Profile of Health Department NTT, 2012). Neonatal deaths are still high during prenatal or under one month of age. Three quarters of these deaths occurred during first week of lives and mostly occurred during pregnancy with preeclampsia. Three quarters of these deaths occurred in the first week of pregnancy. The causes of these deaths were asphyxia, birth trauma, infection, prematurity, congenital abnormalities, and other causes (Sarwono, 2010). Other research about the factors contributes to asphyxia on newborns in General Hospital of Rokan Hulu Regency by Rike Herawati (2013) with 140 respondents and 976 people in control group found out that there was closely relationship between maternal age and gestational age for neonatal asphyxia.

A study by Eka Wijayanti (2011) also revealed a relationship between overdue pregnancy and asphyxia in newborns. There are other factors that affect health such as attitudes and behaviour in accessing information about maintaining and improving maternal health. This information includes "4 toos and 3 lates". 4 toos are too young (healthy reproduction occurs between 20–35 years old), too old to get pregnant, too often get pregnant/pregnancy spacing, too often delivering babies. Three classes of late are late in making decision, late in sending to referral health points and late in getting health services. Green (1980) in Notoatmodjo (2010) claimed that someone's behaviour influenced by predisposing factors, supporting factors, driving factors.

In order to find out the relationship between behaviour of pregnant women and health status of newborns, it is necessary to conduct a research on factors that contributes to this relationship such as predisposing factor (age, education, parity number, gestational age, health history), enabling factor (health service location, health service coverage transportation, family income), reinforcing factor (nutritional status, weight gain, ANC visits, MNH books holders, health care staff)

METHOD

This is a descriptive analytical research with cross sectional design. The population of this study was all pregnant women with preeclampsia who came to delivery rooms at Prof. Dr. WZ. Johannes Kupang Hospital in the period of January to December 2014, 50% of the sample was taken from 70 cases which 35 respondents were using consecutive sampling for all pregnant women who came to delivery rooms of Prof. Dr. W. Z. Johannes hospital and fulfilled inclusive criteria. The location and time of this research were at delivery rooms of Prof. Dr. W. Z. Johannes Hospital from January to March 2015. The instrument used in this research was a questionnaire with questions based on measured variables such as predisposing, enabling and reinforcing factors, data processing and analyzing techniques. The data was processed using Statistical Program for Social Science

(SPSS) 1.6 version. The data was analyzed by Univariate Analysis. Univariate analysis was done to describe the research variables such as maternal age, education level, parity number, gestational age, health history, family income, health service location, health service coverage, transportation to the health service location, nutritional status, weight gain, ANC examination, MNH books holders, and health care staff. Bivariate analysis was conducted to find out the relationship between independent variables (age, education level, gestational age, health history, parity number, family income, health service location, health service coverage, transportation to the health service location, nutritional status, weight gain, ANC examination, MNH books holders, health care staff) and dependent variables (health status of newborns). The analysis used Chi-Square statistical tests.

RESULTS

This research revealed the relationship between behavioural factors of pregnant women with preeclampsia and health status of newborns in delivery rooms at Prof. Dr. W. Z. Johannes Kupang Hospital. The predisposing factors covers maternal age, education level, gestational age, parity number, health history, family income, nutritional status, weight gain, ANC visits, MNH books holders, reinforcing factors such as health care staff, this can be seen in the table below.

DISCUSSION

The table above shows that most of the respondents receive health service from medical staff (77,1%) but still delivered abnormal babies (59,3%). The pregnant women' age is closely related to the weight of the baby born. At the age of less than 20 years old, the reproductive function of women has not fully developed. Those with the age up to 19 years is more likely to experience anemia, and get higher risk of having a fetus with stunted growth, premature labor and higher infant mortality (Cunningham, 2005).

An awareness to check up the pregnancy was still low. Women aged below 15 years old and > 35 years old have decreased reproductive function so they are at higher risk for obstetric complications and have a chronic disease or degrade physical condition which leads to an increase in the incidence of hypertension, diabetes mellitus, placental abruption, premature labor, death birth and placenta previa. Therefore, it is not recommended to get pregnant and childbirth above the age of 35 years (Siswosudarmo, 2008).

Table 1. The Table of The Relationship Between Predisposing Factors of Pregnant women with preeclampsia (age, education, gestational age, parity, health history, nutritional status, weight gain) and the Health Status of Newborns in the Delivery rooms of Prof. Dr. W. Z. Johannes Kupang Hospital in 2015.

| Independent Variable | Health Status of Newborns | | | | Total | P value |
|---|---------------------------|------|--------|------|-------|---------|
| | Abnormal | % | Normal | % | | |
| Maternal Age | | | | | | |
| a. < 20 / ≥ 35 yearsold | 6 | 75.0 | 2 | 25.0 | 8 | 0.508 |
| b. 20 – 34 years old | 18 | 66.7 | 9 | 33.3 | 27 | |
| Education | | | | | | |
| a. Elementary School / Junior High School | 12 | 80.0 | 3 | 20.0 | 15 | 0.187 |
| b. Senior High School / University | 12 | 60.0 | 8 | 40.0 | 20 | |
| Parity Number | | | | | | |
| a. 1 time / > 4 times | 14 | 70.0 | 6 | 30.0 | 20 | 0.560 |
| b. 2 – 3 times | 10 | 66.7 | 5 | 33.3 | 15 | |
| Age of Pregnancy | | | | | | |
| a. 28-36 / >42 weeks | 20 | 80.0 | 5 | 20.0 | 25 | 0.031 |
| b. 37 – 42 weeks | 4 | 40.0 | 6 | 60.0 | 10 | |
| Health History | | | | | | |
| a. Suffered from preeclampsia | 16 | 84.2 | 3 | 15.8 | 19 | 0.035 |
| b. Not suffered from preeclampsia | 8 | 50.0 | 8 | 50.0 | 16 | |
| Family Income | | | | | | |
| a. < Rp 1,150,000 | 16 | 84.2 | 3 | 15.8 | 19 | 0.035 |
| b. ≥ Rp 1,150,000 | 8 | 50.0 | 8 | 50.0 | 16 | |
| Nutritional Status (MUAC/Mid-Upper Arm Circumference) | | | | | | |
| a. > 23.5 cm | 25 | 71.4 | 10 | 28.6 | 35 | |
| Weight Gain | | | | | | |
| a. < 11.5 kg / > 16 kg | 22 | 70.6 | 6 | 29.4 | 28 | 0.021 |
| b. 11.5 – 16 kg | 2 | 28.6 | 5 | 71.4 | 7 | |
| Information: P value< 0,05 (Significant) | | | | | | |

Information: P value< 0,05 (Significant)

The table above showed that the numbers of pregnant women with preeclampsia between the age of 20 – 34 years old (77.1%) and gave birth to abnormal babies (33.3%) are more than those who 20 years old or less, and more or equal to 35 years old. The respondents who graduated from Senior High School to University (57.1%) and gave birth to abnormal babies (40.0%) are more than those who graduated from Elementary School and Junior High School. Mostly respondents just experienced their first pregnancy or more had four parity numbers (57.1%) and they mostly delivered abnormal babies. Most of the respondents are those with the age of pregnancy between 28 – 36 weeks and more than 42 weeks (71.4%). Most of them gave birth to abnormal babies (80.0%). Mostly respondents were suffered from preeclampsia (54.3%) and mostly delivered abnormal babies (84.2%). Most of the respondents earned <Rp

1,150,000 (54.3%) and mostly gave birth to abnormal babies (84.2%). All of the respondents had mid-upper arm circumference of > 23.5 cm and mostly delivered abnormal babies (71,4%). The respondents who gained weight < 11.5 kg / > 16 kg (80%) and delivered abnormal babies (70,6%) are more than those who gained normal weight.

Table 2. The Table of the relationship between enabling Factors (health care location, health care coverage, transportation ANC visit, MNH book holders) of Pregnant Women with Preeclampsia and Health Status of Newborns in Delivery Rooms of Prof. Dr. W. Z. Johannes Kupang Hospital in 2015.

| Independent Variable | Health Status of Newborns | | | | Total | P value |
|--------------------------|---------------------------|------|--------|------|-------|---------|
| | Abnormal | % | Normal | % | | |
| Health Care Location | | | | | | |
| a. Non-health facilities | 7 | 100 | 0 | 0 | 7 | 0.051 |
| b. Health facilities | 17 | 60.7 | 11 | 39.3 | 28 | |
| Health Care Coverage | | | | | | |
| a. Hardly accessed | 15 | 68.2 | 7 | 31.8 | 22 | 0.626 |
| b. Easily accessed | 9 | 69.2 | 4 | 30.8 | 13 | |
| Transportation | | | | | | |
| a. Did not use vehicles | 1 | 25.0 | 3 | 75.0 | 4 | 0.082 |
| b. Used vehicles | 23 | 74.2 | 8 | 25.8 | 31 | |
| ANC Visits | | | | | | |
| a. Never/< 4 times | 10 | 100 | 0 | 0 | 10 | 0.011 |
| b. ≥ 4 times | 14 | 56.0 | 11 | 44.0 | 25 | |
| MNH Book Holders | | | | | | |
| a. Not MNH Book Holders | 8 | 100 | 0 | 0 | 6 | 0.031 |
| b. MNH Book Holders | 16 | 59.3 | 11 | 40.7 | 27 | |

Information: p value=0.05 (significant)

The table above shows that most of the respondents used health facilities to check their pregnancies (80%) but many of them gave birth to abnormal babies (60,7%). Mostly, the respondents were hard to access health facilities (62,9%) and delivered abnormal babies (68,2%). Almost all of the respondents used vehicles to access health facilities (90%) but most of them gave birth to abnormal babies (74,2%). Most of the respondents did ANC visits more than 4 times (71,4%) but still most of them delivered abnormal babies (56 %). Most of the respondents holds MNH books (77,1%) but they still delivered abnormal babies (59,3%).

Table 3. The Table of The Relationship between Reinforcing Factors (health care staff) and Health Status of Newborns from Mother with Preeclampsia in Delivery Rooms of Prof. Dr. W. Z. Johannes Kupang Hospital in 2015.

| Independent Variable | Health Status of Newborns | | | | Total | P value |
|----------------------|---------------------------|------|--------|------|-------|---------|
| | Abnormal | % | Normal | % | | |
| Health Care Staff | | | | | | |
| a. Non-medical staff | 8 | 100 | 0 | 0 | 5 | 0.031 |
| b. Medical staff | 16 | 59.3 | 11 | 40.7 | 27 | |

The results of this research indicated an insignificant relationship between maternal age and health status of newborn babies. This is in line with the research conducted by Rike Herawati (2013) on 140 samples stating that there was no significant relationship between the age of the mother and the incidence of asphyxia in the newborns. The level of education is the level of the last formal education of the respondents. Most respondents were educated up to high school and university level (57.1%). The results of this study indicated that there was insignificant relationship between the levels of education with the health status of newborns.

This is not in line with the study conducted by Vitrianingsih (2012) with 293 samples using cross sectional design. She claimed that there was a relationship between the levels of education of pregnant women with birth weight of the newborns. The level of education changes family values and norms. Education allows people to access more information and broaden their horizons, so it is easy to develop themselves to make decisions and act.

The gestational age refers to respondent's gestational age at the time of delivery. The results showed that there was a significant relationship between gestational age

and the health status of newborns (p value 0.031). This is supported by the research conducted by Eka Wijayanti (2010) on 32 samples with cross sectional design which claimed that there was a relationship between overdue pregnancy and asphyxia in newborns. Overdue pregnancy is one of risky pregnancies. The growth and development of the fetus in the womb depends on the function of the placenta as respiratoric, metabolic, nutritional, endocrine, storage, transportation and expenditure from the body of the mother to the body of the fetus or vice versa. In overdue pregnancy, the placenta will experience an aging process so that its function will decrease. The degradation of placental function will contribute to growth and development of the babies. Babies begin to lack nutritional intake and oxygen supply from their mothers. In addition, amniotic fluid can turn into very thick and green so that it inhibits baby's breathing.

The health history refers to preeclampsia suffered by the respondents before current pregnancy. The results showed that respondents who had previously suffered from preeclampsia were 54.3% and many of them gave birth to abnormal babies. The results of the research indicated a significant relationship between the history of the disease and the health status of newborns (pvalue = 0.035). Women with a previous history of pre-eclampsia during pregnancy are more likely to experience preeclampsia again, which has a negative impact on perinatal.

Parity is the number of children who have been born alive or who have died. This study showed that there is no significant relationship between parity and the health status of newborns (p value=0.560). One of the impacts of high parity is Low Birth Weight (LBW). Pregnant women with > 4 children or pregnancy spacing < 2 years is at risk for delivering babies with low birth weight, lack of nutrition, reduced time/less duration of breastfeeding, frequently ill, slower growth and lower education or knowledge.

Family income is the amount of money used to meet the needs of the family each month. The research showed that the respondents' income was less than Rp 1,150,000 (54.3%) and the pregnant women delivered abnormal babies (84,2%). The family income is related to socio-economic status which means that the position of someone or family determines their monthly income. The results of this study indicated a significant relationship between family income and health status of newborns (p value=0.035.). Pregnant women with low socio-economic status cannot meet their daily needs. Their limited income makes it hard to meet nutritional needs of the babies. This will affect the growth and development of the fetus so that babies born have low birth weight.

Nutritional status is a maternal health condition that is recognized through measurement of upper arm circumference (MUAC). The results showed that all respondents had a MUAC size of > 23.5% (100%) but

they delivered abnormal babies. This is because of preeclampsia complication suffered by respondents which leads to babies born with low birth weight or with premature condition. Weight gain is an increase in maternal body weight by measuring weight before until current pregnancy. The results showed that 80% of respondents gained weight less than 11.5 kg and more than 16 kg, and gave birth to abnormal babies (70.6%). The weight gained during pregnancy affects the birth weight of the baby; women who weigh less give birth to smaller babies while the opposite applies to women who are overweight. Weight gain does not guarantee fetal growth in overweight women (Cunningham, 2005).

The results showed that there was a significant relationship between weight gain and the health status of newborns (p value=0.021). Maternal weight before pregnancy is a description of maternal nutritional status and has a close relationship with infant birth weight where malnourished mothers give birth to low birth weight babies and obese mothers give birth to macrosomia babies. Weight gain during pregnancy describes growth rate of the fetus in the womb which needs to be considered because underweight or overweight conditions cause serious problems for mothers and babies.

The relationship between enabling factors (family income, health service location, health service coverage, transportation) with the health status of newborns

Health services locations are places where women check their health and pregnancy. This research showed that most of the respondents (80%) used health facilities to do antenatal care. Antenatal care services are only carried out by health workers, not traditional birth attendants. The use of health services for pregnant women is very important to obtain a basic description of early detection of physiological changes that occur during pregnancy and various disorders that accompany it so that steps can be taken into account and prepared before delivery (Manuaba, 2008). The results showed that there was an insignificant relationship between health services and the health status of newborns (p value=0.051). Pregnant women who check their pregnancy at a health facility will give birth to a healthy baby compared to those who did not have their pregnancy checked.

The health services coverage is the distance travelled by the respondents to the place to check their pregnancy based on travel time. This study showed that most of the respondents (62.9%) found it difficult to reach health facilities for direct contact with health workers so they mostly gave birth to abnormal babies (68.2%). They found it difficult to reach health facilities because of difficult geographical conditions and the unavailability of adequate transportation facilities as well as expensive transportation costs which become obstacles to reach

health facilities. The results of this study indicated an insignificant relationship between accessibility of health services and health status of newborns (p value=0.626). Lack of access for pregnant women to reach health services makes them rarely did maternal and infant health monitoring which leads to complications in mothers and babies born.

Transportation is vehicles used to go to a health services to check pregnancy. The results showed that the majority of the respondents (90%) used motorized vehicles to reach health services, but most of them still gave birth to abnormal babies (74.2%). By using motorized vehicles and having sufficient costs, pregnant women can easily reach health care facilities and be monitored by health workers in hopes of giving birth to healthy babies. The results showed that there was no significant relationship between transportation and the health status of newborns with (p value= 0.082).

Ante Natal Care (ANC) visit was the number of respondents' visits to the antenatal care center. The results showed that most of the respondents (71.4%) performed ANC visits more than or equal to 4 times. Regular checks during pregnancy or antenatal care are one of the ways to prevent the occurrence of baby born with LBW. An antenatal visit should be at least 4 times during pregnancy. Antenatal care or pregnancy check up is one of the ways to prepare the mothers physically or mentally during pregnancy and birth, and to detect abnormalities in pregnancy at an early time so that they can be cured immediately.

The results showed that there was a significant relationship between antenatal care visits and the health status of newborns (p value=0.011). This is in line with the results of the study by Fitrah Ernawati (2011) stating that there was a relationship between antenatal care and birth weight with OR 1.8 (95% CI: 1.3-2.5). This means that pregnant women who visited ante natal care more than 4 times have the opportunity to give birth to babies without LBW 1.8 times compared to pregnant women who did ante natal visit less than 4 times.

Maternal and Neonatal Health (MNH) book is a book owned by respondents during accessing health services from competent health officers. The results showed that most respondents had MNH books (77.1%). The MNH book contains records of maternal health (pregnancy, childbirth, and postpartum) and neonatal health (newborns, infants and toddlers) and various information on how to maintain and care for mother and child health. The MNH book is useful for mothers, children and all members of the family and also health workers because it is a monitoring tool for the development of pregnant women and children up to the age of five.

The results of the research indicated a significant relationship between MNH book holders and health status of newborns (p value=0,031). Mothers who have MNH books and understand the contents of the book have more opportunity to give birth to a normal baby than

those who do not have MNH books because this MNH book is a guide for pregnant women to maintain their health and pregnancy.

The relationship between reinforcing factors (health care staff) and the health status of newborns

The health care staffs are competent staff that performed health care to pregnant women during pregnancy. The results showed that the majority of respondents (77.1%) received services from medical personnel. Pregnant women who receive health services from health workers are more expected to give birth to normal babies than those who do not receive health services from health workers. Health workers have the competence to supervise the health of the mother and fetus. The results showed that there was a significant relationship between health care workers and the health status of newborns (p value=0.031). Willingness and obedience of pregnant women to check pregnancy to medical personnel can be influenced by local cultural factors that mostly entrust their health to traditional birth attendant or relatives who have been given the trust to handle pregnancy to childbirth. Another problem is limited access to health facilities because of geographic location.

CONCLUSION

In conclusion, the significant predisposing factors are maternal age, health history, family income, weight gain. Meaningful enabling/supporting factors are ANC visits and MNH book holders. The reinforcing factors are health care staff. Other factors do not have significant influence on health status of newborns that have mothers with preeclampsia at delivery rooms of Prof. Dr. W. Z. Johannes kupang Hospital.

SUGGESTION

1). It is expected that pregnant women and their family members make use of nearest health facilities for regular ANC visits starting from early pregnancy to preparation for labouring, especially those with a history of hypertension/ actors psia.

2). Health care staff should improve their ability to be more competent in providing health care services to pregnant women, and actively conducting home visits so that pregnant women who are live far from health facilities manage to receive quality services.

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