



# The Relationship between Self-Efficacy in Choosing Nutritious Foods and the Daily Consumption Practices of Pregnant Women

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<p><b>Track Record Article</b></p> <p>Revised: 16 March 2026 Accepted: 17 May 2026 Published: 19 June 2026</p> <p><b>How to cite :</b> Arsyati, A. M., Nhestricia, N., &amp; Agustina. (2026). The Relationship between Self-Efficacy in Choosing Nutritious Foods and the Daily Consumption Practices of Pregnant Women. <i>Contagion : Scientific Periodical of Public Health and Coastal Health</i>, 8(2), 153–164.</p>	<p style="text-align: center;"><b>Abstract</b></p> <p><i>Adequate consumption of nutritious food by pregnant women is a crucial factor in supporting maternal health and fetal growth and development. However, various factors such as knowledge, self-efficacy, and social support can influence the daily consumption behavior of pregnant women. This issue remains a public health challenge in Indonesia, mainly due to various behavioral, social, and environmental factors. This study aims to analyze the factors that affect the daily consumption of pregnant women in Bogor City Indonesia. An observational analytical study with a cross-sectional design was conducted on 231 pregnant women. The relationship between variables was analyzed using the Chi-Square statistical test with a p-value &lt;0.05 as the significance threshold. Mothers' self-efficacy in choosing nutritious foods is significantly related to daily consumption adequacy (<math>p = 0.000</math>; <math>OR = 0.319</math>). Nutritional knowledge also shows a significant relationship (<math>p = 0.016</math>; <math>OR = 2.043</math>). Family social support has a significant effect on the daily consumption of pregnant women (<math>p = 0.008</math>; <math>OR = 2.780</math>). Meanwhile, food access (<math>p = 0.978</math>; <math>OR = 0.976</math>), antenatal nutrition counseling (<math>p = 0.148</math>; <math>OR = 0.648</math>), access to pregnancy nutrition information media (<math>p = 0.116</math>; <math>OR = 2.872</math>), and cultural/food taboo practices (<math>p = 0.246</math>; <math>OR = 0.644</math>) do not show a significant relationship. Self-efficacy, nutrition knowledge, and family social support are factors that significantly influence the adequacy of daily consumption among pregnant women. Efforts to improve nutrition education and strengthen family support should be the focus of interventions aimed at encouraging healthy eating behaviors among pregnant women</i></p> <p><b>Keywords:</b> <i>Food Consumption, Nutritional Knowledge, Pregnant Women, Self-Efficacy</i></p>
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## INTRODUCTION

Pregnancy in a woman's life is a critical period, during which nutritional needs increase significantly to support fetal growth and maternal health (Christy & Simanjuntak, 2023; Kabahenda & Stoecker, 2024). Globally, micronutrient and energy deficiencies during pregnancy are associated with risks of fetal growth disorders, low birth weight, and other obstetric complications (Olloqui-Mundet et al., 2024). A study conducted in various countries shows that the consumption patterns of pregnant women often do not meet nutritional recommendations during pregnancy (Fernández-Gómez et al., 2020).

At the national level, in Indonesia, nutritional fulfillment in pregnant women remains a challenge and a special concern. For example, a study at the Kemayoran Community Health Center found that the eating habits of pregnant women are closely related to the nutritional status of mothers and the potential risk of stunting in children in the future (Mulyati et al.,

2025). In addition, a study conducted at the Kuta Padang Layung health center reported that of the pregnant women surveyed, most of them had optimal energy and protein intake, but there were significant variations in the consumption of macronutrients such as fat and carbohydrates, as well as daily meal frequency (Nabillah et al., 2024).

This issue is important to examine because the daily consumption of pregnant women not only affects the health of the mother and the growth of the fetus, but also has social and cultural implications. Socially, malnutrition can increase the burden on public health and reduce the quality of life. Culturally, factors such as food taboos, maternal education, and nutritional awareness also shape eating patterns during pregnancy. For example, the literature notes that maternal nutritional awareness is greatly influenced by factors such as education, culture, and access to information during pregnancy (Fang et al., 2024).

Although a number of studies have explored the determinants of nutritional intake among pregnant women (e.g., socioeconomic status, education, and dietary recommendations), there is a significant gap in the literature: few quantitative studies have combined analyses of social, cultural, and behavioral factors to explain variations in daily intake among pregnant women (Hanani et al., 2016). In addition, nutritional interventions during pregnancy, although showing positive results (e.g., increased micronutrient intake and reduced pregnancy complications) (Yu et al., 2024), have not been studied in depth in relation to structural factors such as income, local culture, and access to health services, as well as cultural factors such as food restrictions passed down within families (Riyanti et al., 2023). Therefore, this study is a preliminary (first) survey that comprehensively analyzes the factors influencing the daily consumption of pregnant women by assessing the role of self-efficacy, nutritional knowledge, family social support, food access, antenatal nutritional counseling, access to media information, and the influence of culture or food taboos, so that it is expected to provide stronger empirical evidence in the development of behavior-based nutritional interventions to improve adequate consumption for pregnant women.

The theoretical framework of this study draws on the Social Cognitive Theory and the Health Belief Model, which suggest that pregnant women's food consumption behavior is influenced by the interaction of cognitive, psychological, and environmental factors. In Social Cognitive Theory, eating behavior is influenced by self-efficacy, knowledge, and social support, which shape an individual's ability to choose nutritious foods. Meanwhile, the Health Belief Model emphasizes the roles of perceived benefits, barriers, and motivation in meeting nutritional needs during pregnancy. Based on these two theories, this study uses the analytical model of predisposing, enabling, and need. Predisposing factors include nutritional

knowledge and self-efficacy; enabling factors include family support, food access, antenatal nutrition counseling, and access to information; while need factors relate to health needs during pregnancy that encourage adequate daily intake in pregnant women (Arefi et al., 2022; Beressa et al., 2024; Nastiti et al., 2025).

Based on this background, this study aims to analyze the factors that influence the daily consumption of pregnant women in Indonesia, focusing on the variables of self-efficacy, nutritional knowledge, food access, family social support, antenatal nutritional counseling, access to nutritional information media, and cultural customs/restrictions. Quantitatively, this study will examine the relationship between these factors and the daily consumption of pregnant women. The theoretical contribution of this study is to enrich the framework of determinants of maternal nutrition by incorporating cultural factors and self-efficacy into a quantitative model, while the practical contribution includes policy recommendations and more targeted nutritional intervention programs for pregnant women in the community

## **METHODS**

This study used a cross-sectional design and was conducted in the working area of maternal and child health facilities in Bogor city. The location was chosen based on the consideration that there was a well-run nutritional monitoring program for pregnant women, making it easier to access data and respondents. The study took place in April. The population in this study consisted of all pregnant women who were registered and actively undergoing antenatal care in the working area. The inclusion criteria included pregnant women in any trimester, willingness to be a respondent, ability to communicate well, and no health disorders that could severely affect consumption patterns. From the available population, a sample of 231 pregnant women was determined.

The sampling technique used was purposive sampling with the inclusion criteria of pregnant women registered at a health care facility, such as a community health center (Puskesmas) or integrated health post (Posyandu) in the study area, with a gestational age of at least the second trimester ( $\geq 13$  weeks) and who had resided in the study area for at least six months. Exclusion criteria included pregnant women experiencing pregnancy complications or having diseases that affect eating patterns, such as diabetes mellitus and hypertension. Furthermore, pregnant women who were unwilling to be respondents did not complete the questionnaire or interview, or were not present at the location during data collection, and were not included in the study sample.

The research instrument consisted of a structured questionnaire covering sociodemographic characteristics, individual aspects (pregnant women's nutritional knowledge and self-efficacy), environmental aspects (family support), and contextual aspects (access to food, information media, and cultural/taboo). In addition, a Food Frequency Questionnaire (FFQ) was used because it can describe daily food consumption patterns over a longer and more stable period. FFQ helps identify the frequency of consumption of various types of food, making it more suitable for assessing the general eating habits of pregnant women with sufficient and insufficient categories. Self-efficacy was measured with 8 statement items, nutritional knowledge with 10 question items, and family support with 6 statement items. The variables of food access, antenatal nutrition counseling, and access to media information each consisted of 4–5 items. All statements used a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The total score was then categorized as high and low based on the median value or  $\geq 75\%$  of the maximum score. The instrument was tested through a validity test of item-total correlation and a reliability test using Cronbach's alpha, with an  $\alpha$  value of  $\geq 0.70$  as the reliability limit. Data analysis was performed descriptively and inferentially using the Chi-square test. This study has received research ethics approval from the STIKes Hang Tuah Surabaya Research Ethics Committee, Number: PE/285/II/2025/KEP/SHT.

## RESULT

**Table 1. Characteristics of Respondents Pregnant Women of Health Facilities in Bogor City (n=231)**

Characteristics	F	%
<b>Specific Pregnancy Conditions (e.g., Anemia/Chronic Energy Deficiency)</b>		
Yes	95	41.1
No	136	58.9
<b>Mother's Education</b>		
Low	140	60.6
High	91	39.4
<b>Household Income</b>		
Low	200	86.6
High	31	13.4
<b>Number of Household Members</b>		
>3	156	67.5
$\leq 3$	75	32.5
<b>Mother's Occupation</b>		
Unemployed	123	53.2
Employed	108	46.8

Descriptive analysis shows that most respondents did not have specific pregnancy

conditions such as anemia or chronic energy deficiency (58.9%), although the proportion of pregnant women with these conditions was still quite large (41.1%). In terms of education, the majority of mothers were in the low education group (60.6%), and only 39.4% had higher education. Household income was mostly in the low category (86.6%), with only 13.4% having high income. The household structure was dominated by households with more than three members (67.5%). The employment status of mothers showed a relatively balanced distribution, but slightly more mothers were unemployed (53.2%) than employed (46.8%).

**Table 2. Determinants Affecting Daily Consumption of Pregnant Women**

Variables	Daily Consumption of Pregnant Women						p-value	OR
	Lack		Adequate		Total			
	n	%	n	%	n	%		
<b>Mother's Self-Efficacy in Choosing Nutritional Foods</b>								
Low	35	49.9	99	84.1	134	100	0.000	0.319
High	51	36.1	46	60.9	97	100		(0.183-0.555)
<b>Nutrition Knowledge</b>								
Inadequate	58	48.8	73	82.2	131	100	0.016	2.043
Good	28	37.2	72	62.8	100	100		(1.171-3.563)
<b>Food Access</b>								
Difficult	37	37.6	64	63.4	101	100	0.978	0.956
Easy	49	48.4	81	81.6	130	100		(0.558-1.637)
<b>Family Social Support</b>								
Less supportive	75	66.3	103	111.7	178	100	0.008	2.780
Supportive	11	19.7	42	33.3	53	100		(1.343-5.755)
<b>Antenatal Nutrition Counseling</b>								
Rarely	43	48.8	88	82.2	131	100	0.148	0.648
Often	43	37.2	57	62.8	100	100		(0.378-1.110)
<b>Access to Pregnancy Nutrition Information Media</b>								
Rarely	8	4.8	5	8.2	13	100	0.116	2.872
Often	78	81.2	140	136.8	218	100		(0.908-9.080)
<b>Cultural Customs/Taboos</b>								
Yes	16	20.1	38	33.9	54	100	0.246	0.644
No	70	65.9	107	111.1	177	100		(0.334-1.242)

Based on the analysis results in the table, several factors significantly correlated with the adequacy of daily intake for pregnant women. Maternal self-efficacy in choosing nutritious foods showed a significant correlation with daily intake ( $p = 0.000$ ). Pregnant women with high self-efficacy were more likely to be in the adequate intake category than those with low self-efficacy. The OR of 0.319 indicates that mothers with low self-efficacy were more likely to experience inadequate daily intake than those with high self-efficacy.

Nutritional knowledge also showed a significant correlation with daily intake ( $p = 0.016$ ). Pregnant women with good nutritional knowledge were more likely to be in the adequate intake category than those with poor nutritional knowledge. The OR of 2.043 indicates that mothers with poor nutritional knowledge were approximately twice as likely to experience inadequate daily intake as those with good nutritional knowledge.

Furthermore, family social support was also significantly associated with daily intake for pregnant women ( $p = 0.008$ ). Mothers who receive good family support are more likely to have adequate daily consumption than mothers who receive less support. The OR of 2.780 indicates that mothers with less family support are almost three times more likely to have inadequate daily consumption.

## DISCUSSION

The results showed that pregnant women with high self-efficacy in choosing nutritious foods were more likely to consume adequate daily nutrition than women with low self-efficacy ( $OR < 1$ ,  $p = 0.000$ ). This indicates that mothers' confidence in their ability to choose nutritious foods is a protective factor for good nutrition. This phenomenon is in line with Albert Bandura's self-efficacy theory, which states that an individual's belief in their own abilities influences their intended behavior. A study by Emamipour et al., (2024) states that self-efficacy-based interventions can improve eating patterns in overweight pregnancies. In addition, a study in Korea also found that pregnant women with high self-efficacy tend to maintain a healthier diet (Kim, 2025) and a study by Fitri et al. (2023) found a relationship between self-efficacy and health behaviors in pregnant women, including food and nutrition. In the context of daily consumption by pregnant women, high self-efficacy may encourage mothers to be more active in seeking, selecting, and preparing nutritious foods, for example, prioritizing vegetables, fruits, and adequate protein, as well as overcoming obstacles such as nausea or financial constraints. Conversely, low self-efficacy can cause mothers to feel unable to change their eating patterns, making it easier for them to fall into suboptimal consumption patterns.

From the perspective of implementing nutrition programs for pregnant women, these findings underscore the importance of building psychosocial aspects such as self-confidence and empowerment in pregnant women so that they are able to choose nutritious foods independently. Strategies such as food selection skills training, nutritious menu demonstrations, and peer support can help increase self-efficacy. As a complementary theory,

models such as the Health Action Process Approach (HAPA) also emphasize self-efficacy as one of the main constructs in health behavior change (Schwarzer & Hamilton, 2020).

### **Nutrition Knowledge for Pregnant Women**

The study shows that pregnant women who have “good nutritional knowledge” also have a higher chance of adequate daily consumption (OR > 1,  $p = 0.016$ ). This means that nutritional knowledge plays a significant role in food consumption. This is consistent with a number of studies showing that pregnant women's nutritional knowledge is positively correlated with better eating behaviors (the relationship between pregnancy nutrition knowledge, food safety, and food intake frequency) (Adylbekova et al., 2025) as well as studies in Indonesia showing that pregnant women with low nutritional knowledge tend to have less diverse consumption patterns (Angraini et al., 2023). Nutrition knowledge is not only about knowing what to eat, but also understanding why, when, and how to plan daily meals to meet the needs of mothers and fetuses (Nasution & Nasution, 2020; Olloqui-Mundet et al., 2024). Good knowledge enables pregnant women to recognize the benefits of nutrients such as iron, calcium, folic acid, and the negative effects of consuming inappropriate foods. In addition, knowledge also facilitates mothers in addressing consumption barriers such as nausea, cultural taboos, or economic limitations. In terms of policy, improving the nutritional knowledge of pregnant women must be integrated into antenatal care programs, nutritional counseling, and community education. Importantly, knowledge is not enough if it is not accompanied by skills and access support (Nasution et al., 2024; Engidaw et al., 2025; Olloqui-Mundet et al., 2024). The results show that despite significant knowledge, several other factors (food access, culture/taboo) do not all show a strong relationship.

### **Food Access**

Although in this study the food access variable showed an OR = 0.956 ( $p = 0.978$ ) and was not significant, it is still important to discuss it theoretically because the literature refers to food access as an important determinant of pregnant women's consumption. For example, a study in Singapore found that food insecurity can still hinder the quality of pregnant women's diets even though they appear to be anthropometrically normal (Lim et al., 2025). In the context of Indonesia or developing countries, food access can take the form of food availability in households, ease of purchasing nutritious food, food quality, and economic ability to purchase food. If access is limited, for example, if pregnant women live far from markets, food prices are high, or choices of nutritious food are limited, daily consumption can be disrupted. Although the results of this study were not significant, this may be because food access in the population was fairly homogeneous or lacked variability,

so the effects did not appear. However, in theory, nutritional interventions for pregnant women should also include efforts to improve food access (food subsidies, strengthening local supply, food programs for pregnant women) so that knowledge and self-efficacy can be translated into actual consumption.

### **Family Social Support**

The findings show that social support from family is significantly associated with adequate daily consumption by pregnant women (OR = 2.780;  $p = 0.008$ ). This indicates that pregnant women who receive social support from their families are more than twice as likely to achieve adequate consumption compared to those who have less family support. These findings are consistent with international literature showing that social support during pregnancy plays an increasingly important role in the physical health and behavior of pregnant women. For example, Al-Mutawtah et al., (2023) A systematic review shows that emotional, instrumental, and informational support from family, partners, and friends greatly affects the well-being of pregnant women.

Theoretically, social support can act as a buffer against physical and psychosocial stress during pregnancy and facilitate access, motivation, and concrete actions in nutritional behavior. In Cohen and Wills' stress buffer model, social support not only reduces the effects of stress but also increases self-efficacy and healthy behavior (Al-Mutawtah et al., 2023). In practice, supportive families might help pregnant women choose nutritious foods, prepare meals, encourage them to attend antenatal checkups, or accompany them through nutrition education. Interventions involving the pregnant woman's family and social environment are highly relevant.

### **Antenatal Nutrition Counseling**

The variable “antenatal nutrition counseling (often vs rarely)” in this study did not show a significant relationship (OR = 0.648;  $p = 0.148$ ) with daily consumption. This is somewhat surprising given that the literature shows that nutrition counseling or education during pregnancy tends to have an impact on maternal nutritional behavior. For example, a study in Indonesia shows that nutrition education can increase the knowledge of pregnant women, although this does not always translate into different pregnancy outcomes (Suryani et al., 2024).

There are several possible reasons why nutritional counseling was not significant in this study: the quality or frequency of counseling may have been inadequate, the material may have been insufficient to change daily consumption, or the measurement of daily consumption used may have been insufficiently sensitive to the effects of counseling. From a

behavioral change theory perspective, simply providing information (educational outreach) is not enough if it is not followed by motivation (self-efficacy), a supportive environment (social support + access to food), and the mother's readiness for change (Iwanowicz-Palus et al., 2022; Rockcliffe et al., 2021). This reiterates that nutritional interventions must be multifaceted.

### **Access to Pregnancy Nutrition Information Media**

Although the variable of access to pregnancy nutrition information media was not significant OR = 2.872, p = 0.116 (not significant). However, in the literature, access to information through media (internet, social media, leaflets) is increasingly considered important for improving the nutritional literacy of pregnant women. For example, a study by Nilawati et al., (2024) shows that video-based education can improve the nutritional knowledge and behavior of pregnant women. From the perspective of behavioral communication theory, the use of information media can strengthen cognitive (knowledge), affective (self-confidence), and conative (intention) factors in behavioral change models such as HAPA or Theory of Planned Behaviour (Hagger & Hamilton, 2025; Ju et al., 2025). Although not significant in this study, media access can still be considered a supporting element.

### **Cultural Customs/Taboos**

The variable “cultural customs/taboo” also showed not significant OR = 0.644 and p = 0.246 (not significant), so in this study it was not proven to be a major determinant of daily consumption by pregnant women. However, it is still important to discuss. Nutritional literacy among pregnant women shows that cultural food taboos, such as not eating certain fish, eggs or vegetables, have the potential to inhibit the consumption of nutritious foods. A study in Indonesia shows that low knowledge and cultural taboos are risk factors for the nutritional consumption of pregnant women (Suryani et al., 2024). In theory, cultural factors influence eating attitudes and behaviors through social norms, risk perceptions, and traditional beliefs. Comprehensive behavior change models (e.g., HAPA) emphasize that in addition to beliefs and knowledge, contextual factors such as social and cultural norms also play an important role (Monterrosa et al., 2020; Çoker et al., 2022). Although not significant in this study, in the context of maternal nutrition programs in Indonesia and similar countries, it is very important to pay attention to cultural aspects, including culturally sensitive education and the involvement of community leaders.

Variables that did not show significant relationships, such as food access, media information access, and cultural habits or food taboos, could be influenced by several

methodological factors in the study. First, the variables were likely measured using broad categories (e.g., “easy/difficult” or “often/rarely”), so that variations in respondents' conditions were not fully captured by the research instrument. Second, the distribution of respondents across categories tended to be skewed, limiting the power of statistical analysis in detecting meaningful relationships. Third, there may be overlap between variables, where the influence of food access or media information is indirectly reflected in other variables, such as nutritional knowledge or self-efficacy, which actually show significant relationships. Furthermore, self-report-based measurements also have the potential to bias respondents' perceptions of ease of food access, exposure to media information, and food taboo practices, so that statistical relationships with daily intake adequacy do not appear significant in this study's analysis.

## CONCLUSION

Three variables that were found to have a significant relationship with adequate daily consumption were self-efficacy in choosing nutritious foods, nutritional knowledge, and family social support. Meanwhile, other factors such as food access, antenatal nutrition counseling, access to media information, and cultural customs/restrictions did not show a significant relationship in this study. These findings suggest that internal maternal factors and support from the immediate environment play a stronger role in determining nutritious food consumption behavior than access to information or health services alone. Therefore, nutrition interventions need to emphasize increasing self-efficacy, strengthening nutritional knowledge, and involving families in supporting nutritious food consumption during pregnancy.

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