# Analysis Of Provision Of Types Of Complementary Foods Towards Constipation Incidence In Infants Aged 6-12 Months In Ngajum Village

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ABSTRACT

Complementary Food for Breast Milk (MP-ASI) is a term used for food given to toddlers which is expected to meet the nutritional needs of toddlers. However, in reality, the nutritional content of MP-ASI given to toddlers is still less than the established Adequacy Rate. The purpose of this study was to determine the relationship between the provision of complementary foods (MP ASI) and the incidence of constipation in infants aged 6-12 months in Ngajum Village, Ngajum District, Malang Regency in 2020. This study is an observational study with a cross-sectional design. The population of all toddlers aged 6-12 months with a sample of 72 respondents was selected using a simple random sampling technique. The dependent variable is the incidence of constipation and the independent variable is the provision of complementary foods. Data collection using a questionnaire and analyzed using the Chi Square test. This study shows that most mothers use instant MPASI, namely 35 respondents (48.6%) and most babies experience constipation, namely 44 respondents (61.1%). The results of statistical tests with Chi Square obtained a value of $\rho = 0.000 < \alpha = 0.05$ because pvalue $< \alpha$ then Ho is rejected, meaning there is a relationship between the provision of types of complementary foods (MP ASI) and the incidence of constipation in infants aged 6-12 months in Ngajum Village, Ngajum District, Malang Regency. It is expected that health workers provide information to mothers regarding the types of complementary foods for breast milk (MP ASI) that are appropriate for infants aged 6-12 months. Suggestions for research respondents are to improve mothers' knowledge in caring for their babies, especially in providing MPASI, so that babies grow healthily and mothers can monitor their toddlers' growth and development optimally.

## I. Introduction

Constipation is common in children, 40% of whom start when they are 1-4 years old, in children aged 7-8 years the incidence decreases to 1.5% and in children aged 10-12 years to around 0.8% only. In infants, constipation can occur due to the transition from breast milk to infant formula, or from baby food to solid food (Artini, 2012).

Toddler period (under three years old) is an important period in the process of human growth and development. The growth and development period at this age is a period that occurs quickly and never repeats itself and is often called the golden age period (Artini, 2012).

When children enter toddler age, balanced nutrition must be given to achieve maximum child growth and development. One of the health problems that many toddlers face is constipation. The spread of constipation in children has spread to almost all countries with a fairly high prevalence of 5-30%. Lack of fiber intake is said to be the main factor causing constipation in toddlers in addition to

clinical and psychological factors. Research conducted at Dr. Sardjito Hospital, Yogyakarta found that low fiber intake can significantly increase the risk of constipation in toddlers (Kurniati et al, 2012).

Complementary Food for Breast Milk (MP-ASI) is a term used for food given to toddlers that is expected to meet the nutritional needs of toddlers. However, in reality, the nutritional content of MP-ASI given to toddlers is still less than the Adequacy Level that has been set (Soetjiningsih et al, 2015).

Constipation is a common complaint in the world, especially in populations in western countries. In the United States, the prevalence of constipation ranges from 2-27% with around 2.5 million visits to doctors and almost 100,000 treatments per year (Rajindrajithet.al, 2012). The prevalence of constipation in Indonesia according to IDAI 2017 reached more than 30%. Constipation can cause 3% of patient visits to general pediatricians and 15-25% of visits to pediatric gastroenterology consultants. Most constipation in children (>90%) is functional which if further examination is carried out usually does not find organic abnormalities, 40% of which began at the age of 1-4 years. (Kadim, 2011)

The results of a preliminary study conducted on January 3, 2020 on 10 mothers of babies showed that 6 babies (60%) experienced constipation and 4 babies (30%) did not experience constipation. Factors that influence the incidence of constipation in babies are certainly related to the provision of MP ASI. Based on information from the mothers of babies who experienced constipation, 4 babies were given home-made or homemade complementary foods while 2 babies were given instant complementary foods.

Entering the age of six months, babies are allowed to enjoy MPASI. This is because the iron contained in breast milk is not able to meet daily iron needs. This iron is good for brain development and muscle growth in babies. Giving instant MPASI actually helps mothers to get clarity on the iron dosage. Mothers will be confused about the appropriateness of the amount of food ingredients with the iron produced (Nurlinda, 2013). This MPASI can be given during the period of 6-23 months because this period is a sensitive period for child growth and development. If Mama gives inappropriate food at that age, both in quality and quantity, then the child can experience malnutrition. In addition, the child's growth will be disrupted.

Homemade MPASI is certainly still the main choice, because Mom can monitor the ingredients. However, mothers must also know how to process the MPASI. Because when it is processed incorrectly, the nutritional content of the food will be lost. In the sense that there is nothing wrong with giving instant or homemade MPASI. As long as when choosing instant MPASI, you must first check the expiration date. Meanwhile, if you want to make your own MPASI at home, then first pay attention to the ingredients and how to process it.

When making your own MPASI, it is best to avoid using flavorings such as salt and excessive sugar. Also make sure to wash the MPASI ingredients properly so that they are free from pesticides or other harmful residues and still pay attention to the hygiene of the eating utensils used.

Considering the importance of knowledge about the importance of providing complementary foods for breast milk on the incidence of constipation in infants, the researcher wishes to find out the analysis of providing complementary foods for breast milk on the incidence of constipation in infants aged 6-12 months in Ngajum Village, Ngajum District, Malang Regency .

## II. Methods

The research design is a cross-sectional study, where the study was conducted at the same place and time (Murti, 2013). The population in this study were all postpartum mothers at the Ngajum Health Center. While the sample used in this study was some of the postpartum mothers at the Ngajum Health Center, totaling 38 respondents. The sampling technique in this study used probability sampling using the simple random sampling method. This study uses two variables, namely the independent variable (free variable) and the dependent variable (bound variable). The independent variable in this study is the level of mother's knowledge about family planning. While the dependent variable of the study is the choice of IUD contraceptives. This study was conducted at the Ngajum Health Center, Malang Regency. While the time of the study will be carried out in April 2016. This study uses primary data. Meanwhile, to collect data, researchers use questionnaire instruments/measuring tools containing closed-ended questions that have been made by researchers with reference to theories and concepts. The data analysis technique used is the Chi Square statistical

test to determine the relationship between independent and dependent variables with a confidence level of $\alpha = 0.05$. In the calculation process, it is assisted by using the Statistic Programe For Social Science (SPSS) For Windows.

## III. Results and Discussion

The results presented must be sequential from the main results to the supporting results. Use units of measurement based on applicable international standards. You can add diagrams, tables, pictures, and graphs by completing them with narration.

### 1. General Characteristics of Respondents

**Table 1. General Characteristics of Respondents in Ngajum Village**

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Mother's Age | < 20 Years | 9 | 12.5 |
| | 20-35 Years | 63 | 87.5 |
| | >35 Years | 0 | 0 |
| Mother's Education | SD | 18 | 25.0 |
| | Junior high school | 22 | 30.6 |
| | Senior high school | 32 | 44.4 |
| Mother's Job | housewife | 33 | 45.8 |
| | Private | 31 | 43.1 |
| | Factory workers | 4 | 5.6 |
| | Trader | 4 | 5.6 |
| Baby Age | 12 months | 17 | 23.6 |
| | 11 months | 11 | 15.3 |
| | 10 months | 9 | 12.5 |
| | 9 months | 17 | 23.6 |
| | 8 months | 18 | 25.0 |
| | 7 months | 0 | 0 |
| Baby's Poop Frequency | < 2 times a day | 38 | 52.8 |
| | 2-4 times a day | 27 | 37.5 |
| | > 4 times a day | 7 | 9.7 |
| Consistency of bowel movements | Stool Model 1-4 on Bristol Chart | 44 | 61.1 |
| | Stool Model 5-7 on Bristol Chart | 28 | 38.9 |

Based on table 1, it can be interpreted that the characteristics of respondents based on the age of pregnant women are almost all (87.5%) of the respondents, namely 63 people aged 20-35 years. While there are no mothers over 35 years old (0%). The characteristics of respondents based on the education of pregnant women are the most (44.4%) of the respondents, namely 32 mothers with high school education. While the least mothers have elementary school education, namely 18 respondents (25.0%). The characteristics of respondents based on occupation, most respondents (45.8%) are 33 respondents who are housewives. Meanwhile, at least mothers have jobs as factory workers and traders, namely 4 respondents (5.6%). The characteristics of respondents based on the age of the baby, most (25.0%) of the respondents, namely 18 babies are 8 months old. While from the respondents, no babies were found to be 7 months old (0%). The characteristics of respondents based on the frequency of bowel movements, most (52.8%) of the respondents, namely 38 babies, have a category of bowel movement frequency of less than 2 times a day. While at least babies have a category of defecation frequency of more than 4 times a day, namely 7 respondents (9.7%). The characteristics of respondents based on the condition of not defecating for more than 3 days are

mostly (61.1%) of respondents, namely 44 babies in the yes category. While at least babies have a no category, namely 28 respondents (38.9%). The characteristics of respondents based on defecation consistency are mostly in the category of stool model 1-4 on the Bristol Chart (61.1%) of respondents, namely 44 babies. While at least babies have a category of stool model 5-7 on the Bristol Chart, namely 28 respondents (38.9%).

**2. Providing Types of Complementary Food Breast Milk to Babies Aged 6-12 Months**

**Table 2. The frequency types of complementary foods for breast milk**

| Types of Complementary Foods for Breast Milk | Frequency | Percentage (%) |
|---|---|---|
| Instant MPASI | 35 | 48.6 |
| Homemade MPASI | 25 | 34.7 |
| Combined MPASI (instant and homemade) | 12 | 16.7 |
| Total | 72 | 100.0 |

Based on table 2 above, it can be seen thatinterpreted that most respondents use instant MP ASI, namely 35 respondents (48.6%). While the least use combined MP ASI, namely 12 respondents (16.7%).

**3. Incidence of Constipation in Babies Aged 6-12 Months**

**Table 3. The Incidence of Constipation in Babies**

| Constipation Occurrence | Frequency | Percentage (%) |
|---|---|---|
| Yes | 44 | 61.1 |
| No | 28 | 38.9 |
| Total | 73 | 100.0 |

Based on table 3, it can be interpreted thatRespondent characteristicsbased on eventsconstipation most people experience constipation(61.1%) of the respondents, namely 44 babies. While the fewest babies have the categorynot experiencing constipationnamely 28 respondents (38.9%).

**4. The Complementary Foods and the incidence of Constipatticon in infants**

**Table 4. The Incidence of Constipation in Babies**

| Group Variables | Constipation Occurrence | | OR | p |
|---|---|---|---|---|
| | Yes (%) | No (%) | | |
| **Providing Types of Complementary Foods for Breast Milk** | | | | |
| Instant MP ASI | 13 (18.1%) | 22 (30.6%) | 0.499 | 0.000 |
| Homemade MP ASI | 23 (31.9%) | 2 (2.8%) | | |
| Combined MP ASI (Instant and Homemade) | 8 (11.1%) | 4 (5.6%) | | |
| Total | 44 (61.1%) | 28 (38.9%) | | |

Based on table 4 above, it can be interpreted that most respondents experienced constipation and consumed home-made MP ASI types, namely 23 respondents (31.9%), while the fewest were respondents who did not experience constipation and consumed home-made MP ASI types, namely 2 respondents (2.8%). Based on the results of the calculation using the chi square test formula, the p-value is 0.000 <α (0.05), because the p-value is <0.05, HO is rejected. This shows that the alternative hypothesis (Ha) is that there is a relationship between the provision of complementary foods and the incidence of constipation in infants aged 6-12 months in Ngajum Village, Ngajum District, Malang Regency in 2020.Meanwhile, the level of closeness of the relationship is seen from the results of OR = 0.449, meaning that there is a moderate closeness betweenprovision of complementary foods to breast milk for constipation in infants aged 6-12 months. The direction of the correlation is positive, meaning that providing home-made MP ASI will increase the high risk of constipation in infants.

**5. Providing Types of Complementary Foods for Breast Milk to Babies Aged 6-12 Months**

Based on the research results obtained from 72 respondents in Ngajum Village, Ngajum District, Malang Regency, the majority of respondents used instant MP ASI, namely 35 respondents (48.6%). While the least used a combination of MP ASI, namely 12 respondents (16.7%). Based on the type of instant food used is instant porridge with the main composition of carbohydrate food sources such as brown rice, rice flour and protein sources such as soybeans. Non-instant food is processed food made by yourself or purchased (Arisman, 2011). Complementary foods to breast milk consist of various food ingredients. However, the diversity of food ingredients is still less visible in the food that is made. Food only consists of carbohydrate sources with vegetable or vegetable protein sources or a combination of both. In addition, there are also those who only use carbohydrate sources combined with animal protein sources such as eggs, shredded meat or chicken (Arisman, 2011). The influence of culture in society that has the habit of giving food since infancy on the grounds that breast milk is not enough to meet the needs of the baby. In addition, feeding after the baby is born is a hereditary habit in the family such as giving honey when the baby is born, giving fruits before the baby is born (bananas, oranges) and if not immediately giving food to the baby after birth then it is considered to violate the customs in the family (Ashar, Lubis, & Aritonang, 2008) (Nurlinda, 2013). The community assumes that providing complementary foods is only a matter for the mother and her baby, therefore family support is needed for providing complementary foods, especially motivation, perception, emotion and attitude (Gulo & Nurmiyati, 2015). The researcher's opinion that the high provision of early complementary foods is also influenced by family support. A mother really needs family support in providing her breast milk until the baby is 6 months old, but many families, namely parents and husbands, actually provide food or drinks before the baby is 6 months old.

**6. Constipation Occurrence in Babies 6-12 Months**

Based on the research results obtained from 72 respondents in Ngajum Village, Ngajum District, Malang Regency, the majority of respondents experienced constipation (61.1%) of the respondents, namely 44 babies. While the fewest babies had a category of not experiencing constipation, namely 28 respondents (38.9%). The baby's body does not yet have complete digestive proteins. The amount of stomach acid and pepsin only increases when the baby is 3-4 months old. The amount of amylase enzyme produced by the pancreas around the age of 6 months is not enough to digest coarse food. Enzymes such as maltase, isomaltase, and sucrase have not reached adult levels before the baby is 7 months old. Before the age of 6-9 months, the amount of lipase and bile salts is also small so that fat digestion has not reached adult levels, therefore if solid food is given before the baby's digestive system is ready to receive it, it can result in the food not being digested properly and can cause digestive disorders such as gas, constipation, and so on (Prabantini, 2010).

Constipation is a bowel movement that occurs no more often than once every three days. In normal children, stool consistency and frequency of bowel movements can vary. Breastfed babies may have a bowel movement after each feeding or only once every 7-10 days. Formula-fed babies and older

children may have a bowel movement every 2-3 days. Thus, a less frequent bowel movement or a slightly denser stool consistency than usual does not always have to be treated as constipation (J & Sulistiani, 2014) (Isi, Djami, Sihombing, Istyorini, & Riset, 2015). Constipation can occur due to giving complementary foods too early. The optimal age to start giving complementary foods is 6 months. The recommendation to give complementary foods can be started when the baby is 4 to 6 months old. Along with the development of research that proves that giving exclusive breastfeeding for 6 months provides many benefits for babies and mothers (Gulo & Nurmiyati, 2015). The researcher's opinion is that the results of this study state that choosing the right MPASI for babies will affect the incidence of constipation. The importance of knowing the recommendations for giving MPASI needs to be implemented so that babies are healthy and maternal anxiety is reduced**.**

## 7. The Relationship Between Providing Types of Complementary Foods and the Incidence of Constipation in Infants Aged 6-12 Months

Based on the research results obtained from 72 respondents in Ngajum Village, Ngajum District, Malang Regency, the most respondents experienced constipation and consumed home-made MPASI, namely 23 respondents (31.9%), while the fewest respondents did not experience constipation and consumed home-made MPASI, namely 2 respondents (2.8%). The best food for babies aged 0-6 months is breast milk. Breast milk is the best and most ideal source of energy with a balanced composition according to the needs of babies during growth, the benefits of breastfeeding are not only felt by babies but also by mothers, the environment and even the country. At the age of 6 months, the baby's need for nutrients increases because along with the growth and development of the baby, while breast milk production begins to decrease, so babies really need additional food as a companion to breast milk. The digestive system is related to the reception of food and preparing it to be processed by the body. The process of food digestion can occur normally and can be disrupted, this is because the food substances are digested by the body, so that problems can occur in digestion such as constipation (Heryanto, 2015).

Early provision of complementary foods is the same as opening the gate for disease to enter. According to Marliana, 2015 research results show that babies who receive complementary foods before the age of 6 months are more likely to suffer from diarrhea, cough, cold, fever, constipation compared to babies who receive complementary foods ≥ 6 months. The risks of providing complementary foods before the age of six months are weight gain that is too rapid (risk of obesity), allergies to one of the nutrients contained in the food, receiving additional substances such as salt and nitrates that can be harmful. Intake of food or drinks other than breast milk to babies before the age of 6 months can also cause babies to get sick often and trigger allergies due to decreased immunity. These consequences can interfere with the growth and development of babies (Rachmawati, Ranuh, & Arief, 2013).

Toddlerhood (under three years) is an important period in the process of human growth and development. The growth and development period at this age is a period that occurs rapidly and never repeats itself and is often called the golden age period (K. Proverawati, 2013). When children enter toddlerhood, balanced nutrition must be given to achieve maximum child growth and development. One of the health problems that many toddlers face is constipation. The spread of constipation in children has spread to almost all countries with a fairly high prevalence of 5-30% on average (Marliana, 2015) Lack of fiber intake is said to be the main factor causing constipation in toddlers in addition to clinical and psychological factors. Research conducted at Dr. Sardjito Hospital Yogyakarta found that low fiber intake can significantly increase the risk of constipation in toddlers (Artini, 2012). Complementary Food for Breast Milk (MP-ASI) is a term used for food given to toddlers which is expected to meet the nutritional needs of toddlers. However, in reality, the nutritional content of MP-ASI given to toddlers is still less than the Adequacy Intake that has been set (Artini, 2012).

WHO and UNICEF emphasize more on giving home-made complementary foods rather than mass-produced instant foods. However, after conducting many clinical studies, it turns out that many

babies do not get adequate nutrients as they should. WHO and UNICEF issued the Global Strategy for Infant and Young Child Feeding and announced that instant complementary foods are processed by an industry rich in additional supplements regulated by food manufacturing standards institutions and guarantee safety including how to make, promote and transport that guarantees the adequacy of baby micronutrients. Meanwhile, in home-made complementary foods, sometimes there is a lack of balanced portions and measurements between micronutrient and macronutrient content. This is also influenced by the level of knowledge and how mothers cook, it was found in the study that respondents only gave bananas as complementary foods for their babies. This is what can cause home-made complementary foods to cause more constipation than instant complementary foods when viewed from the content of complementary foods in the food given. The researcher's opinion is that the results of this study state that there is a relationship between the provision of MPASI types and the incidence of constipation in infants aged 6-12 months. Therefore, it is very important for health workers in Ngajum District, Malang Regency to provide more information on the selection and procedures for making the right independent MPASI so that it is hoped that by having high knowledge related to making MPASI doses independently, they can provide the right needs for infants and prevent constipation.

## IV. Conclusion

There is a relationship between the provision of complementary foods to the incidence of constipation in infants aged 6-12 months in Ngajum Village, Ngajum District, Malang Regency in 2020, with a p-value of 0.000 and OR = 0.449. The direction of the correlation is positive, meaning that the provision of home-made complementary foods will increase the high risk of constipation in infants.

The results of this study stated that there is a relationship between the provision of MPASI types and the incidence of constipation in infants aged 6-12 months. Therefore, it is very important for health workers in Ngajum District, Malang Regency to provide more information on the selection and procedures for making the right independent MPASI so that it is hoped that by having high knowledge related to making MPASI doses independently, they can provide the right needs for infants and prevent constipation.

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