HTechJ Health and Technology Journal (HTechJ)

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
e-ISSN: 2985-959X

Relationship between Chronic Energy Deficiency (CED) with Pregnant Women and Abortion

Qurrotul Aeni[1], Mega Silvian Natalia[1], Tutik Eka Sari[1]

[1]*Midwifery Study Program, Stikes Hafshawaty Zainul Hasan, Probolinggo, Indonesia*

Correspondence should be addressed to:
Qurrotul Aeni
qurrotulaeni93@gmail.com

Abstract:
The development of health resources in Indonesia today is still marked by the vulnerability to the health status of mothers and children, especially the problem of the still high maternal and infant mortality rates. The causes of maternal death are divided into direct deaths and indirect deaths. One of the causes of maternal death is Chronic Energy Deficiency (CED). The role of nutritional adequacy is very vital, starting from the first trimester of pregnancy to the first thousand days of life. CED in pregnant women can affect the growth process of the fetus and can cause miscarriage. In this study, the researchers aimed to identify a relationship between CED and abortion. This study used a correlation design with a retrospective approach, with a total population of 24 pregnant women with a sample of 24 women who had experienced abortions. The results of the data analysis showed that 66.7% of abortion mothers had CED. the results of the Fisher's Exact Test statistical test obtained a significant degree of the p-value (0.000) < α (0.05) then H1 accepted and H0 rejected, which means that there is a relationship between chronic energy deficiency in pregnant women and the incidence of abortion at the Klenang Kidul Banyuanyar Probolinggo Health Center in 2021-2022. Health workers are expected to carry out prevention efforts by checking the nutritional status of pregnant women regularly and providing knowledge about balanced nutritional needs.

Article info:
Submitted:
15-01-2023
Revised:
18-04-2023
Accepted:
18-04-2023

Keywords:
pregnant mother; chronic energy deficiency; abortion

DOI: https://doi.org/10.53713/htechj.v1i2.23

INTRODUCTION

The development of health resources in Indonesia today is still marked by the vulnerability to the health status of mothers and children, especially the problem of the still high maternal and infant mortality rates. The causes of maternal death are divided into direct deaths and indirect deaths. One of the causes of maternal death is Chronic Energy Deficiency (CED). The role of nutritional adequacy is very vital, starting from the first trimester of pregnancy to the first thousand days of life. World Health Organization (WHO) states that the prevalence of pregnant women who experience Chronic Energy Deficiency (CED) tends to occur in developing countries more than in developed countries. One of the common nutritional problems for pregnant women in Indonesia is a lack of protein calories (Eni, 2021). Adequate nutrition during pregnancy is essential for the fetus's and pregnant women's health (Azizah et al., 2022). So, it doesn't affect when the fetus is born and minimizes the risk of stunting (Ardiana et al., 2019; Ardiana et al., 2021).

Pregnancy is a natural process for a woman, an exciting time, an extraordinary life event that every woman looks forward to, and the occurrence of great vigilance and change (laiskodat et al., 2021) (Hamidah et al., 2022). Pregnant women already know information about risky pregnancies

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
e-ISSN: 2985-959X

(Rifiana & Sari 2021). Every pregnant woman expects a healthy and comfortable pregnancy without any complications because every pregnant woman is at risk of death (Novelia et al., 2022). Pregnancy will cause hormonal changes in women due to increased estrogen, progesterone, and chorionic gonadotropin (HCG) (Novelia et al., 2023). Pregnant women risk experiencing an upper arm circumference deficiency (LILA) of less than 23.5 cm. Chronic energy deficiency is a condition of pregnant women who suffer from a long-lasting (chronic) food shortage with various health problems in pregnant women. Pregnant women who experience CED. This will harm her and the baby she is carrying. Pregnancy is a very decisive period of human quality in the future. Malnutrition or Chronic Energy Deficiency (CED) in mothers and babies has contributed to at least 3.5 million deaths annually in ASIA, accounting for 11% of global diseases worldwide. Based on data from the World Health Organization (WHO) in 2016, pregnant women who suffer from CED are as many as 629 mothers (73.2 percent) of all maternal deaths and have a risk of death 20 times greater than mothers with normal LILA (Syriac et al., 2021). The high maternal and infant mortality rates are partly due to the frequency of periodic pregnancy checks (Novelia et al., 2021).

Chronic Energy Deficiency (CED) is a condition in which the mother suffers from a chronic (chronic) lack of calories and protein (malnutrition), which results in health problems in women of childbearing age and pregnant women (pregnant women) (Novelia et al., 2021). CED risk is a condition where a woman tends to suffer from CED (Paramata and Sandalayuk, 2019). In Probolinggo Regency, according to BPS data for 2020, 1,600 pregnant women (16%) are at risk for CED. CED in pregnant women can affect the growth process of the fetus and can cause miscarriage.

The incidence of CED in Probolinggo Regency recorded in the Health Profile of Probolinggo Regency Pregnant women who suffer from CED are 1783 (17%), with the number of pregnant women in Probolinggo Regency as many as 22,513 people. From the results of the Klenang Kidul Health Center report for 2021-2022, there were 403 pregnant women in the Work Area of the KLenang Kidul Health Center, Banyuanyar Probolinggo sub-district and 69 people who experienced CED (0.69%), this figure ranks second after anemia. In addition, based on the report from the Klenang Kidul Health Center, the 24 pregnant women with abortions (0.24%), based on the data above, can see that this number is increasing daily.

A pregnant woman will give birth to a healthy baby if her health and nutrition are in good condition. The problem of nutrition in pregnancy faced by Indonesian people is CED in pregnant women. This is caused by the lack of nutritional knowledge of pregnant women. the inability of the family to provide nutritious food, and the lack of awareness among pregnant women to consume food with balanced nutrition. because maternal nutrition before and during pregnancy can affect the growth of the fetus in the womb (Prasmusinto 2012).

If the mother is at risk of CED during pregnancy, it will cause problems for both the mother and the fetus. CED in pregnant women can cause risks and complications for the mother, including anemia, bleeding, the mother's weight not increasing normally, and infection. Abortion is a threat or expulsion of the products of conception before the fetus can live outside the womb. As limitations are pregnancies less than 20 weeks or fetal weights less than 500 grams and spontaneous abortion, and the gestational age is not clear, only a few give only a few symptoms or signs so usually. The mother does not report or seek treatment. Meanwhile, from known events, 15-20% are spontaneous abortions. Complications for the mother due to abortion include heavy bleeding, infections that sometimes occur in sepsis, renal failure (damaged kidney function), shock bacteria, and perforation, which can result in the mother's death (Nugroho 2012).

The preventive measures that can be taken to prevent abortion are by taking a good approach to adolescents, WUS (Women of Childbearing Age), and pregnant women to educate

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
e-ISSN: 2985-959X

mothers about the importance of nutritional intake during pregnancy. Prevention can also be carried out through cross-sectoral efforts, collaborating with health workers to increase efforts to encourage pregnant women to diligently come to check their pregnancies at health services so that the development of fetal growth is monitored and the health office to aid in the form of providing additional food for pregnant women. Sourced from the presentation of the data obtained above, the researcher feels the need to know the relationship between chronic energy deficiency and abortion.

METHOD

This research design is analytic, using a cross-sectional study approach. In a cross-sectional study, variable measurements are only carried out by observing for a moment or within a certain period, and each study is only carried out once. The independent variable in this study was pregnant women with chronic energy deficiency at the Klenang Kidul Health Center. The dependent variable in this study was abortion mothers at the Klenang Kidul Health Center. The population in this study were all pregnant women at the Klenang Kidul Health Center in 2021-2022, as many as 24 patients, and 24 pregnant women at the Klenang Kidul Health Center in 2021-2022 who had an abortion. The sampling technique used in this study namely accidental sampling.

The samples taken were 24 pregnant women at the Klenang Kidul Health Center in 2021 – 2022 who had an abortion. Secondary data in this study were observation sheets and document data at the Klenang Kidul Banyuanyar Health Center. The data collection method that the author uses is a questionnaire (Questioner). The data processing technique includes editing, coding, scoring, tabulating, and entering. The data analysis technique used is using Fisher's Exact Test.

RESULT

Characteristics of Respondents

Table 1 shows the age of most respondents aged over 26-30 years, with a total of 12 people with a percentage of 50%. Most respondents with senior high school/equivalent education are 13 people, with a percentage of 20.8%. Most respondents are housewives, as many as 11 people, with a percentage of 45.8%. Most respondents are in the multigravida category of 15 people, with a percentage of 62.5%. At the same time, the other category is primigravida, with as many as nine people with a percentage of 37.5%. Most respondents were between 35 to 36 weeks of gestation, as many as eight respondents with a percentage of 33.3%. Most respondents who experienced CED during pregnancy were 16 people or a percentage of 66.7%. In comparison, those who did not have CED were eight people, with a percentage of 33.3%.

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
e-ISSN: 2985-959X

Table 1. Characteristics of Respondents (n=24)

Variables	Frequency	Percentage
Age		
≤ 20 years	6	25.0
21-25 years	2	8.3
26-30 years	12	50.0
30-34 years	1	4.2
≥ 35 years	3	12.5
Occupation		
Governmental Worker	1	4.2
Housewife	11	45.8
Farmer	3	12.5
Self-employed	9	37.5
Education		
No	3	12.5
Elementary	1	4.2
Junior high school	5	35.0
Senior high school	13	20.8
College	2	8.3
Parity		
Primigravida	9	37.5
Multigravida	15	62.5
Gestational Age		
35 - 36 weeks	8	33.3
36 - 37 weeks	4	16.7
37 - 38 weeks	7	29.2
38 - 39 weeks	3	12.5
39 - 40 weeks	2	8.3
CED Incident		
CED	16	66.7
No CED	8	33.3

Relationship Between Chronic Energy Deficiency in Pregnant Women and Abortion

Table 2. Statistical Result for Relationship Between Chronic Energy Deficiency in Pregnant Women and Abortion

CED Incident	Abortion Incident		p-value
	n	%	
CED	16	66.7	0.000
No CED	8	33.3	

Based on Table 2, abortion is most often found in pregnant women who experience CED, namely 16 respondents, with a percentage of 66.7%. Meanwhile, the incidence of abortion without experiencing CED was as many as eight respondents, with a percentage of 33.3%. Then from the results of statistical tests Fisher's Exact Test, a significant degree of the p-value (0.000) < α (0.05) is obtained, so H1 is accepted, which means that there is a relationship between chronic energy deficiency in pregnant women and abortion at the Klenang Kidul Health Center, Banyuanyar, Probolinggo in 2021-2022.

HTechJ Health and Technology Journal (HTechJ)
Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
e-ISSN: 2985-959X

DISCUSSION

Identify Chronic Energy Deficiency (CED) in Mother Abortion

Based on the cross-table statistical test results, it is known that out of 24 respondents, 16 people (66.7%) had abortions. From the data above, many mothers still experience CED during their pregnancy.CED is a state of malnutrition caused by a lack of food intake in the long term. Factors causing the occurrences are as follows, the occurrence of obstacles to the absorption of food, the possibility of these obstacles occurring due to diseases that occur in the mother's body, for example, due to infection with worms in the intestines or stomach of the mother so that the food she consumes experiences obstacles in absorbing food essences by the body (Dewi & martinis, 2021).

Barriers to the utility of nutrients are conditions where the mother experiences a decrease in appetite, which may be due to nausea, leading to a decrease in food intake. This is probably due to the unbalanced arrangement of amino acids in the mother's body due to an imbalance of hormones. An economy low economy which may be caused by low income, can affect the provision of food consumed. Because families with a low economy tend to buy the food they consider cheap without considering the nutritional value contained therein, this is likely to affect the amount of nutrition needed that cannot be fulfilled with the food they have consumed. Knowledge, knowledge is also a factor that can cause mothers to experience chronic energy shortages. Suppose a mother has low knowledge, for example, knowledge about nutritious food that she must consume before and during pregnancy. In that case, it will also affect the mother's decision-making and behavior in providing nutrition for her baby. Too many children in a low-income family with too many family members will impact fulfilling their nutrition because the food that should be consumed is shared with other family members (Heryani, 2019).

CED is a condition where a mother experiences a lack of nutritional intake that lasts for a long time. IfCED This happens to pregnant women, where pregnancy is a condition that can cause an increase in metabolism in the body and is not followed by efforts to increase energy needs. It will inhibit growth, and fetal development, increase the size of the uterine organs, and change body composition and metabolism. Before a woman gets pregnant, she must consider whether she is ready. This readiness includes physical readiness and spiritual readiness. Physical readiness is the body's readiness to accept changes because of pregnancy.

One of the preparations that must be made is the mother's nutritional status readiness. In pre-pregnancy, nutrition plays an important role in the growth of the readiness of the uterine organs, one of which is the growth of the endometrium. The endometrium is the place that later as the area of implantation of the products of the conception of the ovum and spermatozoa. If the endometrial growth is not good, it will also impact the further growth of the uterine organs. Over time, the development of the fetus continues. After carrying out the products of conception, the embryo enters the endometrium. Endometrium that is not ready for nidation will cause the embryo not to attach properly so that it will have an impact on the process of placentation.

The placenta will not develop properly if the endometrial condition is not good. The placenta, a uterine organ that functions as a medium for channeling food needs, the need for gas exchange, and the excretion of the fetus from the mother, will grow stunted and cause a small size and a decrease in its function. When the fetus does not get its needs due to decreased function of the placenta, it cannot develop and survive in the mother's womb, and eventually, the fetus dies. The dead fetus will cause tissue necrosis around the nidation site and cause bleeding in the decidua basalis, which will be a sign of abortion. A dead fetus is considered a foreign object that will make

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
e-ISSN: 2985-959X

the uterus contract to expel it from the uterus until it is pushed out and expulsion of the products of conception occurs, which is called abortion.

Analyzing Relationships Chronic Energy Deficiency (CED) With Abortion

Based on the results of data analysis using Then from the results of statistical testsFisher's Exact Test obtained a significant degree of the p-value (0.000) < α (0.05) then H1 accepted and H0 rejected, which means that there is a relationship between chronic energy deficiency in pregnant women and the incidence of abortion at the Klenang Kidul Banyuanyar Probolinggo Health Center in 2021-2022.

From the results above, it can be explained that the incidence of aborting mothers who experienced CED was 66.7%, and those who did not have CED was 33.3%, so it can be concluded that CED can cause abortion. This is by the theory that babies born to pregnant women who suffer from CED will experience miscarriage, stillbirth, neonatal death, birth defects, and low birth weight (Krisdayanti, 2018).

CED is a condition where a mother experiences a lack of nutrition that lasts for a long time. Suppose CED occurs in pregnant women, where pregnancy is a condition that can cause an increase in metabolism in the body and is not followed by efforts to increase energy requirements. In that case, it will inhibit growth, fetal development, increase in the size of uterine organs, and changes in body composition and metabolism. Before a woman gets pregnant, she must consider whether she is ready. This readiness includes physical readiness and spiritual readiness. Physical readiness is the body's readiness to accept the changes that will occur due to the impact of pregnancy. One of the preparations must be made is the mother's nutritional status readiness. In pre-pregnancy, nutrition plays an important role in the growth of the readiness of the uterine organs, one of which is the growth of the endometrium (Elfiyah, 2021).

The endometrium is where later it will become the area of implantation of the products of the conception of the ovum and spermatozoa. If the endometrial growth is not good, it will also impact the further growth of the uterine organs. Over time, the development of the fetus continues. After carrying out the products of conception, the embryo enters the endometrium. Endometrium that is not ready for nidation will cause the embryo not to attach properly so that it will have an impact on the process of placentation. With bad endometrial conditions, the placenta will not develop properly.

The placenta, a uterine organ that functions as a medium for channeling food needs, the need for gas exchange, and the excretion of the fetus from the mother, will grow stunted and cause a small size and a decrease in its function. When the fetus does not get its needs due to decreased function of the placenta, it cannot develop and survive in the mother's womb, and eventually, the fetus dies. The dead fetus will cause tissue necrosis around the nidation site and cause bleeding in the decidua basalis, which will be a sign of abortion. A dead fetus is considered a foreign object that will make the uterus contract to expel it from the uterus until it is pushed out and expulsion of the products of conception occurs, which is called abortion.

CONCLUSION

From the results of research on the relationship between Chronic Energy Deficiency (CED) and the incidence of abortion at the Klenang Kidul Banyuanyar Probolinggo Health Center in 2021-2022, it can be concluded that as many as 16 mothers experienced CED during pregnancy with the percentage of 66.7% while those who did not have CED with a percentage 33.3%. A mother who experiences CED is caused by a lack of nutritional intake that lasts for a long time. It can

inhibit growth, and fetal development, increase the size of the uterine organs, and change body composition and metabolism. As many as 24 mothers who had an abortion obtained data that had CED, and as many as 16 people (66,7%). This shows that CED can cause abortion. Abortion is not only influenced by CED, but there are still other factors, including psychological factors of the mother, drugs, environmental toxins, immunology, and other factors accompanying pregnancy. Ho is rejected, and Ha is accepted. There is a relationship between chronic energy deficiency with the incidence of abortion at the Klenang Kidul Banyuanyar Probolinggi Health Center in 2021-2022. This means that mothers who experience CED have a greater chance of having an abortion compared to mothers who do not experience CED.

ACKNOWLEDGEMENT

Thanks to Midwifery Study Program, Stikes Hafshawaty Zainul Hasan, Probolinggo.

CONFLICT OF INTEREST

There is no conflict of interest.

REFERENCES

Ardiana, A., Afandi, A. T., Masahid, A. D., & Rohmawati, N. (2019). Utilization Of Agricultural Products For The Management And Prevention Stunting Through Empowering Health Cadres In Jember District. *Darmabakti Cendekia: Journal of Community Service and Engagements, 2*(1), 9-14. https://doi.org/10.20473/dc.V2.I1.2020.9-14

Ardiana, A., Afandi, A. T., Rohmawati, N., & Masahida, A. D. (2021). Focus Group Discussion Dalam Peningkatan Pengetahuan Kader Untuk Melakukan Penyuluhan Kepada Masyarakat Tentang Pencegahan Stunting Sejak Dini. *Jurdimas (Jurnal Pengabdian Kepada Masyarakat) Royal, 4*(3), 225-230. https://doi.org/10.33330/jurdimas.v4i3.973

Ardiana, A., Afandi, A. T., Mahardita, N. G. P., & Prameswari, R. (2021). Implementation of peer group support towards knowledge level of mother with toddlers about stunting. *Pakistan J Med Heal Sci, 15*(1), 260–3.

Azizah, N., Kundaryanti, R., & Novelia, S. (2022). The Effect of Ginger Decoction on Emesis Gravidarum among Trimester I Pregnant Women. *Nursing and Health Sciences Journal (NHSJ)*, *2*(1), 5-9. https://doi.org/10.53713/nhs.v2i2.66

Dewi, R., & Martini, S. (2021). HUBUNGAN TINGKAT PENGETAHUAN REMAJA PUTRI TENTANG GIZI DENGAN KEJADIAN CHRONIC ENERGY DEFICIENCY (CED) PADA USIA REMAJA. *Coping: Community Of Publishing In Nursing, 9*(3), 273-279. doi:10.24843/coping.2021.v09.i03.p05

Elfiyah, S. (2021). The Relationship of Knowledge of Nutritional Intake and the Even of Chronic Energy Deficiency in Pregnant Mothers in Kalijaga Public Health CENTER Working Area Cirebon City. *Jurnal Kesehatan Mahardika*, 8(1). doi:10.54867/jkm.v8i1.20.

Eni, T. (2021). Karakteristik Ibu Hamil Dengan KEK Di PUSKESMAS. *PROFESSIONAL HEALTH JOURNAL*, *3*(1), 9-18. https://doi.org/10.54832/phj.v3i1.172

Hamidah, Carolin, B. T., & Lail, N. H. (2022). The Administration of Lemon and Paper Mint Aromatherapy towards Reduction of Emesis Gravidarum in Pregnant Women in Trimester I at Health Center Malangbong, Garut Regency in 2022. *Nursing and Health Sciences Journal (NHSJ)*, *2*(2), 183-189. https://doi.org/10.53713/nhs.v2i2.104

Heryani, R. (2019). *Buku Ajar Asuhan Kebidanan Neonatus Bayi, Balita dan Anak Pra Sekolah.* Trans

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
e-ISSN: 2985-959X

Info Media (TIM)

Krisdayanti. 2019. Asuhan Kebidanan Berkelanjutan Pada Ny.F.B Di Puskesmas Oebobo Kota Kupang Periode Tanggal 18 Februari S/D 18 Mei 2019. *Final Assignment*. Program Studi DIII Kebidanan Politeknik Kesehatan Kemenkes Kupang

laiskodat, J., Kundaryanti, R., & Novelia, S. (2021). The Effect of Moringa Oleifera on Hemoglobin Level in Pregnancy. *Nursing and Health Sciences Journal (NHSJ)*, *1*(2), 136-141. https://doi.org/10.53713/nhs.v1i2.65

Novelia, S., Rukmaini, & Annisa, E. (2021). Factors Related to Chronic Energy Deficiency among Pregnant Women. *Nursing and Health Sciences Journal (NHSJ)*, *1*(3), 237-241. https://doi.org/10.53713/nhs.v1i3.54

Novelia, S., Rukmaini, & Tohir, M. (2021). Analysis of Antenatal Care Visit at the Work Area of Kilasah Health Centre Serang City in 2019. *Nursing and Health Sciences Journal (NHSJ)*, *1*(3), 214-218. https://doi.org/10.53713/nhs.v1i3.52

Novelia, S., Rukmaini, & Veratu Caka, R. (2022). THE The Effect of Foot Massage and Warm Water Mixed with Aromatic Ginger Foot Bath on Edema in Pregnancy. *Nursing and Health Sciences Journal (NHSJ)*, *2*(4), 293-298. https://doi.org/10.53713/nhs.v2i4.144

Novelia, S., Aulya, Y., & Nidsy Revita, W. (2023). The Factors Related to Hypertension in Pregnancy. *Health and Technology Journal (HTechJ)*, *1*(1), 16–22. https://doi.org/10.53713/htechj.v1i1.3

Nugroho, T. (2012). *Obsgyn: Obstetri dan Ginekologi*. Nuha Medika

Paramata, Y., & Sandalayuk, M. (2019). Kurang Energi Kronis pada Wanita Usia Subur di Wilayah Kecamatan Limboto, Kabupaten Gorontalo. *GJPH, 2*(1). https://doi.org/10.32662/gjph.v2i1.390

Prasmusinto, Damar. (2012). *Pentingnya asupan nutrisi selama masa kehamilan.* Retrieved from http://www.jurnalmedika.com/component/content/article/430-kegiatan/875-pentingnya-asupan-nutrisi-selama-masa-kehamilan

Rifiana, AJ., & Sari, R. (2021). Analysis of Improvement of Pregnancy During Pandemic at Pondok Gede Health Centre Bekasi City in 2021. *Nursing and Health Sciences Journal (NHSJ)*, *1*(1), 69-72. https://doi.org/10.53713/nhs.v1i1.20

Suryani, L., Riski, M., Sari, R. G., & Listion, H. (2021). Faktor-Faktor yang Mempengaruhi Terjadinya Kekurangan Energi Kronik pada Ibu Hamil. *Jurnal Ilmiah Universitas Batanghari Jambi, 21*(1), 311-316. http://dx.doi.org/10.33087/jiubj.v21i1.1117