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THE INFLUENCE OF NUTRITION MANAGEMENT EDUCATION ON MOTHERS KNOWLEDGE AND ATTITUDES IN FULFILLING NUTRITION FOR OBESE PREGNANT WOMEN

Juanda Syafitasari[1*], Poppy Siska Putri[1], Entan Afriannisyah[2]
[1]Bachelor Degree of Midwifery Study Program, Stikes Sapta Bakti, Indonesia
[2]Midwife Professional Education Study Program, Stikes Sapta Bakti, Indonesia
*E-mail: juandaanindya@gmail.com

ABSTRACT

Obesity is a high obstetric risk increasing the risk of maternal and fetal morbidity and death. Complications that can occurred in pregnant women with obesity are an increased risk of hypertension, gestational diabetes, spontaneous abortion, and postpartum hemorrhage. This research aims to determine the effect of nutritional management education on mothers knowledge and attitudes in fulfilling nutritional needs of obese pregnant women. The study used a quasi-experiment with a pre-test and post-test with a control group design. The sample in this study was 60 obese pregnant women who were divided into an intervention group and a control group, each with 30 respondents. The instruments used were observation sheets and nutritional management menu lists. Data analysis used the Mann-Whitney test with a significance level of $p \leq 0.05$. The study showed a significant difference between knowledge (p-value=0.015) and mothers' attitudes towards fulfilling nutrition (p-value=0.011) before and after nutrition management education. Nutrition management education is critical to improving nutritional fulfilment for pregnant women.

Keywords: Obesity, Nutrition Management Education, Pregnant Women

INTRODUCTION

Obesity is the most common obstetric problem affecting mothers and children (Flegal et al., 2012). In 2015, it was 32 deaths per 100,000 live birth happened, and the National Medium Term Development Plan (RPJMN) target to be achieved by 2024 was 16 deaths per 1000 births (Ministry of Health of the Republic of Indonesia, 2022). The Maternal Mortality Rate (MMR) in Bengkulu Province in 2020 was 32 deaths, with a distribution of 8 pregnant women (25%), 9 maternal deaths (28.12%) and 15 maternal deaths (46.9%) during the postpartum period. The direct causes of maternal death are bleeding (25% of postpartum hemorrhage), infection of germs or bacteria that enter the blood vessels (15%), preeclampsia (12%), obstructed labor (8%), complications of unsafe abortion (13%) and other causes (8%). Meanwhile, the indirect cause of maternal death is due to disease and not due to pregnancy and childbirth, one of which is obesity in pregnant women. Obesity is an indirect cause of maternal death because pregnant women who are obese will be susceptible to various complications (Sudirtayasa, 2018).

Symptoms of obesity can occur in all age groups, and body weight increases rapidly. These following body shape, appearance and facial characteristics in obese patients included thighs that appear enlarged, especially in the proximal part, relatively small hands with pointed fingers, facial emotional abnormalities, relatively small nose and mouth with a double chin, round face with chubby cheeks, enlarged upper arms, enlarged upper arms found in the biceps and triceps, relatively short neck, swollen chest with enlarged breasts, bulging stomach (pendulous stomach) and abdominal striae, ginigenu valgum puberty (x-shaped limbs) with the two inner groins sticking together and friction which can cause wounds on the skin (Guyton & Hall, 2018).

Pregnant women with obesity are required to follow a diet and should follow a healthy diet specifically for pregnant women or with nutritional management. During pregnancy, the body needs more protein, calories, vitamins and minerals such as folic acid and iron for fetal growth and development. The principle of good eating during pregnancy is breakfast. Pregnant women are advised to consume nutrient-rich foods at

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breakfast. Avoiding breakfast will give rise to the desire to eat more when the next meal arrives and can cause complaints such as dizziness and nausea (Evan, 2017).

Interventions that can be applied to overcome the problem of obesity are regulating eating and increasing physical activity through a nutritional education approach. Nutrition education is an effort to promote health related to healthy eating habits throughout life, starting at the early stages of life (Kostanjevec et al., 2011).

The diet of pregnant women who are obese will eat if they want to eat, not because they need to or because they are hungry; this can cause an increase in excess energy intake with high fat and carbohydrate content if this is done continuously without being balanced with physical activity it can increase risk of obesity in pregnant women. Physical activity also influences the occurrence of obesity in pregnant women; regular physical activity affects the body regular calorie expenditure; in this case, it can be concluded that lack of physical activity in pregnant women can cause fat accumulation, which can cause obesity in pregnant women.

During the pregnancy class, an initial research survey was conducted at the BPM Working Area of the West Ring Health Center, Bengkulu City, by interviewing ten third-trimester pregnant women with obesity. The results showed that 7 (70%) pregnant women had insufficient knowledge about nutritional management, and 4 (40%) pregnant women had not adopted a special diet for pregnant women with obesity. This is because most pregnant women have a secondary education level, so it is challenging to receive new information; apart from that, they also support it as housewives who have experience receiving information only from family members at home and neighbors. This provides limited access to the latest information.

Management of nutrition and diet in pregnant women with obesity is not just about losing weight but also about maintaining weight stability and preventing weight gain again. Reduce fatty foods, especially saturated fat, because it makes it easier for fat globules to stick to the walls of blood vessels. Consume little fat (30% of total calories consumed) and reduce excessive carbohydrate consumption to maintain body weight within normal limits (Sulistyoningsih, 2018).

METHOD

This research used the quasi-experimental method with a pre-test and post-test control group design. The study was conducted at the BPM working area of the West Ring Health Center, Bengkulu City. The independent variable in this research was nutrition management education, and the dependent variable was the attitudes and knowledge of pregnant women. The population in this study was all second-trimester pregnant women with a BMI $\geq$ 30 kg/m^2 from April to July 2023. The experimental group consisted of 30 pregnant women, and the control group consisted of 30 pregnant women. All subjects were purposively selected using the purposive sampling technique.

The research consisted of stages of data collection before intervention, intervention and data collection after intervention. Initial measurements (pre-test) were carried out on the first day before the intervention, and then nutrition management education was continued in the intervention group. At the same time, the control group was not given nutrition management education. The nutrition management intervention group used the lecture method, assisted by health center nutritionists and researchers, as well as the question and answer method and demonstration. Educational material includes prenatal nutrition, exclusive breastfeeding, and diet menu settings. We demonstrate how to prepare a daily food menu according to the daily needs of pregnant women with obesity/diet menu settings. The intervention was carried out for two consecutive days. Each meeting consisted of two sessions: the first session of lectures and discussions and the second session of demonstrations. The lecture and discussion session was held for 40 minutes, and the demonstration was held for 60 minutes, equipped with respondents practice. Seven days after the intervention ended, a post-test was given. In the control group, the post-test was shown on the seventh day after the pre-test. Nutrition management education in the control group was carried out after the post-test. Data analysis used

the Mann-Whitney test with a significance level of p≤0.05. The Ethical Clearance number used in this research is 178/KEPSTIKESSAPTABAKTI/2023.

RESULTS AND DISCUSSION

The research results can be seen in Table 1, which showed that the majority of respondents in both groups were young adults, in the control group 63.3% and in the intervention group 76.7%. Most mothers in the control group had a primary education level of 60%, while in the intervention group, most mothers had a secondary education level of 56.7%. Regarding family income, most have incomes below the minimum wage, 80% in the control group and 63.3% in the intervention group. The majority of respondents' employment status was not working, 86.7% in the control group and 90% in the intervention group.

In Table 1, the age characteristics of most respondents are young adults; as many as 77% are in the intervention group. Regarding maternal educational characteristics, 26.7% of the intervention group. Regarding income below the minimum wage, 63.3% of the intervention group. Regarding job characteristics, 90% of the intervention group did not work.

Based on table 2, it can be seen that after being given nutrition education, there was an increase in knowledge scores in the treatment and control groups. In the treatment group, before being given nutrition education, the average knowledge was 60.57 ± 12.16. After being given nutrition education, the knowledge score increased to 79.04 ± 4.10. In the control group, before being given nutrition education, the average knowledge was 60.89 ± 7.06, after being given nutrition education it increased to 68.76 ± 6.73. Even though there was an increase in knowledge scores in both groups, the increase in the treatment group was higher than in the control group. The increase in knowledge in the treatment group was 18.47 ± 16.01 and the control group was only 7.87 ± 6.15. There was a significant increase in knowledge in both the treatment and control groups with p<0.001. There is a difference in increasing knowledge between the treatment group and the control group, p=0.015.

In table 3, it can be seen that after being given nutrition education, there was an increase in attitude scores in the treatment and control groups.

Table 1. Distribution of Respondents Based on Maternal Age, Maternal Education, Family Income, Maternal Occupation, Maternal Nutritional Status

Variable	n	(%)
Age (years)		
Young Adult (18-35)	23	77
Middle Adult (>35-55)	07	23
Mother's Education		
Elementary School	8	26.7
Intermediate (High School)	17	56.7
Higher Education	5	16.6
Income		
Below minimum wage	19	63.3
Above minimum wage	11	36.7
Work		
Does not work	27	90
Work	3	10

Table 2. Knowledge scores before and after intervention between the treatment group and the control group

Knowledge Score	Interventions group		Control group		p-value
	Mean ± SD	p-value	Mean ± SD	p-value	
Before	60.57 ± 12.16		60.89 ± 7.06		
After	79.04 ± 4.10	<0.001 [a]	68.76 ± 6.73	<0.001 [a]	0.015 [b]
Gain Score	18.47 ± 16.01		7.87 ± 6.15		

In the treatment group, before being given nutrition education, the average attitude score was 76.46 ± 6.85. After being given nutrition education, it increased to 86.61 ± 6.43. In the control group, before being given nutrition education, the average attitude score was 79.58 ± 6.54. After being given nutrition education, the attitude score increased to 83.54 ± 6.04.

Even though there was an increase in attitude scores in both groups, the increase in attitude scores in the treatment group was higher than in the control group. The increase in attitude score in the treatment group was 10.49 ± 9.29 and the control group was only 1.46 ± 5.49. There was a significant increase in knowledge in both the treatment and control groups with p=0.015. There was a difference in the increase in attitude scores between the treatment group and the control group with p=0.011 using nutrition management education. Which means that there is a significant influence of nutrition management education on mothers' knowledge and attitudes in fulfilling the nutrition of pregnant women with obesity. This is in line with research conducted (Sulistiawati et al., 2021), which states that providing educational information during pregnancy positively impacts maternal knowledge because pregnant women know what to eat and avoid.

Providing appropriate education to pregnant women can increase the mother's knowledge, which is expected to change the mother's attitude. Attitude formation can be influenced by several things, such as experience, culture, other people, emotions and mass media. Attitudes will be formed by providing information that is perceived positively or negatively. Providing nutritional management education shows that fulfilling balanced nutrition appropriate to pregnant women condition is essential, influencing mothers' daily attitudes (Mulyani, 2017). The results of this research align with research by Yunitasari et al. (2020), which revealed a significant influence between education, brainstorming and demonstration on increasing the knowledge, attitudes and behavior of pregnant women in managing the diet menu in the intervention group. , while in the control group, there were no significant values.

The results of this study are also supported by research by Muluye et al. (2020), which shows no change in knowledge in the control group. The effectiveness of nutrition management education has also been studied in Kenya, where the average knowledge of nutrition management was significantly higher in the intervention group than in the control group (Waswa et al., 2015). This is in line with the research results of Mutiso et al. (2015), who state that nutrition management education and psychosocial factors strongly influence the extent to which IYCF is used.

Research in Ethiopia states that pregnant women have inadequate knowledge and practices regarding nutrition during pregnancy, resulting in poor behavior and health status of pregnant women, which can increase the risk of maternal morbidity and death (Tenaw et al., 2018). During pregnancy, mothers with an obese body mass index (BMI) have a greater risk of experiencing antenatal, intrapartum, postpartum and neonatal complications such as gestational hypertension, increased gestational diabetes mellitus, thromboembolism, increased cesarean delivery, premature labor, macrosomia, meconium aspiration and neonate. Stillbirth. In addition, children born to mothers who are obese have a high risk of obesity and metabolic diseases, including neuropsychiatric and cognitive disorders. Babies born to mothers who are obese tend to be at risk of being admitted to the NICU because they have an umbilical cord arterial pH <7.10 (Melchor et al., 2019; Mulyani et al., 2021). Providing educational interventions regarding nutritional management, especially

Table 3. Attitude scores before and after intervention between the treatment group and the control group

Attitude Score	Interventions group		Control group		p-value
	Mean ± SD	p-value	Mean ± SD	p-value	
Before	70.67 ± 6.58		78.85 ± 6.45		
After	81.16 ± 6.31	<0.001 [a]	80.34 ± 6.14	0.003 [a]	0.011 [b]
Gain Score	10.49 ± 9.29		1.46 ± 5.49		

for pregnant women who are obese, must be a priority in antenatal care. Obesity is also a form of prolonged malnutrition, which has long-term risks. This is necessary so the mother can reach the recommended weight during pregnancy.

CONCLUSION

The attitude and knowledge of pregnant women in nutritional management during pregnancy can prevent complications such as preeclampsia and diabetes mellitus, especially among obese pregnant women. They can reduce weight in pregnant women, but the nutrition of pregnant women remains adequate so that it does not interfere with the growth and development of the fetus. A healthy diet can be carried out with always having breakfast. Mothers are advised to eat foods rich in nutrients, choose foods with fiber and low sugar content, use fruit as a snack, drink lots of water at least 2 liters per day, not consume large amounts of food at once, and limit certain foods, such as sweet, savory and fat-containing foods.

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