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The Combined Effect of Leaflet and Demonstration Media on the Knowledge of Pregnant Women with Chronic Energy Deficiency in Coastal and Mining Areas of Kolaka Regency

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ABSTRACT

Introduction: Chronic Energy Deficiency is a health problem for pregnant women which is a condition of imbalance in nutritional intake between energy and protein. The prevalence of Chronic Energy Deficiency in the coastal area of Wolo Health Center in 2023 was 11.7% and in the mining area of Iwoimendaa Health Center was 16.8%. The purpose of this study was to determine the Combined Effect of Leaflet and Demonstration Media on the Knowledge of Pregnant Women with Chronic Energy Deficiency in Coastal and Mining Areas of Kolaka Regency.

Method: This research is quantitative, with a pre-experimental design (one group pre-test post-test design). The population was all pregnant women with chronic energy deficiency in the coastal and mining areas of Kolaka Regency, totaling 67 people, and a sample of 40 people obtained using proportional random sampling techniques. Data were collected using questionnaires with leaflets and demonstration methods.

Result: The Mc.Neymar test on leaflet provision on knowledge obtained a p value of 0.002, attitude p value of 0.016 and eating patterns p value of 0.031. Then the combined provision of leaflets and demonstrations obtained a p value of 0.000, attitude p value of 0.31 and eating patterns p value of 0.002.

Conclusion: There is an influence of leaflet media on the knowledge, attitudes, and dietary patterns of pregnant women with Chronic Energy Deficiency, then there is an influence of combined media of leaflets and leaflet demonstrations on knowledge.

Introduction

Maternal health is a key indicator of overall community health. Good health practices during

pregnancy contribute to the health of both mother and baby, reducing maternal and infant mortality rates, and improving quality of life.^[1] Health promotion media plays a crucial role in

disseminating information, education, and motivation regarding proper health practices during pregnancy.^[2]

Health problems in pregnant women are problems that need to be addressed seriously.^[3] One of the nutritional problems of pregnant women is Chronic Energy Deficiency, which is a condition of imbalance in nutritional intake between energy and protein, so that the nutrients the body needs are not met.^[4] The Impact of Chronic Energy Deficiency on Pregnant Women Mothers can interfere with fetal growth and development, namely physical growth, brain and metabolism which cause non-communicable diseases in adulthood.^[5] Chronic Energy Deficiency also results in prolonged labor and postpartum hemorrhage, even maternal death, while risks to the baby can result in fetal death, premature birth, birth defects, low birth weight, and even infant death.^[6]

World Health Organization (WHO) In 2021, the prevalence of Chronic Energy Deficiency in pregnant women globally was reported to be 35-37%. The prevalence of Chronic Energy Deficiency in 2021 occurred in several countries such as Uganda (22.3%), India (19.5%), Botswana (19.5%), India (26.2%), Malaysia (8.5%), and Colombia (2.8%).^[7] The results of the 2018 National Basic Health Research recorded that the prevalence of Chronic Energy Deficiency pregnant women in Indonesia was 17.3% and based on the Indonesian Health Profile, the incidence of Chronic Energy Deficiency in pregnant women in 2019 was 17.9%.^[8] Then in 2020, data collected from 34 provinces showed that the percentage of pregnant women at risk of Chronic Energy Deficiency in 2020 was 9.7%, then in 2021 it was 10.2%, increasing in 2022 to 11.5%.^[9]

The prevalence of Chronic Energy Deficiency in pregnant women in Southeast Sulawesi Province based on 2013 Basic Health Research data was 24.2% and increased in 2018 Basic Health Research by 28.0% and based on data obtained from the Southeast Sulawesi Provincial Health Office, it shows that the incidence of Chronic Energy Deficiency in pregnant women in 2019 was 15.7%.^[10] Meanwhile, data from the Statistics Indonesia of Southeast Sulawesi shows that the prevalence of Chronic Energy Deficiency was 15.5% in 2019,

reaching 11.3% in 2020, 12.4% in 2021, and 12.8% in 2022. The percentage of pregnant women with Chronic Energy Deficiency is expected to decrease by 1.5% annually.^[11]

The Kolaka Regency Health Office is one of the working areas of Southeast Sulawesi Province where the prevalence of Chronic Energy Deficiency in pregnant women has increased. The Kolaka Regency Health Office's working area includes 14 Community Health Centers, with a prevalence of Chronic Energy Deficiency in pregnant women of 10.1% in 2021, increasing to 11.4% in 2022, and reaching 11.8% in 2023.^[12] Meanwhile, cases of Chronic Energy Deficiency in other regencies experienced a decline, such as in South Konawe Regency in 2021 by 10.6% and in 2022 by 9.6%. Furthermore, in Bombana Regency, the prevalence of Chronic Energy Deficiency in 2021 was 9.8% and in 2022 decreased to 9.6%.^[13]

Wolo Community Health Center is one of the Community Health Centers located in the mining area of Kolaka Regency which provides outpatient services with the number of pregnant women in 2024 as many as 424 people, and 49 people (11.54%) experienced Chronic Energy Deficiency, then in 2023 out of 231 pregnant women there were 27 people (11.7%) experienced Chronic Energy Deficiency, this shows an increase in cases of Chronic Energy Deficiency in the mining area of Kolaka Regency. In addition, cases of Chronic Energy Deficiency in the coastal area of Kolaka, precisely in the working area of Iwoimendaa Community Health Center also experienced an increase, namely in 2022, showing that out of 166 pregnant women, there were 19 people (11.4%) experiencing Chronic Energy Deficiency and increasing in 2023, namely out of 160 pregnant women, there were 27 people (16.8%) experiencing Chronic Energy Deficiency.^[12]

Coastal and mining areas often have unique characteristics and challenges, which affect access to and quality of health services.^[14] In coastal areas, pregnant women face challenges related to access to adequate health facilities and limited access to health information that meets their needs.^[15] Meanwhile, in mining areas, pregnant women are exposed to risky work environments and have limited access to healthcare due to remote locations. Adequate nutrition during pregnancy is crucial to meet the nutritional needs

of both mother and baby and prevent chronic diseases.^[16] For this reason, public health policies are needed that guarantee the availability of nutritious food for pregnant women, such as providing nutritious food for pregnant women, increasing the knowledge of pregnant women so that they can provide food that meets their nutritional needs.^[17]

The direct risk factor for pregnant women with chronic energy deficiency is inadequate nutritional intake. Addressing the risk of chronic energy deficiency in pregnant women is implemented through specific nutritional interventions across programs, particularly in the implementation of integrated antenatal care.^[18] One of the interventions carried out is providing nutrition education, using various media such as leaflets.^[19]

Leaflets are a relatively inexpensive and easy-to-distribute health promotion tool. By measuring the effectiveness of leaflets in this context, this study can provide information on how this print medium can be optimally used in public health programs. The results of this study can be used to refine and optimize other health promotion strategies.^[20]

A good diet during pregnancy is crucial for maternal health and fetal development. Providing accurate and effective information about pregnancy nutrition can contribute to improving maternal health and preventing complications that could affect the baby's health.^[21] One common method for disseminating health information is through leaflets. As a health promotion medium, leaflets provide concise information that is easily accessible to the public.^[22] This study aims to evaluate the effect of providing leaflets on the knowledge, attitudes, and eating patterns of pregnant women.^[23]

Attitudes toward healthy eating during pregnancy are also important factors influencing eating behavior. Leaflets not only provide information but can also foster positive attitudes toward healthy eating practices.^[24] This study will assess how the provision of leaflets can influence the attitudes of pregnant women towards the importance of good nutrition and changes in these attitudes in daily practice.

Based on this, it is necessary to conduct research on "The Combined Effect of Leaflet and Demonstration Media on the Knowledge of

Chronic Lack of Energy of Pregnant Women in the Coastal and Mining Areas of Kolaka Regency".

Method

The type of research used is quantitative research with a pre-experimental design. The design of this study is a pre-test post-test one group design. This study was conducted in the working area of the Wolo and Iwoimendaa Community Health Centers, Kolaka Regency. The population in this study were 67 pregnant women with Chronic Energy Deficiency in the working area of the Wolo and Iwoimendaa Community Health Centers, Kolaka Regency. The sample in this study was 40 pregnant women with Chronic Energy Deficiency in the working area of the Wolo and Iwoimendaa Community Health Centers, Kolaka Regency. The sampling technique used proportional stratified random sampling. Respondent identity data including age, maternal education, maternal occupation, maternal age, gestational age, number of children were obtained through interviews using questionnaires. Data on knowledge, attitudes, and dietary patterns of pregnant women were collected using valid and reliable questionnaires. Data were analyzed using the Mc. Neymar test to analyze the effect of health promotion media on behavior and the Mann Whitney U test to analyze the most dominant interventions on the behavior of pregnant women with Chronic Energy Deficiency.

Result

Table 1 showed that out of 20 samples, before the leaflet was given, there were 4 people who had insufficient knowledge and after the leaflet was given, they still had insufficient knowledge. Then there were 10 people whose knowledge was initially lacking and after the leaflet was given, their knowledge increased to good, then there were 6 people who before and after the leaflet was given, they still had good knowledge. The results of statistical analysis using the Mc. Neymar test obtained a p value of $0.002 < \alpha (0.05)$, so it was concluded that there was an influence of leaflet media on the knowledge of pregnant women with

Chronic Energy Deficiency in the coastal and mining areas of Kolaka Regency.

Table 2 showed that out of 20 samples, before the provision of combined media leaflets and demonstrations there were 2 people whose knowledge was lacking and after the provision of combined media leaflets and demonstrations still had insufficient knowledge. Then there were 14 people whose knowledge was initially lacking and after the provision of combined media leaflets and demonstrations their knowledge increased to good,

then there were 4 people who before and after the provision of combined media leaflets and demonstrations still had good knowledge. The results of statistical analysis using the Mc. Neymar test obtained a p value of $0.000 < \alpha (0.05)$, so it was concluded that there was an effect of providing combined media leaflets and demonstrations on the knowledge of pregnant women with Chronic Energy Deficiency in the coastal and mining areas of Kolaka Regency.

Table 1.
The influence of leaflet media on pregnant women's knowledge of Chronic Energy Deficiency in the coastal and mining areas of Kolaka Regency

Knowledge Before Giving Leaflets (Pre Test)	Knowledge After Giving Leaflets (Post Test)		Total	Statistical Analysis
	Not enough	Good		
Not enough	4	10	14	p-value = 0.002 $\alpha = 0.05$
Good	0	6	6	
Total	4	16	20	

Table 2.
The combined effect of leaflet media and demonstrations on the knowledge of pregnant women with chronic energy deficiency in coastal and mining areas of Kolaka Regency

Knowledge before giving leaflets and demonstrations (Pre Test)	After Knowledge distribution of leaflets and demonstration (Post Test)		Total	Statistical Analysis
	Not enough	Good		
Not enough	2	14	16	p-value = 0,000 $\alpha = 0.05$
Good	0	4	6	
Total	2	18	20	

Discussion

The influence of leaflet media on pregnant women's knowledge of Chronic Energy Deficiency

This study shows that from 20 samples, before being given leaflets, most of their knowledge was lacking (70.0%), this was because pregnant women did not understand about the food that pregnant women need more than when not pregnant, pregnant women also did not understand that fruits and vegetables are also important to consume during pregnancy, then after being given leaflets, the knowledge was lacking (20.0%) and the samples tended to have good knowledge (80.0%). This increase in knowledge was because

the media provided was a leaflet containing messages or information related to chronic energy deficiency and also nutrition in pregnant women.

This study also included 10 pregnant women whose initial knowledge was lacking and after being given the leaflet their knowledge improved to good, then there were 4 people whose knowledge was lacking, remained lacking after being given the leaflet and 6 people who before and after being given the leaflet still had good knowledge. The results of the Mc. Neymar test obtained a p value of 0.002, so it was concluded that there was an influence of leaflet media on the knowledge of pregnant women with Chronic Energy Deficiency in the coastal and mining areas of Kolaka Regency.

This research is in line with research Wahyuningsih which shows that the level of knowledge of pregnant women about balanced nutrition before being given Education with Leaflet Media was 93.3% including the sufficient and insufficient categories and after being given education it became 96.7% in the good category and there was an influence of Education with Leaflet Media on knowledge about balanced nutrition in pregnant women in Ngreden Village, Wonosari District, Klaten Regency ($0.000 \leq 0.05$).^[25] Likewise, other research obtained a p value of 0.000 ($p < 0.05$) there is an effect of Health Education with leaflet media on pregnant women's knowledge about anemia at the Saigon Community Health Center. There is a change in the level of knowledge of pregnant women after being given Health Education with leaflet media with a p value of $0.000 < 0.05$. So it can be concluded that there is an effect of providing leaflet media in Health Education on pregnant women's knowledge about anemia at the Saigon Community Health Center, Pontianak.^[26]

This research reinforces Surastiningsih's theory that leaflets are a relatively inexpensive and easily distributed health promotion tool. By measuring the effectiveness of leaflets in this context, this study can provide information on how this print medium can be optimally used in public health programs. The results of this study can be used to refine and optimize other health promotion strategies.^[27]

The combined effect of leaflet and demonstration media on the knowledge of pregnant women with Chronic Energy Deficiency

This study shows that from 20 samples, before being given leaflets and demonstrations, most of the knowledge was lacking (80.0%) and samples with good knowledge (20.0%), then after being given leaflets and demonstrations, the knowledge was lacking (10.0%) and samples with good knowledge (90.0%). This shows an increase in knowledge after being given a combination of leaflet and demonstration media. The demonstration technique used was counseling related to Chronic Energy Deficiency and nutrition of pregnant women which was given 1 time with a lecture method and using leaflet media given to pregnant women for 1 week. The duration of the

counseling was approximately 30 minutes and was accompanied by discussions and questions and answers about Chronic Energy Deficiency and nutrition of pregnant women.

The results of this study also showed that from 20 samples, before the provision of combined media leaflets and demonstrations there were 2 people whose knowledge was lacking and after the provision of combined media leaflets and demonstrations still had insufficient knowledge. Then there were 14 people whose knowledge was initially lacking and after the provision of combined media leaflets and demonstrations their knowledge increased to good, then there were 4 people who before and after the provision of combined media leaflets and demonstrations still had good knowledge. The results of the Mc. Neymar test obtained a p value of 0.000, so it was concluded that there was an effect of providing combined media leaflets and demonstrations on the knowledge of pregnant women with Chronic Energy Deficiency in the coastal and mining areas of Kolaka Regency.

This research is in line with research that found leaflet media was effective in increasing knowledge of pregnant women with a knowledge p-value score of 0.000, so it was concluded that leaflet media was effective in increasing knowledge of pregnant women in preventing stunting.^[28]

This research is supported by the theory that, based on health behavior models, such as the Health Belief Model and the Theory of Planned Behavior, leaflets can influence attitudes and behavioral intentions. By presenting information about specific health risks and the benefits of certain health behaviors, this promotional medium can change health perceptions and increase motivation to change behavior.^[29] Thus, they contribute to the formation of stronger intentions to carry out desired health behaviors.^[30]

Conclusion

There is an influence of leaflet media on the knowledge, attitudes and eating patterns of pregnant women with Chronic Energy Deficiency, then there is an influence of combined leaflet media and leaflet demonstrations on knowledge.

This study suggests that Community Health Centers should hold regular counseling sessions on the importance of nutrition during pregnancy, conduct regular nutritional checks for pregnant women, including monitoring body weight and clinical signs of Chronic Energy Deficiency, and also assist pregnant women in food aid programs that provide nutritious food ingredients.

Then for Pregnant Women with Chronic Energy Deficiency to follow regular education programs from the Community Health Center and can utilize social media through leading health websites, follow a regular pregnancy check-up schedule, consume nutritious and varied foods that include all food groups: carbohydrates, proteins, healthy fats, vitamins, and minerals and also add smaller but more frequent food portions, for example 5-6 meals a day and for future researchers, to conduct research using social media as a continuous e-counseling service for pregnant women with Chronic Energy Deficiency.

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