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**RESEARCH ARTICLE**

**Chronic Energy Lack in Coastal Areas, Especially at Community Health Center of Maligano, Muna Regency**

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**ABSTRACT**

Chronic Energy Deficiency (CED) is a condition in which the mother suffers from chronic or long-lasting malnutrition, which results in health problems for the mother. CED in pregnant women in 2019 was 17.9%. Based on these data, it can be concluded that there is an increase in the incidence of pregnant women with CED in Southeast Sulawesi. The percentage of pregnant women at risk of CED in South Konawe Regency, Southeast Sulawesi Province, in 2018 was 20.2%; in 2019, it was 23.8%; in 2020, it was 24.6%; and in 2021, it was 25.8%. CED cases in the Maligano Health Center work area are known to have a significant increase every year; where in 2018 it was found 23 (41.07%) cases from 56 visits by pregnant women; in 2019 found, 28 (47.45%) cases from 59 visits by pregnant women, 2020 found 19 (28.35%) cases from 67 visits by pregnant women, 2021 found 42 (55%) cases from 70 visits by pregnant women. The objective of the research was to find out what are the causes and solutions to the problem of chronic energy shortages in coastal areas, especially at the Maligano Public Health Center, South Konawe Regency. This type of research is quantitative, using a Cross-Sectional Study design. It is known from the results of the Chi-Square test that the value of 9.092 is greater than the X2 table, so it can be concluded that there is a significant relationship between Gravidity and Chronic Energy Deficiency and the Phi value of 0.514, which means it has a moderate relationship. Chronic Energy Deficiency is a problem that currently occurs in many coastal areas where enabling factors include education, income, employment, health service facilities and local culture. Other causative factors, such as the first pregnancy or more than 4 pregnancies, can also allow the occurrence of CED. It is recommended to continue to carry out special monitoring in the coastal area related to the management and spatial planning of settlements and health services. Monitoring and reviewing the number of health workers and the population in coastal areas by involving the Community Health Center. And the Community Health Center (Puskesmas) is obliged to screen all pregnant women at risk of CED and be more intense in providing education to coastal communities regarding the importance of nutrition for pregnant women, with well-nourished mothers having the potential for children to be born in good health and avoid stunting.

**KEYWORDS**

Chronic Energy Deficiency, Gravidity and Coastal Area

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**1. Introduction**

Chronic Energy Deficiency (CED) is a condition in which the mother suffers from chronic or long-lasting malnutrition, which results in health problems for the mother. CED in pregnant women will have an impact on the fetus, mother and baby. The impact on the mother includes anaemia, bleeding, the mother does not gain weight normally, and is exposed to infectious diseases, while the impact on the fetus is that it can result in fetal death (miscarriage) in the first trimester, can interfere with fetal growth and development in the second trimester and can cause miscarriage; the occurrence of premature labour in the third trimester (Sandra 2018). African and Asian countries, especially in the sub-Saharan region and Southeast Asia, are centers of global poverty and chronic malnutrition because the majority of the population lives in remote/rural areas. The rate of chronic malnutrition from 777

million in 2015 increased to 815 million in 2018, and it is estimated that at least 120 million women (60%) living in South and Southeast Asia experience CED (FAO 2018).

Geographically, Indonesia stretches from 6 0 North Latitude to 11 0 South Latitude and 0 92 to 142 0 East Longitude, consisting of large and small islands, which number approximately 17,504 islands. Three-quarters of its territory is the sea (5.9 million km<sup>2</sup>), with a coastline of 95,161 km, the second longest after Canada. Indonesia as an archipelagic country has been recognized internationally through the third UN convention on the law of the sea, the United Nations Convention on the Law of the Sea 1982 (UNCLOS 1982), and then ratified by Indonesia with Law No. 17 of 1985. Based on UNCLOS 1982, The total area of Indonesia's sea is 5.9 million km<sup>2</sup>, consisting of 2 3.2 million km of territorial waters and 2.7 km<sup>2</sup> of Exclusive Economic Zone waters; this water area does not include the shelf (Maya, 2018).

Based on the results of the Nutrition Status Monitoring (PSG) in 2015, 2016 and 2017, it was found that the percentage of pregnant women with chronic energy deficiency (CED) in Indonesia in 2015 was 13.3%, in 2016 as many as 16.2%, in 2017 as many as 14,8% (Ministry of Health RI 2018).

Currently, Indonesia is facing a demographic and epidemiological transition. The demographic transition that occurs makes the population of Southeast Asia, including Indonesia, in the productive age group reach 70 percent greater than the elderly population. This is expected to occur in 2020-2030 (World Organization Health 2016).

The results of the 2017 Indonesian National and Sub-National Disease Burden Analysis research conducted by the Health Research and Development Agency (Badan Litbangkes) in collaboration with the Institute For Health Metrics and Evaluation (IHME) noted that there had been an epidemiological transition from PM to NCD from 1990 to 2017. In 1990, the biggest diseases were infectious diseases/kia/nutrition by 51.30%, followed by non-communicable diseases (39.8%) and injuries (8.9%). However, in 2017 the largest diseases were non-communicable diseases at 69.9%, followed by infectious diseases/kia/nutrition (23.6%) and injuries (6.5%) (Siswanto, 2018).

According to the Indonesian Ministry of Health, health development is essentially an effort carried out by all components of the Indonesian nation which aims to increase awareness, willingness and ability to live healthy for everyone in order to realize the highest degree of health. Health development in the 2015-2019 period is the Healthy Indonesia Program with the aim of increasing community empowerment supported by financial protection and equitable distribution of health services (BTKLPP 2019).

The prevalence of CED in pregnant women in Indonesia based on Riskesdas data in 2018 is 17.3% and based on the Indonesian Health profile, the incidence of CED in pregnant women in 2019 is 17.9% (Ministry of Health RI 2019; Riskesdas 2018). Chronic Energy Deficiency is a condition caused by an imbalance of nutritional intake between energy and protein so that the nutrients needed by the body are not fulfilled. The prevalence of CED in pregnant women in Southeast Sulawesi based on Riskesdas data in 2019 was 28.0%, and based on the Southeast Sulawesi Health profile that the incidence of CED in pregnant women in 2020 was 28.7% (Dinkes Sultra, 2021).

Based on these data, it can be concluded that there is an increase in the incidence of pregnant women with CED in Southeast Sulawesi. The percentage of pregnant women at risk of CED in Muna Regency, Southeast Sulawesi Province, in 2018 was 20.2%; in 2019, it was 23.8%; in 2020, it was 24.6%; and in 2021, it was 25.8% (Department of Health of Konawe Selatan Regency 2021 ). CED cases in the working area of the Maligano Health Center are known to have a significant increase every year; where in 2018 it was found 23 (41.07%) cases from 56 visits by pregnant women; in 2019 found, 28 (47.45%) cases from 59 visits by pregnant women, 2020 19 (28.35%) cases were found from 67 visits by pregnant women, in 2021, 42 (55%) cases were found from 70 visits by pregnant women (Puskesmas Amondo, 2021).

Based on the description above, the writer is interested in reviewing a paper with the title 'Factors Causes and Solutions to the Problem of Chronic Energy Deficiency in Coastal Areas in the Maligano Health Center Work Area'.

## **2. Methods**

This type of research is quantitative, using a Cross-Sectional Study design, namely collecting, analyzing, and describing information and data systematically while increasing understanding of certain phenomena (Ramdhani, 2017). This research was conducted from April to June 2022. This research was conducted at the Maligano Health Center.

## **3. Results and Discussion**

### **3.1 Characteristics of Respondents**

The research results can be described in the form of a table and presented in the following narrative form:

Table 1. Age Distribution of Respondents

Age	Frequency (f)	Percentage (%)
< 30 years	0	0,00
30-40 years	15	35,71
41-50 years	25	59,52
>50 years	2	4,76
<i>Total</i>	42	100

The table above shows that the most age group respondents were 41-50 years old, namely 25 people (59.52%) and a little was found in the age group of >50 years which was 2 people or (4.76%), for respondents under 30 years of age were not found.

Table 2. Respondents' Education Distribution

Education	Frequency (f)	Percentage (%)
Highschool	0	0,00
Diploma	1	2,38
Bachelor	38	90,48
Master	3	7,14
S3	0	0,00
<i>Total</i>	42	100

Based on the table above, it can be explained that respondents with education are found in S1 education with a total of 38 people (90.48%) and a little found in respondents with Diploma Education, namely 1 person (2.38%), for high school, and S3 education is not found.

### 3.2 Descriptive Analysis

Table 3. Frequency Distribution of Respondents' Gravidity

Employee Performance	Case	
	Frequency (f)	Percentage (%)
Gravidity		
Good	18	42,86
Less	24	57,14
<i>Total (n)</i>	42	100

Based on the table above, it can be explained that out of a total of 42 respondents with good Gravidity amounted to 18 people (42.86%), and less amounted to 24 people (57.14%).

### 3.3 Inferential Analysis

Table 4. The Relationship of Gravidity to Chronic Energy Deficiency

Gravidity	Chronic Energy Deficiency				$\Sigma$	%	Chi-square	$\varphi$	X table
	Good		Less						
	f	%	f	%					
Good	13	72,22	5	27,78	18	100	9,092	0,514	3,84
Less	5	20,83	19	79,17	24	100			
Total	18	42,86	24	57,14	42	100			

From the table above, among the 18 respondents who stated that Gravidity is good, there were 13 (72.22%) did not experience good Chronic Energy Deficiency, while among the 24 respondents who had good Graviditas, 5 (27.78%) but experienced Chronic Energy Deficiency.

It is known from the results of the *Chi-Square test* that the value of 9,092 is greater than  $X^2$  tables; it can be concluded that there is a significant relationship between Gravidity and Chronic Energy Deficiency and a Phi value of 0.514, which means it has a moderate relationship.

### 3.4 Chronic Energy Deficiency

The results of the study found that there was a significant relationship with a moderate relationship where it could be seen that mothers with gravidity of one or more equal to four were at risk of experiencing Chronic Energy Deficiency. The coastal area in

Muna Regency is quite extensive, with a low frequency of visits by health workers because access is quite difficult. Thus population growth is not controlled, and Family Planning services are less covered.

Chronic energy deficiency is caused by inadequate nutritional intake in pregnant women, this is quite relevant to the situation at the research location, where the number of people is large, with the majority of fishermen working, and the consumption of vegetables and calories such as rice is minimal. Observation results revealed that the majority of people consume carbohydrates, not from rice.

Chronic Energy Deficiency is a condition where young women/women experience malnutrition (calories and protein) that lasts for a long time or is chronic. Risk of Chronic Energy Deficiency (CED) is a condition where young women/women have a tendency to suffer from CED. A person is said to be at risk of CED if LILA <23.5 cm (Dewi, 2017).

Chronic Energy Deficiency is a condition where the mother suffers from a long-lasting (several months/chronic) or chronic lack of food which results in health problems for the mother (Mahirawati, 2014; Sandra, 2018).

According to the Indonesian Ministry of Health, measuring LILA is one way to determine the risk of Chronic Energy Deficiency (CED). The LILA measurement cannot be used to monitor changes in nutritional status in the short term. The LILA measurement is used because the measurement is very easy and can be done by anyone. The LILA threshold for CED risk in Indonesia is 23.5 cm. If the size of the LILA is less than 23.5 cm or in the red part of the LILA band, it means that the woman has a risk of CED and is expected to give birth to a low birth weight baby (LBW). LBW has a risk of death, malnutrition, growth disorders, and child development disorders (Fitriah et al., 2018).

Chronic Energy Deficiency (CED) is a condition in which the mother is malnourished due to a chronic (chronic) deficiency of one or more dietary nutrients, which results in the emergence of health problems in the mother in relative or absolute terms (Sipahutar et al., 2013). Chronic energy deficiency often occurs in women of childbearing age (WUS) and in pregnant women (Arisman, 2010). The factors that affect CED in pregnant women are divided into two, namely, internal and external factors. Internal factors (individual/family) are genetic, obstetric, and sex. While external factors are nutrition, drugs, environment, and disease (Sandra, 2018).

Gravidity is the total number of pregnancies that have been experienced by the mother regardless of the end result of her pregnancy; the higher the gravidity, the greater the risk of maternal pregnancy and the occurrence of malnutrition. Most of the pregnant women who experience malnutrition are pregnant women with gravidity > IV. This is because the gravidity > IV is the umpteenth pregnancy, so the mother feels she has past experiences and, in the end, does not pay attention to her nutrition (Lestari, 2021; Utami et al., 2020).

Signs and symptoms of Chronic Energy Deficiency are: Left upper arm circumference less than 23.5 cm. Lack of agility in work often looks weak, tired, lethargic, and limp. If you are pregnant, you tend to give birth prematurely, or if you are born normally, the baby is usually born with a low birth weight of less than 2,500 grams.

The effect of chronic energy deficiency on the mother can cause risks and complications for the mother, including anaemia, bleeding, maternal weight does not increase normally and infection

Effect of Chronic Energy Deficiency on Childbirth. The effect of malnutrition on the labor process can lead to difficult or prolonged labor, premature/premature delivery, bleeding after delivery, and delivery by cesarean section tends to increase.

Effect of Chronic Energy Deficiency on the fetus. Malnutrition in pregnant women can affect the process of fetal growth and can cause miscarriage, abortion, stillbirth, neonatal death, congenital defects, intrapartum asphyxia (death in the womb), and birth with low birth weight (LBW).

### **3.5 Handling Maternal and Child Health Problems in Coastal Areas**

Health effort is any activity and/or a series of activities carried out in an integrated, integrated and sustainable manner to maintain and improve the health status of the community in the form of disease prevention, health improvement, disease treatment, and health restoration by the government and/or the community (Rahayu, 2017).

The health of mothers and children is a priority; the worst thing that will happen when efforts to improve health are low is the death of the mother herself. Maternal health efforts must be aimed at maintaining maternal health so that they are able to give birth to a healthy and quality generation and reduce maternal mortality. Maternal mortality is one of the important indicators in determining the degree of public health (Wahyuni et al., 2020).

Factors that contribute to maternal mortality can be broadly grouped into direct causes and indirect causes. The direct causes of maternal death are factors related to complications of pregnancy, childbirth and the puerperium, such as bleeding, Chronic Energy Deficiency/eclampsia, infection, obstructed labor and abortion. Indirect causes of maternal death are factors that aggravate the

condition of pregnant women, such as FOUR TOO (too young, too old, too often giving birth and too close to birth spacing) according to the 2002 IDHS data as much as 22.5%, as well as those that complicate the emergency handling process pregnancy, delivery and postpartum such as THREE LATEST (late recognizing danger signs and decisions, being late in reaching health facilities and being late in handling emergencies) (Aceh Regional Development Planning Agency 2016).

Another influential factor is pregnant women who suffer from infectious diseases such as malaria, HIV/AIDS, tuberculosis, syphilis, non-communicable diseases such as hypertension, diabetes mellitus, heart disease, mental disorders and those who are malnourished. The government and the community are responsible for ensuring that every pregnant woman has access to quality maternal health services, starting from pregnancy, delivery assistance by trained health workers, postnatal care for mothers and babies, special care and referrals in case of complications, as well as access on family planning (Directorate General of P2P Kemkes RI 2021).

The Directorate General of Nutrition and MCH 2013 in the Infodatin Data and Information Center of the Ministry of Health of the Republic of Indonesia recorded the coverage of delivery assistance by health workers in the province in 2013; from 34 provinces, there were 21 provinces that had reached the target (89%), and there were 12 provinces that had not yet reached the target. Efforts to improve public access to quality health services, including by increasing access to basic health services. The role of the Puskesmas (Community Health Center) and its network as an institution that provides health services at the first level that is directly involved with the community are very important. In the Decree of the Minister of Health of the Republic of Indonesia Number 128/Menkes/SK/2004, it is explained that the Puskesmas is the technical implementing unit of the district or city/district health office which is responsible for organizing health development in its working area (Dharma, 2020).

Puskesmas plays a very important role in the process of improving the safety of mothers and children. Through the puskesmas, pregnant women can get health guidance from the beginning of pregnancy, the process of giving birth to postpartum. For this reason, the City/Regency Health Office implements a program, namely the Maternal and Child Safety Improvement Program, where the activities of this program are the Improvement of Maternal Health Services and AMP (Maternal Perinatal Audit). This program is specifically implemented by the Public Health Sector, namely the Family Health and Nutrition Section. The Family Health and Nutrition Section has the duties contained in the City / Regency Health Office Annual Report, namely (Ministry of Health of the Republic of Indonesia 2019); (1) Prepare the implementation of policies in the field of maternal and neonatal health, toddlers and pre-school children, school age and adolescents, production age and family planning, improvement of nutritional quality and adequacy, nutritional awareness, prevention of nutritional problems, and management of nutritional consumption and school health efforts; (2) Provide guidance on maternal, child, family planning health services, community nutrition scho ol health efforts; (3) To develop health services for pregnant women, maternity or postpartum, breastfeeding, children and nutrition in first-level health facilities and their networks; (4) To provide guidance to health personnel to assist childbirth; (5) Conduct maternal and perinatal audits; (6) To prepare the provision of technical guidance and supervision in the field of family health, quality improvement and nutritional adequacy, nutritional awareness, overcoming nutritional problems and management of nutritional consumption; (7) Monitoring, evaluating and reporting in the field of family health, nutrition and improving the quality and adequacy of nutrition, nutritional awareness, overcoming nutritional problems, and managing nutritional consumption; (8) Monitoring the nutritional status of children under five and pregnant women in first-level health facilities and their networks and posyandu; (9) Monitoring the distribution of vitamin A to toddlers, postpartum mothers and other nutritional problems; (10) Designing planning and implementing supplementary feeding in cases of protein energy deficiency and chronic energy deficiency in pregnant women; (11) Provide guidance on exclusive breastfeeding and lactation clinics; (12) Conducting guidance on activities to improve nutrition for school health businesses at the elementary school, junior high school, high school and vocational high school in orphanages, correctional institutions; (13) Provide technical guidance to Puskesmas and hospitals; and (14) Carry out other official duties assigned by superiors in accordance with their duties and functions.

The Maternal and Child Safety Improvement Program in the 2017 City/Regency Health Office Work Plan has activities to Improve Maternal Health Services and AMP (Maternal Perinatal Audit), where the detailed location of the implementation of this activity is the Puskesmas. In the 2014-2019 Health Office Strategic Plan, the target indicator/objective of the program for Improving Maternal and Child Safety is to reduce the Maternal Mortality Rate. Meanwhile, the target/objective of the activities to improve Maternal Health Services and AMP is to reduce maternal mortality. The program/activity performance indicators are (Suriani 2016); (1) Percentage of pregnant women giving birth and postpartum who received treatment for obstetric complications (coverage of PK); (2) Percentage of maternity mothers assisted by trained health workers (PN coverage); (3) Percentage of pregnant women receiving antenatal care (K4); (4) Percentage of pregnant women receiving Antenatal Care (K1); (5) Percentage of postpartum mothers who received services (coverage of KF).

To create a good performance so that the program is carried out effectively and efficiently, it is necessary to have good management as well. To carry out performance management, it is necessary to pay attention to management processes or functions, such as how to plan, organize, drive implementation and control. First, the planning process begins with the City/Regency Health Office together with the Puskesmas based on the Minister of Health Regulation No. 97 of 2014

concerning Health Services for the Pre-pregnancy, Labor and Postnatal Period, Implementation of Contraceptive Services, and Sexual Health Services (Masram and Mu'ah). 2015; Sarri et al. 2020).

The Ministry of Health provides an Integrated Antenatal Service manual to the Office as a guideline for Puskesmas in providing Antenatal Services and a Pocket Book of Maternal Health Services at Basic and Referral Health Facilities as well as a Maternal and Child Health Book (KIA), which will be given to every mother who is tested positive for pregnancy and make the first visit (K1) to the Puskesmas. Furthermore, the Office makes strategic plans and work plans as a benchmark every year where the target of this program activity is to reduce the Maternal Mortality Rate. In addition, the Health Office determine s what health services will be provided to pregnant, maternity and postpartum women, the flow of services at the Puskesmas and in every field within the Puskesmas, Hospitals that can be used as Referral Hospitals when the birthing process cannot be carried out normally in the Puskesmas. Treatment Center. Of course, all of this refers to the rules and policies issued (Ministry of Health RI 2015).

Furthermore, after carrying out various management processes for Maternal Health Service activities, the thing that must be done is the Maternal Perinatal Audit (AMP). Maternal Perinatal Audit (AMP) is a process of jointly reviewing cases of maternal and perinatal morbidity and mortality and their management, using various information and experiences from a nearby group, to obtain input on the most appropriate interventions to improve the quality of MCH services in an area (Mahudin et al., 2020).

According to the Regulation of the Minister of Health No. 97 of 2014 article 34, Maternal Perinatal Audit or commonly abbreviated as AMP, is carried out on every case of maternal mortality and morbidity during pregnancy. Labor and the postnatal period and the newborn. AMP should be carried out through an in-depth qualitative investigation of the causes and circumstances of maternal and perinatal death. AMP is carried out to improve and maintain the quality of maternal and child health services. Furthermore, it is stated in Article 34 paragraph (5) the AMP results are the basis for the implementation of interventions which consist of: First, improving Antenatal Services that are able to detect and adequately handle high-risk cases; Second, clean and safe delivery assistance by skilled health personnel, postpartum and birth services; Third, Basic Obstetrics and Neonatal Emergency Services (PONED) and Comprehensive Emergency Obstetrics and Neonatal Services (PONEK) that can be reached; Fourth, effective referrals for high-risk cases and complications that occur. AMP is carried out if there is a report from the Puskesmas. The AMP process is carried out by experts, namely Gynecologists and Pediatricians and the Obstetrics and Gynecology Association (POGI). The results are reported back to the relevant Puskesmas, and then a discussion forum is held with the Puskesmas (Regulation of the Minister of Health of the Republic of Indonesia 2014).

#### **4. Conclusion**

Chronic Energy Deficiency is a problem that currently occurs in many coastal areas where enabling factors include education, income, employment, health service facilities and local culture. Other causative factors, such as the first pregnancy or more than 4 pregnancies, can also allow the occurrence of CED.

##### **4.1 Recommendation**

**Muna District Government:** It is recommended to continue to carry out special monitoring in coastal areas related to governance and spatial planning of settlements and health services.

**Muna District Health Office:** Monitoring and reviewing the number of health workers and the number of residents in coastal areas by involving puskesmas.

**Maligano Health Center:** Screening all pregnant women at risk of CED and more intense in providing education to coastal communities regarding the importance of nutrition for pregnant women, which with good nutritious mothers has the potential for children born in good health and avoid stunting.

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