Correlation Between Management of Balanced Menu and Weight Gain on Pregnant Women Trimester III in Rural Hospital Montasik 2015

Halimatussakdiah

Nursing Department, Polytechnic of Aceh, Banda Aceh, Indonesia. Email: atus_halimah@yahoo.com

ABSTRACT

The result of national economic Social survey indicates that there is 27.6% of pregnant women with chronic energy deficiency (KEK) who tend to have a baby with low birth weight (BBLR). Chronic energy deficiency (KEK) becomes indirect causes of pregnant mother's death about 40% and another indirect cause is anemia about 37%. Moreover, in rural areas there are 23% pregnant women deal with malnutrition. The general causes of malnutrition in pregnant women is consuming foods that are not met by the recommended nutritional requirements. Besides, the time of adjacent pregnancy and childbirth, and lack of education and knowledge would cause the level of maternal mortality become high. The objective of this study is to see correlation between management of balanced menu at the third trimester of pregnant women and weight gain in rural hospital Montasik in 2015. The study was descriptive correlative research with cross sectional study design. The data was collected by using purposive sampling technique involved 30 sample. Data collection was done on August 23 to July 6, 2015 using questionnaire. The secondary data is processed by univariate and bivariate analysis. The result showed that management of balanced menu can increase the body weight of pregnant women (83.3%), management of balanced diet increases the circumference of the upper arm (LILA) (86.7%), and management of balanced diet increases the level of uterus Fundus (TFU) (80%). The study concludes that there is a correlation between management menu and the weight gain in the third trimester of pregnant women with p-value = 0.028 <(α = 0.05). The result of this study is expected to be an input and a reference for hospital officers in maintaining health centers to improve serving quality for pregnant women, especially in terms of management menu by measurement of weight, MUAC, and TFU when the pregnant women is in Ante Natal Care (ANC).

Keywords: balanced menu, Trimeter III of Pregnant Women, Weight, LILA, TFU

INTRODUCTION

A pregnant mother must meet the nutritional needs for herself and also for the fetus. Nutrition plays significant part for the development of the fetus and pregnant women as well. However, pregnant women often do not know that a variety of simple ingredients can support a pregnancy (Larasati, 2010).

Pregnancy process cannot be separated from nutrition. The pregnant women should consume foods that contain balanced nutrition in terms of type, quality and quantity. Therefore, despite eating a lot of foods, nutritious foods can make an optimal health (Dariani, 2012).

According to Bobak (2005) & Lubis (2013) pregnant women should consume variation of healthy foods. It is because each trimester has a different condition. Pregnant women often face the normal problems in each trisemester, such as vomiting, dizziness and leg swelling.

Supariasa (2002) suggests that body weight of pregnant women should remain in ideal condition. Besides, they should keep sufficient and balanced nutritious diet. Weight gain in the first trimester is relatively small even reduced because of vomiting. It will increase quite rapidly in trimesters 2 and 3. At these periods, monitoring of body weight is needed. Body weight can affect fetal's growth and development. Body weight of pregnant women should be adequate and increase based on gestational age (Perry & Potter, 2005).

According to the global agreement (Millennium Development Goals/ MDGs, 2000) the maternal mortality ratio is expected to be decreased about three-quarters and infant mortality rate declined about two-thirds in 2015. Based on the agreement, Indonesia commits to reduce the maternal mortality rate to 102 / 100,000 KH and infant mortality rate from 68 to 23/1000 KH in 2015 (SDKI, 2012). Direct causes of maternal mortality are hemorrhage (28%), eclampsia (24%) and infections (11%). Indirect causes of maternal death include chronic energy deficiency (40%) and anemia (37%). Therefore, government must care about these seriously (Depkes, 2010).

In rural area, there are about 23% pregnant women who are malnutrition. The general cause is that they do not consume nutritional requirements foods. Besides, the time of adjacent pregnancy and childbirth, and lack of education and knowledge would cause the level of maternal mortality become high (www.info.kes.com, 2007).

Based on a research by Rahmalia (2007), it is known that weight gain of pregnant women and good nutrition fulfillment have about 28 respondents (56%), so that it can be concluded that there is a correlation between weight gain of pregnant women and the fulfillment of nutritional needs (p Value <0.05).

In Indonesia, the incidence of low birth weight (LWB) varies from studies in seven regions (Aceh, Palembang, Yogyakarta, Surabaya, Bali, Ujung Padang, and Manado), the LBW prevalence ranged from 2.1% - 17.7% (Saraswati, 2010). In Aceh in 2012 the estimated number of live births was 44.894 cases and it is found low birth weight case about 1.116 or 1.4%. The LBW is one of the most common cause of death on infants, especially in the neonatal period (Aceh Health Office, 2012).

Montasik hospital, especially on poli KIA room is one of the places visited by pregnant women with the average number of patients from January to December 2014 about 244 patients. Based on previous data researchers got from this hospital; there are about 22 patients of pregnant women with less chronic energy in 2014 and the case-born babies with low birth weight about 3 birth. On January to February 2015, there were three pregnant women with less chronic energy. From interview with 10 pregnant women who visited the health center, there are 5 pregnant women who do not understand the balanced nutrition, 4 pregnant women often experience anemia during pregnancy, and one pregnant woman ever gave birth to babies with low birth weight (Registeration Data on Montasik Hospital).

Based on the explanation above, the researcher is interested to conduct study about Correlation between Management of Balanced Menu and Weight Gain on Pregnant Women Trimester III in Puskesmas Montasik 2015.

METHOD

This is a descriptive correlative study with *cross sectional design*. The population in this study was all pregnant women at the third trimester in Puskesmas Montasik Aceh Besar in 2015 involved 88 patients from 30 villages. The samples is taken based on a saturated sample included 30 respondents. The sampling technique used is *purposive sampling* based on a certain considerations: the patients have willing to become respondents, the patientst are in place where the research conducted, the patients can communicate well, and they are pregnant women in third trimester.

RESULTS

Demographic Data

Table .1 Frequency distribution of Demographic Data Respondent at Puskesmas Montasik in 2015 (n = 30)

No.	Frequency	Demographic Data	Percentage
1.	Age		
	a. <20 years	4	13.3
	b. 20-35 years	25	83.3
	c. > 35 years	1	3.3
2.	Education		
	a. Low	6	20
	b. Intermediate	12	40
	c. High	12	40
3.	Job		
	a. Stated officer	6	20
	b. Private employees	2	6.7
	c. Housewife	22	73.3
4.	Socio-economic		
	a. High	18	60
	b. Low	12	40
5.	Age Pregnancy		
	a. 29-32 weeks	29	96.7
	b. 33-36 weeks	1	3.3
Total		30	100

Source: primary data (processed 2015)

From the table 1, the highest of pregnant women age was 20-35 years (83.3%), education level on secondary and higher education is respectively by 40%, then the majority of socio-economic patient was in high socio-economic ($\geq 1.300.000$) about 60%. Besides, for gestational age respondents were mostly in the age group 29-32 weeks about 96.7%.

Univariate analysis

Table 2 Frequency distribution rate of weight gain in the third trimester on pregnant women in Puskesmas Montasik 2015 (n = 30)

No.	Weight Gain	Frequency	Percentage
1.	Good	25	83.3
2.	Not Good	5	16.7
Total		30	100

Primary data sources (processed 2015)

Based on the table .2 above, it can be seen that the weight gain of pregnant women are in the good category (83.3%).

Table 3 Frequency distribution of LILA size rate at third trimester pregnant women in Puskesmas Montasik 2015 (n = 30)

No.	LILA size	Frequency	Percentage
1.	Good	26	86.7
2	Not Good	4	13.3
Total		30	100

Table 3 shows that the LILA size of pregnant women are in the good category (86.7%).

Table 4 Frequency distribution of uterus Fundus level at third trimester pregnant women in Puskesmas Montasik 2015 (n = 30)

No.	Level of Uterus Fundus	Frequency	Percentage
1	Appropriate	24	80
2.	Inappropriate	6	20
Total		30	100

Primary data sources (processed 2015)

Based on the table 4, it can be seen that the level of uterus fundus of pregnant women is categorized appropriate to gestational age (80%).

Table 5 Frequency distribution of management level of balanced menu at third trimester pregnant women in Puskesmas Montasik 2015 (n = 30)

No.	Management of Blanced Menu	Frequency	Percentage
1.	Good	25	83.3
2.	Not Good	5	16.7
Total		30	100

Table 5 shows the management of balanced menu on pregnant women is in good category (83.3%).

Bivariate analysis

Table 6 Correlation between managemen of balanced menu and weight gain at third trimester pregnant women in Puskesmas Montasik 2015 (n = 30)

Management of Balanced Menu	Weight Gain				Total		A	p-value
	Good		Not Good					
	F	%	F	%	F	%		
Good	23	92	2	8	25	100	0.05	0.028
Not Good	2	40	3	60	5	100		
Total	25	83.3	5	16.7	30	100		

Source: primary data (2015)

Table 6 shows that 23 (92%) of respondents with a good management of balanced menu tend to gain weight in good category and 3 (60%) of respondents with not good management of balanced menu tend to gain weight in not good category. Statistical test results show that p-value 0.028. It means there is a significant relationship between the management of balanced menu and weight gain on pregnant women at the third trimester.

Table 7 Correlation between Management of balanced menu and LILA on pregnant women at the third trimester in Puskesmas Montasik 2015 (n = 30)

Management of Balanced Menu	LILA				Total		A	p-value
	Good		Not Good					
	F	%	F	%	F	%		
Good	24	92.3	2	7.7	26	100	0.05	0.008
Not Good	1	25	3	75	4	100		
Total	25	83.3	5	16.7	30	100		

Source: primary data (2015)

Table 7 shows that 24 (92.2%) of respondents with good management of balanced menu tend to have good LILA categories and 3 (75%) of repondents. Statistical test results shows that p-value 0.008. It can be concluded that there is a significant relationship between management balanced menu and LILA on pregnant women at the third trimester.

Table 8 Management of balanced menu at third trimester pregnant women with uterus fundus in Puskesmas Montasik 2015 (n = 30)

Management of Balanced Menu	Level of Uterus Fundus				Total		A	p-value
	Good		Not Good					
	F	%	F	%	F	%		
Appropriate	22	91.7	2	8.3	24	100	0.05	0.016
Inappropriate	3	50	3	50	6	100		
Total	25	83.3	5	16.7	30	100		

Source: primary data (2015)

Table 8 presented that 22 (91.7%) of respondents with good management of balanced menu tends to have level of uterus fundus appropriate category to gestational age and 3 (50%) of respondents with not good management of balanced menu tend to have level of uterus fundus inappropriate catagory to gestational age. It can be concluded that there is a significant relationship between the management of balanced menu and level of uterus fundus on pregnant women at the third trimester.

DISCUSSION

Correlation between management of balanced menu and weigh gain at third trimester pregnant women

Based on the results of the statistical test with Chi-Square at $\alpha=0.05$, it shows that p value 0.028<0.05. It can be said that the null hypothesis (Ho) is rejected. It means that there is a correlation between management of balanced menu and weight gain on pregnant women at trimester III in Puskesmas Montasik 2015.

According Alamtsier (2003) a balanced menu is a menu consisting of a wide range of foods in appropriate amounts and proportions, so that it can repair body cells, maintain the process of life and help growth and also help development of body. Balanced menu which known by the term "Healthy Four Five Perfect (Empat Sehat Lima Sempurna)", means that the pattern of balanced. It can also gain the number of food or calories needed for adults. According to the Food and Argricultural Organization (FAO) (2008) it is 1800 kcal/ day.

Bobak et. all (2005) mentions that the nutritional status of the mother during pregnancy is one factor that can influence the outcome of a pregnancy. Poverty, lack of education, unusual eating habits, and poor health condition will greatly affect the nutritional status of the mother during pregnancy. It would also have a serious impact on fetal development in the uterus, especially for the baby's weight at birth.

According to Sudirman (2003) pregnant women should consume foods not be a shortage nor excess. However, the food consumed should contain lots of nutrients, vitamins and minerals needed during pregnancy. Adequacy of maternal nutrition during pregnancy can be seen from the increase of body weight in accordance with her pregnancy age.

Neesson, J.D., May, K.A.(2003) & Manuaba (2009) mentions that during pregnancy, maternal weight increased from 6.5 to 16.5 kg or about ½ kg/ week. Weight gain during pregnancy provides an important contribution to the success of a pregnancy process. Weight gain on the second and third trimesters is an important clue of fetal development. According Puspita (2013) in the last trimester of pregnancy, body weight continues to increase because of the growth of the fetus and placenta, so that at the end of the pregnancy body weight of pregnant women increased approximately 12 kg if it is compared before pregnancy.

Another study related to the relationship of nutrition with weight gain of pregnant women, has also been carried out by Rahmalia (2007). The results show that there is a relationship

between weight gain of pregnant women and fulfillment of good nutrition toward 28 respondents (56%).

Researcher believes that maternal weight gain is closely related to maternal nutrition during pregnancy. Adequacy of good nutrition can be seen from the quality and type of food which consumed during pregnancy. The foods should meet the nutritional adequacy, vitamins and minerals. These items are necessary for both the mother and fetus during pregnancy. Inadequate nutrition can be harmful for mother and fetus.

Based on the research that has been conducted, it can be seen that necessary management of balanced menu on pregnant women, especially in the third trimester are already in good category (83.3%). It can be seen from the increase in maternal body weight which was also mostly in good category (83.3%). If it is seen from the composition of the respondents menu, the respondent has met the healthy menu that contains good nutrition, namely carbohydrates (rice), protein (tofu and side dishes), vitamins and minerals (vegetables and fruit). For example, as breakfast menu, the respondents eat average of 1.5 servings of rice (83.3%), add with tofu 50gr (60%) and jerky 50 g (30%), and vegetables (56.6%) and bananas (60%).

The daily menu of pregnant women based on the answer given by respondents, they occasionally prepare a balanced menu (43.3%, the statement no. 1). However, this is good for pregnant women because the mother had tried to set up a balanced menu during pregnancy. It is because the level of mother education are at high-intermediate group (40%). So that, she has been exposed to correct information about the benefits of balanced nutrition during pregnancy. It is proven from the positive attitude and actions of mothers in achieving the nutritional intake during pregnancy.

Correlation between management of balanced menu and LILA at third trimester pregnant women

Based on the results of the statistical test with Chi-Square at $\alpha=0.05$, it results p value <0.05. It can be said that the null hypothesis (Ho) is rejected, which means that there is a correlation between management menu and LILA on pregnant women at the third trimester in Puskesmas Montasik in 2015. Based on the table 5.3, it can be obtained that the management of balanced menu at third trimester pregnant women with weight gain was at good category with the frequency 28 (93.3%).

According Nurhasanah (2014) during pregnancy, mothers require additional energy for the growth of the fetus, placenta and other extra tissue. The additional energy needed is about 300 kcal/ day. Fulfillment of nutrient intake in pregnant women is very important because it will affect fetal development.

Arisman (2009) & Efrinita, (2010) state that there are several ways to determine the nutritional status of pregnant women, one of which is to measure LILA mother. Body mass is the future shape and size of the tissue. One of the future size of the tissue is LILA. If the size of LILA is smaller, it is indicated that malnutrition due to lack of energy and protein. Increasing muscle and fat in the arm occurs rapidly during the first year of pregnancy.

Saraswati, E. (2008) states, Upper arm circles (LILA) reflects the growth of fat tissue and muscle. This growth is not influenced much by body fluids. This measurement is useful for protein malnutrition screening that is usually used by the Department of Healat for detecting pregnant women with the risk of delivering low birth weight where LILA <23.5 cm. Measurement of LILA intends to determine whether a person suffers from chronic energy deficiency or not. WUS LILA threshold with KEK risk in Indonesia is 23.5 cm. If the size of LILA is less than 23.5 cm or in red section of LILA tape, it indicates that the woman has a risk of KEK and gives birth to low birth weight babies (Arisman, 2007).

Based on the research done by Ferial (2012) showed that there is a strong correlation between nutritional status of mothers and upper arm circumference (r = 0.611 and p-value = 0.000).

In researcher's opinion, the size of LILA is one indicator that can reflect a person's nutrient levels. Appropriate LILA size for pregnant women showed maternal nutritional status is in good condition. This means, nutrition mother has been achieving the pattern of balanced menu. It is showed by the results of the research that has been conducted, where some mothers have LILA size > 23.5 (86.7%).

Nutritional status of mothers during pregnancy is at good category, which means that the mother has been able to meet the balanced nutritional pattern. The important thing in serving the foods is to complete the elements of primary food pattern. It can be seen from the respondents' answers to the statement no.2, where respondents answered "often" (20%). Besides, the settings of the food are also assisted by the family, especially the husband. It can be seen on the answer no.3 that also answered "often "(23.3%) by respondents.

Healthy and balanced dishes do not always have to consist of material that costs expensive. The result of this research, if it is seen from the socio-economic condition of the respondents, the majority of respondents are in high category of economic status (60%). So it is believed that the family is able to achive balanced menu standard for pregnant women.

Correlation between management of balanced menu and level of uterus fundus at third trimester pregnant women

Based on the results of the statistical test with Chi-Square at α=0.05, it results p value 0.016<0.05. It can be said that the null hypothesis (Ho) is rejected. It means there is a correlation between management menu and level of uterus fundus at the third trimester pregnant women in Puskesmas Montasik 2015.

According to Arifin (2007) & Sulastri, L. (2005) basically a balanced menu for pregnant women is not much different from the menu before pregnancy. During pregnancy, mothers need more nutrients than non-pregnant women. Pregnant women need more nutrients because of the food needed for herself and the fetus.

Nutrition in pregnant women not only can be seen from the increase in weight and size of LILA, but also it can be seen by the size of the uterus fundus. According to Kusmiyati (2008) to assess the nutritional status of pregnant women, it can also be done by measuring the level of the uterus fundus of pregnant women. Level of fundus measurement on pregnant women will give initial picture whether enlarging uterus is in accordance with gestational age or not. It is also as the estimated weight of the fetus in the uterus although the results are not as accurate as an ultrasound examination (USG). If the size of the uterus fundus is not in accordance with gestational age, there is a possibility that the baby is small and likely to be born with low birth weight.

Rosmiana (2001) & Francin, P. (2005) state that the level of uterus fundus is the highest peak in accordance with gestational age. This measurement is usually carried out during the examination of the abdomen of pregnant women exactly when performing Leopold 1. From measuring level of uterus fundus, it can be estimated gestational age and estimated fetal weight. Measurement of uterus fundus level can use the examiner's finger as a measuring tool, but the weakness is everyone has the different size of a finger. Level of uterus fundus has a strong and meaningful relationship with the baby's weight and reflects the growth of the fetus as well as the size of the fetus.

Based on the research conducted by Wijanti (2012) about the relationship of nutritional status and level of fundus in the third trimester pregnant women toward 32 respondents shows that

there is a significant association between maternal nutritional status and level of fundus at the third trimester pregnant women with p-value 0.007.

According to the researcher, level of fundus is one indicator that can determine a person's nutritional status especially nutritional status in pregnant women. The size of the uterus fundus on pregnant women depends on the age of the mother's pregnancy. Level of fundus which is not in accordance with the gestational age of the fetus indicates that the fetus does not develop well as it should be because of the mother's intake of nutrients received by the fetus slightly, so that, the risk of the fetus will be born with a low birth weight.

To prevent these problems, it is important for mothers to be able to meet the balanced nutrition, especially during pregnancy at trimester III. The usual problems of nutrition which is mother get during pregnancy, particularly at the third trimester of gestation is the fetus has become enormous. It causes stomach get a little press. The food portions which are too large often cause discomfort. Therefore in this period the mother should consume small portions of food, but in short period to prevent a shortage of nutrient elements. It can be seen from the appetite of the respondents were drawn on the respondent's answer to question no. 13 (during pregnancy increases my appetite) who answered "sometimes" (56.6%). So it can be interpreted only occasionally respondents experienced an increase in appetite. Thus, family support and also the delivery of information to the respondent in order to fulfill the nutrients is needed although with temporal so that the nutrients remain fulfilled although with frequently changed appetite.

In this study, the majority of respondents is at 29-32 weeks of age pregnancy groups about 96.7%. The uterus fundus respondents based on survey results revealed in the category according to gestational age about 80%. It is good for the mothers because it shows the nutritional status of the mother during pregnancy was in good condition in accordance with the balanced nutrition management.

CONCLUSION

Based on the results of research and discussion described in Chapter V, the researcher can conclude some of the following.

1. There is a relationship between the management of a balanced diet and weight gain at third trimester pregnant women in Puskesmas Montasik in 2015 with a p-value = 0.028 (α = 0.05).

2. There is a relationship between management menu and size of LILA at third trimester pregnant women in Puskesmas Montasik in 2015 with a p-value = 0.008 (α = 0.05).

3. There is a relationship between the management of a balanced menu and level of fundus at third trimester pregnant women in Puskesmas Montasik in 2015 with p-value = 0.016 (α = 0.05)

SUGGESTION

Some suggestions from researcher related to the result of this study are:

1. To the institution where the research conducted, Pukesmas Montasik can maintain and improve the quality of service to pregnant women, especially in terms of management menu by measurements of weight, upper arm circumference(LILA) and level of Uterus Fundus (TFU) during Antenatal Care (ANC).

2. To the nursing educational institutions, it should be able to increase the knowledge of students in the application of maternity nursing care through teaching and learning process in the laboratory independently.

3. To the pregnant mothers who visited Pukesmas Montasik, it is suggested to follow counseling, reading tabloids, magazines and other types of literature relating to a balanced menu for pregnant women.

REFERENCE

Almatsier, S. (2003). *Prinsip Dasar Ilmu Gizi (The Basic Principle of Nutrition)*. Jakarta: PT. Gramedia Pustaka Utama.

Arifin. (2007). *Menu Seimbang Untuk Wanita Hamil (Balanced Menu for Pregnant Women)*. Jakarta: Pustaka Bunda.

Arisman. (2007). *Gizi Dalam Daur Kehidupan (nutrition in Life cycle)*. Jakarta: EGC.

Bobak, (2005). *Keperawatan Maternitas (Maternity Nursing)*. Jakarta: EGC.

Dariani, (2012). *Saran Makanan Untuk Ibu Hamil (suggestion foods for Pregnant Women)*. Http://www.ayahbunda.co.id.

Depkes RI. 2010. *Pedoman Penanggulangan Ibu Hamil Kekurangan Energi Kronis (Guidelines for Prevention of Chronic energy deficency on Pregnant Woman).* Jakarta.
Dinkes Aceh. 2012. *Profil Kesehatan Aceh 2012*.

Francin, P. (2005). *Gizi Dalam Kesehatan Reproduksi* (*Nutrition in Reproductive Health*). Jakarta: EGC.

Ferial, W.E. (2012). *Hubungan antara status gizi dengan lingkar lengan atas (LILA) ibu hamil dan Berat Badan lahir bayi di RUD Daya Kota Makassar (The Correlation Between Nutrition Status on upper arm Circle and newborn weight in RUD Daya Makasar City).* Fakultas MIPA Universitas Hasanuddin Makassar. Accessed on http://respiratorys.unhas.ac.id, August 4, 2015.

Kusmiyati, Y. (2008). *Perawatan ibu hamil (Caring for Pregnant Woman)*. Yogyakarta: Fitramaya.

Larasati, (2010). *Menu Sehat Ibu Hamil yang Sederhana (Simple Healthy Menu for Pregnant Woman)*. Http//www.perempuan.com**.**

Lubis, Z. (2013). *Status Gizi Ibu Hamil Serta Pengaruhnya Terhadap Bayi Yang Dilahirkan (Nutrition Status Of Pregnant Woman And The Effect On Newborn Baby).* Introduction to philosophy of science (PPS702) Program Pasca Sarjana S3 IPB November 2003. Bogor.

Nurhasanah, (2014). *Nutrisi Dan Gizi Selama Kehamilan (Nutrition during Pregnancy).* Accessed on November 11, 2014.

Neesson, J.D. & May, K.A.(2003). *Comprehensive Maternity Nursing; Nursing Process and the Childbearing Family***.** Philadelphia: J.B Lippincott company.

Manuaba, I. A. C. (2009). *Memahami Kesehatan Reproduksi Wanita (understanding female reproduction health)*. Ed 2. Jakarta: EGC.

Perry & Potter, (2005). *Fundamental of Nursing*. edisi terjemahan, volume I, Jakarta: EGC.

Puspita, N.(2013). *Jurnal Kebidanan (Jurnal of Midwifery).* Accessed on April 7, 2015.

Purwitasari, S. (2009). *Gizi Dalam Kesehatan Reproduksi (Nutrition in Reproductive Health).* First Published.Yogyakarta: Nuha Medika

Rahmalia. (2007). *Hubungan kenaikan berat badanIbu Hamil dengan Pemenuhan Kebutuhan Nutrisi di Yayasan Tali Kasih Bengkulu (the correlation between the increase of pregnant women weight toward the nutrition fulfilment at Tali Kasih Centre in Bengkulu).* Accessed on May 25, 2015.

Reeder, S.J., Martin, L.L & Griffin, D.K. (2003). *Maternity Nursing; Family Newborn and Women's Health Care.* Philadelphia: Lippincott

Rosmina et al, 2001, Perbandingan Ketepatan Mengestimasi Berat Badan Lahir Menurut Rumus Jonhson dan Rumus SML, FK UNSRA, Manado. (The Comperative of Accuracy in Estiminating Weight of Newborn Based on Jonhson and SML Formula, FK UNSRA, Manado)

Saraswati, E. (2008). *Resiko Ibu Hamil Kurang Energi Kronis (KEK) dan Anemia untuk Melahirkan Bayi dengan Berat Badan Lahir Rendah (BBLR) (the risks of chronic energy deficiency on pregnant mother in delivering newborn with low body weight).* Penelitian Gizi dan Makanan jilid 21 (Research on Nutrition and Food vol 21). Accessed on November 25, 2014.

Sulastri, L. (2005). *Hubungan antara kenaikan berat badan ibu selama hamil dengan status nutrisi di Klinik Bersalin Kasih Bunda Gorontalo (the Correlation between the Increase of Weight on Pregnant Women during Pregnancy to the Nutrition Status at Kasih Bunda Delivery clinic in Gorontalo).* Accesssed on May 20, 2015.

Sudirman, S. (2003).*Info-Sehat.com*. Accessed on February 21, 2015.

Supariasa. 2002. *Penilaian Status Gizi(Assessment on Nutritional Status)*. Jakarta: EGC.

Swansburg, R.C. (2001). *Suatu Komponen Pengembangan Sumber Daya Manusia(A Component in Developing Human Resource).* Jakarta: EGC.

Terry, G.R. (2012) *The Principles of Management*, Third Edition, Homewood Illinois: Richard Irwin, Accessed on April 16, 2015.

Wijanti, E.R. (2012). *Hubungan status gizi dengan TFU pada ibu hamil trisemster III(The Correlation Between Nutrition Status toward TFU of Pregnant Women in Trisemester III).* Program Studi Kebidanan Kendiri Poltekkes Kemenkes Malang. Accessed on http://www.suaraforikes.webs.com, August 4 2015.