



Determinant Factors Affect the Nutritional Status of Pregnant Women and its Impact on Neonatal Mortality in Sarmi Regency 2015

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Abstract

Neonatal Mortality in Sarmi Regency reached 37/1000 KH and the prevalence of nutritional status of pregnant women Chronic Energy Shortages reaches 100%.by 2013. This research aims to know the variables that affect the nutritional status of pregnant women and neonatal death affect Sarmi Regency, between the ANC of frequency, culture of eating, economic status, family support, disease history and ethnic. This research is an observational analytic with cross sectional study design. The population was the mother who had given birth since January–September 2015 in Sarmi Regency with 118 total samples, using a purposive sampling technique. Analytical tools used in this research is the Structural Equation Modeling (SEM) AMOS. The results showed that the culture of eating, the frequency of the ANC, support families, and a history of the disease gives influence to the status signifikan nutrients that have an impact on the death of the newborn. While ethnic and economic Status does not give effect on nutritional status which resulted in the death of the newborn. Of the six variables were found a determinant factor giving influences dominant against nutritional status that have an impact on neonatal mortality among others the value of coefficient of dominant factor that affect the nutritional status of pregnant women the greatest lie in Support of families of 0.365, and the coefficient for dominant factor.

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lies in neonatal death Support families of 0.344, and the coefficient for the Determinant affecting the nutrition of pregnant women and its impact on neonatal mortality in the biggest lie in the culture of eating of 0.288 at Sarmi Regency.

Keywords: Neonatal; nutritional Status of pregnant women; Neonatal Death.

1. Introduction

Infant Mortality Rate (IMR) is an indicator that reflects the community prosperity of a nation level. Health problems is still high where infant mortality is one of the problems in a nation, it is estimated that eight million babies are stillborn or die within the first month of life. Most of these deaths occur in developing countries. It is in line with the opinion of the World Health Organization (WHO) in [1] 2014, that the risk of death in the neonatal period is seven times greater in developed countries, in developing countries it is 10 times higher than the in developed countries. The direct causes of infant mortality 0-28 days due to infection (sepsis / pneumonia, tetanus and diarrhea) by 36%, premature birth (28%) and asphyxia (23%) [1] is part of the neonatal infant mortality and toddlers death. Based on data from the United Nations Children's Fund [2], in 2012 an estimated 44% of infant deaths occur in the neonatal period. Furthermore, UNICEF was also mentioned that in 2012 there were about 4 million infant deaths and about 60% of all infant deaths (4.801 million) occur in the neonatal period with the majority of neonatal deaths occur in the first week of life (early neonatal).

Neonatal Mortality Rate (AKN) or Neonatal Mortality Rate (NMR) is a death that occurred before the infants aged one month or 28 days per 1,000 live births in a given year [3]. Neonatal mortality rate is part of the Infant Mortality Rate (IMR), so that an increase in neonatal mortality rates will contribute to an increase in infant mortality and under five mortality rate. Therefore, neonatal mortality rates serve as an indicator of the Millennium Development Goals (MDGs) to 4th is down two-thirds of deaths of children under age 5 between the years 1990-2015 that one target is to reduce infant mortality up to 19 deaths per 1,000 live births in 2015 [4] (Stalker, 2008). Infant mortality rate (IMR) in Papua Province of the data IDHS 2012 amounted to 54 per 1,000 live births (Papua Provincial Health Office, 2014). Neonatal mortality rate in Sarmi as much as 37 per 1,000 KH. And pregnant mother suffer from chronic lack of energy 100% (2013).

Various causes of infant deaths (neonatal) according to the Ministry of Health of Indonesia [3], caused by asphyxia (36.9%), prematurity (32.4%), sepsis (12%), hypothermia (6.8%), jaundice (6, 6%). The cause of death is due to various factors predisposing mothers are socio-economic status include education and income, maternal characteristics (age and parity) affect the nutritional status of pregnant women [5]. The nutritional status of pregnant women can cause anemia also affects eating patterns that influence and impact on the incidence of low birth weight neonatal mortality [6].

Research in reference [7] reported 8.2% of deaths caused by the perinatal period maternal nutritional status. Health services gained during pregnancy until delivery is also associated with neonatal mortality. Research in reference [8] revealed that ANC visit is a risk factor for neonatal mortality (OR = 2.38; 95% CI: 1.51 to 3.75).

There are several traditional aspects of culture in society which may adversely affect the health of one of them is the effect of sense of pride in its status, for example, in an effort to improve nutrition families on in certain areas, refusing to eat the cassava leaves, although they know the vitamin content is high, but the local community considers cassava leaves only fitting consumed goat. They were rejected because of their status cannot be equated with goats GM Foster 2012. Research from Susanti states that there is a relationship between culture abstaining and nutritional status of pregnant women trimester III.

The level of income determines what pattern of eating that has been purchased, the higher the income increasing spending on shopping anyway. This concerns the fulfilment of the family will be foods with high nutritional value [9]. According to reference [10] said the economic determinants are significantly correlated with perinatal mortality. Husband and family support is very needed by a pregnant wife. The lack of support causes pregnant women suffer from loneliness and depression. Study by authors in reference [11] state social support from partner lowering maternal anxiety, and Finding of [12] states that pregnant women do not get support during the pregnancy 8 times the risk of having a premature baby. Various diseases history and its complications can occur during pregnancy that causes neonatal death. AZ Abdullah research results [13] is stated Anemia in pregnancy is significantly associated with early neonatal mortality (p value = 0.000; OR = 32.818; CI_{95%} = 7.549 to 142.674). Various ethnic groups may differ in carrying habits, lifestyle, and so forth that may result in differences in morbidity or mortality [14]. One issue that is now being spread among the public that the mortality and morbidity in the mother and child cannot be separated from social cultural factors and the environment in the communities where they are located [15]. The purpose of this study is to investigate the determinants that affect the nutritional status of pregnant women and their impact on neonatal mortality in SarMI 2015.

2. Materials and Methods

The study was conducted at eight health centers in SarMI. This type of research is observational analytic cross sectional study design. The sampling method used is purposive sampling, with a sampling considerations are all the mothers who have given birth since the month of January to September 2015 in eight health centers where respondents SarMI which can be reached by investigators. Total number of samples in this study were 118 and judged to have met the criteria minimal sample quantities statistical tools Structural Equation Modeling (SEM) with the procedure Maximum Likelihood Estimation (MLE) is a minimum of 100-150 samples. Analysis used are univariate that aims to see the picture of the frequency distribution a single percentage for each variable related research with the purpose of the study and presented in the form of a frequency distribution table and multivariate analyzes were conducted to examine the relationship and the relationship of independent variables together with dependent variable. The analysis variables is linear logistic regression. Hypothesis testing is done by Structural Equation Model (SEM), with a two-step approach using AMOS 22.0. with seven steps used in the SEM is the development of theoretical models, the development of flow charts, flowcharts conversion into structural equations and the measurement model, choose matrix input and estimation models, the possibility of the emergence of problem identification, evaluation of the performance of Goodness of Fit, interpretation and modification of the model. Conversion flowcharts into structural equations and the measurement model.

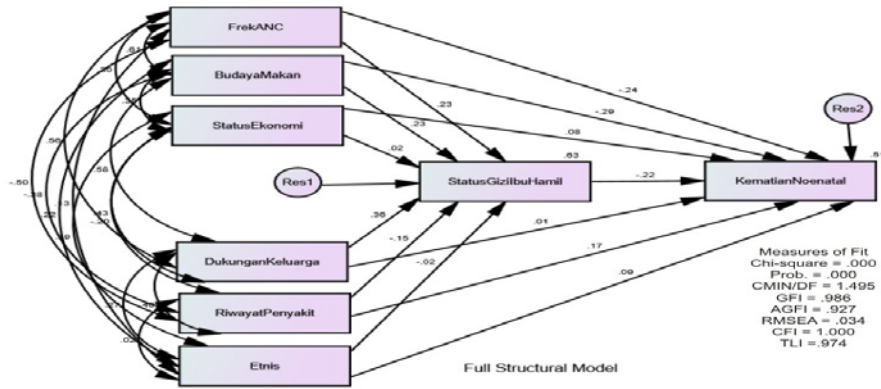


Figure 1: Theoretical Model Development image Full Structural Model

2.1 Suitability Test and Test Statistics

Evaluation of the models carried out by various criteria Goodness of Fit. The values of goodness of fit of the complete structural model that has been estimated are presented in the following table:

Table 1: Results Goodness of Fit Complete Structural Model

Goodness Index of Fit	cut off value	results	valuation Model
Chi-Square (χ^2)	5.00	.000	
Probabilities	0,05	,000	good enough
CMIN/DF	2,00	,495	good
GFI	0,90	,986	good
AGFI	0,90	,927	good
RMSEA	0,08	,034	good
CFI	0,95	,000	good
TLI	0,95	,974	good

3. Results

3.1 Direct estimation Effects

The estimation results of path coefficients (standardized regression weights) directly influence or direct effect of a construct to other constructs.

1) Effect of Direct Frequency ANC against the nutritional status of pregnant women.

The estimation results of the direct effect of the construct Frequency ANC to construct the nutritional status of pregnant women obtained path coefficients (standardized regression weights) of 0.231 (positive). This coefficient significance test values obtained CR (Critical Ratio) of 2.934 and a probability (p) = 0,003. Because the value of CR = 2.934 > 1.96 then H₀ is rejected at significance level of 5%, which means the frequency of ANC direct positive and significant impact on the nutritional status of pregnant women in Sarimi.

2) Direct Impact of the Cultural eat nutritional status of pregnant women.

The estimation results of direct influence to construct dining culture constructs nutritional status of pregnant women path coefficient of 0.231 (positive). This coefficient significance test CR values obtained for 3.003 and p = 0.003. Because the value of CR = 3.003 > 1.96 then H₀ is rejected at significance level of 5%, which means eating live culture positive and significant impact on the nutritional status of pregnant women in Sarimi.

3) Direct Impact on the economic status of the nutritional status of pregnant women.

The estimation results of the direct effect on the economic status construct the nutritional status of pregnant women path coefficient of 0.022 (positive). This coefficient significance test values obtained CR at 0.334 and p = 0.738. Because the value of CR = 0.334 < 1.96 then H₀ is rejected at significance level of 5%, which means direct economic status and no significant positive effect on the nutritional status of pregnant women in Sarimi.

4) Effect of Direct Support to the family of the nutritional status of pregnant women.

The estimation results of the direct effect of the construct of family support to construct the nutritional status of pregnant women obtained path coefficients (standardized regression weights) amounted to 0,365 (positive). This coefficient significance test values obtained CR (Critical Ratio) amounted to 4,773 and the probability (p) = 0,000. Because the value of CR = 4.773 > 1.96 then H₀ is rejected at significance level of 5%, which means direct family support positive and significant impact on the nutritional status of pregnant women in Sarimi.

5) Direct Impact disease history to the nutritional status of pregnant women.

The estimation results of the direct effect of the construct of history of the disease to construct the nutritional status of pregnant women path coefficient of -0.151 (negative). This coefficient significance test values obtained CR at 2.273 and p = 0.023. Because the value of CR = 2.273 > 1.96 then H₀ is rejected at significance level of 5%, which means direct medical history significant negative effect on the nutritional status of pregnant women

6) Ethnic Direct Impact on nutritional status of pregnant women.

The estimation results of Ethnic construct a direct influence on the nutritional status of pregnant women construct obtained path coefficient of -0.021 (negative). This coefficient significance test values obtained CR at 0.331 and $p = 0.740$. Because the value of $CR = 0.331 < 1.96$ then H_0 is rejected at significance level of 5%, which means direct Ethnic and no significant negative effect on the nutritional status of pregnant women in Sarmi.

7) Effect of Direct Frequency ANC against neonatal Death.

The estimation results of the direct effect of the construct Frequency ANC to construct path neonatal mortality coefficient of -0.243 (negative). This coefficient significance test values obtained CR at 2.565 and $p = 0.010$. Because the value of $CR = 2.565 > 1.96$ then H_0 is rejected at significance level of 5%, which means the frequency of ANC direct and significant positive effect on neonatal mortality in Sarmi.

8) Direct Impact Culture eat against neonatal Death.

The estimation results of direct influence to construct dining culture constructs neonatal mortality path coefficient of -0.288 (negative). This coefficient significance test CR values obtained for 3,122 and $p = 0.002$. Because the value of $CR = 3.122 > 1.96$ then H_0 is rejected at significance level of 5%, which means Cultural eat directly affect negative and significant impact on neonatal mortality in Sarmi.

9) The Direct Impact of the economic status of neonatal Death.

The estimation results of the direct effect on the economic status construct path neonatal mortality coefficient of 0.085 (positive). This coefficient significance test CR values obtained for 1.113 and $p = 0.266$. Because the value of $CR = 1.113 < 1.96$ then H_0 is rejected at significance level of 5%, which means direct economic status and no significant positive effect on neonatal mortality in Sarmi.

10) Effect of Direct Support to the family of neonatal Death.

The estimation results of the direct effect of the construct of family support to construct a path neonatal mortality coefficient of 0.344 (positive). This coefficient significance test CR values obtained for 0,139 and $p = 0.890$. Because the value of $CR = 0.139 < 1.96$ then H_0 is rejected at significance level of 5%, which means direct family support and no significant positive effect on neonatal mortality in Sarmi.

11) Direct Effect on Mortality neonatal medical history.

The estimation results of the direct effect of the construct of history of the disease to construct a path neonatal mortality coefficient of 0.169 (positive). This coefficient significance test values obtained CR at 2.143 and $p = 0.032$. Because the value of $CR = 2.143 > 1.96$ then H_0 is rejected at significance level of 5%, which means direct medical history positive and significant impact on neonatal mortality in Sarmi.

12) Ethnic Direct Impact on Neonatal Death.

The estimation results of Ethnic construct a direct influence on neonatal mortality construct a path coefficient of 0.207 (positive). This coefficient significance test values obtained CR at 1.263 and $p = 0.207$. Because the value of $CR = 1.263 < 1.96$ then H_0 is rejected at significance level of 5%, which means direct Ethnic and no significant positive effect on neonatal mortality in Sarmi.

13) Direct Impact nutritional status of pregnant women against neonatal Death.

The estimation results of the direct effect of the construct of the nutritional status of pregnant women against neonatal mortality construct a path coefficient of -0.219 (negative). This coefficient significance test values obtained CR at 2.040 and $p = 0.041$. Because the value of $CR = 2.040 > 1.96$ then H_0 is rejected at significance level of 5%, which means that the nutritional status of pregnant women directly positive and significant impact on neonatal mortality in Sarmi.

3.2 Indirect Estimation Effects

Results coefficient estimates to analyze the effect of indirect or indirect effect a construct to other constructs.

1) Effect of Indirect Frequency ANC nutritional status of pregnant women to have an impact on neonatal Death.

The estimation results of the indirect effect of the construct Frequency ANC to construct neonatal mortality indirect effect coefficient of -0.243 (negative). Significance test using the procedure boots rapping indirect effect, indirect effect obtained ranged from (-0.424 - -0.288) at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05. So it can be concluded that the frequency of ANC indirectly significant negative effect on the nutritional status of pregnant women who have an impact on neonatal mortality in Sarmi.

2) Effect of Indirect Culture eat on the nutritional status of pregnant women who have an impact on neonatal Death.

The estimation results of indirect influence on the eating culture construct neonatal mortality coefficient of -0.288 indirect effect (negative) and ranged from -0.523 - -0.072 at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05. So it can be concluded that eating culture indirectly significant negative effect on the nutritional status of pregnant women who have an impact on neonatal mortality in Sarmi.

3) Effect of Indirect economic status on the nutritional status of pregnant women who have an impact on neonatal Death.

The estimation results of indirect influence on the economic status construct neonatal mortality, indirect effect coefficient of 0.085 (positive) and ranged from (-0.424 - 0.297) at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05.

So it can be concluded that economic status indirectly positive effect and not significant on the nutritional status of pregnant women who have an impact on neonatal mortality in Sarimi.

4) Effect of Indirect Support families on the nutritional status of pregnant women who have an impact on neonatal Death.

The estimation results of the indirect influence of family support construct to construct neonatal mortality, indirect effect coefficient of 0.013 (positive). Significance test using the procedure bootstrapping indirect effect, indirect effect obtained ranged from -0.256 - 0.168 at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05. So it can be concluded that indirectly support the family and not significant positive effect on the nutritional status of pregnant women who have an impact on neonatal mortality in Sarimi.

5) Effect of Indirect history of the disease on the nutritional status of pregnant women who have an impact on neonatal Death.

The estimation results of indirect influence constructs history of the disease to construct neonatal mortality coefficient of 0.169 indirect effect (positive) and ranged from 0.039 to 0.270 at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05.

So it can be concluded that the history of the disease indirectly positive and significant impact on the nutritional status of pregnant women who have an impact on neonatal mortality in Sarimi.

6) Indirect Ethnic Influence on the nutritional status of pregnant women who have an impact on neonatal Death.

The estimation results of the indirect effect of the construct to construct Ethnic neonatal mortality in Table 4:21, indirect effect coefficient of 0.004 (positive) and ranged from -0.055 - 0.223 at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05. So it can be concluded that the Ethnic indirectly and not significant positive effect on the nutritional status of pregnant women who have an impact on neonatal death of neonatal deaths in Sarimi.

3.3 Dominant Factor

To determine which variables that have become the dominant influence, it can by comparing the value of the coefficient between the constructs. From the analysis of the data can be obtained that the coefficient for the direct impact on the nutritional status of pregnant women at greatest Sarimi district lies in support for 0,365 families, followed by a variable frequency ANC and culture of eating that each - each amounting to 0.231. Results of the data analysis showed that the value of the coefficient for a direct influence on neonatal mortality in Sarimi biggest lies in the family support of 0.344, followed by a variable frequency ANC at 0.288, 0.243 and culture of eating for nutrition status of pregnant women at 0.219.

From the analysis of the data can be obtained that the coefficient for the influence on the nutrition of pregnant women who give impact on neonatal mortality in Sarmi biggest lies in the culture of eating at 0.288, followed by a variable frequency ANC implanted at 0.243 and 0.169 of disease history.

a. Test Determinant coefficient (R²)

Results of the analysis found the coefficient of determination (R²) for the nutritional status of pregnant women amounted to 0.635, which means that approximately 63.5% of the variation in the frequency variable ANC, pregnant women eating culture, economic status (income), family support, disease history and ethnicity together -Same. While the remaining 36.5% is explained by other variation outside the model. Also found the coefficient of determination (R²) the second for neonatal mortality of 0.510, which means that approximately 51.0% of the variation in the neonatal death variable frequency able to be explained by the ANC, pregnant women eating culture, economic status (income), family support, history of disease, ethnicity and nutritional status of pregnant women together. While the remainder is equal to 49.0% is explained by other variation outside the model.

This means that the dependent variable can be explained by the independent variable in a linear fashion, and is appropriate regression model is used as a forecasting tool, since the total variation can explain the dependent variable.

4. Discussions

1) Effect of Frequency ANC Against Maternal Nutritional Status Impact On Neonatal Death.

ANC is an important service and should be obtained expectant mothers during pregnancy are prenatal and useful to facilitate the healthy results and positive for the expectant mother and her baby to enforce a relationship of trust with pregnant women, detect complications which can threaten the life of mother and baby, preparing for the birth and provide health education particularly with respect to pregnancy by pregnancy visit recommended 4 times in pregnancy (first trimester 1 times, 2 times the second trimester and third trimester 2 times). Therefore, it is important to conduct ANC to detect complications or complications in pregnancy to prevent maternal mortality and fetal / infant. World Health Organization (WHO) recommend to all pregnant women to take advantage of ANC services at least four times during pregnancy. The same is also recommended by the Ministry of Health of the Republic of Indonesia (MoH RI) where pregnant women should take advantage of ANC at least 4 times during pregnancy (DG Nutrition & KIA, 2013). From the results of this study found that the majority of respondents have sufficient ANC frequency as much as 51.7% compared with respondents who have a frequency of approximately 48.3% ANC. This involves many factors, including the issue of access, distribution of health workers is uneven, limited facilities and infrastructure, as well as the difficult geographical conditions. This is consistent with research from [16] that some of the factors that influence the ANC namely affordability, availability, maternal employment status, knowledge, attitude toward service and the condition of the mother. By conducting regular visits pregnancy, the mother will gain knowledge about the care of her and her baby, as well as early detection of abnormalities may be at high risk so that it can be protected from things that are not desirable for the survival of her baby.

This study found the results of the estimation Frequency construct a direct influence of the ANC to construct the nutritional status of pregnant women, the path coefficient (standardized regression weights) of 0.231 (positive). This coefficient significance test values obtained CR (Critical Ratio) of 2.934 and a probability (p) = 0,003. Because the value of $CR = 2.934 > 1.96$ then H_0 is rejected at significance level of 5%, which means the frequency of ANC direct positive and significant impact on the nutritional status of pregnant women in Sarmi. Pregnant women who have utilize ANC > 4 times will have better nutritional status than those not utilizing ANC. The results are consistent with research Latifah (2012) [17] which states that there is interaction between frequency of antenatal care visits with birth weight infants, because the ANC will get counseling mothers about the nutritional status of pregnant women.

The estimation results of the direct effect of the construct Frequency ANC to construct path neonatal mortality coefficient of -0.243 (negative). This coefficient significance test values obtained CR at 2.565 and $p = 0.010$. Because the value of $CR = 2.565 > 1.96$ then H_0 is rejected at significance level of 5%, which means the frequency of ANC direct and significant negative effect on neonatal mortality Then from the estimated indirect effects, obtained by indirect effect coefficient of -0.243 (negative) and significance test indirect effect ranged from -0.424 - -0.288 at the 95% confidence intervals, which means that the ANC indirectly a significant negative effect on the nutritional status of pregnant women who have an impact on neonatal mortality. Results of this study showed that pregnant women who do not use ANC services according to standards, to be at risk of neonatal mortality. Therefore, pregnant women are expected to utilize the ANC, so that high early risk factors are easier to identify, but it also will acquire the health education of health personnel that would be beneficial to the health of the mother and the baby to be born. Based on the results of the analysis, frequency variable ANC is pure determinant that affects the nutritional status of pregnant women and the impact on neonatal mortality.

2) Cultural Influence Nutritional Status of Mothers against Pregnant Affects Neonatal Death.

As a concept of culture, food (food) is not merely a product is organic biochemical qualities that can be used by organisms including humans to survive. But food as something to eat, required ratification culture. Through cultural concepts that a number of foods according to nutritional science is very useful to be consumed, but in practice it may be precisely avoided. Examples ban on eating fruits: papaya, pineapple and banana certain types (taboo) because there is a close relationship with the cycle of menstruation, sexual intercourse and reproduction.

Based on the characteristics of the respondents obtained pregnant women with eating culture positive in 59.3% and 40.7% negative eating culture. From the analysis of direct effect of coefficient is found directly influence the estimation Culture eat on the nutritional status of pregnant women obtained path coefficient of -0.288 (negative). This coefficient significance test CR values obtained for 3,122 and $p = 0.002$. Because the value of $CR = 3.122 > 1.96$ then H_0 is rejected at significance level of 5%, which means that the culture of eating directly a significant negative effect on the nutritional status of pregnant women. In the estimation results directly influence the construct of Culture eat to construct path neonatal mortality coefficient of -0.288 (negative). This coefficient significance test CR values obtained for 3,122 and $p = 0.002$. Because the value of $CR = 3.122 > 1.96$ then H_0 is rejected at significance level of 5%, which means Cultural eat directly a significant negative effect on neonatal mortality.

Likewise with estimated indirect influence on neonatal mortality eating culture obtained by -0.288 (negative) and ranged from -0.523 - -0.072 at the 95% confidence intervals at a significance level of 0.05. So it can be concluded that eating culture indirectly significant negative effect on the nutritional status of pregnant women who have an impact on neonatal mortality in Sarmi.

The worse the culture of eating, it will cause the nutritional status of pregnant women to be ugly or malnourished. It is in result of the persistence of the problem of nutrition in pregnant women in Indonesia, particularly in Sarmi not only because of socio-economic problems, but also for reasons of culture, where there is availability of food but was forced to not be consumed because of the trust or irregularity or because of religious prohibitions [18], Based on the analysis, the variables eating culture is pure determinant that affects the nutritional status of pregnant women who have an impact on neonatal mortality.

According to reference [19] in Makassar, the diet of pregnant women in general, rice, fish, and vegetables to taste. Vegetables and fruit are very rarely consumed and only 3-6 times a week. Energy and protein intake is only 59% and 72% RDA (nutritional adequacy rate) or 1300 kcal and 48 grams. Generally vitamins consumed only about 40% RDA except for vitamin A (76%, 605 RE), folic acid (195%, 1170 ug), and vitamin B12 (142%, 3.7 ug). Diet affects maternal anemia. Anemia effect on neonatal deaths, caused anemia in pregnant women causes babies born with low birth weight (LBW) [20]. And the results showed that there are still women who do not consume vegetables, the diet only contains carbohydrates and protein or only in the form of carbohydrates alone. Besides, it is also the habit of pregnant women are often prioritized to provide food to family members other than himself, with the frequency of eating <3 times a day. One myth that is believed by people in Sarmi that pregnant women should not eat sago because it will make the babies born later will suffer from cascade or scabies.

Though it is known that sago is one kind of high-protein foods that contain essential fatty acids and is very beneficial for the growth of brain cells of the fetus in the womb. This is in accordance with the opinion by G.M. Foster in [18] that the cultural aspect can affect health, including the eating culture, among others, the influence of tradition, fatalistic attitude, attitude ethnocentric, the effect of pride in his status, influence norms, influence the value, the influence of cultural elements and influences the consequences of innovation on behavior health.

3) Effect of Family Economic Status of Pregnant women who Nutritional status affects the Neonatal Death.

According to reference [9], states that income levels determine what diet is purchased, the higher the income increasing spending on shopping anyway. This involves meeting the needs of the family, especially the fulfillment of the need for food that has no nutritional value by a considerable amount. Thus income is a factor that most determines the quality and quantity of food. The study found that pregnant women with less economic status as much as 22.0%, while those with enough economic status 78%. With the majority of spending above the level of USD 674 079, This agrees with [10] that the economic determinants are significantly correlated with perinatal infant death. Studies show a direct effect of the construct estimated economic status to construct the nutritional status of pregnant women path coefficient of 0.022 (positive).

This coefficient significance test values obtained CR at 0.334 and $p = 0.738$. Because the value of $CR = 0.334 < 1.96$ then H_0 is rejected at significance level of 5%, which means direct economic status and no significant positive effect on the nutritional status of pregnant women in Sarmi.

The estimation results of direct influence on coefficient test direct effect economic status of the neonatal deaths path coefficient of 0.085 (positive). The path coefficient significance test values obtained CR at 1.113 and $p = 0.266$. Because the value of $CR = 1.113 < 1.96$ then H_0 is rejected at significance level of 5%, which means direct economic status and no significant positive effect on neonatal mortality.

In the estimation results do not directly influence the economic Status against neonatal mortality coefficient of 0.085 indirect effect (positive) and ranged from -0.424 - 0.297 at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05. that means that the status of the economy indirectly and not significant positive effect on the nutritional status of pregnant women who have an impact on neonatal mortality. Based on the analysis above, it construct economic status is not a determinant pure, but a confounding factor.

4) Influence of Family Support on Nutritional Status of pregnant women who have an impact on neonatal death.

Pregnancy is a short period in the life of women, because pregnancy is also physical and emotional changes are very significant in the period. Physical and psychological condition of the mother during pregnancy not only affects the mother herself but also affect the fetus. Not all pregnant women can cope with changes both physically and psychologically during pregnancy, therefore husband and family support is needed to help the mother during pregnancy. One form of support the husband / family is a response to pregnancy. The response received by mothers against pregnancy may cause a feeling of inner calm and happy in themselves wives [21].

Various research reports have suggested that support the husband / family and social support has contributed greatly to the perinatal death. According to [2], social support in this regard is the support of her husband and family are proven to reduce mortality and maternal morbidity, fetal and infant in Brazil. From the results of the study found that a positive family support 51.7%, and a negative family support was 48.3%. With estimated direct influence family support construct to construct the nutritional status of pregnant women obtained path coefficients (standardized regression weights) amounted to 0,365 (positive).

This coefficient significance test values obtained CR (Critical Ratio) amounted to 4,773 and the probability (p) = 0,000. Because the value of $CR = 4.773 > 1.96$ then H_0 is rejected at significance level of 5%, which means direct family support positive and significant impact on the nutritional status of pregnant women in Sarmi. Similarly, analysis of the results shows the estimated value of the direct influence of family support construct to construct path neonatal mortality coefficient of 0.344 (positive). This coefficient significance test CR values obtained for 0,139 and $p = 0.890$. Because the value of $CR = 0.139 < 1.96$ then H_0 is rejected at significance level of 5%, which means direct family support and no significant positive effect on neonatal mortality.

In the estimation of indirect influence, family support construct to construct neonatal mortality, indirect effect coefficient of 0.013 (positive).

Significance test using the procedure boots rapping indirect effect, indirect effect obtained ranged from -0.256 - 0.168 at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05. So it can be concluded that indirectly support the family and not significant positive effect on the nutritional status of pregnant women who have an impact on neonatal mortality. The existence of the husband and the family will lead to a sense of security and comfort for pregnant women so as to reduce the stress felt. Based on the results of the analysis, the variable support of her husband and family is a pure determinant that affects the nutritional status of pregnant women as well as the impact on neonatal mortality.

5) Disease History influence on nutritional status of pregnant women and their impact on neonatal mortality.

History of disease or complications of pregnancy are obstetric emergencies that can cause death in the mother and baby [22]. Various research has found that a history of complications or illness during pregnancy is associated with mortality perinatal period. Anemia is a disease history of the most widely experienced by pregnant women can be caused by the low nutrition and the causes of malaria in Sarmi. This study found that a history of the disease pose a risk to the impact on the nutritional status of newborn deaths [23, 24].

Based on data of respondents found pregnant women with no history of disease and no 41.5% 58.5% disease history. And estimated direct effect of the construct of history of the disease to construct the nutritional status of pregnant women path coefficient of -0.151 (negative). This coefficient significance test values obtained CR at 2.273 and $p = 0.023$. Because the value of $CR = 2.273 > 1.96$ then H_0 is rejected at significance level of 5%, which means direct medical history significant negative effect on the nutritional status of pregnant women in Sarmi. Similarly, the estimate of the direct effect of the construct of history of the disease to construct a path neonatal mortality coefficient of 0.169 (positive).

This coefficient significance test values obtained CR at 2.143 and $p = 0.032$. Because the value of $CR = 2.143 > 1.96$ then H_0 is rejected at significance level of 5%, which means direct medical history positive and significant impact on neonatal mortality While it is estimated indirect influence constructs history of the disease to construct neonatal mortality coefficient of 0.169 indirect effect (positive) and ranged from 0.039 to 0.270 at the 95% confidence intervals. Because zero is not contained within the confidence intervals mean a significant indirect effect on the significance level of 0.05. So it can be concluded that the history of the disease indirectly positive and significant impact on the nutritional status of pregnant women who have an impact on neonatal mortality.

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