

THE EFFECT OF GIVING SOY MILK TO PUBLIC WOMEN  
INCREASING BABY WEIGHT

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**ABSTRAK : PENGARUH PEMBERIAN SUSU KEDELAI PADA IBU NIFAS TERHADAP PENINGKATAN BERAT BADAN BAYI**

Latar Belakang: Menurut *World Health Organization* (WHO) merekomendasikan agar bayi baru lahir mendapatkan ASI eksklusif selama 6 bulan pertama kehidupan bayi dan melanjutkan menyusui untuk waktu dua tahun, karena ASI sangat seimbang memenuhi kebutuhan nutrisi bayi baru lahir, dan merupakan satu-satunya makanan yang dibutuhkan sampai usia 6 bulan, serta nutrisi yang baik untuk diteruskan hingga masa usia dua tahun pendampingan. Meskipun banyak sekali manfaat dan keuntungan pemberian ASI, namun WHO memperkirakan hanya (40%) dari seluruh bayi di dunia yang mendapat ASI untuk jangka waktu enam bulan.

Tujuan: Mengetahui pengaruh pemberian susu kedelai pada ibu nifas terhadap peningkatan berat badan bayi di Wilayah Kerja Puskesmas Naras Kota Pariaman.

Metodologi: Penelitian ini menggunakan metode penelitian eksperimen (*quasi experiment*). Desain penelitian ini menggunakan rancangan *Two Group Pre and Post Test Design* yaitu penelitian yang dilakukan pada dua kelompok, kelompok intervensi yang diberikan susu kedelai selama 7 hari dan diukur peningkatan berat badan bayi sebelum dan sesudah intervensi, pada kelompok kontrol dengan perlakuan konsumsi sari kacang hijau selama 7 hari dan diukur peningkatan berat badan bayi sebelum dan sesudah intervensi. Data dianalisis menggunakan analisis univariat, bivariat, dan multivariat.

Hasil Penelitian: Hasil penelitian diketahui bahwa rata-rata skor peningkatan berat badan bayi pada kelompok intervensi nilai *pre test* dari 3176.47 meningkat menjadi 3705.88 (nilai *post test*), dengan selisih rata-rata 529,41 sedangkan pada kelompok kontrol nilai *pre test* dari 3320.59 meningkat menjadi 3726.47 (nilai *post test*) dengan selisih rata-rata 404,88. Hasil Uji value  $0,000 < 0,05$  artinya ada pengaruh pemberian susu kedelai pada peningkata berat badan bayi. Ini membuktikan bahwa pemberian susu kedelai dapat meningkatkan berat badan bayi lebih tinggi dari pada sari kacang hijau.

Kesimpulan : Ada pengaruh pemberian susu kedelai pada peningkata berat badan bayi di Wilayah Kerja Puskesmas Naras Kota Pariaman.

Saran : Bagi petugas kesehatan khususnya bidan dalam memberikan pelayanan kebidanan yang ada di Kota Pariaman agar aktif dalam mensosialisasikan tentang kandungan yang terdapat di dalam susu kedelai tersebut sehingga masyarakat dapat dijadikan tolak ukur dalam melakukan upaya promotif terhadap peningkatan berat badan bayi.

Kata Kunci : Susu Kedelai, Peningkatan berat badan bayi

**ABSTRACT**

Background: According to the World Health Organization (WHO) recommends that newborns get exclusive breastfeeding for the first 6 months of the baby's life and continue breastfeeding for two years, because breast milk is very balanced to meet the nutritional needs of newborns, and is the only food needed until the child's age. 6 months, as well as good nutrition to be continued until the age of two years of mentoring. Despite the many benefits and advantages of breastfeeding, WHO estimates that only (40%) of all babies in the world are breastfed for a period of six months.

Purpose: Knowing the effect of giving soy milk to postpartum mothers on increasing infant weight in the Working Area of Naras Health Center in Pariaman City.

Method :This research uses experimental research method (*quasi experiment*). The design of this study used a *Two Group Pre and Post Test Design*, which was a study conducted in two groups, the intervention group was given soy milk for 7 days and the baby's weight gain was measured before and after the intervention, the control group was treated with green bean juice consumption for 7 days. 6 days and measured the baby's weight gain before and after the intervention. Data were analyzed using univariate, bivariate, and multivariate analysis.

Results: The results showed that the average score of the increase in infant weight in the intervention group, the pre test value from 3176.47 increased to 3705.88 (post test value), with an average difference of 529.41 while in the control group the pre test value from 3320.59 increased to 3726.47 ( post test scores) with an average difference of 404.88. The test results value 0.000.

Conclusion: There is an effect of soy milk on infant weight gain in the Working Area of Naras Health Center in Pariaman City.

Suggestion: For health workers, especially midwives, in providing midwifery services in Pariaman City, they should be active in socializing the contents of soy milk so that the community can use it as a benchmark in making promotive efforts to increase baby weight.

Keywords: Soy milk, increase in baby weight

## INTRODUCTION

The World Health Organization (WHO) recommends that newborns receive exclusive breast milk for the first 6 months of the baby's life and continue breastfeeding for two years, because breast milk is very balanced to meet the nutritional needs of newborns, and is the only food needed until the age of 6 months. as well as good nutrition to continue until the age of two years of assistance. Even though there are many benefits and advantages of breastfeeding, WHO estimates that only (40%) of all babies in the world receive breast milk for a period of six months. (1).

Exclusive breastfeeding means that babies are only given breast milk without the addition of other fluids such as formula milk, oranges, honey, water, and without additional solid foods such as bananas, papaya, milk powder, biscuits, rice porridge, and tim. WHO recommends exclusive breastfeeding for the first 6 months of life. At the age of 6 months, babies are introduced to solid foods such as pureed fruit and vegetables to supplement breast milk until the child is 2 years old.

Exclusive breastfeeding plays an important role in the baby's future. Breast milk has many benefits for babies, mothers, families, the country and even the world (2). Problems that often occur in postpartum mothers in breastfeeding, one of which is that breast milk is not flowing smoothly or comes out very little. The main cause of failure in breastfeeding is not carrying out Early Breastfeeding Initiation (IMD) immediately after the baby is born, breastfeeding from one breast only, providing other sources of nutrition. Breast milk, babies who tend to sleep often, shorten the breastfeeding period, breastfeeding in an uncomfortable position and attachment (3).

Based on the 2018 Basic Health Research (Riskesmas), breastfeeding coverage in Indonesia is still quite low, namely (37.3%), based on Indonesian Health Profile data (2020) maternal services

Postpartum coverage of complete KF visits in Indonesia in 2020 was (88.3%).

The achievement of the indicator for the percentage of babies aged less than 6 months who receive exclusive breastfeeding has met the 2020 target, namely 40%. Based on the distribution of provinces, 32 provinces have achieved the expected target and there are still 2 provinces that have not achieved the target, namely West Papua (34%) and Maluku (37.2%), while the province with the highest achievement is West Nusa Tenggara (87.3 %). Exclusive breastfeeding coverage in West Sumatra Province is 77.8% (4).

Coverage of exclusive breastfeeding in Kota Pariaman has still not reached the target set by the government of 80%. Pariaman City experienced a decrease in exclusive breastfeeding from 80.1% in 2019 to 70.3% in 2020 (5).

Higher levels of isoflavones in babies were found in mothers who regularly consumed tofu and soy milk. Isoflavones in processed soybeans are believed to increase breast milk production and reduce the risk of breast cancer. Soy milk is a drink made from soybean starch which has many nutritional and beneficial contents. Its potential in stimulating the hormones oxytocin and prolactin such as alkaloids, 30 polyphenols, steroids, flavonoids and other substances is effective in increasing and facilitating breast milk production (6)..

Soy milk is a dissolved fraction extract from soybeans which is a beverage product with the aim of increasing protein consumption. The content of nuts can help the fetal growth process in pregnant women and can optimize breast milk production and the concentration of breast milk color in postpartum mothers. Based on research conducted by Dwi, (2014). Giving soy milk can increase a baby's weight by an average of 150 grams.

The content of green bean juice consumed by mothers is an additional food that can meet the nutritional needs of breastfeeding mothers so that the quality and volume of breast milk increases thereby

supporting the growth and development of the baby. Breast milk is a source of fat and protein which is important for the growth and nutrition of babies. The quantity of breast milk consumed by the baby and the nutritional content of breast milk are often used to assess nutritional adequacy during the breastfeeding process.

One way to ensure mothers are successful in providing exclusive breast milk is that mothers who are breastfeeding their babies must receive additional food to avoid decreasing breast milk production. If the content in a breastfeeding mother's food does not meet nutritional requirements, the milk-making glands will not work properly, thereby affecting breast milk production. The average baby's weight before giving the green bean juice drink and after giving the green bean juice drink showed an increase of 56 grams.

Based on the initial research survey conducted by researchers on April 30 2024 at PMB "A" and PMB "N" in the working area of the Naras Health Center, Pariaman City, it was found that in PMB "A" and PMB "N" the number of postpartum mothers in 2022 was 123 people. and the number of postpartum mothers in 2023 will be 109 people. Supported by report data on exclusive breastfeeding coverage in the Naras Community Health Center working area, namely (54.8%).

## RESEARCH METHODS

The research design used in the research is an experimental method (quasi experiment). This research design used a Two Group Pre and Post Test Design, namely research conducted on two groups, the intervention group was given soy milk for 7 days and the increase in baby weight was

measured before and after the intervention, and the control group was treated with consumption of green bean juice for 7 days. 7 days and measured the increase in baby's weight before and after the intervention.

The population in this study were postpartum mothers on the 10th day who were in the working area of the Naras Health Center, Pariaman City, totaling 45 people..

The research sample in this study was normal postpartum women taken using purposive sampling technique. To anticipate postpartum mothers dropping out, the sample was increased by 10% so the total sample in this study was 17 people. So the total sample in this study was 34 postpartum mothers, divided into 17 as the intervention group and 17 as the control group..

The instruments in this research are SOP, questionnaire sheet, observation sheet, and master table.

## RESEARCH RESULTS

### Univariate Analysis

Based on table 1, it can be seen that in the intervention group of 17 respondents who were given soy milk, most of the respondents were aged 20-35 years (56.0%), more than half of them were postpartum mothers, namely primigravida (53.3%), and most postpartum mother respondents with jenis The sex of the baby was female (52.2%), while of the 17 respondents who were in the control group who were given green bean juice, most of the respondents were aged 20-35 years (44.0%), more than half of whom were of the parity of postpartum mothers, namely multigravida (52, 6%), and most Postpartum mother respondents with female babies (47.8%).

**Table 1**  
**Characteristics of postpartum mothers in the working area of the Naras Health Center, Pariaman City**

Variable	Group			
	Intervention (N=17)	Percent	Control (N=17)	Percent
Age				
<20 years and >35 years	3	33,3	6	66,7
20-35 years	14	56,0	11	44,0
Parity				
Primigravida	8	53,3	7	46,7
Multigravida	9	47,4	10	52,6
Child's Gender				
Woman	12	52,2	11	47,8
Man	5	45,5	6	54,5

**Table 2**  
Average baby weight before and after giving soy milk and soybean juice in the intervention group in the working area of the Naras Health Center, Pariaman City

Group	N	Mean	Min	Max	Standard Deviation
Pre-test Soy milk	17	3176.47	2900	3600	163.093
Post test Soy Milk	17	3705.88	3350	4000	191.933
Pre-test Green bean juice	17	3320.59	2900	3900	3726.47
Post test Green bean juice	17	3726.47	3350	4100	225.775

Based on table 2, it shows that in the intervention group (given soy milk) when the pre-test was carried out the average baby weight was 3176.47 with a minimum of 2900 and a maximum of 3350 and a standard deviation of 163.093. Meanwhile, when the post test was carried out, the baby's weight was 3705.88 with a minimum of 3350 and a maximum of 4000 and a standard deviation of 191.933..

In the control group (given green bean juice) when the pre-test was carried out the average baby weight was 3320.59 with a minimum of 2900 and a maximum of 3900 and a standard deviation of 3726.47. Meanwhile, when the post test was carried out, the average baby weight was 3726.47 minimum

3350 and maximum 4100 and standard deviation 225.775.

#### Bivariate Analysis

Before data analysis was carried out, a normality test was carried out using the Shapiro Wilk test. The results for the soy milk group were  $p$ -value 0.069 and green bean juice  $p$ -value 0.677. The baby's weight data after being given the intervention had a normal distribution. So this research will be processed using the Paired Sample T test statistical test. The results of the analysis can be seen in the following table:

**Table 3**  
The effect of giving soy milk and green bean juice to postpartum mothers on increase in baby weight

Variabel	N	Mean	Different Mean	$p$ -value
Intervention Group (soy milk)	17	529.41	123.53	0.007
Control Group (mung bean juice)	17	405.88		

Based on Table 3 above, the mean difference is 123.53 with a  $p$ -value of 0.007 < 0.05, meaning that there is an influence of giving soy milk and green

bean juice to postpartum mothers on increasing the baby's weight.

**Table 4**  
Effect of Soy Milk, Green Bean Juice, Maternal Age, Parity, and Gender Regarding the Increase in Baby Weight in the Working Area of the Naras Health Center, Pariaman City

Variable	N	Mean	Standard Deviation	$p$ -value
Soy milk	17	529.41	98.518	0.000
Green bean juice	17	405.88	144.577	0.000
Age				
< 20 and > 35 years	9	3833.33	212.132	0.045
20 -35 years	25	3674.00	191.551	
Parity				

Primigravida	15	3773.33	180.145	0.155
Multigravida	19	3671.05	219.416	
Gender				
Woman	23	3650.00	181.534	0.005
Man	11	3854.55	192.944	

Table 4 shows that soy milk has a value of  $\rho$  value = 0.000, green bean juice has a value of  $\rho$  value = 0.000, age has a value of  $\rho$  value = 0.045, parity has a value of  $\rho$  value = 0.155 and gender has a value of  $\rho$  value = 0.005. This means that soy milk, green bean juice, age, parity and gender of the child influence the increase in baby's weight because  $\rho$  value < 0.05.

### Multivariate Analysis

Multivariate analysis was carried out to see the effect of soy milk on increasing baby weight by controlling external variables, namely age, parity and gender on increasing baby weight. The analysis used is the ANCOVA test.

**Table 5**  
**The effect of soy milk and green bean juice on increasing baby weight after controlling for external variables age, parity, and gender in the working area of the Naras Health Center, Pariaman City**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig
Intervention	121207.398	1	121207.398	7.318	0.11
Age	1325.049	1	1325.049	0.080	0.779
Parity	1300.003	1	1300.003	0.078	0.781
Gender	6982.706	1	6982.706	0.422	0.521

Based on table 5, it shows that the intervention of soy milk and green bean juice on increasing baby weight was influenced by 22.5% and 77.5% was influenced by other factors.

### DISCUSSIONS

#### The Effect of Giving Soy Milk to Postpartum Mothers on the Increase in Baby's Weight in the Working Area of the Naras Health Center, Pariaman City

Analysis based on research results shows that the frequency distribution of characteristics in postpartum mothers in the intervention group of 17 respondents who were given soy milk was mostly respondents aged 20-35 years (56.0%), more than half of whom were parity in postpartum mothers, namely primigravida (53.3 %), and the majority of postpartum mother respondents were female (52.2%) while of the 17 respondents who were in the control group who were given green bean juice, most of the respondents were aged 20-35 years (44.0%), more Of the parity of half of postpartum mothers, namely multigravida (52.6%), and the majority of postpartum mother respondents were female (47.8%).

Based on the research results, it is known that from 34 samples, the mean weight of babies in the intervention group was 3705.88 and the weight of babies in the comparison group was 3726.47. Based

on the research results, it was found that the baby's weight increased every day during the intervention. This is in line with research (Elika, 2018) that soy milk containing nuts can help the process of producing breast milk as well as the concentration of breast milk color in breastfeeding mothers and higher levels of isoflavones in babies found in mothers who regularly consume soybeans. The isoflavones in soybeans are believed to increase breast milk production and reduce the risk of breast cancer (7).

Based on research (Jahriani. The nutritional content of green beans is quite high and the composition is complete. Based on the amount, protein is the second main constituent after carbohydrates (8).

Green beans contain 20-25% protein. Mothers really need high protein during lactation, especially protein that contains amino acids so it can stimulate breast milk secretion. Green beans also contain active compounds, namely polyphenols and flavonoids which function to increase the hormone prolactin. When the hormone prolactin increases, milk secretion will be maximum so that the quantity of breast milk will increase and the nutritional content contained in green bean juice will increase the nutritional content in breast milk (9).

The results of this research show that soy milk and green bean juice have an effect on increasing baby weight because the value is 0.007. The results

of this research are supported by research conducted (Elika, 2018) on the Effect of Giving Soy Milk on Increasing Breast Milk Production in Postpartum Mothers at RB Bina Sehat Sentul. There is an influence of giving soy milk on increasing breast milk production showing a positive effect where all respondents experienced an increase in breast milk production and able to optimize breast milk production and the density of breast milk color in breastfeeding mothers (7).

The effect of soy milk and green bean juice on increasing baby weight after controlling for external variables of age, parity and gender on increasing baby weight in the Telaga Dewa Community Health Center working area, Bengkulu City. Intervention has a value of value = 0.11, age has a value of value = 0.779, parity has a value of value = 0.781 and gender has a value of value = 0.521. This means that the intervention of soy milk and green bean juice on increasing baby weight was influenced by 22.5% and 77.5% was influenced by other factors.

The effect of soy milk on increasing baby weight after controlling for age, parity and gender variables in the Telaga Dewa Community Health Center working area soy milk and green bean juice affect baby weight with a value of  $(0.011) \leq 0.25$  which means the frequency of soy milk and Green bean juice has a greater influence on increasing baby weight compared to age, parity and gender of the baby.

Meanwhile, in the intervention group, soy milk was given for 7 days with a frequency of 250 ml of soy milk given to postpartum mothers once a day. The way to give soy milk is in the morning and then weigh the baby. Meanwhile, in the control group, green bean juice was given for 7 days with a frequency of 250 ml of green bean juice given to postpartum mothers once a day. The way to give green bean juice is in the morning and then weigh the baby.

## CONCLUSIONS

Based on the conclusion that was obtained, there was a before and after effect of consuming soy milk and green bean juice on postpartum mothers who were carried out in research for 7 days which was measured as an increase in baby weight, mother's age, parity, and gender with the amounts measured. influence by 22.5% and 77,5% with a p-value of 0.007 in the Working Area of the Naras Health Center, Pariaman City in 2024.

## SUGGESTIONS

Providing information and knowledge to postpartum mothers about the benefits of consuming

soy milk, one of which is to increase the baby's weight and use natural ingredients to be consumed to facilitate breast milk and for health workers, especially midwives, in providing midwifery services in Pariaman City to be active in socializing What are the benefits contained in soy milk so that society can use it as a benchmark in making promotional efforts to increase baby weight.

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