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IDENTIFICATION OF NUTRITIONAL ADEQUACY OF PREGNANT WOMEN WITH THE FIGO NUTRITION CHECKLIST

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ABSTRAK IDENTIFIKASI KECUKUPAN GIZI IBU HAMIL DENGAN DAFTAR PERIKSA GIZI FIGO

Latar Belakang: Gizi dalam kehamilan mempunyai implikasi penting terhadap kesehatan ibu dan anak. Gizi selama kehamilan yang optimal, akan mendorong pertumbuhan dan perkembangan janin yang optimal.

Tujuan: Mengidentifikasi kecukupan zat gizi pada ibu hamil di Puskemas Kota Sukabumi dan mengidentifikasi kelompok ibu hamil yang beresiko mengalami masalah gizi

Metode : Desain penelitian analitik observasional dengan pendekatan *cross sectional* menggunakan data primer dengan mengukur kecukupan gizi ibu hamil dengan instrumen *FIGO Nutrition Checklist*. Sampel dalam penelitian ini sebanyak 65 orang dengan teknik pengambilan sampel menggunakan *consecutive sampling.* Penelitian dilaksanakan di Puskesmas PONED Sukabumi pada bulan Juli – September 2022. Analisis data menggunakan Chi Square.

Hasil: Masih terdapat ibu hamil dengan status gizi kurang (7,7%) dan status gizi lebih (30,8%). Hanya 20% ibu hamil dengan kualitas diet memenuhi indikator instrumen *FIGO Nutrition Checklist*. Variasi jenis makanan yang dikonsumsi ibu hamil belum memenuhi kebutuhan diet yang disarankan. Faktor demografi yang berhubungan dengan kualitas diet adalah pendidikan ibu ($p<0,05$).

Kesimpulan: Kebutuhan gizi selama kehamilan belum memenuhi indikator *FIGO Nutrition Checklist,* terdapat ibu hamil dengan gangguan nutrisi.

Saran: Perlu dilakukan edukasi gizi terhadap ibu hamil melalui pelayanan antenatal.

Kata Kunci: *FIGO,Nutrition, Checklist*

ABSTRACT

Background: A balanced diet during pregnancy is crucial for optimal fetal growth and development.

Objective: This study aims to assess the nutritional adequacy of pregnant women attending the Sukabumi Public Health Center and identify groups of pregnant women at risk of nutritional problems.

Methods: This observational study used the FIGO Nutrition Checklist to measure the nutritional adequacy of 65 pregnant women at the Sukabumi Public Health Center from July to September 2022, using chi-square for data analysis.

Results: The study found that some pregnant women suffered from undernutrition (7.7%) and overnutrition (30.8%). Only 20% of pregnant women met the indicators of the FIGO Nutrition Checklist instrument, indicating that their diet quality was appropriate. The study also revealed that the variety of foods consumed by pregnant women did not meet the recommended dietary needs. Maternal education was found to be associated with diet quality ($p<0.05$).

Conclusion: The results suggest that pregnant women's nutritional needs are not being met according to the FIGO Nutrition Checklist indicators, and some women are experiencing nutritional disorders.

Suggestion: It is recommended that antenatal care should include nutrition education for pregnant women to ensure that they receive adequate nutrition during pregnancy.

Keywords: FIGO, Nutrition,Checklist

INTRODUCTION

Nutrition plays a vital role in the health of both the mother and fetus during pregnancy. In Indonesia, pregnant women often suffer from chronic energy deficiency, anemia, and disorders caused by iodine deficiency. (Ernawati, 2017) The prevalence of anemia in pregnant women was 48.9%, and 17.3% experienced Chronic Energy Deficiency according to the 2018 national basic health research. (Badan Penelitian dan Pengembangan Kesehatan

Kementrian Kesehatan RI, 2018) Nutritional deficiency is often linked with high cases of Intra Uterine Growth Restriction (IUGR), low birth weight (LBW), growth disorders, and morbidity. Anemia in pregnant women can result in poor fetal outcomes, such as impaired fetal growth and development, fetal death, and an increased risk of low birth weight, neonatal asphyxia, and high placental weight. (Bora et al., 2014)

Pregnant women need to maintain a proper diet that fulfills their daily requirements for both macro and micronutrients. Failure to do so can lead to potential health risks for both the mother and the baby. Unfortunately, many pregnant women are unaware of these dietary requirements and often do not meet them during pregnancy. (Porteous et al., 2014) In 2015, the International Federation of Gynecology and Obstetrics (FIGO) developed the FIGO Nutrition Checklist, a simple tool to gather data on maternal nutritional adequacy.(Killeen et al., 2020a)

The FIGO Nutrition Checklist is a helpful tool that consists of four question parts. The first part is to identify any special diet habits, such as allergies or vegetarianism. The second part is to obtain your weight, height, and BMI. The third part consists of six questions to assess your diet quality. The fourth part is about identifying any supplement needs, such as folic acid, iron, and sun exposure. This tool can be used to facilitate communication between health workers and mothers before and during pregnancy to ensure adequate nutrition. According to research conducted by Killen et al., the FIGO Nutrition Checklist can be used during antenatal checks. (Killeen et al., 2020a)

It is essential to determine the nutritional adequacy of pregnant women during antenatal care to prevent complications for both the mother and fetus. Antenatal care is a healthcare service provided for expecting mothers by healthcare professionals who follow the standards set by the Midwifery Service Standards. The Sukabumi Public Health Center is one of the healthcare facilities in Sukabumi City with high antenatal care coverage. As per the Maternal and Child Health data recapitulation at the Sukabumi Public Health Center in 2021, the number of pregnant women who received antenatal care was 786.

A preliminary study was conducted on the antenatal services provided at the Sukabumi Public Health Center. Currently, pregnant women's nutritional status is assessed by measuring their body weight, height, body mass index, and upper arm circumference. Additionally, their maternal and child health book records are monitored to ensure they are taking Fe tablets. However, there are no tools used to determine the nutritional intake or diet quality of pregnant women during pregnancy. The most common nutritional problem detected is anemia, with 28 cases recorded in 2021. (Puskesmas Kota Sukabumi, 2021)

In this study, researchers will use the FIGO Nutrition Checklist to identify nutritional adequacy in pregnant women at Sukabumi Public Health Center and identify groups of pregnant women who are at risk of experiencing nutritional problems.

RESEARCH METHODS

This study had an observational analytic design with a cross-sectional approach. It was conducted at the Sukabumi Public Health Center between July 2022 and September 2022. The target population for this research consisted of pregnant women who visited the KIA Polyclinic at the Sukabumi Public Health Center. The sample size for this study was 65 individuals, selected using a consecutive sampling technique.

The research employed the FIGO Nutrition Checklist as the primary instrument. The FIGO Nutrition Checklist is divided into four parts: the first part pertains to the recommended special diet, the second part involves measuring weight, height, and BMI, the third part assesses the quality of the diet through six questions, and the fourth part determines the need for folic acid, iron supplements, and sun exposure.(Killeen, 2020) To evaluate diet quality, participants must answer six questions with a Yes/No response. Those who answered “yes” to all six questions were categorized as having good diet quality, while those who answered “no” to any of the questions were categorized as having poor or risky diet practices. Bivariate analysis with Chi Square was conducted on the diet quality variable to determine its association with respondent characteristics.

RESEARCH RESULTS AND DISCUSSION

Data collection was carried out in July – September 2022 for pregnant women who visited the maternal and child health clinic at the Sukabumi Public Health Center. 65 pregnant women participated in filling out the questionnaire.

Table 1

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Sociodemographic Characteristics

Characteristics	n	(%)
Age		
Risky (< 20 years & >35 years)	17	26,2
No risk (20-35 years)	48	73,8
Education		
Low education level, completed junior high school or below	28	43,1
Medium/high school	37	56,9
Economic status		
Low if < Regional Minimum Wage	29	44,6
High, if ≥ Regional Minimum Wage	36	55,4
Gestational Age		
1st Trimester	14	21,5
2nd Trimester	20	30,8
3rd Trimesters	31	47,7
Parity		
Primigravida	22	33,8
Multigravida	43	66,2

According to Table 1, it is evident that 26.2% of the respondents who belong to the risk group (i.e., aged less than 20 years or more than 35 years) are susceptible to complications. A significant proportion (43.1%) of the respondents had a low level of education (completed junior high school or below). Moreover, 44.6% of the respondents belonged to the low economic status category. The respondents' gestational age was classified as first trimester (21.5%), second trimester (30.8%), and third trimester (47.7%), with 33.8% of them being primigravida and 66.2% multigravida.

In this study, none of the pregnant women had special dietary needs.

Nutritional Status

Characteristics	n	(%)
BMI		
Underweight	5	7,7
Normal weight	40	61,5
Overweight	20	30,8

Table 2 displays the nutritional status of pregnant women based on their BMI before pregnancy. Of the total, 40 pregnant women were within the normal BMI range (61.5%), while 20 were overweight (30.8%). The following is information on the quality of pregnant women's diets based on the FIGO Nutrition Checklist.

Table 2

Table 3
Diet Quality Based on Answers of Participating Pregnant Women (n=65) to the six diet quality questions in the FIGO Nutrition Checklist

Answer Criteria	N	(%)
Answer "Yes" to all six diet quality questions	13	20
Answer "no" to one diet quality questions	19	29,2
Answer "no" to two diet quality questions	15	23,1
Answer "no" to three diet quality questions	14	21,5
Answer "no" to four diet quality questions	3	4,62
Answer "no" to five diet quality questions	1	1,54

Table 3 shows that 13 people (20%) answered "yes" to all of the question items.

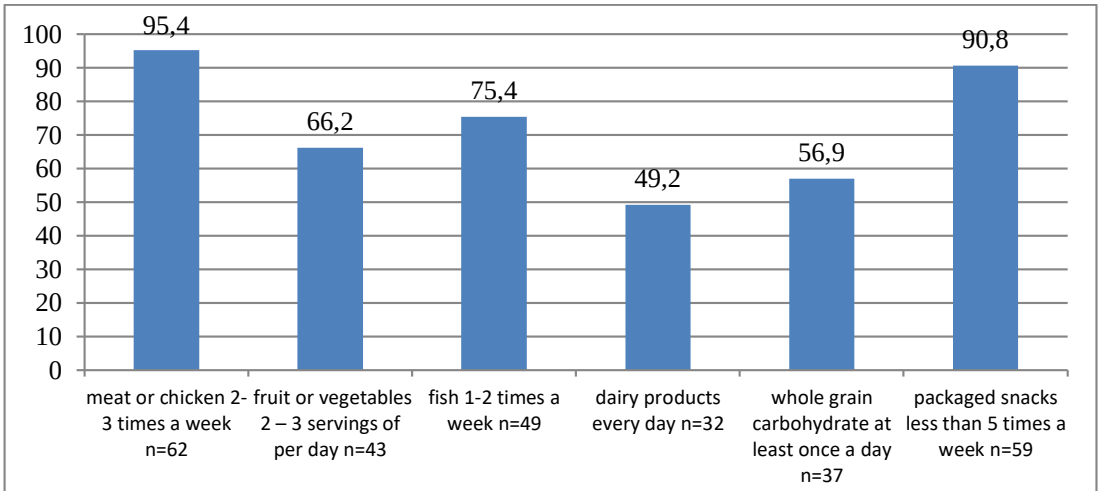

Figure 1 Percentage of Diet Quality

According to the data presented in Figure 1, less than half of pregnant women (49.2%) consume milk products or processed foods daily. Similarly, only 56.9% of pregnant women consume whole grain foods, and only 66.2% of individuals eat more than 2-3 portions of fruits or vegetables per day. Additionally, only 75.4% of pregnant women consume fish at least once or twice a week. On the other hand, almost all pregnant women, that is 95.4% of them, eat meat 2-3 times a week, and 90.8% of them consume cake and snacks.

Table 4 explains that all pregnant women consume folic acid, and 58 people (89.2%) get sun exposure.

Table 5 shows that 37 pregnant women (56.9%) had normal HB (≥ 11 gr%) and 28 pregnant women (43.1%) had HB below 11 gr%.

Table 4
Folic Acid Intake, Sun Exposure

	N	(%)
Folic Acid		
Yes	65	100
No	0	
Sun Exposure		
Yes	58	89,2
No	7	10,8

Table 5
HB Levels of Pregnant Women

HB Levels	N	(%)
≥ 11 gr%	37	56,9
< 11 gr%	28	43,1

Table 6
Analysis of Diet Quality Based on Characteristics

Characteristics	Answered "Yes" to all diet quality questions n = 13	Answered "No" to at least one diet quality question n= 52	P *value**
Age			
Risky (< 20 years & >35 years)	3	14	1,00
No risk (20-35 years	10	38	
Gestational Age			
1st Trimester	1	13	
2ndTrimester	3	17	0,188
3rdTrimester	9	22	
Education			
Low education level, completed junior high school or	2	26	0,024
below Medium/high school	11	26	
Economic status			

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Low if < Regional Minimum Wage	6	23	0,901
High, if ≥ Regional Minimum Wage	7	29	
Parity			
Primipara	6	16	0,336
Multipara	7	36	

P value determined using Pearson Chi-Square test

According to Table 6, there is a significant correlation (p-value <0.05) between education and the quality of pregnant women's diets.

DISCUSSION

The FIGO Nutrition Checklist is a questionnaire designed for women to assess their nutritional status before and during pregnancy. This checklist aims to gather information about weight, dietary habits, and nutritional requirements, which can help healthcare professionals guide pregnant women toward a healthier lifestyle. The checklist also helps identify any nutritional deficiencies or issues that need to be addressed.

A study was conducted to assess the nutritional status of 65 pregnant women who visited the Sukabumi Public Health Center for a month. The FIGO Nutrition Checklist was used for the assessment. The characteristics of the assessed women were as follows: 73.8% were between 20-35 years of age, 56.9% had high school or higher education, 55.4% had high economic status, 21.5% were in their first trimester, 30.8% were in their second trimester, 47.7% were in their third trimester, 33.8% were primigravida, and the rest were multigravida.

The study did not find any evidence of special dietary needs for pregnant women, such as vegetarianism, restrictions on certain foods to control allergies, or diets for managing health conditions like diabetes. However, previous studies have shown that pregnant women may require these types of diets to manage allergies, lactose intolerance, diabetes, hemochromatosis, or irritable bowel syndrome. (Killeen, 2020; Killeen et al., 2020b)

Determining the nutritional status of pregnant women is based on their pre-pregnancy Body Mass Index (BMI). Table 2 presents data on pregnant women with a normal weight of 18.5 to 24.9 (61.5%), an underweight 18.5 (7.7%), and an overweight 25 (30.8%). Knowing your pre-pregnancy BMI is crucial as it reflects your potential nutritional reserves for fetal growth and development. Pregnant women with poor nutritional status have inadequate nutritional stores, and thus need to gain more weight during pregnancy than those who have a normal or obese BMI. (Fikawati, Sandra; Syafiq, Ahmad; Karima, 2018). The FIGO Nutrition Checklist does not include any questions regarding a pregnant woman's weight or the amount of weight she gained during pregnancy. This is significant because weight gain is an important factor in determining nutritional status. Recommended weight gain is based on pre-pregnancy BMI calculations.

During pregnancy, women need to maintain a healthy diet. This means that the diet should provide enough energy to support the growth and development of the fetus, as well as meet the needs of the pregnant woman. Additional energy is required for the synthesis of new tissues such as the fetus, placenta, and amniotic fluid, as well as for the growth of existing tissues such as the uterus, breasts, and maternal adipose tissue. (Williamson, 2006) The FIGO Nutrition Checklist comprises six questions that evaluate the nutritional quality of a pregnant woman's diet. These include consuming meat or chicken twice or thrice a week, consuming more than two to three servings of fruits or vegetables per day, consuming fish at least once or twice a week, having dairy products like milk, cheese, or yogurt every day, consuming whole grain carbohydrate foods like brown bread, brown rice, or chocolate pasta at least once a day, and limiting packaged snacks, cakes, pastries, or sugary drinks to less than five times a week. According to Table 3, out of the 65 respondents, only 13 (20%) answered "yes" to all the questions, while the remaining 80% answered "no" to at least one question. This indicates that a significant majority of pregnant women might have an unsafe diet, specifically those who answered "no" to one or more of the diet quality questions in the FIGO Nutrition Checklist. Figure 1 provides additional insight into the percentage of pregnant women who answered "yes" to each of the six questions individually.

According to this research, out of a total of 65 pregnant women, only 32 (49.2%) reported consuming milk or dairy products daily (as shown in Figure 1). It is worth noting that milk and dairy products are essential sources of nutrients, particularly during certain stages of life. They are the primary food sources of iodine. (Givens, 2020) The need for increased iodine intake during pregnancy is due to higher maternal thyroid hormone production and fetal thyroid hormone synthesis. (Bath & Rayman, 2015) Research conducted in several

countries such as Spain, the Netherlands, Australia, and the UK has discovered a significant link between low iodine levels in mothers during early pregnancy and poor cognitive performance and neurological development in their children. A systematic analysis and meta-review revealed that low maternal iodine levels were linked to a 6.9 to 10.2 IQ point reduction in children under five years old. (Givens, 2020)

According to the research, only 56% of pregnant women consume wheat which is a good source of fiber for the body. This fiber helps to maintain intestinal PH levels and promotes smooth digestion. (Hajhoseini, 2013) It is important to consume fruits and vegetables as they are a good source of fiber. A research study revealed that only 43 out of 65 pregnant women (66.2%) consumed more than 2-3 portions of fruits or vegetables daily. Fiber is a key nutrient that helps prevent digestive tract diseases and cancer. A fiber-rich diet helps in controlling calories and inducing early satiety, which is beneficial for weight loss. During pregnancy, a high-fiber diet is crucial for maternal and fetal health. However, it is suggested to gradually increase fiber consumption, starting with soluble fiber to avoid flatulence. Adequate fiber intake can prevent constipation and hemorrhoids during pregnancy. (Hajhoseini, 2013)

Fiber-rich diet, rich in antioxidants, can help prevent hypertension and preeclampsia during pregnancy and promote fetal development. (James-McAlpine et al., 2020) Nuts, seeds, legumes, fruits, and vegetables can help reduce the risk of cardiovascular disease. (Watanabe et al., 2013)

Fish is an important source of nutrition for pregnant women as it contains iron, omega-3 fatty acids, and protein. However, the research results showed that only 49 out of 65 pregnant women (75.4%) consumed fish 1-2 times a week. Pregnant women must consume an adequate amount of fish to avoid any harm to maternal health and fetal development due to the lack of these essential substances. (James-McAlpine et al., 2020)

Health professionals should follow up on the quality of pregnant women's diets. Insufficient knowledge of dietary recommendations may hinder adherence to nutritional guidelines during pregnancy. (Lee et al., 2018) Verbal communication from healthcare professionals is the most crucial source of nutritional information for pregnant women.

The results of this study contain information about folic acid intake. In Table 4 it can be seen that all pregnant women have received folic acid. Folic acid is a supplement that is essential for pregnant women to prevent neural tube defects. (Argyridis, 2019) Approximately 5% of the general population has a deficiency in folic acid. Therefore, it is recommended that pregnant women consume 400 mcg/day of folic acid from preconception until 13 weeks of gestation. (Ho et al., 2016)

In Table 4, information on sun exposure is also provided. Of all the pregnant women, 58 (89.2%) received sun exposure. Several studies suggest that sunlight may protect against vitamin D deficiency. (Argyridis, 2019) (Chen et al., 2018)

This study examined the demographic characteristics and quality of the diet among pregnant women. According to Table 6, it was discovered that the quality of diet was related to the educational history of pregnant women. Consistent with earlier research, education can significantly impact a person's mindset, particularly about meeting the nutritional requirements of pregnant women during pregnancy. (Prawitasari Br Hasibuan & Mawarni, 2017)

CONCLUSION

According to the FIGO Nutrition Checklist, some pregnant women experience nutritional disorders. None of them have special dietary needs, but the quality of their diet does not meet the FIGO Nutrition Checklist indicators. All pregnant women consume folic acid, while some of them receive a lot of sun exposure and have hemoglobin levels greater than 11 gr/dl. Furthermore, maternal educational history is found to be related to diet quality.

SUGGESTION

Suggestions for future research include exploring the use of the FIGO Nutrition Checklist instrument in antenatal care. Midwives and other health professionals should provide education on appropriate nutritional intake during pregnancy at each antenatal visit.

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