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THE EFFECT OF EXCLUSIVE BREASTFEEDING ON MOTHER'S WEIGHT RETENTION IN POSTPARTUM PERIOD

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ABSTRACT

Exclusive breastfeeding is giving only breast milk to babies, without other drinks food, or water, except for oral rehydration fluids, drops, or syrup containing vitamins, mineral supplements, or drugs recommended by health workers for medical reasons. Breast milk contains complete nutrition which is very good for growth and development and is easily digested by babies. Mothers who exclusively breastfeed find it easier and faster to lose weight to their pre-pregnancy state. As the gestational age increases, there is a progressive accumulation of maternal body fat. These fat reserves are a source of energy that will be used in the process of producing breast milk. By breastfeeding, the body will produce more breast milk so that fat deposits that function as energy reserves will be used. Thus shrinking fat deposits, the mother's weight will quickly return to its pre-pregnancy state. At present, postpartum weight gain is a separate problem for mothers because of frequent postpartum weight retention. The purpose of this study was to determine the effect of exclusive breastfeeding on maternal weight in the postpartum period. A research design used in this study is the pretest-posttest control group design. This study used a group of mothers who exclusively breastfed and a group of mothers who did not exclusively breastfeed as a control group. Data on exclusive and non-exclusive breastfeeding were taken using a questionnaire, while the mother's weight immediately after delivery was taken from the mother's KMS or health worker documents. Calorie intake data was taken using the semi-SSQ questionnaire. While data on body weight in the range of 0-6 months, was taken by way of the researcher weighing directly using the same scales for each respondent. research results obtained Exclusive breastfeeding on mothers causing maternal weight loss in the first 6 months postpartum. Weight retention did not occur as in the non-exclusive breastfeeding group.

Keywords: *exclusive breastfeeding; babies aged 0-6 months; mother's weight; postpartum period*

INTRODUCTION

The gestational weight gain and BMI of pregnant women have a major impact on pregnancy outcomes, mother health, and neonatal health (Frederick et al., 2008). As the gestational age increases, there is a progressive accumulation of maternal body fat. These fat reserves are a source of energy that will be used in the process of producing breast milk (Marshall et al., 2022). Fat storage during pregnancy is a supplier of energy as much as 100-200 kcal per day (Most et al., 2019). Exclusive breastfeeding for infants greatly affects the respondent's weight, because 80-90 kcal of energy is needed to produce 100cc of breast milk (Fikawati & Sari, 2018). So if the mother does not breastfeed, there will be fat accumulation which can increase body weight (Rabi et al., 2021).

Exclusive breastfeeding is defined as feeding infants only breast milk, be it directly from the breast or expressed, except drops or syrups consisting of vitamins, mineral supplements, or medicine. Exclusive breastfeeding is one of the essential actions for infant development and survival (Hunegnaw et al., 2017).

Maternal weight increased by more than 6% at 6 months postpartum (Makama et al., 2021). Weight gain during pregnancy also causes postpartum maternal weight retention (Berezowsky & Berger, 2021). Twenty percent of women had a weight retention of about 5 kg compared to their pre-pregnancy weight (Mazloomy Mahmoodabad et al., 2021). Postpartum weight retention is associated with a higher risk of overweight and obesity, cardiovascular disease, and diabetes (Foster et al., 2023). This study aimed to determine the effect of exclusive breastfeeding on mother's weight in infants aged 0-6 months

METHOD

This study was pretest-posttest control group design. This study used a group of mothers who gave exclusive breastfeeding and a group of mothers who gave non-exclusive breastfeeding as the control group

Study Procedure

The population in this study were all mothers who breastfed their babies aged 0-6 months when the research data were collected in July - August 2022 at the Arjuno Health Center in Malang City. The purposive sampling was used in this study. The sample group used in this study was 70 people, 35 people with exclusive breastfeeding and 35 people with nonexclusive breastfeeding.

Inclusive criteria 1) the participants were mothers with babies aged 0-6 months 2) have weight data the day after delivery 3) live in the working area of the Arjuno Public Health Center, Malang City 4) are willing to participate in research. Exclusion criteria were breastfeeding mothers who have comorbidities during breastfeeding such as Diabetes Mellitus, hypertension, and heart disease.

Data collection

1. Researcher and assistant study the patient's profile according to the specified qualifications. Researchers recorded data from the Arjuno Health Center in Malang City. Data on mothers with babies aged 0 to 6 months, live in the working area of the Arjuno Health Center in Malang City and have weight data the day after delivery.
2. The researcher collected data at the posyandu or the participant's house.
3. The researcher asked for approval from the mother through prior informed consent by explaining the research objectives, the benefits of the research, the rights of the respondents, and the research procedures.
4. After the participants gave their consent by filling out and signing the informed consent form, the researchers distributed questionnaires to the mothers for data collection and weighing.
5. Processing data and concluding research results.

Materials

Demographic data and data on exclusive and non-exclusive breastfeeding were collected using a questionnaire, while the mother's weight immediately after delivery was taken from the mother's health record (KMS mother) or health worker documents. While data on body weight in the range of 0-6 months, was taken by way of the researcher weighing directly using the

same scales for each respondent. Data on the average nutritional intake of respondents using a semi-FFQ questionnaire

Ethical Considerations

Before launching the study, ethical approval was obtained from the research ethics review committee for research involving the Health Research Ethics Committee Faculty of Health Sciences Universitas Brawijaya. (Certified code: 3642/UN10.F17.10/TU/2022). Additionally, each participant signed a formal consent form. Patients in the study were given assurances regarding the confidentiality and anonymity of any collected data. They were also made aware of their right to discontinue participation in the study at any time.

Data Analysis

Demographic data, data on exclusive and non-exclusive breastfeeding, the mother's weight, average nutritional intake of respondents were analyzed by frequency distribution, mean, and standard deviation (SD). comparison of average and difference in average body weight for body weight before and after exclusive breastfeeding and nonexclusive breastfeeding were made using a Wilcoxon test, while those between differences in weight loss in the group of mothers who exclusively breastfeed and the group of mothers who breastfeed not exclusively using a Man Whitney-test.

RESULTS AND DISCUSSION

Table 1 The demographic of the study participants

	exclusive breastfeeding (n=35)	**Non exclusive breastfeeding (n=35)**
Age (year)		
19-29	20.0	22.0
30-45	15.0	13.0
Occupation		
Housewife	29.0	24.0
work outside the house	6.0	11.0
Education		
Bachelor	4.0	4.0
Academy	2.0	2.0
Senior High School	27.0	23.0
Junior High School	1.0	4.0
Elementary school	1.0	2.0
Parity		
P1	11.0	12.0
P2	15.0	18.0
P3	7.0	2.0
P4	1.0	30
P5	0.0	1.0

Table 2 Comparison of average and difference in average body weight for body weight before and after exclusive breastfeeding and nonexclusive breastfeeding

Group	Body weight		Δ mean body weight ± SD	p-value
	1st day postpartum	6 months postpartum		
Exclusive breastfeeding (n=35)				
Range	40-111	38-111	3.11 ± 3.81	0.001
Mean body weight ± SD	60.67 ± 15.73	57.6 ± 16.01		
Nonexclusive breastfeeding (n=35)				
Range	45-86	44-90	0.45 ± 1.78	
Mean body weight ± SD	61.65 ± 9.95	61.2 ± 10.43		

From Table 2, the exclusive breastfeeding group experienced an average weight loss of 3.11 kg within 6 months from the first day of delivery. whereas the non-exclusive breastfeeding group experienced an average weight loss of only 0.45 kg within 6 months from the first day of delivery. there is a significant difference in weight loss in the group of mothers who exclusively breastfeed and the group of mothers who breastfeed not exclusively (p value= 0.001)

Table 3 Comparison of average and difference in average body weight for body weight before and after exclusive breastfeeding and nonexclusive breastfeeding

Group	Calories	P value
Exclusive breastfeeding (n=35)		
Range	2348.70-37776.20	0.323
Mean calories ± SD	2803.60 ± 287.68	
Nonexclusive breastfeeding (n=35)		
Range	2448.00-3208.70	
Mean calories ± SD	2735.62 ± 225.17	

From Table 3, there is no difference in the number of calories consumed in groups of mothers who exclusively breastfeed and non-exclusively breastfeed.

Discussion

As the gestational age increases, there is a progressive increase in body weight and accumulation of maternal body fat which can increase the mother's weight. These fat reserves are a source of energy that will be used in the milk production process (Rosmaria, 2018).

This study indicates that there is a significant difference in weight loss in the first 6 months between groups of mothers who exclusively breastfeed and groups of mothers who do not exclusively breastfeed. The average postpartum maternal weight loss in the first 6 months reached 3.11 kg indicating no weight retention in the group of mothers who exclusively breastfed.

This study supports the theory exclusive breastfeeding for babies greatly affects the mother's weight because 80-90 kcal of energy is needed to produce 100cc of breast milk. Fat stores during pregnancy can supply energy as much as 100-200 kcal per day. So if the mother does not breastfeed, there will be fat accumulation which can increase body weight (Fikawati & Sari, 2018). Different from the Jarlenski et al. (2014) research which revealed that American mothers who exclusively nursed for at least three months experienced some postpartum weight loss (Jarlenski et al., 2014).

Most women regain their pre-pregnancy weight within 6 months postpartum. However, based on a study, maternal weight increased by more than 6% at 6 months postpartum (Misgina et al., 2022). The results of another study stated that 20% of women had a weight retention of about 5 kg compared to their pre-pregnancy weight. Approximately 13% to 20% of pregnant women experience substantial weight retention by 1 year postpartum (Gunderson, 2009). In addition, several factors cause postpartum maternal weight gain; internal and external factors. Internal factors include heredity, thermal regulation, and body metabolism. While external factors include physical activity and nutritional intake (Goodrich et al., 2013).

In this study, it was found that there was no difference in the number of calories consumed by groups of mothers who exclusively breastfed and mothers who breastfed non-exclusively. The same number of calories in both groups explains that the weight loss in this study was caused by exclusive breastfeeding. Besides breastfeeding and caloric intake, other factors like pre-pregnancy weight, diet, physical activity level, etc. will impact weight loss after birth (Goodrich et al., 2013).

CONCLUSION

Exclusive breastfeeding can have a significant impact on maternal weight loss during the first six months postpartum. Research indicates that women who exclusively breastfeed tend to experience more rapid weight loss compared to those who do not. This phenomenon can be attributed to the energy expenditure associated with lactation, as breastfeeding mothers require additional calories to produce milk for their infants. The process of breastfeeding stimulates the release of the hormone oxytocin, which helps the uterus contract and return to its pre-pregnancy size. This natural uterine contraction, combined with the energy demands of lactation, contributes to maternal weight loss. Studies have shown that exclusive breastfeeding mothers often shed more pounds in the early postpartum period and are less likely to retain weight compared to those who do not exclusively breastfeed. The exact mechanisms behind this phenomenon are multifaceted, involving hormonal, metabolic, and behavioral factors. However, it's essential to note that the extent of weight loss can vary among individuals, and factors like diet and physical activity also play a role in postpartum weight management. While

exclusive breastfeeding can aid in initial weight loss, mothers must maintain a balanced diet and incorporate regular exercise to support their overall health and well-being during this critical phase of motherhood.

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