

INFORMASI ARTIKEL

Received: Januari 10, 2026

Revised: Januari, 19, 2026

Available online: Januari, 21, 2026

at : <https://e-jurnal.iphorr.com/index.php/mchc>

Chronic energy deficiency (CED) and maternal diet is related to stunting incidence

Rosita*, Lina Fitriani, Dyah Tahir, Yenni

Faculty of Health, Mega Buana University, Palopo

Corresponding author: *Email: rositaitha1991@gmail.com

Abstract

Background: One of the main causes of stunting is the lack of continuous energy intake in women of childbearing age (from adolescence, pre-conception to pregnancy) which results in Chronic Energy Deficiency during pregnancy which begins with the occurrence of "risk" and is characterized by low energy supply over a long period of time as measured by Upper Arm Circumference (LILA) of less than 23.5 cm or Body Mass Index (BMI) before pregnancy or The first trimester was below 18.5 Kg/m².

Purpose: The purpose of this study is to determine the relationship between the history of SEZ in pregnancy and maternal diet with the incidence of stunting.

Method: This study is analytical observational research with a cross-sectional research design which was carried out in the working area of the South Wara Health Center in June-July 2025. There are three variables in this study, namely the free variable, the SEZ in Pregnancy and the Maternal Diet the variable is tied to stunting. The collection of SEZ history data in mothers was obtained from mothers of toddlers through interviews, Maternal and Child Health (KIA) books and stunting data using secondary data sourced from the 2024-2025 EPPGBM big data of 62 children.

Results: Based on the results of statistical data using the Chi-square test, the value $p = 0.000 < (0.05)$ was obtained. Thus, it can be concluded that there is a relationship between diet and SEZ and stunting incidence.

Conclusion: The results of the study show that there is a relationship between Chronic Energy Deficiency in pregnant women and diet with the incidence of stunting in the working area of the South Wara Health Center in 2025. The results of the study also show that there is a relationship between Diet and SEZ and the incidence of stunting in the working area of the South Wara Health Center, Palopo City in 2025.

Suggestion: The results of this study are expected to increase public knowledge about the relationship between chronic energy deficiency in pregnancy and maternal diet and the incidence of stunting and can provide input to the public to better understand the importance of the health of pregnant women, especially during the 1000 days of their child's life, as well as prevent risks that may occur in the future by providing good nutrition to pregnant women and children

Keywords: Diet and Stunting; Chronic Energy Deficiency.

INTRODUCTION

A situation where toddlers have a shorter length or height when compared to age and gender as measured by the WHO standards for child growth

and development are called stunting. The existence of stunting indicates a long-term (chronic) malnourished status that has long-term impacts such

Chronic energy deficiency (CED) and maternal diet is related to stunting incidence

as the onset of morbidity and death, non-optimal cognitive, motor and verbal development in children and long-term impacts in the form of non-optimal posture until adulthood, increased risk of non-communicable diseases, decreased productivity and affect the quality of human resources (Ministry of Health of the Republic of Indonesia, 2024).

Data from the World Health Organization (WHO) reports that the prevalence of Chronic Energy Deficiency in pregnancy globally is 35-75%, much higher in the third trimester than in the first and second trimester of pregnancy. The WHO also notes that 40% of maternal deaths in developing countries are related to chronic energy deficiency. And the prevalence of stunting in 2022 globally reached 148.1 million or 22.3%, and almost all children affected by stunting live in Asia (52%) and Africa (43%) (World Health Organization, 2023).

In South Sulawesi South Wara Health Center, data on the prevalence of in pregnant women in 2022 is 26 people and in 2023 there will be an increase in pregnant women at risk of at the South Wara Health Center by 29 people, in 2024 it will reach 28 people, and in 2025 from January to July there will be 6 pregnant women who experience (Palopo City Health Office, 2025).

Then, the results of previous research also concluded that there is a relationship between pregnancy history and the incidence of stunting. The results of the statistical analysis OR 3.850 mean that pregnant women with a history of pregnancy have a 3.850 risk of giving birth to a stunted child (Suliani, 2023). Other research also shows that there is a significant relationship between pregnancy history and the incidence of stunting in children aged 24-59 months. The incidence of stunting was found in mothers with a history of pregnancy by 68.4%, while in normal mothers it was 27.1% (Nurdin, Masrul, Gusnedi, Umar, Purnakarya, Syafrawati, & Lipoeto, 2023).

Chronic energy deficiency is defined as a state when a woman experiences a long-lasting and prolonged nutritional deficiency (calories and protein). Characterized by weighing less than 40 kg or appearing thin and with an upper arm circumference of less than 23.5 cm (Sattu, 2023). Chronic Energy Deficiency is a state of malnutrition or pathological condition due to a relative or absolute deficiency of one or more nutrients (Supariasa,

Arianto, Alfaini, & Adelina, 2024). Mothers suffer from chronic food shortages that result in the occurrence of health problems in the mother relative or absolute of one or more nutrients (Sipahutar, et al., 2013).

Signs of are weighing less than 40 kg or appearing thin and LILA (Upper Arm Circumference) less than 25.3 cm. The symptoms caused by s are reduced appetite, nausea, weakness, reduced vision, frequent tingling, pale face, decreased metabolic rate, and decreased physical work capacity. Chronic Energy Deficiency during pregnancy can have consequences for the mother and the fetus she is carrying. For mothers, it can cause risks and complications, including: anemia, bleeding, not gaining weight normally and being affected by infectious diseases. Childbirth can result in difficult and long labor, premature delivery, bleeding. Against the fetus, it can result in miscarriage/abortion, stillbirth, neonatal death, congenital defects, anemia in infants, babies with Low Birth Weight (BBLR) (Hanissa, Nur, & Waryana, 2018).

A long-term imbalance in macronutrient intake, such as energy and protein intake, might result in chronic energy deficiency in pregnant women. Several factors can impact pregnancy such as knowledge level, socio-economic status, marriage, education, family economics, and marital status. Chronic energy deficiency in pregnant women can result in a low birth weight, which is then linked to stunting (Fitriani, Yarmaliza, & Farisni, 2024).

Children who experience stunting in the early stages of life up to five years of age will not reach their maximum physical and mental/intelligence potential in adulthood. The problem of stunting is in the world's attention, and it is evident that one of the targets of the Sustainable Development Goals (SDGs) is to reduce cases of stunting worldwide (Yuliastanti, Ambarwati, Sulastri, & Rahmawati, 2023).

RESEARCH METHOD

This study uses a quantitative research method with the Cross Sectional Study approach, which is a study to study the correlation dynamics between Chronic Energy Deficiency in pregnancy and diet with effects, by approaching, observing, or collecting data at the same time. The research was carried out by measuring independent and dependent variables, then analyzing the collected data to look for

Rosita*, Lina Fitriani, Dyah Tahir, Yenni

Fakultas Kesehatan Universitas Mega Buana Palopo
Corresponding author: *Email: rositaitha1991@gmail.com

DOI: 10.56922/mchc.v4i10.2188

Chronic energy deficiency (CED) and maternal diet is related to stunting incidence

relationships between variables. The goal is to find out whether there is a relationship between Chronic Energy Deficiency (SEZ) in Pregnancy and Maternal Diet with the Incidence of Stunting in the Working Area of the South Wara Health Center.

Data analysis is aimed at answering the research objectives and testing the research hypothesis to determine the relationship between independent variables and dependent variables using the SPSS computerized system and processed using the Chi

Square Test statistical test. The basis for decision-making is that there is a relationship, namely: If the p value < 0.05 , then H_0 was rejected, meaning that there was a relationship between Chronic Energy Deficiency in pregnancy and maternal diet with the incidence of stunting. If the p value > 0.05 , then H_0 was accepted, meaning that there was no relationship between Chronic Energy Deficiency in pregnancy and maternal diet with the incidence of stunting.

RESEARCH RESULTS

Table 1. Characteristics Of Respondent (N=62)

Variable	Results	P-value
Chronic Energy Deficiency (CED) (n/%)		0.001
Yes	44/71.0	
No	18/29.0	
Mother's Diet (n/%)		0.001
Good	2/3.2	
Moderate	26/42.0	
Poor	34/55.0	
Stunting Incidents (n/%)		
Short	19/30.0	
Very Short	43/70.0	

The table above shows that the majority of mothers with KEK are 44 (71.0%) with the majority of mothers having poor dietary patterns, namely 34 respondents (55.0%) and the majority of respondents with very short stunting, namely 43 (70.0%). the results were obtained that there was a meaningful relationship between chronic energy deficiency that occurred in pregnant women and the incidence of stunting in children with a high p Value = 0.001 (< 0.05) and the results were obtained that there was a meaningful relationship between diet in pregnant women and the incidence of stunting in children with a p value of Value = 0.001 (< 0.05).

DISCUSSION

The results of the research analysis found that the number of respondents with SEZs who had toddlers in the stunting category was higher than respondents with those who did not KEZ who had stunted toddlers. Researchers assume this is because Chronic Energy Deficiency during pregnancy will greatly affect the growth and development of children from the womb to the age of toddlers. Fetuses that lack nutrition from the beginning will make their growth stunted, so that the higher the number of cases, the higher the rate of

stunting in toddlers. Chronic energy deficiency (CED) in pregnant women is a condition of energy and protein deficiency that lasts for years and causes problems in the mother and fetus (Wati, Murwani, Kartasurya, & Sulistiyani, 2024). Stunting is a current government concern. 2020 UN statistics recorded that more than 149 million (22%) toddlers worldwide suffer from stunting, of which 6.3 million are Indonesian children. According to UNICEF, stunting is caused by malnutrition in children within the first

Rosita*, Lina Fitriani, Dyah Tahir, Yenni

Fakultas Kesehatan Universitas Mega Buana Palopo
Corresponding author: *Email: rositaitha1991@gmail.com

DOI: 10.56922/mchc.v4i10.2188

Chronic energy deficiency (CED) and maternal diet is related to stunting incidence

two years of life, maternal malnutrition during pregnancy, and poor sanitation (Khairani & Ningsih, 2024).

The results of this study then support the results of several previous studies that also examined the relationship between the of pregnant women and the incidence of stunting under five. Previous research stated that the results of the study showed a significant relationship between pregnant women and the incidence of stunting in toddlers, where pregnant women who were pregnant during pregnancy had a 5.578 times greater chance of giving birth to stunted children compared to mothers who were not pregnant (Agustina, Zulliati, Yantie, & Kusvitasari, 2023).

The results of the research analysis also found that of the 62 respondents, most of them had a very poor diet, and also had toddlers with quite high stunting. This is because an irregular and unhealthy diet will make the pregnant woman's fetus become deficient in nutrients whose impact will be long-term, membuat anak menjadi stunting and of course there is a risk of hindering the quality of life of the child until adulthood.

From the results of this study, the researcher assumes that the diet of pregnant women is very lacking in the working area of the South Wara Health Center is one of the factors for the high number of in pregnant women and the incidence of stunting in the area. The researcher assumes that this is not only due to the lack of maternal knowledge of the importance of nutrition and the impact of stunted children, but also influenced by the economic status in the area which is still relatively low. Therefore, from the results of this research, the researcher hopes that the Puskesmas and the government can collaborate to find solutions related to these problems, by continuing to provide education and concrete actions to improve the knowledge, skills and economy of the local community.

Diet is the arrangement of the type and amount of food consumed by a person or group of people at a given time consisting of the frequency of meals, types of food, and portions of meals. A balanced menu needs to be started and well known so that a habit of eating balanced foods will be formed in the future. Eating habits are a term used to describe habits and behaviors related to dietary arrangements. Irregular and unhealthy eating patterns can cause disorders in the digestive system (Tussakinah, Masrul, & Burhan,

2018).

Nutritional Needs of Pregnant Women Although food is the best way to get nutrients, it is not easy to meet all nutritional needs through food alone. During pregnancy, the need for vitamins and minerals increases higher than the need for calories. 6 Daily vitamin and mineral requirements increased by 50%, while daily energy requirements increased by only 300 calories during the second and third trimesters. As a result, pregnant women must choose food carefully to get the nutrients they need while maintaining an ideal body weight.

Energy needs During pregnancy, there is an increase in calorie needs in line with an increase in basal metabolic rate and weight gain which will increase calorie use during activity. In addition, during pregnancy, mothers need additional energy/calories for the growth and development of the fetus, placenta, breast tissue, and fat reserves. Calorie requirements are approximately 15% of normal calories. The additional energy needed during pregnancy is 27.000 – 80.000 Kcal or 100 Kcal/day. Energy sources can be obtained by consuming rice, corn, wheat, potatoes, sweet potatoes, cassava, and sago.

Stunting is defined as an indicator of TB/U nutritional status equal to or less than minus two standard deviations below the standard average or a situation where the child's body is shorter compared to other children of his age, this is an indicator of the health of children who are chronically malnourished that provide a picture of nutrition in the past and which is influenced by the environment and socio-economic (World Health Organization, 2006).

Many factors cause stunting in children. This stunting cause can be caused by direct or indirect factors. The direct causes of stunting are nutritional intake and the presence of infectious diseases while the indirect causes are parenting, health services, food availability, cultural factors, economy and many other factors (UNICEF, 2015; National Development Planning Agency, 2013).

Direct factors Adequate nutritional intake is very necessary for the growth and development of the body of toddlers. This critical period is a time when toddlers will experience growth and development and growth in pursuit. Toddlers who have experienced malnutrition before can still be improved with good intake so that they can grow up according to their

Rosita*, Lina Fitriani, Dyah Tahir, Yenni

Fakultas Kesehatan Universitas Mega Buana Palopo
Corresponding author: *Email: rositaitha1991@gmail.com

DOI: 10.56922/mchc.v4i10.2188

Chronic energy deficiency (CED) and maternal diet is related to stunting incidence

development. However, if the intervention is late, toddlers will not be able to catch up with their growth delays, which is called failure to grow. Normal toddlers are likely to have growth disorders if the intake received is insufficient. The study that analyzed the results of Riskesdas stated that energy consumption for toddlers has an effect on the incidence of short toddlers, in addition to that at the household level household energy consumption below average is the cause of short toddlers (Sihadi, 2011).

CONCLUSION

Based on the results of the research and discussion of the relationship between chronic energy deficiency in pregnant women and maternal diet and the incidence of stunting, the following conclusions were obtained: The results of the study show that there is a relationship between Chronic Energy Deficiency in pregnant women and the incidence of stunting and the results of the study also show that there is a relationship between Maternal Diet and the incidence of stunting.

REFERENCES

- Agustina, A. R., Zulliaty, Z., Yantie, L., & Kusvitasari, H. (2023). Analisis Hubungan Riwayat Kekurangan Energi Kronik (KEK) Pada Ibu Hamil Dengan Kejadian Stunting Pada Balita di Wilayah Kerja Puskesmas Tabunganen Kabupaten Barito Kuala. In *Proceeding Of Sari Mulia University Midwifery National Seminars* (Vol. 5, No. 1).
- Fitriani, F., Yarmaliza, Y., & Farisni, T. N. (2024). Analyzing the level of knowledge, food consumption diversity, and nutritional intake on chronic energy deficiency among pregnant women in stunting prevention. *European Journal of Medical and Health Sciences*, 6(2), 62-66.
- Hanissa, M., Nur, H., & Waryana, W. (2018). Efektivitas penggunaan media leaflet dan video terhadap pengetahuan tentang pedoman gizi seimbang pada siswa SMP Negeri 5 Yogyakarta (Doctoral dissertation, Poltekkes Kemenkes Yogyakarta).
- Khairani, F., & Ningsih, H. (2024). Hubungan kurang energi kronik (kek) dengan kejadian stunting pada balita 2-4 tahun di wilayah kerja updt puskesmas pringgarata. *Jurnal Cahaya Mandalika* ISSN 2721-4796 (online), 5(2), 704-712.
- Ministry of Health of the Republic of Indonesia. (2024). SSGI 2024: Prevalensi Stunting Nasional Turun Menjadi 19,8%. Retrieved from: <https://kemkes.go.id/id/ssgi-2024-prevalensi-stunting-nasional-turun-menjadi-198>
- National Development Planning Agency. (2013). *Keluarga Bebas Stunting*. Retrieved from: <file:///Users/gadis/Downloads/17170399196657f32ff04cf3.76189362.pdf>
- Nurdin, A., Masrul, M., Gusnedi, G., Umar, H. B., Purnakarya, I., Syafrawati, S., & Lipoeto, N. I. (2023). Prevalence and determinants of stunting risk factors among children under five years old: an analysis of the Indonesian secondary database.
- Palopo City Health Office. (2025). *Data On The Prevalence Of In Pregnant Women In 2022*.
- Sattu, M. (2023). *Pengetahuan Dasar Gizi Ibu Hamil*. PT. Sonpedia Publishing Indonesia.
- Sihadi, D. S. (2011). Faktor risiko untuk mencegah stunted berdasarkan perubahan status panjang/tinggi badan anak usia 6-11 bulan ke usia 3-4 tahun. *Buletin penelitian kesehatan*.
- Suliani, S. (2023). *Hubungan Ibu Hamil Kek Dengan Kejadian Stunting Di Wilayah Kerja Puskesmas Gapura Tahun 2022* (Doctoral dissertation, Universitas Wiraraja Madura).
- Supriasa, I. D. N., Arianto, A. N., Alfaini, A. M. A., & Adelina, R. (2024). Edukasi Gizi Seimbang dan Pemberian Makanan Tambahan (PMT) memperbaiki Asupan Protein, Seng, Berat Badan, dan Tinggi Badan Anak Stunting di Kabupaten Malang. *Nutri-Sains: Jurnal Gizi, Pangan dan Aplikasinya*, 8(2), 81-94.

Rosita*, Lina Fitriani, Dyah Tahir, Yenni

Fakultas Kesehatan Universitas Mega Buana Palopo
Corresponding author: *Email: rositaitha1991@gmail.com

DOI: 10.56922/mchc.v4i10.2188

Chronic energy deficiency (CED) and maternal diet is related to stunting incidence

- Tussakinah, W., Masrul, M., & Burhan, I. R. (2018). Hubungan Pola Makan dan Tingkat Stres terhadap Kekambuhan Gastritis di Wilayah Kerja Puskesmas Tarok Kota Payakumbuh Tahun 2017. *Jurnal Kesehatan Andalas*, 7(2), 217-225.
- UNICEF. (2015). Child Stunting, Hidden Hunger and Human Capital In South Asia. Retrieved from: <https://www.unicef.org/rosa/media/1611/file/Child%20stunting,%20hidden%20hunger%20and%20human%20capital%20in%20South%20Asia.pdf>
- Wati, E. K., Murwani, R., Kartasurya, M. I., & Sulistiyani, S. (2024). Determinants of chronic energy deficiency (CED) incidence in pregnant women: A cross-sectional study in Banyumas, Indonesia. *Narra J*, 4(1), e742.
- World Health Organization. (2006). World Health Organization releases new Child Growth Standards. Retrieved from: <https://www.who.int/news/item/27-04-2006-world-health-organization-releases-new-child-growth-standards>
- World Health Organization. (2023). Joint child malnutrition estimates. Retrieved from: <https://www.who.int/data/gho/data/themes/topics/joint-child-malnutrition-estimates-unicef-who-wb>
- Yuliastanti, T., Ambarwati, W. N., Sulastri, S., & Rahmawati, A. (2023). History of Chronic Energy Deficiency (CED) of Pregnant Women and Stunting in Toddlers. *International Journal of Nursing Information*, 2(2), 7-12.

Rosita*, Lina Fitriani, Dyah Tahir, Yenni

Fakultas Kesehatan Universitas Mega Buana Palopo
Corresponding author: *Email: rositaitha1991@gmail.com

DOI: 10.56922/mchc.v4i10.2188