

FACTORS RELATED TO CHRONIC ENERGY DEFICIENCY (CED) IN PREGNANT WOMEN AT BARADATU HEALTH CENTER

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ABSTRAK : FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN KURANG ENERGI KRONIK (KEK) PADA IBU HAMIL

Latar Belakang: Kekurangan Energi Kronik (KEK) pada ibu hamil berisiko menimbulkan anemia, persalinan prematur, dan gangguan perkembangan janin. Prevalensi KEK di Puskesmas Baradatu, Way Kanan, tahun 2025 mencapai 14,08%.

Tujuan: Penelitian ini bertujuan mengidentifikasi faktor-faktor yang berhubungan dengan kejadian KEK pada ibu hamil di wilayah tersebut.

Metode: Penelitian kuantitatif dengan desain case-control dilakukan pada Agustus 2025, melibatkan 67 sampel ibu hamil dari 206 populasi, dipilih melalui purposive sampling (margin error 10%).

Hasil: Analisis chi-square menunjukkan adanya hubungan signifikan antara KEK dengan asupan gizi ($p=0,000$), jarak kehamilan ($p=0,002$), pendapatan ($p=0,020$), dan pengetahuan ($p=0,039$). Sebaliknya, tidak ditemukan hubungan signifikan dengan penyakit infeksi ($p=0,392$), paritas ($p=0,267$), pendidikan ($p=0,743$), dan aktivitas fisik ($p=0,587$).

Kesimpulan: Dapat disimpulkan bahwa asupan gizi, jarak kehamilan, pendapatan, dan pengetahuan merupakan faktor utama terkait KEK. Hasil ini dapat menjadi dasar intervensi kesehatan untuk mencegah KEK, meskipun generalisasi temuan terbatas pada populasi lain.

Saran: Upaya pencegahan disarankan difokuskan pada perbaikan gizi, edukasi kesehatan, dan konseling jarak kehamilan.

Kata Kunci : Asupan gizi, jarak kehamilan, kejadian KEK, pendapatan, pengetahuan.

ABSTRACT

Background of study: Chronic Energy Deficiency (CED) in pregnant women is at risk of causing anemia, premature delivery, and fetal developmental disorders. The prevalence of CEDs at the Baradatu Health Center, Way Kanan, in 2025 reach 14.08%.

Objective: This study aims to identify factors related to the incidence of CEDs in pregnant women in the region.

Methods: A quantitative study with a case-control design was conducted in August 2025, involving 67 samples of pregnant women from 206 populations, selected through purposive sampling (margin of error 10%).

The Result: Chi-square analysis showed a significant relationship between CEDs and nutritional intake ($p=0.000$), pregnancy distance ($p=0.002$), income ($p=0.020$), and knowledge ($p=0.039$). On the other hand, no significant associations were found with infectious diseases ($p=0.392$), parity ($p=0.267$), education ($p=0.743$), and physical activity ($p=0.587$).

Conclusion: It can be concluded that nutritional intake, pregnancy distance, income, and knowledge are the main factors related to CEDs. These results may be the basis for health interventions to prevent CEDs, although the generalization of the findings is limited to other populations.

Recommendation: Prevention efforts are recommended to be focused on improving nutrition, health education, and pregnancy distance counseling.

Keywords : Incidence of CED, income, knowledge, nutritional intake, pregnancy distance.

INTRODUCTION

Chronic Energy Deficiency (CED) is a nutritional problem that occurs when a pregnant

woman does not get enough food care for a long period of time. This condition is not just about a lack of food for a day or two, but a lack of food intake

that is sustainable over a long period of time, it can be months or even years. As a result, the health of pregnant women becomes disturbed and nutritional needs during pregnancy are not met properly. This condition can cause a series of other health problems for the mother and also the fetus. Therefore, it is very important for pregnant women to ensure that they get adequate food intake and nutrition during pregnancy (Harna et al., 2023)

According to World Health Organization (WHO) data in 2021, the maternal mortality rate around the world every day reaches 830 people caused by pregnancy or childbirth complications and maternal mortality mostly occurs in developing countries, including Indonesia. In 2021, in developing countries, AKI occurred around 90%, namely 230/100,000 live births compared to 16/100,000 live births in developed countries (WHO, 2021). Based on data from the World Health Organization (WHO), the prevalence of Chronic Energy Deficiency (CED) in pregnant women globally ranges from 35–75%. This prevalence is significantly higher in the third trimester of pregnancy compared to the first and second trimester. In addition, WHO also noted that about 40% of maternal deaths in developing countries are related to CED conditions. The incidence of CEDs in developing countries such as Bangladesh (47%), Myanmar (39%), India (35.5%), Indonesia (33%), Nepal (31%), Sri Lanka (27%) and Thailand (15.25%) are 15–47%, with a BMI of <18.5%, while the country with the highest incidence is Bangladesh at 47%, while Indonesia is the fourth largest after India with a prevalence of 35.5%, and the lowest is Thailand with a prevalence of 15.25% (WHO, 2020).

The Puskesmas Nutrition Care Process Guidelines state that the incidence of CED risk is characterized by low energy reserves over a long period of time as measured by Upper Arm Circumference (LiLA) during pregnancy. Pregnant women are said to be at risk of CED if the upper arm circumference (LiLA) is less than 23.5 cm. These measurement indicators are used in the 2023 SKI to measure the prevalence of CEDs in pregnant women. The prevalence of CED in pregnant women based on SKI 2023 is 16.9%. Efforts made to overcome CED pregnant women include measuring nutritional status and Supplementary Feeding (PMT). PMT aims to meet the nutritional needs of mothers during pregnancy. PMT does not mean replacing the intake of the main food, but increasing the intake of nutritional needs. The coverage of supplementary feeding for pregnant women in CED in Indonesia in 2023 is 76.3%. The province with the

highest coverage of supplementary feeding to pregnant women in the CED is Southwest Papua Province at 139.2%, while the province with the lowest achievement is West Java Province at 66.9% (Kemenkes RI, 2023).

The coverage of pregnant women in CEDs with additional food in Indonesia is 76.3%. Lampung Province is ranked 21st, which is 85.2%. This figure has exceeded the national figure, but it must remain monitored for LiLA examination and continue to provide additional feeding to reduce malnutrition when the baby is born (Kemenkes RI, 2023).

Factors related to the increasing incidence of chronic energy deficiency in pregnant women are nutrient intake, infectious diseases, education, family income, knowledge, physical activity. The impact if pregnant women experience CED are anemia in pregnant women, preeclampsia, low birth weight, stunting and childbirth complications (Novitasari et al., 2019)

According to research (Novitasari et al., 2019) Variables that have a meaningful relationship ($p < 0.05$) were obtained, including pregnancy distance ($p = 0.001$) with 95% CI of 1.947 – 24.354, economic status ($p=0.012$) with a value of 95% CI of 1.298 – 11.888, family support ($p = 0.000$) with a value of 95%CI of 2.881 – 38.961, nutritional intake ($p = 0.019$) with a value of 95% CI of 0.093 – 8.38. Meanwhile, the variables that did not have a meaningful relationship ($p>0.05$) were maternal age ($p=0.097$), maternal knowledge ($p=0.136$), gravid ($p=0.872$), husband's education ($p=0.097$), and accessibility of health services ($p=0.577$).

According to previous research (Sulistyaningsih et al., 2023) , the results of the study also showed a p-value of < 0.011 which means that there is a significant relationship between diet and the incidence of CEDs in Jambesari Village, Bondowoso. This means that a good diet can prevent or reduce the risk of chronic energy deficiency (CED) in pregnant women in the region. Overall, these findings show that the people in Jambesari Village, Bondowoso, especially pregnant women, have implemented a fairly good diet, so that they can maintain nutritional status and prevent nutritional problems, such as chronic energy deficiency (CED). However, efforts to continue to improve a better diet need to be made to ensure the health and well-being of pregnant women as well as optimal fetal development.

According to research (Hasyim et al., 2023), One of the important factors in pregnancy is the nutritional status of the mother. Nutritional intake in pregnant women greatly determines the health of the mother and the fetus she conceives. From the

results of the research analysis of the five journals that were used as the source of the Literature Review, the author can conclude that there are several factors related to chronic energy deficiency (CED) during pregnancy. Factors related to chronic energy deficiency (CED) in pregnancy include nutrient intake factors, age factors, pregnancy distance, economic, social status and family support, education and knowledge factors, and disease or infection factors. Based on the preliminary and background studies above, the author is interested in researching factors related to chronic energy deficiency (CED) in pregnant women at the Baradatu Health Center in 2024.

Based on data obtained at the Baradatu Health Center in the period of July 2025, there are 206 pregnant women, with 29 of them experiencing chronic energy deficiency (CED), or 14.08%. Therefore, the researcher wants to find out what factors are related to the incidence of chronic energy deficiency in pregnant women at the Baradatu Health Center.

This study differs from previous studies, which generally focused solely on the relationship between nutritional intake and the incidence of chronic energy deficiency (CED) in pregnant women. In this study, the analysis was conducted by incorporating several other factors such as pregnancy spacing, family income, and maternal knowledge. The results showed that nutritional intake, pregnancy spacing, income, and knowledge were significantly associated with the incidence of CED, while infectious diseases, parity, education, and physical activity were not significantly associated. These findings indicate that in addition to nutritional factors, socioeconomic and behavioral aspects also play a significant role in the incidence of CED, especially in the context of the Baradatu Community Health Center's work area, which has its own unique community characteristics.

RESEARCH METHODS

This research is a quantitative research with an analytical approach. The analytical approach is described as a research strategy oriented towards decomposing the relationships between variables to explain social or scientific phenomena. This approach emphasizes the use of quantitative data to identify patterns, causal relationships, or determinants in a phenomenon (Babbie, 2020)

The research design used is *case controll*, which is an epidemiological study design that studies the relationship between exposure (research factors) and disease by comparing case groups and control groups based on their exposure

status (Nurhaedah,dkk, 2017). This study will look for factors related to the occurrence of chronic energy deficiency in pregnant women at the Baradatu Health Center.

Independent variables in this study included nutritional intake, infectious diseases, maternal education, family income, maternal knowledge, physical activity, pregnancy distance, and parity. The dependent variable is the incidence of Chronic Energy Deficiency (CED). The research population based on data from the Baradatu Health Center in July 2025 is 206 pregnant women. The sample was taken using the solvin formula with a *margin of error of 10%*, so that respondents were obtained.

The research instrument used was a questionnaire compiled by the researcher herself. using inclusion and exclusion criteria. The inclusion criteria were all pregnant women under the responsibility of the Baradatu Community Health Center, pregnant women who were willing to be respondents and sign an informed consent, pregnant women who were able to read and understand the questionnaire well. The exclusion criteria were pregnant women who were unwilling to participate in the study, pregnant women who were unable to communicate well or were unable to understand the questionnaire or interview given. The questionnaire contains questions about nutritional intake, infectious diseases, education, family income, knowledge, physical activity, pregnancy distance, and parity. The questionnaire instrument has been tested for validity and reliability. Data processing is carried out through the stages of Processing, coding, editing, and cleaning data. Data analysis used univariate and bivariate analysis.

RESEARCH RESULTS

Respondent Characteristics

Table 1

Distribution of Respondent Characteristics at the Baradatu Health Center

Characteristics	Frequency (n)	Percentage (%)
Age		
< 20 years old	7	10,4
20 – 35 years old	58	86,6
> 35 years old	2	3,0
Gestational Age		
1-13 weeks	8	11,9
14-27 weeks	26	38.8
28-40 weeks	33	49,3

Univariate Analysis

Table 2
Univariate

Characteristics	Frequency (n)	Percentage (%)
CED Incident		
CED	29	43,3
Non-CED	38	56,7
Nutritional Intake		
Bad	19	28,4
Good	48	71,6
Infectious Diseases		
Infection	13	19,4
None	54	80,6
Paritas		
Nuliipara	28	41,8
Primipara	24	35,8
Multipara	15	22,4
Pregnancy Distance		
< 2 years	23	34,3
≥ 2 years / Primigravida	44	65,7
Strenuous Physical Activity		
Physical Activity	23	34,3
None	44	65,7
Education		
Elementary – Junior High School	11	16,4
Senior High School	39	58,2
College	17	25,4
Income		
<3,072,665	33	49,3
≥3.072.665	34	50,7
Knowledge		
Not Good	17	25,4
Good	50	74,6

Bivariate Analysis

Based on Table 3, the results of the *chi-square test* show that there is a significant relationship between nutritional intake and the incidence of CED in pregnant women with a *p-value* of 0.000.

Based on Table 4, the results of the *chi-square test* showed that there was no significant relationship between infectious diseases and the incidence of CED in pregnant women ($p = 0.392$).

Table 3
The Relationship of Nutritional Intake to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Variabel	CED Incident				<i>p-value</i>
	CED		No CEDs		
	F	%	F	%	
Nutritional Intake					
Bad	15	51,7	4	10,5	0,000
Good	14	48,3	34	89,5	

Table 4
The Relationship of Infectious Diseases to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Variabel	CED Incident				p-value
	CED		No CEDs		
	F	%	F	%	
Infectious Diseases					
There is an Infection	7	24,1	6	15,8	0,392
No Infection	22	75,9	32	84,2	

Table 5
Parity Relationship to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Variabel	CED Incident				p-value
	CED		No CEDs		
	F	%	F	%	
Paritas					0,267
Multipara	9	31,0	19	50,0	
Primipara	13	44,8	11	35,8	
Nuliparous	7	24.1	8	22.4	

Based on Table 5, the results of the *chi-square* test showed that there was no significant relationship between parity and the incidence of CED in pregnant women ($p = 0.267$).

Based on Table 6, the results of the *chi-square* test showed a significant relationship between pregnancy distance and the incidence of CED in pregnant women ($p = 0.002$).

Table 6
The Relationship of Pregnancy Distance to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Variabel	CED Incident				<i>p-value</i>
	CED		No CEDs		
	F	%	F	%	
Pregnancy Distance					
< 2 years	16	55,2	7	18,4	0,002
≥ 2 years / Primigravida	13	44,8	31	81,6	

Table 7
The Relationship of Education to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Variabel	CED Incident				p-value
	CED		No CEDs		
	F	%	F	%	
Education					
Low	5	17,2	6	15,8	0,743
Intermediate	18	62,1	21	55,3	
High	6	20,7	11	28,9	

Based on Table 7, the results of the *chi-square test* showed that there was no significant relationship between education and the incidence of CED in pregnant women ($p = 0.743$).

between income and the incidence of CED in pregnant women ($p = 0.020$). Mothers with low incomes experience CED more (65.5%) compared to mothers with high incomes (34.5%).

Based on Table 8, the results of the *chi-square* test showed a significant relationship

Table 8
The Relationship of Income to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Variabel	CED Incident				<i>p-value</i>
	CED		No CEDs		
	F	%	F	%	
Income					
Low	19	65,5	14	36,8	0,020
High	10	34,5	24	63,2	

Table 9
The Relationship of Knowledge to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Variabel	CED Incident				<i>p-value</i>
	CED		No CEDs		
	F	%	F	%	
Knowledge					
Not Good	11	37,9	6	15,8	0,039
Good	18	62,1	32	84,2	

Table 10
The Relationship of Physical Activity to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Variabel	CED Incident				<i>p-value</i>
	CED		No CEDs		
	F	%	F	%	
Physical Activity					
Doing Activities	11	37,9	12	31,6	0,587
Not Doing	18	62,1	26	68,4	

Based on Table 9, the results of the *chi-square* test showed a significant relationship between knowledge and the incidence of CED in pregnant women ($p = 0.039$). Mothers with poor knowledge experienced more CED (37.9%) compared to mothers with good knowledge (62.1%).

Based on Table 10, the results of the *chi-square test* showed that there was no significant relationship between physical activity and the incidence of CED in pregnant women ($p = 0.587$).

DISCUSSION

The Relationship of Nutritional Intake to the Incidence of CED in Pregnant Women at the Baradatu Health Center

The results showed that of 29 pregnant women in CEDs, as many as 15 (51.7%) pregnant women with poor nutritional intake experienced more CEDs, compared to pregnant women who had good nutritional intake as many as 14 people (48.3%). These findings suggest that imbalance or insufficient nutrient intake during pregnancy can

increase the risk of chronic energy deprivation of mothers.

This research is in line with several previous studies (Novitasari et al., 2019) with the title Factors Related to Chronic Energy Deficiency (CED) of Pregnant Women in the Working Area of the Rowosari Semarang Health Center, stated that nutrient intake has a meaningful relationship with the incidence of CEDs ($p=0.019$). (Anjelika et al., 2021) In his research entitled Factors Related to the Incidence of CED in Pregnant Women in the Working Area of the Kolono Health Center, South Konawe Regency, stated that the frequency of eating has a meaningful relationship with the incidence of CED with a *p-value* of 0.003. In the research conducted (Kadmaerubun et al., 2023) on the Relationship between Diet and Nutritional Intake and Chronic Energy Deficiency (CED) in Pregnant Women stated that there was a significant relationship with a *p-value* of 0.000.

The Relationship of Infectious Diseases to the Incidence of CED in Pregnant Women at the Baradatu Health Center

The results of the *chi-square test* showed that there was no significant relationship between infectious diseases and the incidence of CED in pregnant women at the Baradatu Health Center with a value of $p = 0.392$ ($p > 0.05$). This means that although some pregnant women who experience infection have a proportion of CED of 24.1%, it is not statistically strong enough to state that infection is a factor affecting the incidence of CED in this study population.

This research is not in line with the research conducted (Swastika Renjani, 2017) entitled Factors Related to the Incidence of Chronic Energy Deficiency (CED) in Pregnant Women in the Working Area of the Krueng Barona Jaya Health Center, Aceh Besar Regency, in his study, infectious diseases had a significant role with a *p-value* of 0.000 (OR=17.0). However, there is also research that is in line with this research, namely the research that was carried out (Lestari et al., 2023) with the title Factors Related to the Incidence of Chronic Energy Deficiency (CED) in Pregnant Women in the North Bogor Health Center Working Area in 2022, in his research infectious diseases have a *p-value* of 1,000 which indicates that there is no relationship with the CED.

Parity Relationship to the Incidence of CED in Pregnant Women at the Baradatu Health Center

The results of the *chi-square test* showed that there was no significant relationship between parity and the incidence of CED in pregnant women ($p = 0.267$). Although the proportion of mothers with primipara parity (44.8%) experienced more CED than multipara (31.0%) and nulipara (24.1%), the difference was not statistically significant. Thus, the number of children or parity status in this study is not a factor related to the incidence of CED.

The results of this study are not in line with the research conducted (Rahmi, 2016) with the title Factors Related to Chronic Energy Deficiency (CED) in Pregnant Women at the Belimbing Padang Health Center, with a *p-value* of 0.044 ($p < 0.05$) which means that there is a parity relationship with the CEDs in pregnant women at the Belimbing Padang Health Center.

The Relationship of Pregnancy Distance to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Based on the results of the *chi-square test*, this study showed a significant relationship between

the distance of pregnancy and the incidence of CED in pregnant women with a value of ($p = 0.002$). Mothers with a gestational distance of < 2 years experienced more CED (55.2%) compared to mothers with a gestational distance of ≥ 2 years (44.8%). This means that the shorter the distance between pregnancies, the higher the risk of the mother experiencing Chronic Energy Deficiency.

Other research conducted by (Handayani et al., 2021) with the title Chronic Energy Deficiency (CED) in Pregnant Women in the Working Area of the Tanjung Agung Health Center, Muara Enim Regency shows a significant relationship between pregnancy distance and CEDs with a *p-value* of 0.001. (Anjelika et al., 2021) about Factors Related to the Incidence of CED in Pregnant Women in the Working Area of the Kolono Health Center, South Konawe Regency also showed a relationship with a *p-value* of 0.009.

The Relationship of Education to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Based on the results of the bivariate analysis, it was shown that of the 29 pregnant women with CEDs, most had secondary education, namely 18 people (62.1%), while in the non-CED group, most also had secondary education, namely as many as 21 people (55.3%). The results of the *chi-square test* obtained a value of $p = 0.743$ (> 0.05), which means that there is no significant relationship between education and the incidence of CED in pregnant women at the Baradatu Health Center.

The results of this study are not in line with the theory that the higher a person's education, the easier it is to receive information and the higher the knowledge they have, so that it can influence behavior in choosing nutritional intake during pregnancy (Fakhriyah et al., 2021). On the other hand, low education can be a barrier to understanding health and nutrition information, increasing the risk of CEDs (Harna et al., 2023).

The results of this study are also not in line with the research that (Ga et al., 2025) about Factors Related to the Incidence of Chronic Energy Deficiency (CED) in Pregnant Women at the Oesapa Health Center, Kupang City, showed a significant relationship with a *p-value* of 0.028.

The Relationship of Income to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Based on the results of the Bivariate analysis, it was shown that there was a significant relationship between family income and the

incidence of CED in pregnant women at the Baradatu Health Center, with a value of $p = 0.020$ (<0.05). Pregnant women who have low income experience more CED (65.5%) compared to pregnant women who have high income (34.5%).

The results of this study are in line with the research (Yunita & Ariyati, 2021) which states that there is a significant relationship between the income level and the incidence of CED with a p -value of 0.000.

The Relationship of Knowledge to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Based on the results of the analysis, it was found that there was a significant relationship between knowledge and the incidence of CEDs in pregnant women at the Baradatu Health Center with a value of $p = 0.039$ (<0.05). Pregnant women with poor knowledge experienced more CED (62.1%) compared to mothers with good knowledge (37.9%).

The findings of this study are also consistent with the results of previous research by (Retni & Puluhalawa, 2018), which found that nutritional knowledge was significantly related to the incidence of CED in pregnant women with a p -value of 0.000.

The Relationship of Physical Activity to the Incidence of CED in Pregnant Women at the Baradatu Health Center

Based on the results of the *chi-square test*, it was shown that there was no significant relationship between physical activity and the incidence of CED in pregnant women ($p = 0.587$). Pregnant women who do strenuous physical activity (37.9%) and those who do not do strenuous physical activity (62.1%) have an almost balanced proportion of CEDs. This means that physical activity is not the dominant factor that affects the incidence of CED in the respondents of this study.

This research is not in accordance with the research conducted (Mufidah et al., 2016) which states that there is a significant relationship between CEDs and physical activity levels with a p -value of 0.000. However, there are other studies that support these results. (Rangkuti, 2023) reported that physical activity was not directly related to the incidence of CEDs with a value of $p = 1.00$. Thus, although excessive physical activity has the potential to increase the risk of CEDs, in this study this factor was not the main determinant.

CONCLUSION

This study showed that nutritional intake ($p=0.000$), pregnancy distance ($p=0.002$), income

($p=0.020$), and knowledge ($p=0.039$) were significantly related to the incidence of Chronic Energy Deficiency (CED) in pregnant women. In contrast, infectious diseases ($p=0.392$), parity ($p=0.267$), education level ($p=0.743$), and strenuous physical activity ($p=0.587$) showed no significant relationship. CEDs are multifactorial, influenced by nutritional, reproductive, economic, and cognitive factors. These findings support the need for holistic interventions to prevent CEDs, to improve maternal and fetal health and reduce the risk of pregnancy complications.

SUGGESTION

Prevention efforts are recommended to be focused on improving nutrition, health education, and pregnancy distance counseling.

1. For Respondents

It is recommended to maintain a balanced nutritional intake by consuming nutritious foods (protein, vegetables, fruit, and complex carbohydrates), and regularly taking iron supplements (IBF) as recommended. Pregnant women are also expected to plan the ideal spacing of their pregnancies to maintain the health of both mother and fetus.

2. For the Baradatu Community Health Center and Health Workers

It is recommended to improve education and counseling programs on pregnancy nutrition, the importance of spacing pregnancies, and provide more support to pregnant women with low incomes and limited knowledge. Furthermore, it is necessary to regularly monitor the nutritional status of pregnant women through measuring their blood glucose (LILA), body weight, and adherence to iron supplement consumption.

3. For Future Researchers

It is hoped that further research can be conducted with a larger sample size and include other variables, such as diet, culture, or social support, for more comprehensive results. Qualitative research is also expected to delve deeper into the barriers faced by pregnant women in meeting nutritional needs.

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