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# The Impact of Nutritional Counseling on Complementary Feeding Practice and Infant Nutritional Status at Pakan Rabaa Solok Selatan Health Centre in Indonesia

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## ABSTRACT

**Introduction:** Malnutrition in infants is not only caused by food shortages. There are some other factors that cause inadequacy in the provision of complementary feeding. According to previous research findings, malnutrition in infants and children is caused by the practise of providing complementary foods and mothers' ignorance about the benefits and proper way of breastfeeding, which influences the maternal attitude toward breastfeeding provision. The aim of this study was to determine the effect of counseling with a demonstration of the practice of complementary feeding on the nutritional condition of infants aged 6–12 months. **Methods:** This research is quasi-experimental research designed with a control group pretest and posttest. The study was conducted at the Health Center Pakan Rabaa Solok Selatan. This study was conducted from July-September 2020. **Results:** Before nutritional counselling practice, both groups' scores differed by 0.21 points, whereas after counselling practice, the difference between the control and intervention groups' scores is 0.52 points. Between the intervention and control groups, there was no significant difference in birth weight. **Conclusion:** The study found that there are significant differences between the nutritional counseling and demonstration with conventional nutritional counseling. So health centre should conduct nutrition education and demonstrations to improve the knowledge of breastfeeding regularly for the public as well as mothers whose education levels are low.

***Keywords: Nutrition Counseling; Complementary Feeding; Nutrition Status***

## INTRODUCTION

Children's health is primarily a public health issue that cannot be solved by just the medical and health services. Health problems that occur in toddlers affect the growth and development of both infants and later in life. Until now, nutritional issues have not yet been resolved in the best possible way (Dewantari, 2013).

Lack of food, an infectious disease, or a combination of the two can result in malnutrition. Stunting prevents both cognitive and physical growth. Similarly, it is estimated that 16% of all children worldwide, or 101 million children under the age of five, are underweight (Chowdhury *et al*., 2016).

Ministry of Health of the Republic of Indonesia survey conducted on 2018 regarding Basic Health Research revealed that 17.7% of children under the age of five (toddlers) have nutritional difficulties. The combined malnutrition rates were 3.9% in toddlers and 13.8% in preschoolers. The National Medium-Term Development Plan has set a goal of 17% for underweight children under the age of 5, and 30.8% for stunted children under the age of 5 by 2019 (Kementerian Kesehatan Republik Indonesia, 2019).

Malnutrition in infants is not only caused by food shortages. Some other factors that cause in the provision of complementary feeding and early weaning with inadequate knowledge and awareness. The results of a study reported that malnutrition in infants and children are caused by the inappropriate habit of giving complementary foods dur to the ignorance of mothers about the benefits and the way breastfeeding. This is a

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factor that influence maternal attitude in the provision of breastfeeding (Widyawati, Febry, & Destriatania, 2016).

Malnourished children have a weakened immune system, leaving them more vulnerable to common childhood ailments like diarrhea and respiratory infections. Additionally, malnourished children who survive are more likely to become ill frequently, jeopardizing their nutritional status and locking them in a vicious cycle of repeated disease, stunted growth, and decreased learning abilities (Hien, & Kam, 2008).

According to research during the first six months of an infant, the prevalence of wasting was 5.333 percent for children who were exclusively breastfed, mixed fed, and formula fed, with no statistically significant difference between the three groups. Infants who were breastfed exclusively for the first six months of life showed lower rates of stunting than children who were mixed-fed or given formula (Maidelwita, 2019).

Therefore, the role of a mother in the family is very important in implementing the provision of complementary feeding. Good handling carried out by mothers in giving complementary feeding to their babies have the potential to achieve a healthy baby both in growth and development. But in reality there are still many problems in feeding complementary food to infants and it is constituted by many factors, especially the mother behavioral factors. Efforts to enhance the health and nutritional status of 6- to 12-month-old infants through improved knowledge and behavior of the mother in the provision of complementary feeding is an inseparable part of the overall efforts to improve nutrition (Arifin, Masrul, & Ali, 2019).

The efforts to improve this knowledge can be done through counseling at Child Health Services (Posyandu). The Counseling is carried out once a month with the implementation in Integrated Health (Posyandu/IHC) in an effort to increase the knowledge, attitudes and behavior of mothers on complementary feeding. Counseling in integrated health services remains a serious problem. The Counseling activities in maternal and Child Health Service (Posyandu) is not quite optimal so that counseling has not been able to change the behavior of the mother in the provision of complementary feeding (Saleh, & Kunoli, 2018).

The study of nutritional counseling for infant's mother has been done by others but it has not been clearly planned out about the counseling techniques and the affect of this counselling on the mother behavior in the provision of breastfeeding. As a result, this study was undertaken in the Health Center Pakan Rabaa Solok Selatan 2020 to determine the effect of counseling with a demonstration of the practice of complementary feeding on the nutritional condition of infants aged 6-12 months (Hestuningtyas, & Noer, 2014).

## METHODOLOGY

### a. Research Design

The study was structured as a quasi-experimental study with a control group pretest and posttest. Nutritional counseling changed maternal practices in the administration of breastfeeding and also changed nutrition status in infants aged 6 to 12 months, according to the findings of a quasi-experimental design.

### b. Research Setting

The study was conducted in theHealth Center Pakan Rabaa Solok Selatan. This study was conducted between July – September, 2020.

### c. Sample size and sampling

The sample of this research was mostly mothers with babies aged 6-12 months in the Health Center Pakan Rabaa Solok Selatan with the number of samples are 46 people in the intervention group and 46 people in the control group. Purposive sampling was used to collect data, with the independent variable being nutritional counseling with demonstration and the dependent variable being practice of complementary feeding and newborn nutritional status.

### d. Data Collection

The main data collection method in this study was the measurement of weight and height, interviews through questionnaires. Interviews through questionnaires were conducted individually to identify the factors that the factors influencing nutritional counseling with demonstrations about complementary feeding practices and infant nutritional status.

### e. Data Analyze

The data is handled with version 22 of the Statistics Package for Social Sciences. The data is then evaluated using a chi-square test, an independent *T*-test and a dependent *T*-test.

### Ethical Approval

This study had been approved by Ethics Committee of the Faculty of Medicine, Andalas University, Indonesia (387/KEP/FK/2019) dated 21st June 2019.

## RESULTS

***Table 1: Differences In The Practice of Complementary Feeding Before and After Nutrition Counseling to the Control Group and Intervention Group***

| Practice | mean | Δ mean | SD± | Minimal - Maximum | *p*-value |
|---|---|---|---|---|---|
| **Control** | | | | | |
| Pre-test | 11.80 | 0.33 | 1.344 | 8-14 | 0.001 |
| Post-test | 12.13 | | 1.204 | 10-14 | |
| **Intervention** | | | | | |
| Pre-test | 11.59 | 1.06 | 1.484 | 7-14 | 0.001 |
| Post-test | 12.65 | | 1.037 | 10-15 | |

*Dependent t -Test*

***Table 2: The Differences in Complementary Feeding Practice Between the Control Group and Intervention Group***

| Practice | Control | Intervention | Δ mean | *p* value |
|---|---|---|---|---|
| pre Test | 11.80 | 11.59 | 0.21 | 0.463 |
| Post test | 12.13 | 12.65 | 0.52 | 0.028 |

*Independent t - test*

According to the findings of the study, after receiving nutritional counseling, the practice of breastfeeding among showed an increase in scores. The difference in score between the intervention and control groups was 0.21 points before nutritional counseling practice, while it was 0.52 points after counseling practice. The findings of statistical tests revealed that in terms of mother behavior prior to getting dietary guidance, there is no substantial difference between the groups. In the group that received conventional nutritional counseling versus the group that received nutritional counseling plus demonstrations, there is a significant difference in maternal practices in the provision of breastfeeding after receiving nutritional counseling.

***Table 3: Distribution of Infant Nutrition Status Ages 6-12 Months Before and After Nutrition Counseling the Control Group and Intervention Group***

| Nutritional status | *Pretest* | | *Posttest* | |
|---|---|---|---|---|
| | F | % | f | % |
| Controls (> +2 SD) | 1 | 2.2 | 1 | 2.2 |
| (>-2 SD- <+2 SD) | 45 | 97.8 | 45 | 97.8 |
| (>-3 SD-<-2 SD) | 0 | 0 | 0 | 0 |
| **Total** | **46** | **100** | **46** | **100** |
| Intervention (>+2 SD) | 1 | 2.2 | 1 | 2.2 |
| (>-2 SD-<+2 SD) | 43 | 93.4 | 45 | 97.8 |
| (>-3 SD-<-2 SD) | 2 | 4.4 | 0 | 0 |
| **Total** | **46** | **100** | **46** | **100** |

According to the table 3, the frequency distribution of nutritional status of infants in the intervention group before nutritional counseling were 2 infant malnutrition (<-2 SD) and 1 infant overweight (> +2 SD), while the control group only a small number have nutrition (> + 2 SD). After being given nutritional counseling in the intervention group increased their nutritional status and only small part of it is excess nutrition status (> +2 SD) as well as the control group.

The average weight of the baby was compared two times with the control group pre-test and post-test intervention group with the control group intervention group. The following table shows the comparison:

***Table 4: The Mean Infant Weight Difference between the Intervention and Control Groups***

| Weight | Control | Intervention | Δ mean | *p* value |
|---|---|---|---|---|
| Pre Test | 8.46 | 8.75 | 0.29 | 0.521 |
| Post Test | 9.20 | 9.48 | 0.28 | 0.217 |

** Mann Whitney test*

According to the table 4 the average weight of infants in both groups showed weight gain. Statistical test results found no significant difference in birth weight between the group given conventional nutritional counseling with a group given nutritional counseling plus demonstrations

## DISCUSSION

Based on the research results, it can be said that in the control group provision of complementary feeding practices from increased 11.80 to 12.13 points. While the intervention group increased knowledge from 11.59 points to 12.65 points. The test results obtained statistically significant differences in maternal practices in the provision of breastfeeding before and after counseling in both groups.

The results are consistent with other research, where in the control group feeding practice improved on an average by 1.65 points and in the intervention group 2.10 points (Dewi, & Aminah, 2016).

Practice or behavior is a person's response to a stimulus that comes from within and from outside individual (Notoatmodjo, 2012). Mother's behavior in this study was based on feeding behaviour towards their infants aged 6-12 months in giving complementary foods, ranging from how to select, process foodstuff to

the feeding to the child.

The study found that there are significant differences between the nutritional counseling plus demonstration with conventional nutritional counseling. So that there are differences between the mean score of the practice of giving meaningful breastfeeding after being given nutritional counseling plus demonstrations. After nutritional counseling, the majority of mothers feeding behaviour improved to good behavior as demonstrated by the fact that food began to be given according to age, feeding according to the needs and limiting distractions as much as two times a day. Based on these results it can be seen that dietary counseling can help people improve their habits (Dewi, & Aminah, 2016).

The results showed that in the control group the baby's weight changed from 8.46 to 9.20 points. While the intervention group changes the baby's weight increased from 8.75 to 9.48 points. Therefore it can be concluded that there was a increase in body weight in infants after a counseling intervention group plus demonstrations.

This is consistent with research Imdad, Yakoob, & Bhutta., in 2011 which showed that there was a increase in weight and linear growth in the group given complementary feeding counseling. In this study it was found that 4.4% of the children have better nutrition. One factor that contributed to better nutritional status was the provision of breastfeeding. The effect of breastfeeding too frequently will result in excessive nutrients in children, whereas the provision of less breastfeeding will result in less nutrition in child.

In the treatment group, complementary feeding practices and nutritional status increased significantly before and after of the study. These results are strengthened by other research which stated that nutritional counseling plays an important role in improving dietary compliance because nutritional counseling is a personal approach used to help individuals gain better understanding about nutritional problems faced and they will be motivated to bring about change in their behavior. Furthermore, individuals are able to take steps to solve the nutritional problem, including changes in practice feeding (Hestuningtyas, & Noer, 2014).

Giving complimentary foods instead of breast milk is a beneficial and correct practice, a long as the variety and frequency of complementary food are kept to a minimum. According to the findings of the survey, more than half of mothers' practices in giving complementary foods instead of breast milk was not satisfactory. The results are consistent with another research in America that showed that exclusively breast-fed infants increase in growth was only about 13% in the first month and continued to decrease in the next month. In those cases where Mothers followed the practice of breastfeeding, along with adding formulas, and produce rapid weight gain and reflux in infants. As a result, these babies get excessive nutrients and become obese (Pak-Gorstein, 2015). Maternal mortality rates (MMR) have a significant impact on the overall health and mortality of a population (Manik *et al*., 2021).

Nutritional counseling is done during the Maternal and child Health service (posyandu) as part of a government program in policy measures to improve nutrition. Nutritional counseling in maternal and child health service (posyandu) not necessarily can improve maternal practices in the provision of good complementary feeding. Therefore, the need for the demonstration in nutritional counseling by volunteers and health workers in providing appropriate information regarding feeding behaviour and nutritional effect on infants is necessary. If these mothers would behave in accordance with the knowledge provided then they would be capable of providing balanced diet for increased development of their children (Maidelwita, & Arifin, 2021; Agustin, 2018).

Change of knowledge and behavior is a major factor determining the success in the prevention of malnutrition in infants and can prevent growth disorders that affect the child in long-term. The mother of toddler is bestowed with great responsibility for a kid (Pangaribuan, Simanullang, & Poddar, 2020). Overall, nutritional counseling by the method of demonstration is the key to the success of integrated programs in the prevention of growth disorders in children under two years of age. Success factors in educating mothers as a stimulator, and by increasing the frequency of meetings at the IHC, the ability of midwives and cadres in maternal and child health service (Posyandu) as an extension, are a prerequisite for the success of the program in addition to other effective materials, methods, and tools (Muthia, & Ariyani, 2020).

The method used in the intervention was counseling plus demonstration by showing number of household of different sizes and demonstrating the process and the

food ingredients necessary to make complementary foods other than breast milk. This method makes counseling more interesting and the material presented is easy for respondents to understand. Changes in knowledge and behavior are the main determinants of success in preventing undernutrition in infants which can prevent growth and development disorders that have long-term impacts. Overall, nutritional counseling using the demonstration method is the key to the success of an integrated program for the proper growth and development in children below two years old. The success factor in educating mothers as stimulators at home, and increasing the frequency of meetings at Posyandu can help in successful implementation of Nutritional Counseling**.** The role and the ability of Posyandu cadres as extension workers, are prerequisites for the success of the program in addition to effective materials, methods and tools.

## CONCLUSION

In conclusion, the effect of nutritional counselling on changing maternal practises in the provision of breastfeeding is vital in the present scenario. It is expected that under the leadership of the health centre nutrition education and demonstration will be carried out to improve the knowledge of cadres and the public. Health workers are also expected to provide information to mothers about the provision of breastfeeding regularly, especially in mothers whose education levels are low. The Public Health Centre are expected to hold nutrition education and training on a regular basis to increase knowledge of midwife or health workers so that the mothers are updated with latest information about complementary feeding practice. In this manner the goal of nutritional counseling can be achieved, and mothers breastfeeding practice is good, and the infants are healthy and intelligent.

### Conflict of Interests

The authors declare that they have no conflict of interests.

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