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Research Article

The Role of Antenatal Care Services for Chronic Energy Deficiency in Pregnant Women at Sudiang Raya Health Center in 2019

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Abstract: Chronic Energy Deficiency (CED) is a state of malnutrition in pregnant women which has an advanced impact in the form of health problems and complications for the mother and her baby. For this reason, it is necessary to know the extent of the role of antenatal care services for pregnant women in efforts to prevent CED. This study aims to determine the role of antenatal care services in the case of CED in pregnant women. This type of research is observational analytic with Cross Sectional research design. Sampling of 99 pregnant women from the working area of the Sudiang Raya Community Health Center. Data were analyzed using chi square analysis and multiple logistic regression. The results showed that antenatal care services were significant for the incidence of CED (p = 0.004). Multivariate test results showed that antenatal care services were the most dominant factor in the occurrence of CED Adjusted Odds Ratio (OR = 4.996; 95% CI 1.333–18.720) that pregnant women with inappropriate ANC services had a risk of 4.996 times the incidence of CED compared to mothers who used ANC services accordingly. Nagelkerke R^2 value of 0.191 that ANC services, parity and infectious diseases contribute to the incidence of CED by 19.1%.

Keywords: Chronic Energy Deficiency, Antenatal Care Services.

INTRODUCTION

Malnutrition is the biggest threat to public health. Malnutrition is an important health problem, especially in children under five and pregnant women (WHO). In Indonesia, nutritional problems are an indirect cause of maternal and child mortality. Nutritional problems that often occur in pregnant women include Chronic Energy Deficiency (CED) and anemia.

Chronic Energy Deficiency (CED) is one of the conditions of malnutrition caused by a lack of consumption of energy sources that contain micronutrients that lasts (chronic) which results in the emergence of relative or absolute health problems (Rahmaniar, 2013). The threshold value of Upper Arm Circumference (LILA) in Indonesia, LILA <23.5 cm, illustrates the CED in pregnant women (Ariyani, 2012).

The Ethiopian Demographic and Health Survey (EDHS) in developing countries in 2014 showed that the problem of malnutrition in Kerala is around 19%, Bangladesh and Dhaka slums about 34%. In 2016, Ethiopia was one of the countries with high maternal and child malnutrition burden with 22% of Ethiopian women experiencing malnutrition (EDHS, 2016). Nutrition Status Monitoring Data, Directorate General of Public Health in 2017 shows that 14.8% of pregnant women in Indonesia are at risk of lacking chronic energy (PSG, 2017). Based on Basic Health Research the proportion of pregnant women lacking in chronic energy in 2007 amounted to 13.6%, increasing to 38.5% in 2013 and experiencing a significant decrease in 2018 to 17.3% (Riskesdas, 2018).

Cases of Chronic Energy Deficiency in South Sulawesi Province experiencing an upward trend every year in 2016 was recorded at 14.5%, in 2017 there were 15.9% cases reported and experienced an increase in 2018 to 16.9%. While in Makassar City in 2016 there were 8.9% of pregnant women lacking in chronic energy, decreasing to 8.43% in 2017 and experiencing a significant increase in 2018 the proportion of pregnant women lacking in chronic energy is 11.44%. Of the 47 Makassar City Health Centers, the highest proportion of Chronic Energy Deficiency proportions, namely

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Sudiang Raya, in 2016 there were 14.43% cases, 2017 there were 7.52% cases and in 2018 there were 16.12% (Makassar City Health Office, 2019).

Chronic Energy Deficiency (CED) in women is the cumulative result of malnutrition since the fetus, baby, and adolescence continues until the deity (symbolon et al, 2018). Malnutrition causes health problems (morbidity, mortality and disability), also decreases the quality of Human Resources (HR), can be a threat to the survival and survival of a nation (Mboi, 2013).

Chronic Energy Deficiency (CED) in pregnant women can cause risks and complications in mothers and babies including anemia, bleeding, maternal weight gain that does not increase normally, and the risk of infectious diseases, affects the process of fetal growth and can cause abortion, stillbirths, neonatal death, congenital defects, infant anemia, intra-partum asphyxia, birth with LBW and also risk of causing maternal death during childbirth. When babies born with LBW have a risk of death, and impaired growth and development of children (Kusparlina, 2016).

Antenatal care is a service provided to pregnant women to monitor, support maternal health and detect normal or problematic pregnant women (Rukiah, et al, 2013) and provide information about pregnancy and childbirth (Backe et al., 2015). Antenatal care service is an effort to reduce the maternal mortality rate, the higher the coverage of antenatal care, the better the process of pregnancy and childbirth, as soon as possible to check the pregnancy can reduce the various risks in pregnancy can be known as early as possible and can be immediately handled (Meikowati, 2014). All pregnant women have the right to receive antenatal care services that are appropriate to the quantity and quality so that they are able to have a healthy pregnancy, deliver safely and give birth to a healthy baby (Ministry of Health, 2015).

Nutrition services for pregnant women are integrated in integrated antenatal services. One of the ANC standards is nutritional status assessment (measuring upper arm circumference). The purpose of antenatal care services is one of the proper treatment and handling of nutrition for health problems of pregnant women, including nutritional problems, especially CED. Based on the description, that antenatal care services greatly contribute to the health of pregnant women so that researchers feel it is very important to conduct research on the role of antenatal care services for chronic lack of energy in pregnant women at the Sudiang Raya health center. The purpose of this study was to analyze the role of antenatal care services in chronic energy deficiency in pregnant women.

METHODOLOGY

Research Design

The study was conducted in September to October 2019 in the working area of the Sudiang Raya Health Center in Makassar City. Research using quantitative methods, analytic observational design with cross sectional approach.

Population and Sample

The population in this study were all pregnant women giving birth in the working area of the Sudiang Raya Health Center in Makassar City in 2018. The sample in this study consisted of 99 respondents namely pregnant women who experienced chronic energy shortages and pregnant women who did not experience chronic energy shortages.

Data Collection

This study uses primary data that is directly taken or obtained by researchers from respondents using a questionnaire (list of questions). The data contains about the identity of respondents and a list of questions that answer the research objectives.

Data Analysis

The data analysis technique of this study used univariate, bivariate analysis with Chi Square test and multivariate analysis with multiple logistic regression with SPSS 21.0 for windows program.

RESULTS

Table 1. Distribution of Respondent Characteristics Based on parity, infectious diseases and antenatal care services in the Sudiang Raya Community Health Center in 2019

Variable	CED		No CED		Total	
	n=33	%	n=66	%	n=99	%
Parity						
Parity <1 & >3	17	36,2	30	63,8	47	100,0
Parity 2-3	16	30,8	36	69,2	52	100,0
Infectious Disease						
Yes	13	56,5	10	43,5	23	100,0
No	20	26,3	56	73,7	76	100,0
Antenatal Care Services						
Not in accordance	30	42,9	40	57,1	70	100,0
In accordance	3	10,3	26	89,7	29	100,0

Based on the data in table 1. shows the characteristics of the respondents. Pregnant women who experienced CED by (33%) less than pregnant women who did not CED (66%). The proportion of risk parity (<1 and> 3) in pregnant women is almost partly in CED by (36.2%) greater than the riskless parity (2-3) most of CED by (30.8%). Most of the pregnant women who had infectious diseases experienced CED (56.5%) greater than pregnant women who did not have infectious diseases who experienced CED (26.3%). Pregnant women who have infectious diseases do not experience CED (43.5%) smaller than pregnant women who do not have infectious diseases that do not experience CED (73.7%). The antenatal care services obtained by pregnant women are almost entirely inappropriate. Pregnant women with inappropriate antenatal care services who experience CED (42.9%) are smaller than pregnant women who do not experience CED (57.1%). A small proportion of pregnant women with appropriate antenatal care services who experience CED (10.3%) are smaller than pregnant women who do not experience CED (89.7%).

Table 2. Bivariate Analysis of the Role of Antenatal Care Services for Chronic Energy Deficiency in Pregnant Women in the Work Area of Sudiang Raya Health Center in 2019

Variable	CED		No CED		*P Value*	OR 95%CI
	n=33	%	n=66	%		
ANC						
Not in accordance	30	42,9	40	57,1	0,004	6,500 (1,797-23,505)
In accordance	3	10,3	26	89,7		

Table 2. Shows that almost the majority of respondents who were not suitable to use ANC services experienced CED (42.9%) smaller than mothers who did not CED (57.1%). Whereas women who used ANC services appropriately only (10.3%) experienced CED and almost all pregnant women who used ANC services appropriately (89.7%) did not experience CED. Cross tabulation analysis between ANC service variables on CED events obtained p value = 0.004 <0.05 so it was concluded that there was a significant relationship between ANC services on CED events. Obtained a value (OR = 6,500; 95% CI: 1,797–23,505) which means that pregnant women who are not appropriate in utilizing ANC services have a risk of 6,500 times having a CED compared to women who use ANC services appropriately.

Table 3. Bivariate Analysis of the Role of Antenatal Care Services for Chronic Energy Deficiency based on parity and infectious diseases in pregnant women in the Sudiang Raya Health Center Work Area in 2019

Control Variable	Independent Variable	CED		No CED		*P Value*
		n=33	%	n=66	%	
Parity	Antenatal Care Services					
Risky	In accordance	1	7,7	12	92,3	0,017
	Not in accordance	16	47,1	18	52,9	
No risk	In accordance	2	12,5	14	87,5	0,102
	Not in accordance	14	38,9	22	61,1	
Infectious Disease	Antenatal Care Services					
Yes	In accordance	1	100,0	0	0,0	1,000
	Not in accordance	12	54,5	10	45,5	
No	In accordance	2	7,1	26	92,9	0,009
	Not in accordance	18	37,5	30	62,5	

Table 3. Shows a cross tabulation of the role of ANC services in the event of chronic energy deficiency based on parity and infectious disease. Whereas the proportion of respondents with risk parity with appropriate ANC services (7.7%) experienced a lower CED compared to not experiencing a CED by (92.3%). While respondents with ANC services that were not in accordance with risk parity (47.1%) experienced a lower CED than did not experience a CED by (52.9%). obtained p value = 0.017, it can be concluded that there is a relationship between ANC services and CED events with risk parity.

Respondents with parity were not at risk with the appropriate ANC services (12.5%) who experienced a lower CED than did not experience a CED (87.5%). Whereas respondents with ANC services that were not in accordance with parity were not at risk (38.9%) experienced a lower CED compared to not experiencing a CED by (61.1%). p value = 0.102 can be concluded that there is no relationship between the role of ANC services to CED with no-risk parity.

Table 3. Shows that respondents who had infectious diseases with appropriate ANC services were 1 (100%) experienced CED and 0 (0.0%) who did not experience CED while respondents with ANC services did not match who experienced infectious diseases by (54, 5%) experienced a CED greater than that without experiencing a CED of (45.5%). p value = 1,000 obtained can be concluded that there is no relationship between the role of ANC services to CED with pregnant women who have infectious diseases.

Respondents who did not have infectious diseases with appropriate ANC services were (7.1) experiencing lower CED than mothers who did not experience CED (92.9%). While pregnant women with inappropriate ANC services (37.5%) experienced lower CED than pregnant women who did not experience CED (62.5%) obtained p value = 0.009, it can be concluded that there is a relationship between the role of ANC services against CED with mothers who do not have an infectious disease.

Table 4. Logistic regression test results of the role of antenatal care services for chronic energy deficiency in pregnant women at the Sudiang Raya Health Center in 2019

Variable	B	S.E.	Wald	Df	P-Value	R^2	Odds Ratio (OR)	95% C.I.for EXP(B)	
								Lower	Upper
ANC Services	1.609	.674	5.696	1	.017	0,191	4.996	1.333	18.720
Parity	.272	.461	.349	1	.554		1.313	.532	3.238
Infectious Disease	.930	.519	3.210	1	.073		2.535	.916	7.010

Table 4. Shows the results of the logistic regression test. To see the value of a higher effect that is seeing the Wald value and p value so that the most risky is the ANC service remains significant after being controlled with parity variables and infectious diseases with a Wald value of 5.696 and a p value of 0.017. Adjusted Odds Ratio (OR = 4.996; 95% CI 1,311–18,702) that pregnant women with inappropriate ANC services are at risk of the incidence of CED 4.996 times compared to women who use ANC services appropriately. Nagelkerke R^2 value of 0.191 that ANC services, parity and infectious diseases contribute to the incidence of CED by 19.1%.

DISCUSSION

All pregnancy risks and complications can not be predicted who will experience and when it will occur. Antenatal care service is an effort to reduce the maternal mortality rate, the higher the coverage of antenatal care, the better the process of pregnancy and childbirth, as soon as possible to check the pregnancy can reduce the various risks in pregnancy can be known

as early as possible and can be immediately handled (Meikowati, 2014). Antenatal care service is an indicator of access to health services for pregnant women coming to health facilities. All pregnant women have the right to receive antenatal care services that are in accordance with the quantity and quality so that they are able to have a healthy pregnancy, deliver safely and give birth to healthy and quality babies (Ministry of Health, 2015).

Antenatal care (ANC) is a service provided by nurses to women during pregnancy, for example by monitoring physical, psychological health, including fetal growth and development and preparing for labor and birth so that mothers are ready to face a new role as parents (Wagiyo & Putrono, 2016).

Antenatal care examination is an examination of pregnancy to optimize the mental and physical health of pregnant women so that they are able to face childbirth, when the childbirth, preparation of breastfeeding and the return of reproductive health is reasonable (Manuaba, 2012). Antenatal care visit is a visit of a pregnant woman to a midwife or doctor as early as possible since she feels she is pregnant to get antental care. Antenatal care is to prevent obstetric complications when possible and ensure that complications are detected as early as possible and handled appropriately (saifuddin).

Antenatal care is a service provided to pregnant women to monitor, support maternal health and detect normal or problematic pregnant women (Rukiah, et al, 2013) and provide information on pregnancy and childbirth (Backe et al., 2015). Pregnant women are strongly recommended to conduct a comprehensive quality ANC examination at least 4 times, namely at least 1 time in the first trimester (0-12 weeks), at least 1 time in the second trimester (13-28 weeks) and at least 2 times in the third trimester (29- 40 weeks) including at least 1 visit between your husband or family member. The first ANC visit is highly recommended in the first trimester (0-12 weeks) (Backe et al., 2015; Ministry of Health, 2015; Minister of Health Regulation No. 97, 2014).

One of the government programs is ANC service with a minimum standard of 10T. Antenatal care related to nutrition that must be carried out is weight weighing, height measurement, measurement of Upper Arm Circumference (LILA), giving additional blood and counseling and nutrition counseling. 10 T ANC pregnancy tests consisting of: (1) Weigh the body weight and measure height, (2) Measure blood pressure, (3) Value of nutritional status (measure upper arm circumference), (4) Measure uterine fundal height, (5) Determine fetal presentation and Fetal Heart Rate (FHR), (6) Screen for tetanus immunization status and provide Tetanus Toxoid (TT) immunization if needed, (7) Giving iron tablets at least 90 tablets during pregnancy, (8) Laboratory tests (routine and special), (9) Case management, (10) Talks (counseling) including planning of delivery and prevention of complications (P4K) and family planning postpartum (Ministry of Health, 2015).

Pregnancy health services can be provided by competent health workers namely doctors, midwives and trained nurses, in accordance with applicable regulations (Minister of Health Regulation No. 97, 2014) in general, 80-90% of pregnancies take place physiologically and only 10-20% of pregnancies will be accompanied by complication. Nutrition services for pregnant women are integrated in integrated antenatal services. One of the ANC standards is nutritional status assessment (measuring upper arm circumference). The purpose of antenatal care services is one of the proper treatment and handling of nutrition for health problems of pregnant women, including nutritional problems, especially CED. Malnutrition in pregnant women is a public health problem that needs special attention.

The results of this study indicate that antenatal care services play a role in CED events and there is a relationship between ANC services and CED events controlled with risk parity and infectious diseases. Pregnant women with risk parity who make use of ANC services accordingly or not according to susceptibility to CED as well as pregnant women who do not have infectious diseases who use ANC services accordingly or not accordingly are also prone to experiencing CED meaning ANC services play a role in the event of CED even though mothers who do not have infectious diseases also still have to check her pregnancy. Likewise, mothers who are at risk are required to use ANC services appropriately in order to detect problems and complications as early as possible in their pregnancy and can be treated as soon as possible.

According to the results of Rosmanidar and Winda's (2017) research, it shows that pregnant women with high parity who have a history of risk in a previous pregnancy will take advantage of antenatal care because they feel the need to check their pregnancy regularly as well as mothers who are pregnant for the first time assume that they need to have a pregnancy because they do not have a pregnancy. experience of pregnancy while pregnant women with high parity who already assume that they have had experience in previous pregnancies do not need to check their pregnancy. Likewise the results of research conducted by Rachmawati, et al (2017) parity affects the ANC visit rate because mothers with a high number of parities are

not too worried about their pregnancies anymore, thus reducing their visits.

The results of this study indicate that antenatal care services are significant for CED events, antental services contribute to CED events by 14.8% meaning the better antenatal services that mothers do, the less chance of complications and the earlier treatment can be obtained so that nutritional problems that pregnant women naturally can be monitored for maternal and infant weight gain, upper arm circumference, pregnancy conditions and preparation for safe and quality labor.

Based on research by Devgun et al., (2014) mothers who interact directly with health workers are 60% less likely to suffer from chronic energy shortages because mothers who interact and visit directly to the staff continually receive counseling and guidance regarding nutrition.

The results of this study are in line with the study of Fitrianingtyas et al., (2018) that there is a significant relationship between ANC pregnancy checkups and Chronic Energy-deficient Events (CED). The results showed that antenatal care tests were 2.7 times less likely to experience chronic energy deficiency compared to mothers who received good antenatal care checks in line with the study of Mardiatun et al (2015), that there was a significant relationship between the history of ANC and the incidence of CED. Antenatal care is significant for the risk of chronic energy deficiency events 1,793 times. Similar results from the research of Lubis, et al (2015) in the city of Langsa showed a significant relationship between antenatal care (ANC) pregnancy examinations and the incidence of CED.

The same results with the study of Gebre et al., (2018) statistically significant antenatal care to nutritional deficiencies of pregnant women. Pregnant women who did not perform ANC examination 1.83 times at risk of experiencing malnutrition compared to mothers who did ANC examination. In line with the study of Belete et al., (2016) that mothers who did not perform ANC 6.0 times more at risk of experiencing malnutrition compared to mothers who did ANC ≥ 4 times (recommended).

CONCLUSION

Antenatal care services were significant for CED (p = 0.004), there was a relationship between antenatal care services for CED with risk parity (p = 0.017) and did not have infectious disease (p = 0.009). Multivariate test results obtained that antenatal care services are the most dominant factor for the CED events. Adjusted Odds Ratio (OR = 4,996; 95% CI 1,333–18,720) that pregnant women with inappropriate ANC services are at risk of the incidence of CED 4.996 times compared to mothers who use ANC services appropriately. Nagelkerke R^2 value of 0.191 that ANC services, parity and infectious diseases contribute to the incidence of CED by 19.1%. The need for pregnant women to do ANC at least 4 times with a minimum service standard of 10T during pregnancy with an emphasis on quality and quantity as well as providing counseling about CED both causes and impacts.

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