Individual Factors Associated With Dietary Practices During Pregnancy

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ABSTRACT

During pregnancy, nutrition is very important for the health of the mother and baby. Many impacts that occur if pregnant women experience nutritional deficiencies such as anemia, Protein Energy Deficiency, Low Birth Weight Babies and nutritional deficiencies can also affect the type of delivery. The incidence of anemia in pregnant women is 11.2%, pregnant women who experience KEK are 9.3%, while infants with low birth weight are 1.8%. One of the efforts to reduce nutritional deficiencies of pregnant women is to improve the quality of the mother's diet during pregnancy by practicing a good diet. Many factors influence the dietary practice of pregnant women, one of which is the socio-demographic of pregnant women. Objective: to determine individual factors (age, parity, education, pregnancy spacing) that are related to dietary practices during pregnancy. Methods: descriptive-analytical research type with cross-sectional design. The sample of this study was pregnant women who visited the Independent Practicing Midwife in Padang City in July - August 2021 as many as 100 pregnant women. Data processing by editing, coding, entry, tabulating, and cleaning. This study was analyzed by a chi-square test. Results: Individual factors related to dietary practice were age (P-Value 0.037), parity (P-Value 0.030), and education (P-value 0.017) while there was no relationship between pregnancy interval and dietary practice during pregnancy (P-value 0.661). Conclusions and Suggestions: there is a relationship between age, parity, and education with the dietary practices of pregnant women, therefore pregnant women should often consult and seek information related to good dietary practices during pregnancy so that nutritional deficiencies during pregnancy can be prevented..

Keywords: Pregnant Women; maternal nutrition; dietary practices during pregnancy

INTRODUCTION

Indonesia is a developing country that is currently facing multiple nutritional problems, meaning that while the problem of undernutrition has not been completely resolved, a new problem has emerged, namely overnutrition [1,2]. The problem of malnutrition is caused by poverty, lack of food availability, poor environmental quality, lack of public knowledge about nutrition, balanced menus and health [3,4].

Pregnancy is a vulnerable period that will determine the fetus is born into a normal baby or has abnormalities [5]. During pregnancy nutrition is very important for the health of the mother and baby, where pregnant nutrition is used as a source of energy and preparation for lactation [6,7]. To prevent pregnant women from experiencing complications, there are many factors that must be considered by mothers, one of which is meeting nutritional needs during pregnancy [5].

Pregnant women who have malnutrition greatly affect the state of health, fetal development and adversely affect pregnancy outcomes [3,6]. Many impacts that occur if pregnant women experience nutritional deficiencies such as anemia, Protein Energy Deficiency (KEK), Low Birth Weight Babies (LBW) and nutritional deficiencies can also affect the type of delivery. [3,4,7–9].

The results of Riskesdas 2018 state that in Indonesia 48.9% of pregnant women experience anemia. As many as 84.6% of anemia in pregnant women occurs in the age group 15-24 years [10]. The incidence of anemia in pregnant women in West Sumatra Province based on the Nutrition Status Monitoring Survey (PSG) conducted by the West Sumatra Provincial Health Office in 2015 was 43.1% [11]. Based on the performance report of the West Sumatra Health Office, the coverage of pregnant women with Chronic Energy Deficiency (KEK) in 2017 was 84.7%, infants with LBW in 2017 was 2.1%, this figure is already below the target set at 6.9% [12]. Meanwhile, in the city of Padang, the incidence of anemia, SEZ and LBW has been below the target set, however, pregnant women still experience these incidents in the city of Padang. The incidence of anemia in pregnant women is 11.2%, pregnant women who experience KEK are 9.3%, while babies with low birth weight are 1.8% [13].

The quality of the mother's diet during pregnancy is very important for maternal health, one of which is reducing the incidence of anemia, CED and impaired fetal growth and development that causes babies to have low birth weight. Excess and deficiency of energy and micronutrients in the mother's diet such as Fe and Iodine are associated with neurological and cognitive function of children, as well as folate and choline intake associated with spina bifida or premature birth [14].

Many factors influence the dietary behavior of pregnant women, causing pregnant women to experience nutritional deficiencies. These factors include maternal socio-demographic (age, marital status, number of families, mother's education, husband's education, economy, parity, number of pregnancies, distance between pregnancies and antenatal visits), mother's knowledge, decision making,

role of health workers, environment and many more. Another factor that affects the dietary behavior of pregnant women [6,7,15–20].

The Padang City Health Office has made a program to improve community nutrition, one of which aims to reduce nutritional problems during pregnancy. Government programs to overcome nutritional problems during pregnancy are prevention of SEZ, anemia, empowerment to achieve nutrition-aware families and provision of PMT for pregnant women with SEZ. Therefore, the role of health workers is needed to carry out the program, especially midwives who are known to be close to pregnant women [13]. In order to fulfill the nutrition of pregnant women, it is necessary to provide information by health workers and it is hoped that the mothers will cooperate with the interventions given regarding the nutrition of pregnant women. WHO recommends the diet of pregnant women by providing a diet that is sufficient in energy and includes the necessary nutritional elements (protein, carbohydrates, fat, fat and vitamins) in appropriate proportions [7].

Efforts to overcome nutritional deficiencies in pregnant women have been carried out for a long time but the results have not been satisfactory. Many literatures state that nutritional deficiencies are caused by a lack of knowledge of mothers about nutrition for pregnant women. There are still few who study the dietary behavior of the mother during pregnancy.

METHODS

The type of research is descriptive analytic with *cross sectional* design . The sample of this study was pregnant women who visited the Independent Practicing Midwife in Padang City in July – August 2021 as many as 100 pregnant women. Processing of data by e *ditting* , c *oding* , e *ntry* , *tabulating* and c *leaning* . This study was analyzed by *chi – square.*

RESULT AND DISCUSSION

A. Univariate Analysis

The univariate analysis of this study was conducted to determine the frequency distribution of individual factors of pregnant women such as age, parity, education and pregnancy distance and to determine the frequency distribution of maternal dietary practices during pregnancy.

Table 1. Frequency Distribution of Individual Factors of Pregnant Women Visiting Midwives' Independent Practices in Padang City

No	Variable		Frequency	Percentage
1	**Age**			
	a.	Age < 20 Years	4	4
	b.	Age 20 – 35 Years	81	81
	c.	Age > 35 Years	15	15
2	**parity**			
	a.	Parity ≤ 2	79	79
	b.	Parity 3-4	19	19
	c.	Parity ≥ 5	2	2
3	**Education**			
	a.	Tall	84	84
	b.	Low	16	16
4	**Pregnancy Distance**			
	a.	Pregnancy Distance < 2 Years/ Primigravida	55	55
	b.	Pregnancy Distance 2-5 Years	34	34
	c.	Pregnancy Distance > 5 Years	11	11
5	**Diet Practice**			
	a.	Good	61	61
	b.	Not good	39	39

Based on the results of the study, there were 81 people (81%) of respondents aged 20-35 years, 4 people (4%) were less than 20 years old, and 15 people (15%) were more than 35 years old, that parity 2 was 79 people (79%) of respondents, parity 3-4 was 19 people (19%) and parity 5 was 2 people, that 84 respondents (84%) had a high level of education and 16 respondents (16%) had a low level of education, that from 55 respondents (55%) had a gestation interval of < 2 years (primigravida), 34 respondents (34%) had a gestation interval of 2-5 years and 11 respondents (11%) had a gestation interval of > 5 years, and that out of 61 respondents (61%) had good dietary behavior during pregnancy and 39 respondents (39%) had poor dietary behavior during pregnancy

The age range of 20-35 years is the reproductive age and is the most appropriate time to experience pregnancy because the mother's body is in the healthiest and safest condition for pregnancy and childbirth [21]. The younger the mother's age when pregnant, the nutritional needs needed are also increasing, considering that the age under 20 years is a period of growth and development moving into adulthood. Meanwhile, for women who are pregnant over the age of 35 years, many organ functions

have begun to weaken so that they really need additional nutrients and large amounts of energy to support the successful growth and development of the fetus [22].

Besides this, pregnant women who are too young need more nutrition, because in addition to the needs of their mother's growth, nutrition is also needed for the growth and development of the fetus in order to develop optimally. Meanwhile, pregnant women aged > 35 years need more energy due to the weakening of the body's organ functions but are required to keep working optimally (Sinta Fitriani, 2017). At the age of less than 20 years and more than 35 years, the need for nutrients, especially protein, becomes higher [23].

Berdasarkan hasil penelitian didapatkan bahwa Paritas ≤ 2 sebanyak 79 orang (79%) responden , paritas 3 – 4 sebanyak 19 orang (19%) dan paritas ≥ 5 sebanyak 2 orang. Hasil penelitian ini sama yang dilakukan oleh amini dkk dimana dapat diketahui bahwa sebagian besar ibu hamil yang diteliti pada paritas primipara yaitu sebesar 23 orang (47,1%) [24].

Parity is a woman's condition regarding the order or number of children she has ever given birth to. Parity which is included in the high risk factor in pregnancy is grade multipara (≥ 5), where this can cause conditions that affect the optimization of the mother and fetus in pregnancy because the recovery of maternal health after childbirth is not optimal. Setting the number of children is very important to ensure the nutritional adequacy of the mother during the pregnancy phase. Giving birth too often causes the mother to lose a lot of energy and does not have the opportunity for the mother to recover her nutritional status [25].

The results of this study are the same as those conducted by Busta et al where it can be seen that almost half of the mothers have high school education and as many as 53.4% of the mothers have a high school education. In this study, there was a relationship between knowledge and the incidence of Protein Energy Deficiency (KEK). Many factors affect knowledge, one of which is the level of education of pregnant women. The ability of pregnant women to absorb knowledge will increase according to the level of education of pregnant women [26]. A high level of education will make it easier for someone to understand and obtain information, such as information about the nutrition of pregnant women [22]. Spacing pregnancy is intended so that the mother's body has enough time to recover. If the pregnancy distance is too close, the mother's health will decline because the body does not have time to return to its original condition and the mother needs enough energy to restore her body after giving birth because after the previous delivery the mother expended a lot of energy during childbirth and has to deal with the energy needs of the current pregnancy causing the mother has problems with nutrition [25].

The dietary behavior carried out by the respondents in this research is a healthy diet behavior. Respondents consume carbohydrates, fresh vegetables, protein and fat as well as fruits during pregnancy and eat more than 5 times a day. From the results of this study, it was also found that most pregnant

women received information about nutrition during pregnancy from health workers, books, internet, articles, social media, family. Carbohydrates serve to increase energy and help the growth of the fetus. Adequate energy needs will help in the formation of the placenta, fetal growth, blood vessels, changes in metabolism and fat reserves . The need for macronutrients is the adequacy of protein used for the formation of the placenta by the fetus in the womb. Another function is for the development and formation of brain cells and myelin during fetal life and is related to intelligence. In addition, protein is also used to prepare for labor because as much as 300-500 ml of blood will be lost so that blood reserves are needed and cannot be separated from the role of protein. Food intake, especially protein nutrients, greatly influences muscle mass which ultimately affects muscle strength considering that protein is one of the raw materials for muscle protein synthesis [26].

In addition to energy, protein has a very important role during pregnancy. Protein is used for the growth and development of the fetus. During pregnancy there is a significant increase in protein requirements. The roles of protein during pregnancy include, in addition to the growth and development of the fetus, it is also for the formation of the placenta and amniotic fluid, the growth of maternal tissues such as the growth of the mother's mammary and uterine tissue, as well as the addition of blood volume [27].

Based on table 2, it was found that out of 4 pregnant women aged < 20 years, none of them had good dietary practices (0%). Of the 81 pregnant women aged between 20-35 years, 51 (83.6%) had good dietary practices. Of the 15 pregnant women aged > 35 years, 10 (16.4%) had good dietary practices. Based on the statistical results with the Chi-Square test, the p-value is 0.037, which means that there is a relationship between the age of pregnant women and dietary practices during pregnancy because the p-value is less than 0.05.

B. Bivariate Analysis

Bivariate analysis in this study was to determine whether there was a relationship between individual factors (age, parity, education, gestational age) with dietary practices during pregnancy.

Table 2. Relationship of Age with Dietary Practices during Pregnancy for Pregnant Women Who Visit Midwives Independent Practice in Padang City

No	Age	Diet Practice				Total		P Value
		Good		Not good				
		f	%	f	%	f	%	
1	Age < 20 Years	0	0	4	10.3	4	4	0.037
2	Age 20 – 35 Years	51	83.6	30	76.9	81	81	
3	Age > 35 Years	10	16.4	5	12.8	15	15	
	Total	61	100	39	100	100	100	

Based on table 2, it was found that out of 4 pregnant women aged < 20 years, none of them had good dietary practices (0%). Of the 81 pregnant women aged between 20-35 years, 51 (83.6%) had good dietary practices. Of the 15 pregnant women aged > 35 years, 10 (16.4%) had good dietary practices. Based on the statistical results with the Chi-Square test, the p-value is 0.037, which means that there is a relationship between the age of pregnant women and dietary practices during pregnancy because the p-value is less than 0.05.

These results are the same as the results of research conducted by Fowles et.al published in 2011 where the results are that there is a negative relationship between diet quality and eating habits but there is a positive relationship with social support, maternal age and maternal education level. Age is directly related to nutritional knowledge and dietary practices, so that older women have more nutritional knowledge and have higher food quality [28]. According to the results of research conducted by Iordachescu published in 2020, it concluded that the higher the age of the pregnant woman, the better the diet behavior of the pregnant woman. Where the results of the study indicate that the average score for dietary behavior increases with age, especially pregnant women who are over 35 years old [29]. This is different from the results of this study where there was a decrease in dietary behavior scores at the age of > 35 years. This difference could be due to the different sample sizes.

Table 3. Relationship of Parity with Dietary Practices during Pregnancy for Pregnant Women Who Visit Midwives Independent Practice in Padang City

No	parity	Diet Practice				Total		P Value
		Good		Not good				
		f	%	f	%	f	%	
1	Parity ≤ 2	43	70.5	36	92.3	79	79	0.030
2	Parity 3-4	16	26.2	3	3.3	19	19	
3	Parity ≥ 5	2	3.3	0	0	2	2	
	Total	**61**	**100**	**39**	**100**	**100**	**100**	

Based on table 3, it was found that from 79 pregnant women who had parity < 2 who had good dietary practices were 43 (70.5%) pregnant women. Of the 19 pregnant women who have parity between 3-4 who have good dietary practices, 16 (26.2%) pregnant women. Of the 2 pregnant women who have parity > 5 who have good dietary practices, 2 (3.3%), and the statistical results with the Chi-Square test, it was found that the p-value was 0.030, which means that there is a relationship between parity of pregnant women and the practice of dieting during pregnancy because the p-value is less than 0.05.

The results of this study were the same as those conducted by Yalewdeg in 2018 where the results of 97 pregnant women who had parity < 2 as many as 57 (58.8%) pregnant women had good dietary

practices [15]. The results of research conducted by Amini et al in 2018 can be concluded that mothers who have parity < 2 or at parity who are pregnant for the first time and give birth usually still experience difficulties in adapting to their pregnancy, and the knowledge and experience they have about pregnancy are also still less than women have higher parity [24].

According to Manuaba (2010) the amount of parity that pregnant women have affects the physical condition and nutritional status of the mother. One of the factors that influence the nutritional status of pregnant women is dietary practices during pregnancy. Mothers with many parity will need a lot of nutrition for health recovery after giving birth [30].

Table 4. The Relationship between Education Level and Dietary Practices during Pregnancy for Pregnant Women Who Visit Midwives' Independent Practices in Padang City

No	Level of education	Diet Practice				Total		P Value
		Good		Not good				
		f	%	f	%	f	%	
1	Tall	56	91.8	28	71.8	84	84	0.017
2	Low	5	8.2	11	28.2	16	16	
	Total	**61**	**100**	**39**	**100**	**100**	**100**	

Based on table 4, it was found that from 84 pregnant women categorized as highly educated ($\geq$ high school), 56 (91.8%) had good dietary practices. Meanwhile, of the 16 pregnant women who were categorized as having low education (< SMA) as many as 5 (8.2%) pregnant women had good dietary practices and the chi square test, the p-value is 0.017, which means that there is a relationship between the last education of pregnant women and dietary practices during pregnancy because the p-value is less than 0.05.

The results of this study are the same as those conducted by Amini et al in 2018 concluding that education has an important influence in shaping one's practice in a positive direction and is closely related to one's knowledge about something that is needed in life, especially for pregnant women. The higher a person's education, the higher the absorption of information obtained. On the other hand, the lower a person's level of education, the lower his mindset will be so that the fiber power of information will be lower [24].

These results are the same as the results of research conducted by Fowles et.al published in 2011 where the results are that there is a negative relationship between diet quality and eating habits but there is a positive relationship with social support, maternal age and maternal education level. Education is directly related to a person's knowledge of nutrition and eating patterns, so that women with higher education have more knowledge of nutrition so that it causes a better diet, on the other hand women

with low education have low nutritional knowledge so that their eating patterns and quality of food are lower or less good[28].

A person's level of education affects the level of knowledge and understanding of something so that it can lead a person to positive behavior as well as to health behaviors such as dietary practices carried out by pregnant women during their pregnancy. So that it can be stated that the higher the education of pregnant women, the higher their knowledge about a good diet during pregnancy, on the contrary, the lower the education level of pregnant women, the lower their mindset so that their absorption of information is less causing dietary practices to be less good.

Table 5. Relationship between Pregnancy Distance and Dietary Practices during Pregnancy for Pregnant Women Who Visit Midwives' Independent Practices in Padang City

No	Pregnancy Distance	Diet Behavior				Total		P Value
		Good		Not good				
		f	%	f	%	f	%	
1	Pregnancy Distance < 2 Years/ Primigravida	32	52.5	23	59	55	55	0.661
2	Pregnancy Distance 2-5 Years	21	34.4	13	33.3	34	34	
3	Pregnancy Distance > 5 Years	8	13.1	3	7.7	11	11	
	Total	**61**	**100**	**39**	**100**	**100**	**100**	

Based on table 5, it was found that from 55 pregnant women who had a pregnancy gap with their previous child $\leq$ 2 years or mothers who were primigravidan as many as 32 (52.5%) had good dietary practices. Of the 34 pregnant women who had 2-5 years apart from their previous pregnancies, 21 (34.4%) had good dietary practices. Of the 34 pregnant women who had a pregnancy gap with their previous child > 5 years, 8 (13.1%) had good dietary practices and statistics analyze with the Chi-Square test, the p-value is 0.661, which means that there is no relationship between the distance between pregnant women and the practice of dieting during pregnancy because the p-value is more than 0.05.

The end result of good dietary behavior is good nutritional status. Nutritional status during pregnancy can be known by several indicators, one of which is weight gain during pregnancy. In a study conducted by Febrina Dwi Haryani et al, it was found that there was a relationship between gestational distance and maternal weight gain during pregnancy [31].

The results of this study are the same as the results of research conducted by Casnuri and Zahra Zakiyah that there is no relationship between the distance of pregnancy and the nutritional status of pregnant women. Pregnant women with short gestation intervals are known to be at high risk for giving birth to pre-term, IUGR and stillbirth babies. This is because mothers who have a short pregnancy

interval will not have enough time to prepare for the macro and micro nutrients that their bodies need during pregnancy [30].

The absence of a relationship between gestational distance and dietary practices of pregnant women in this study may be due to the increased understanding or knowledge of pregnant women about nutritional needs during pregnancy.

CONCLUSIONS AND SUGGESTIONS

The need for nutrition during pregnancy will be fulfilled if pregnant women practice good diet during pregnancy. Many factors influence mothers to practice good diet during pregnancy, one of which is the individual factor of the pregnant woman herself. From the results of the study, it was found that there was a relationship between individual factors and dietary practices during pregnancy, especially age, parity and education, while there was no relationship between distance between pregnancies and dietary practices during pregnancy. Therefore, pregnant women, especially those aged < 20 and > 35 years, having parity > 5, low education and < 2 years of pregnancy gap or primigravid mothers, should consult with health workers more often and seek information related to nutrition during pregnancy because Pregnant women have a high risk of nutritional deficiencies during pregnancy.

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