

Analysis of Factors Associated with the Behavior of Chronic Energy Deficiency Pregnant Women in Consuming Biscuit Supplementary Feeding in Pesisir Selatan District in 2023

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ABSTRACT

Biscuit Supplementary Feeding is one intervention strategy for pregnant women with chronic energy deficiency to improve their nutritional status. This study aims to analyze factors that are thought to have a relationship with the behavior of pregnant women with chronic energy deficiency in consuming the Biscuit Supplementary Feeding), namely the knowledge, attitudes of pregnant women with chronic energy deficiency, availability of health services, support from health workers and husband support. This type of research is a Mixed Methods Study (explanatory-sequential case study). Quantitative research was conducted on 108 pregnant women with chronic energy deficiency who received Biscuit Supplementary Feeding. The qualitative research was conducted on pregnant women with chronic energy deficiency who wanted to consume Biscuit Supplementary Feeding regularly and who did not want to ruin it (the main informant) through in-depth interviews. At the same time, the supporting informants (triangulation) were the head of the health center, nutrition staff, and village midwife through in-depth interviews, document review and Focus Group Discussion (FGD). The results showed that 59.3% of respondents had high knowledge, 50.9% had a positive attitude, 82.4% provided health services, 56.5% supported health workers, 61.1% had husband's support and 51.9% of pregnant women with

chronic energy deficiency had bad behavior in consuming Biscuit Supplementary Feeding. There was a significant relationship between knowledge, attitudes, support from health workers and the behavior of pregnant women with chronic energy deficiency in consuming Biscuit Supplementary Feeding. Suggestions for pregnant women with chronic energy deficiency to consume biscuits regularly every day as recommended, for the health center. It is hoped to improve the quality of education and home visits to the target and for the public health Office to carry out regular monitoring or monitoring related to program implementation.

Keywords: Behavior, pregnant women with chronic energy deficiency, biscuit supplementary feeding

INTRODUCTION

Chronic Energy Deficiency (CED) is an essential manifestation of malnutrition and the second major problem in developing countries. Based on WHO (*World Health Organization*) data, the incidence of Chronic Energy Deficiency in pregnant women ranges from 20 - 48%. According to the World Health Organisation (WHO, 2010), the threshold of a public health problem for pregnant women at risk of Chronic Energy Deficiency (CED) is < 5%, while based on Riskesdas data in 2018, the

percentage of pregnant women with Chronic Energy Deficiency in Indonesia was 17.3% (1).

The incidence of pregnant women with CED in West Sumatra in 2018, based on RISKESDAS data, was 16.67%. Pesisir Selatan Regency, with a prevalence of pregnant women with CED of 29.24% is the second highest in West Sumatra after Tanah Datar Regency at 29.30% (2). Pregnant women at risk of CED are managed through specific nutrition interventions across programs, especially in integrated antenatal care.

One of the interventions carried out is the provision of Biscuit Supplementary Feeding to pregnant women who are detected to be at risk of CED (3). Based on RISKESDAS data in 2018, the proportion of pregnant women who received Biscuit Supplementary Feeding in Indonesia was 89.7%, but only 2.1% received it for three months (90 packs) (1). In West Sumatra, the proportion of pregnant women who received Biscuit Supplementary Feeding was as follows: 0-30 packages (88.55%), 31-89 packages (9.42%), and 90 packages (2.03%). 36.72% of pregnant women did not finish the Biscuit Supplementary Feeding given (2). Based on the Pesisir Selatan District Health Office report, the distribution coverage of Biscuit Supplementary Feeding to pregnant women was 88.83%. Still, there were 2 Health Centers with a distribution coverage of Biscuit Supplementary Feeding to pregnant women of only 50%, namely Air Haji Health Center and Tarusan Health Center. These figures are distribution achievements, not reflecting consumption coverage at the target level. According to the information of the nutrition manager of the Health Office, the average distribution of Biscuit Supplementary Feeding for all Health Centers is primarily good, but what is still a problem in the field is how the acceptance and acceptance of pregnant women who receive Biscuit Supplementary Feeding in consuming the Biscuit Supplementary Feeding.

Based on the description above, the researcher is interested in researching

factors related to the behavior of pregnant women with severity in consuming Biscuit Supplementary Feeding and wants to understand the behavior of pregnant women with severity in finishing Biscuit Supplementary Feeding in Pesisir Selatan Regency in 2023. The purpose of this study is to analyze the factors that are thought to have a relationship with the behavior of pregnant women with severity in consuming the Biscuit Supplementary Feeding), namely factors of knowledge of pregnant women with severity, attitudes of pregnant women with severity, availability of health services, support of health workers and husband support in Pesisir Selatan Regency in 2023.

MATERIALS & METHODS

This study used a *mixed* methods study approach (mixed methods research). Explanatory – sequential case study is a type of combination research that at an early stage aims to prove the hypothesis of a relationship (correlation) or difference between variables and at a later stage aims to reveal in more depth about one or several cases related to the relationship or difference between these variables (4). This research was initiated with a quantitative approach using a *cross-sectional study* design conducted on women who received Biscuit Supplementary Feeding as many as 108 women who received Biscuit Supplementary Feeding. The next stage was qualitative research with a case study design to explore in-depth information about the behaviour of women with severely consuming Biscuit Supplementary Feeding conducted on women with severe who received Biscuit Supplementary Feeding, the head of the health center, health center nutrition officers, and village midwives.

STATISTICAL ANALYSIS

The data that has been collected is then analyzed with univariate analysis to see the frequency distribution, bivariate analysis to determine the relationship between the independent variable and the dependent variable and multivariate analysis to see the

most related factors which will then be explored more deeply through qualitative research (case study).

RESULT

1. Quantitative research results

The following table shows the frequency distribution of the characteristics of the research respondents:

Table 1 Characteristics of respondents

| No | Respondent Characteristics | Frequency (n) | Percentage (%) |
|----|-------------------------------|---------------|----------------|
| 1 | Age of Respondent | | |
| | < 20 years | 11 | 10,2% |
| | 20- 35 years | 94 | 87% |
| | > 35 years | 3 | 2,8% |
| 2 | Parity | | |
| | Primipara (1) | 47 | 43,5% |
| | Multipara (2- 4) | 32 | 29,6% |
| | Grandmultipara (≥ 5) | 29 | 26,9% |
| 3 | Pregnancy Age | | |
| | Trimester 1 | 15 | 13,9% |
| | Trimester 2 | 76 | 70,4% |
| | Trimester 3 | 17 | 15,7% |
| 4 | Education | | |
| | Primary school/equivalent | 9 | 8,3% |
| | Junior high school/equivalent | 23 | 21,3% |
| | Senior high school/equivalent | 52 | 48,1% |
| | Higher Education | 24 | 22,2% |
| 5 | Respondent Occupation | | |
| | Housewife (not working) | 78 | 72,2% |
| | Civil servant | 6 | 5,6% |
| | Self-employed | 9 | 8,3% |
| | Private Employee | 6 | 5,6% |
| | Casual daily labourers | 5 | 4,6% |
| | More | 4 | 3,7% |
| 6 | Husband's Occupation | | |
| | Civil servant | 7 | 6,5% |
| | Self-employed | 32 | 29,6% |
| | Private employee | 11 | 10,2% |
| | Casual Labourers | 14 | 13% |
| | More | 44 | 40,7% |
| 7 | Revenue | | |
| | Below regional minimum wage | 76 | 70,4% |
| | Above regional minimum wage | 31 | 28,7% |
| 8 | Nutritional Status | | |
| | Normal | 0 | 0% |
| | CED | 108 | 100% |

Based on the table above, provides information about the characteristics of respondents. Almost all respondents were between 20-35 years old (87%), and primipara was the most parity of pregnant women with Chronic Energy Deficiency who received biscuits (43.5%). Most respondents received Biscuit Supplementary Feeding during the second trimester of pregnancy (70.4%). Almost half (48.1%) of

the mothers had a high school education. Most respondents (72.2%) were unemployed/homemakers. Nearly half (40.7%) of the respondent's husband's occupation was other (laborer, fisherman, farmer). Most (70.4%) mothers' and husbands' income were below regional minimum wage.

The following shows the results of the univariate analysis frequency distribution study:

Table 2 Univariate Analysis

| Variables | Frequency (f) | Percentage (%) |
|-------------------------------------------------------------------------|---------------|----------------|
| The Behaviour of a pregnant Woman with Chronic Energy Deficiency | | |
| Not Good | 56 | 51,9% |
| Good | 52 | 48,1% |
| Knowledge | | |
| Less | 44 | 40,7% |
| Good | 64 | 59,3% |
| Attitude | | |

| | | |
|----------------------------------------|----|-------|
| Negative | 53 | 49,1% |
| Positive | 55 | 50,9% |
| Availability of Health Services | | |
| Not Available | 19 | 17,6% |
| Available | 89 | 82,4% |
| Health Worker Support | | |
| Not in favor | 47 | 43,5% |
| support | 61 | 56,5% |
| Husband Support | | |
| Not in favor | 42 | 38,9% |
| support | 66 | 61,1% |

Based on the table above, it was found that most (51.9%) respondents had poor behavior in consuming biscuits given by the officer. Most (59.3%) respondents had a good level of knowledge. Half of the respondents (50.9%) had a positive attitude. Almost all (82.4%) health services related to the Biscuit Supplementary Feeding. Were

available. Most (57.4%) health workers provided support to respondents. Most (60.2%) of the respondents' husbands supported the Biscuit Supplementary Feeding program.

The following table presents the bivariate analysis between the independent variable and the dependent variable:

Table 3 Bivariate Analysis

| Variables | The Behavior of Pregnant Women with Chronic Energy Deficiency | | | | | | OR Value | P value |
|----------------------------------------|---------------------------------------------------------------|-------|------|-------|--------|------|--------------------------|---------|
| | Not Good | | Good | | amount | | | |
| | f | % | f | % | f | % | | |
| Knowledge | | | | | | | | |
| Less | 32 | 72,7% | 12 | 27,3% | 44 | 100% | 4,444 (1,929- 10,238) | 0,001* |
| Good | 24 | 37,5% | 40 | 62,5% | 64 | 100% | | |
| Attitude | | | | | | | | |
| Negative | 34 | 64,2% | 19 | 35,8% | 53 | 100% | 2,684 (1,232- 5,847) | 0,020* |
| Positive | 22 | 40,0% | 33 | 60,0% | 55 | 100% | | |
| Availability of Health Services | | | | | | | | |
| Not available | 9 | 47,4% | 10 | 52,6% | 19 | 100% | 0,804 (0,298- 2,169) | 0,859 |
| Avalaible | 47 | 52,8% | 42 | 47,2% | 89 | 100% | | |
| Health Worker Support | | | | | | | | |
| Not in favor | 36 | 76,6% | 11 | 23,4% | 47 | 100% | 6,709 (2,836- 15,874) | 0,000* |
| Support | 20 | 32,8% | 41 | 67,2% | 61 | 100% | | |
| Husband Support | | | | | | | | |
| Not in favor | 26 | 61,9% | 16 | 38,1% | 42 | 100% | 1,950 (0,886- 4,293) | 0,141 |
| Support | 30 | 45,5% | 36 | 54,5% | 66 | 100% | | |

Based on the table above, it was found that the poor behaviour of pregnant women with Chronic Energy Deficiency in consuming Biscuit Supplementary Feeding was more prevalent among pregnant women with less knowledge (72.7%), women with negative attitudes (64.2%), availability of health services (52.8%), unsupportive health workers (76.6%) and husbands who did not provide support (61.9%). The Chi-Square statistical test shows that there is a significant relationship between the level of This can be seen from the p-value > 0.05

knowledge of pregnant women with CED, the attitude of Women with Chronic Energy Deficiency and the support of health workers with the behavior of Women with Chronic Energy Deficiency in consuming biscuits. This can be seen from the statistical test results, namely the p-value <0.05. In addition, there is no significant relationship between the availability of health services and the support of husbands with behavior of Women with Chronic Energy Deficiency in consuming biscuits.

Table 4 Multivariate Analysis

| Variable | OR Value | 95% C. I | P value |
|-----------------------|----------|---------------|---------|
| Knowledge | 8,366 | 2,892- 24,197 | 0,000 |
| Health Worker Support | 11,653 | 4,046- 33,562 | 0,000 |

Based on the results of the analysis above, it was found that the variable of health worker support was the most dominant variable associated with the behaviour of pregnant women with Chronic Energy Deficiency in consuming Biscuit Supplementary Feeding in the working area of Pesisir Selatan Regency because it had a p-value <0.05 and the highest OR value.

2. Qualitative research results

The researcher collected qualitative data from supporting informants (head of the health center, nutritionist and village midwife) using in-depth interviews, FGDs, and document reviews to understand the implementation of the Biscuit Supplementary Feeding program at the health center. We then conducted in-depth interviews with key informants (pregnant women with Chronic Energy Deficiency) by conducting case studies to explore their behaviors related to Biscuit Supplementary Feeding consumption and the dominant factors associated with the quantitative research.

a. Implementation of the Biscuit Supplementary Feeding program

In the in-depth interviews conducted with supporting informants regarding the availability of Biscuit Supplementary Feeding at the health center, it was found that three health centers had sufficient biscuits and one health center had excess biscuits. As seen in the conversation below:

"The availability of biscuits is sufficient... yes...distributed 100 percent...other than biscuits for this year there is no other than biscuits...for last year there was from central aid funds for recovery such as eggs, milk like that for village this year there is none." (Inf 13)

"The stock of biscuits from year to year is always lacking here...here is the largest working area...hmmm for the stock, the Ministry of Health itself drops... If it was not enough last year, not all pregnant women with CED received biscuits...those who did not get it were only given nutritional

counseling... There used to be some from the village, but not anymore" (Inf 14).

"Here we always have excess stock...even normal pregnant women are also given during pregnancy classes" (Inf 11, Inf 15)

Regarding distributing biscuits to targets, each Health Center has its own techniques. As seen in the discussion below:

"If pregnant women come to the health center, we give them at the health center, but if they don't, we visit them" (Inf 11).

"For new cases, it is referred by the village midwife here, so it is for three administrations for 90 days...so for the first time found, the village midwife refers it to the puskesmas...do a complete examination at the maternal room for antenatal care and then go to nutrition...but for the second and third administration, go to the village midwife to pick up the biscuit" (Inf 13).

"Here, the pregnant women come to the health center because if they go through the village midwife, they are afraid that the data will not match hmm...that is...if there is a case of severity, the village midwife refers it to the health center, then from the antenatal care, the severity a pregnant woman is referred to nutrition and then given biscuits and counseling. Hmmm take the second and third also come to the health center..hmm later, it will be monitored whether the gain is good or bad" (Inf 14).

"Later, the midwives will deliver the monthly report, then they will report the pregnant women with Chronic Energy Deficiency, then we will track them down while bringing the biscuits...if they run out, they can pick them up at the antenatal room during the maternity check-up because the midwives also leave the biscuits at the antenatal room...because I am here myself, if I go to the field and there are pregnant women with Chronic Energy Deficiency who pick up the biscuits, they can pick them up at the antenatal room" (Inf 15).

b. Case Study of Pregnant Women with Chronic Energy Deficiency

In the case studies, in-depth interviews were conducted with pregnant women with Chronic Energy Deficiency pregnancies regarding their reasons for consuming biscuits, how they finished Biscuit Supplementary Feeding and the support from health workers. There are several reasons or motivations for pregnant women who consume biscuits regularly, as illustrated below:

"The child before this died, so I want to consume whatever is given by health workers, hoping that the child who is now born is healthy" (Inf 2).

"I hope that firstly my weight will increase and then my arm circumference will also increase so when I give birth tomorrow" (Inf 3).

The way Pregnant women with Chronic Energy Deficiency consume biscuits is also different. There are no specific rules for consuming these biscuits. The technical guidelines for supplementary feeding for pregnant women state that first-trimester pregnant women consume two pieces of biscuits. Pregnant women in the 2nd and 3rd trimesters consume three pieces.

"I eat sometimes in the morning and sometimes in the afternoon. Anyway, it must be eaten in a day. I eat a packet" (Inf 1).

"Usually when I'm relaxing,for snacks" (Inf 2)

"I consume it after I eat rice; I finish a packet of three pieces of biscuits" (Inf 3).

Health worker support for Pregnant women with Chronic Energy Deficiency was the most related factor in biscuit consumption. Pregnant women given full support by health workers will feel cared for and eager to carry out the health programs delivered.

"The village midwife often comes here, when she delivered biscuits. I was very grateful to have been facilitated by the village midwife" (Inf 1).

"The health worker was there at the time to explain the health center. No one came to the village midwife" (Inf 2).

"There was a time when it came from the puskesmas; there seemed to be a doctor

too.it's nice to feel cared for, so I became excited" (Inf 3).

c. Case Study of Pregnant women with Chronic Energy Deficiency who Do Not Take Routine Dietary Supplements

In this case study, the researcher tried to explore the obstacles or barriers of pregnant women with Chronic Energy Deficiency in consuming biscuits. 2 of the four primary informants said they often forgot to consume biscuits. The other two said they did not like the taste of the biscuits. They said they disliked the flavor, nausea and the jam tasted bitter.

"Sometimes I often forget...if it tastes good" (Inf 5).

"I don't like the bitter strawberry flavor; I often throw it away" (Inf 6).

"Sometimes, because I'm busy with work, I often forget to consume it" (Inf 7).

"I tried to force them, but they still didn't like the biscuits" (Inf 8).

Regarding the obstacles for pregnant women with Chronic Energy Deficiency to obtain biscuit supplementary feeding, the following conversation with the informant was conducted:

"The obstacle is the long wait at the health Center" (Inf 6).

"It's hard to find time to go to the health center because I work until the afternoon" (Inf 7).

Based on interviews with informants related to health worker support provided to pregnant women:

"Counselling is given if the pregnant woman comes to" (Inf 17)

"The education is given to pregnant women with Chronic Energy Deficiency, such as increasing food consumption with diverse foods and then the biscuits must be spent in a month" (Inf 18).

"There are indeed high-risk patients that we assist, so we often visit" (nf 19).

"The education...the biscuits must be used up within a month...and the pregnant women themselves must consume them..."

sometimes the sambal stops by to remind pregnant women whether the biscuits are eaten or not (Inf 20).

DISCUSSION

Based on the study's results, it was found that the variables of knowledge, attitude and health worker support had a significant relationship with the behavior of pregnant women with Chronic Energy Deficiency in consuming biscuit supplementary feeding with a p-value <0.05. At the same time, the variables of availability of health services and husband's support did not have a relationship with the behavior of pregnant women with Chronic Energy Deficiency. Knowledge and attitude are the predisposing factors for pregnant women to take action (consuming biscuit supplementary feeding). The results of this study are in line with the research. The results of this study are in line with Yuliani's research in 2021 at the Bogorejo Health Centre; Most (55.6%) respondents had fairly good knowledge (10). However, this result is different from the research by Nurul Amalina in 2022 in the working area of the West Pasaman Health Office. Most (53%) respondents had a low level of knowledge (11).

Pregnant women with a high level of knowledge about the benefits of consuming biscuit supplementary feeding tend to behave well. Likewise, pregnant women with a positive attitude reflect that the pregnant women accept the health program provided. Health worker support can influence the behavior of chronic energy deficiency supplementary food consumption. Health worker support is one of the driving factors that play a role in influencing a person's behavior. Health worker support that can affect the behavior of pregnant women with chronic energy deficiency can be done in various ways, namely by educating pregnant women with chronic energy deficiency. Health workers need to provide education about the importance of proper nutrition in overcoming the problem of chronic energy deficiency. They can explain the impact of

malnutrition on the body and provide information on the consumption of additional food biscuits offered by the health center. In addition, the expected role of health workers is to conduct continuous monitoring and support through regular visits and monitoring. Health workers can identify progress in the target's acceptance of the products provided and improve individual consumption behavior. Help overcome complaints and provide support and motivation to maintain the consistency of pregnant women in consuming the biscuits provided. The quantitative research results show that almost all health services are available for this program. This is in line with the interviews in the qualitative research that for now the stock of biscuits at the puskesmas is sufficient. In contrast to last year, one health center had a supply shortage. The lack of association between the availability of health services and the behaviour of Pregnant women with Chronic Energy Deficiency could be because, although health services are available, pregnant women may not have adequate access to information about the importance of supplementary food consumption during pregnancy. If pregnant women do not understand the nutrients needed during pregnancy, they may not change their food consumption behavior even if health services are available. It is also because not all individuals have the same awareness and motivation to maintain good health during pregnancy. Some pregnant women may not feel the need or be motivated to change their diet, even if health services are available and provide appropriate information. This is supported by the statement of one of the Head of Health Center that what is still a problem in our society is the lack of awareness and behavior of pregnant women. They (pregnant women), especially young women exposed to technological sophistication, do not think about the intake of their babies. They only fulfill food intake based on their desires. Husband support also did not have a significant relationship with the behavior of Pregnant women with

Chronic Energy Deficiency in consuming biscuits. This may be due to other roles in support. There may be other factors in support that are more dominant or more influential on the eating behavior of pregnant women. For example, support from other family members, friends, or medical personnel may have a more significant impact in helping pregnant women adopt healthy eating behaviors. A pregnant woman's perception of the value of her husband's support is also influential. Suppose pregnant women feel that their husbands do not provide adequate support or do not take the issue of Chronic Energy Deficiency seriously. In that case, the behavior of pregnant women in consuming supplementary food may not change much. There are four types of husband support: emotional support, which involves expressions of empathy, concern, encouragement, or emotional assistance. Emotional support is by Rukiyah's (2014) theory that husbands are the most critical person for pregnant women in providing attention and love to their partners during pregnancy (9).

CONCLUSION

There is a significant relationship between pregnant women's knowledge, attitude, and support of health workers and the behavior of Pregnant women with Chronic Energy Deficiency in consuming biscuit supplementary feeding. Based on multivariate analysis, the most related variable was health worker support. Case studies conducted on women who consume biscuit supplementary feeding routinely found that they are motivated to finish biscuit supplemental feeding because they want their babies to be born healthy and to increase their weight and upper arm circumference. Meanwhile, pregnant women who did not want to consume the biscuits had obstacles related to poor acceptance of the biscuits (bad taste, nausea, bitter jam) and often forgot to drink every day.

Declaration by Authors

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