

Original Research

## The Knowledge and Behavior of Pregnant Women in Nutrition Fulfillment: The Correlational Study



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Article Info	Abstract
Article history: Received: 19 August 2023 Accepted: 29 October 2023	<i>Introduction:</i> Nutrition during pregnancy dramatically affects the health status and development of the mother and fetus. Lack of knowledge and behavior of pregnant women about nutrition will increase the risk of mothers experiencing Chronic Energy Deficiency (CED) and anemia. In infants, it will increase the risk of Low Birth Weight Babies and premature. The purpose of this study was to determine the correlation between knowledge and behavior of pregnant women in nutrition fulfillment in Aceh Besar.
Keywords: knowledge, behavior, nutrition, pregnancy	<i>Methods:</i> This type of research was quantitative with a cross-sectional study design with ten villages selected by cluster random sampling for 94 respondents. The data collection tool is a questionnaire tested for content and constructs. Data analysis using chi-square test. <i>Results:</i> The results showed that there was a significant association between knowledge and behavior of pregnant women in fulfilling nutrition in Aceh Besar (p: 0.000). <i>Conclusion:</i> Knowledge and behavior of pregnant women in fulfilling good nutrition during pregnancy are expected to prevent maternal and fetal complications also in preventing stunting..

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## INTRODUCTION

Nutrition in pregnancy is an essential factor affecting the health of mothers and their babies [1]. Nutritional intake is needed in the amount of more food portions, and the food consumed must also contain sufficient energy sources such as carbohydrates, fats, and proteins during pregnancy [2] to prevent nutritional deficiencies. It will also impact the fetus to be born [3].

The nutritional problems that most often occur in pregnant women in Indonesia are Chronic Energy Deficiency (CED) [4] and anemia [5]. Based on Riskesdas data (2018), 17.3% of pregnant women in Indonesia had malnutrition which is dominated by iron deficiency anemia and CED problems. The prevalence of anemia in pregnant women in Indonesia in 2018 was 48.9% and the majority of pregnant women experiencing CED in Indonesia in 2018 was 17.3% [6].

According to the Aceh Health Office (2018 ), the prevalence of anemia in Aceh in 2018 was 36.93%. The majority of CED in Aceh Province in 2018 was 11.3% [6]. Knowledge of nutrition is one of the factors that influence the nutritional status of pregnant women, and the mother's low level of knowledge will cause the mother not to understand the proper way to fulfill nutrition during pregnancy [7].

The public health center is one of the leading health services in the community, especially for pregnant women [8]. Based on preliminary data collection at Kuta Baro, one of the public health centers in Aceh Besar. The preliminary data was obtained from the pregnancy visit book for the January- May

2022 period. There were still pregnant women with frequent nutritional problems. There were 24 mothers with CED and 76 mothers with anemia.

The results of an interview with one of the health caregiver at the public health center Kuta Baro showed that so far, the health caregiver at the health center has also provided information about nutrition during pregnancy at every pregnancy check-up, but there are still pregnant women in the working area of the Kuta Baro Health Center with nutritional problems such as CED and Anemia.

Based on interviews with three pregnant women who had prenatal care visits, it was found that the mothers already knew the types of food they should consume, such as vegetables, fish, meat, and fruit. However, two of them said they had yet to implement this because their diet was still not regular, portions of foods that were not yet diverse, and they needed to understand in detail the amount or dosage that must be consumed daily. Based on these problems, it is necessary to conduct research related to the correlation between knowledge and behavior of pregnant women in fulfilling nutrition in Aceh Besar.

## METHODS

### *Study Design*

The research method used is descriptive correlation with a cross-sectional study design. This research was carried out during July until August 2023. The population in this study were all pregnant women in Aceh Besar, with one of the working areas selected being Puskesmas Kuta Baro because there are

several pregnant women with nutritional problems such as CED and anemia. The sample size is based on the Cohen table using effect size ( $d$ ) = 0.3. Power = 0.8, and  $\alpha$  = 0.05 two-tailed, then the size is obtained sample size of 85 people plus 10% to avoid dropping out so that the total sample is 93.5 rounded up to 94 respondents.

### ***Sample/Participants***

The 94 pregnant women were selected as respondents from 10 villages in the Kuta Baro sub-district using a cluster random sampling technique. The criteria for respondents were pregnant women who had previously had a pregnancy check-up at the Kuta Baro Community Health Center so that their names had been recorded on the Maternal and Child Health Polyclinic registration list. Then, the respondents were chosen according to the research criteria.

### ***Instruments***

We measured the knowledge using the nutrition knowledge questionnaire comprising 20 statements with true or false answer options. Behavior measurement using a maternal behavior questionnaire in fulfilling nutrition consists of 18 question items on a Likert scale. Both questionnaires were tested for validity with an  $r$ -table value  $> 0.05$ . and reliability value. The questionnaire has also been tested for content and face validity by maternity nursing experts at the Faculty of Nursing at Syiah Kuala University.

### ***Data Collection***

Data collection was conducted in December 2022. The questionnaire was filled out by pregnant women who were met directly at the integrated service center village, called "Posyandu," which is scheduled regularly in each village. Data collection was assisted by two enumerators who came from the same institution as the researcher from the nursing faculty of Syiah Kuala University and also facilitated by the community health center coordinator midwife. Respondents were given clear information about their participation in the research and then filled out informed consent and questionnaires voluntarily.

### ***Data Analysis***

Respondent's characteristics data were analyzed in the form of a frequency distribution, while assessing the relationship between knowledge and behavior variables using the chi-square test.

### ***Ethical Considerations***

This research has passed an ethical test by the Research Ethics Committee Team of the Faculty of Nursing, Syiah Kuala University, with number 111020141122.

## **RESULTS**

Data on the characteristics of the data respondents can be seen in the following table.

Based on Table 1, it can be concluded that the 94 pregnant women in this study

ranged in age from 24-38 years, and most of them were categorized as not risk age 87 people (92,5%). Most gestational ages were in the second trimester, with as many as 44 people (46.8%). Most of the respondent was multigravida, 72 people (76,5%). The majority of pregnant women gain weight during pregnancy. According to the Body Mass Index (BMI), the parameters or standards of weight gain for pregnant women are regularly mounted to 68 mothers (72,3%). There were 14 (14,8%) respondent anemia, and 12 people (12,7%) were CED.

Most pregnant women routinely perform ANC 89 (94,6%) respondents. Most educational backgrounds were middle-level (junior and senior high school), with as many as 70 (74,4%) respondents. Most of them are household mothers, 67 (71,2%). Most monthly family income is below Aceh Province, with as many as 66 people (70.2%). The source of health information overall, 94 respondents (100%) had heard information about nutrition during pregnancy from health workers and social media.

The results of this study for knowledge of pregnant women in fulfilling nutrition can be seen in the following table (table 2).

Based on Table 2, it can be concluded that the knowledge of pregnant women in fulfilling nutrition in the working area of the Kuta Baro District Health Center is mainly in the good category with 82 (87,2%) respondents. The other results of this study also show the behavior of pregnant women in fulfilling nutrition. The majority have positive behavior was 80 (85,1%).

The Chi-square analysis between knowledge and behavior of pregnant women in fulfilling nutrition. It can be seen in the following table (Table 3).

Based on Table 3, it was found that 78 (82.9%) of respondents had positive behavior in fulfilling nutrition with good knowledge. There were 10 (10.6%) respondents who had negative behavior with poor knowledge. The table above states that the test between knowledge and behavior of pregnant women in fulfilling nutrition produces a p-value statistic of 0.000. Because the P-value  $< \alpha$  (0.05), it can be stated that there is a significant association between knowledge and behavior of pregnant women in fulfilling nutrition at the Kuta Baro Aceh Besar Health Center.

**Table 1**

Frequency Distribution of Respondent Sociodemographic Characteristics of Study Participants (n=94)

Category	Frequency	Percent (%)
Age		
Risk Age	7	7,4
Non-Risk Age	87	92,5
Gestational Age		
Trimester I	28	29,7
Trimester II	44	46,8
Trimester III	22	23,4
Parity		
Primigravida	22	23,4
Multigravida	72	76,5
BMI Trimester I		
Thin	26	27,6
Normal	68	72,3
Nutritional problem		
Anemia	14	14,8
Non-Anemia	80	85,1
CED	12	12,7
Non-CED	84	87,2
ANC visit		
Routine	89	94,6
Non-routine	5	5,3
Educational Background		
Basic Level	3	3,19
Middle Level	70	74,4
High Level	18	19,1
Working classification		
Working	27	28,7
Housewives	67	71,2
Monthly salary		
> 3.165.031	28	29,7
< 3.165.031	66	70,2

**Table 2**

Knowledge and Behavior of Pregnant Women in Fulfillment of Nutrition (n=94).

Variables	Frequency	Percentage (%)
Knowledge		
Good	82	87,2
Poor	12	12,7
Behavior		
Positive	80	85,1
Negative	14	14,8

**Table 3**

The Correlation between Knowledge and Behavior of Pregnant Women in Fulfillment of Nutrition (n=94)

Knowledge	Behavior				Total		$\alpha$	p-value
	Positive		Negative		F	%		
	F	%	F	%				
Good	78	82,9	4	4,2	82	87,2	0,05	0,000
Poor	2	2,1	10	10,6	12	12,7		
	80	85%	14	14,8	94	100		

## DISCUSSION

This research showed a significant association between knowledge and behavior of pregnant women in fulfilling nutrition during pregnancy. The majority of mothers' knowledge was in a good category, with a total of 82 (87,2%) respondents and the behavior of 80 (85,1%). The results of this study are aligned with the results of research conducted in Aceh Besar (2020). There was a significant correlation between knowledge and maternal behavior during pregnancy, especially during the Covid-19 pandemic, showing that the majority of knowledge of pregnant women was also in the good category at 50.7%, and the mother's behavior was as much as 59.4% in the positive category [9].

Various aspects can affect the knowledge and behavior of mothers in fulfilling nutrition during pregnancy, such as level of education and sources of information [7]. Education could be a factor that causes mothers to have good knowledge in this study because education is needed in obtaining information that can support individual healthy life [10]

Based on Table 1, it was found that in this study, the majority of respondents had a middle education background, as many as 70

respondents (74.4%), and most of the respondents had good knowledge. This research is comparable to a study by Gezimu, Bekel, and Habte (2022), where most pregnant women are in middle or secondary education (55.0%). Pregnant women with secondary education are two times better at receiving information, so they have good knowledge compared to pregnant women with lower education.

There are so many sources of information for pregnant mothers. The first sources of information are the mass media and information from health workers when mothers are carrying out ANC. However, health workers are the best primary source of information for pregnant women [11]. Information will affect the mother's knowledge [9]. Someone who often gets the information and a better understanding will be. An ANC provides advice, education, reassurance, and support to address and treat the minor problems of pregnancy and adequate screening during pregnancy [12]. This is consistent with the results of this study, indicating that all pregnant women have received information related to nutrition from health workers.

On the other hand, parity plays an important role. It was related to the knowledge and maternal behavior in fulfilling nutrition during pregnancy [13]. In line with a study in Southern Ethiopia in 2022, most multigravida pregnant women (77.5%) know five times better than primigravida mothers [14]. This is because multigravida mothers could already have previous experience. The Individual's experience will significantly affect knowledge. The more one's experience of something, the more one's knowledge of it will increase [15]. This study indicated that the majority of mothers are multigravida (75.9%).

Good knowledge and behavior of pregnant women during pregnancy could guarantee health status, especially in fulfilling nutrition so mothers can be free from nutritional problems such as CED and anemia [2]. The nutritional status of the mother can be related to the routine ANC visits, the more routine the mother makes prenatal visits, the lower the risk of experiencing nutritional disorders [16]. In this study, most pregnant women made regular pregnancy visits.

While ANC during pregnancy, in addition to receiving health education about nutrition, the mother is also subject to routine check-ups to screen for nutritional disorders by measuring the mother's upper arm circumference and weight regularly [17]. Early detection of CED can be found with a mother's upper arm circumference of less than 35.5 cm, and the mother's weight is not ideal. This is known from the weight that does not match the Body Mass Index during pregnancy [18].

In this study, most pregnant women had an average BMI of 68 (72.3%). A multi-level analysis from a mini Ethiopian demographic health survey showed that most pregnant women are also in the normal BMI category. Pregnant women with normal BMI are three times better at knowing nutrition during pregnancy than pregnant women with thin and overweight BMI. Perhaps, this is because mothers who have normal BMI already have experience in monitoring weight during pregnancy [19].

Based on this study, it is hoped that mothers will have good behavior, especially routinely in carrying out pregnancy visits, so they are free from nutritional problems. Pregnant women with CED will be at risk of miscarriage and postpartum hemorrhage. Labor will be complex and lengthy. CED will also have an impact on inhibiting fetal growth, the risk of LBW, the risk of babies born with congenital abnormalities, and the risk of babies born with stunting [2]. The literature review found that many respondents experienced CED due to low family income which impacted a lack of ability to buy nutritious food [20].

Respondents in this study also found pregnant women with family incomes that were still below the Aceh Provincial Minimum Wage, so that this matter could be of particular concern. Monthly payments with the type of work interrelated each other, and it is also related to nutritional disorders. It is related to the family's ability to provide food with balanced nutrition to get adequate nutrition intake for the mother and the baby optimally [21]. Nutritional disorders in pregnancy such as hyperemesis gravidarum,

CED, obesity, and anemia [22]. Pregnant women who work are at risk of experiencing nutrition disorders due to the heavy workload and long hours of work, and pregnant women have little time to prepare healthy food for consumption, so that they can be at risk of malnutrition during pregnancy [23]. The nutritional problem in pregnancy, like anemia, also has an impact on the fetus that is conceived, which causes the growth and development of the fetus to be hampered so that it is not suitable for gestational age, premature birth, risk of LBW and death in the fetus [10].

Knowledge and behavior of pregnant women regarding the fulfillment of nutrition should be appropriate. If the mother has good knowledge, it is hoped that the mother will also have positive behavior [24]. It is similar to the data of this study, that most respondents have good knowledge and positive behavior. But some of them already know that there are some unhealthy foods, such as junk food or fast food or containing tea and coffee, that should be avoided, but there are still some respondents who still consume them for their own reasons. This behavior is not recommended because drinking tea with iron tablets can interfere with the reabsorption of iron, thereby putting the mother at risk of experiencing iron deficiency and causing anemia [25].

Nonetheless, pregnant women have positive behavior, such as consuming readily available and affordable foods such as tempeh, tofu, and vegetables and regularly consuming Fe tablets [26]. This was obtained based on the answers to the respondent's questionnaire of this study so that pregnant

women can still meet their iron needs and prove that there is a desire for the mother to continue to fulfill her nutrition. Even though most pregnant women in the study did not work or as housewives (71,2%). But most of all the respondents still had good knowledge and behavior. This is because homemakers can learn about nutrition during pregnancy from health workers and online media, and can prepare food themselves to fulfill adequate nutrition.

In addition, various sources of nutrition must be met by mothers during pregnancy [26]. Carbohydrates are an important source of energy for pregnant women. Carbohydrates can be rice, potatoes, and bread. Protein helps the growth and development of brain cells in the fetus. Protein can be in the form of fish, eggs, and tofu. Vitamins help maintain health and support the baby's growth in the womb. Vitamins can be Vitamin A, such as carrots, and vitamin C, such as oranges—folic acid, or Fe tablets to meet the nutritional needs of pregnant women [27]. During nine months of pregnancy, it is highly recommended that mothers be able to consume all types of various foods to meet the daily nutritional needs of the mother and fetus so that mothers can have a healthy pregnancy and smooth delivery. Then, they can provide exclusive breastfeeding for six months and continue breastfeeding for up to two years [28].

#### **IMPLICATION FOR NURSING**

The results of this research become primary data for further study, especially in the nursing field, and become the basis for nurses in providing nursing interventions based on

research, especially related to nutrition for pregnant women. So that the mother's nutritional intake during pregnancy can be fulfilled adequately, the mother and her child are prevented from complications, and the child born is free from stunting.

## CONCLUSION

Based on the results of this study, it can be concluded that there is a significant correlation between knowledge and the behavior of pregnant women in fulfilling nutrition at the Kuta Baro Aceh Besar Health Centre (p-value = 0.000).

It is recommended that all of the health centers in Aceh Besar, especially the Kuta Baro Health Center, be able to develop interventions such as forming classes for pregnant women so that they can increase the knowledge and behavior of pregnant women regarding nutrition and also motivate pregnant women to continue to meet their nutritional needs.

## STUDY LIMITATION

The limitation of this research is that the data collection process was carried out for one month, so it was done in various ways. This is because data collection follows the "posyandu" schedule in the ten selected villages, which is scheduled for two weeks at the beginning of December 2022.

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## CONFLICT OF INTEREST

There was no conflict of interest in this research.

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