

Community Empowerment In Monitoring Children's Growth Through Health Education About Prelacteal Feeding At The Public Health Center The Region Of Surabaya City Health Office

Kharisma Kusumaningtyas^{a,1}, Dwi Wahyu Wulan Sulistyowati^{a,2}, and Titi Maharrani^{a,3,*}

^a Midwifery of Department, Ministry of Health Polytechnic Surabaya, Karangmenjangan 12, Surabaya, Indonesia

¹ kharisma.kusumaningtyas@gmail.com, ² dwwulan1@gmail.com, ³ titimaharrani@gmail.com

* Corresponding Author

ABSTRACT

Some of the diseases which can be the biggest causes of infant mortality are diarrhea, tetanus, perinatal disorders, and inflammation of the lower respiratory tract. To reduce neonatal morbidity and mortality and to achieve SDGs, can be carried out by early initiation of breastfeeding (IMD), giving colostrum in the early period after birth and continuing with exclusive breastfeeding of infants from birth until the age of 6 months. The purpose of this activity is to participate in efforts to improve infant health services through exclusive breastfeeding and prelacteal feeding at the Jagir Public Health Center, Surabaya City Health Office. Implementation date is 29-30 September 2021. The method of activity is to carry out Health Education in the form of counseling about exclusive breastfeeding, counseling about prelacteal feeding, formation of exclusive breastfeeding awareness groups. The results of prelacteal feeding counseling activities as an effort to optimize child development can increase the knowledge of participants by 77.5%. This happened because the mother can understand the knowledge about Exclusive Breastfeeding and Prelacteal Feeding so that the mother is committed to giving Exclusive Breastfeeding only without giving Prelacteal Feeding Food to her child. The Community Service Activities can form ASI Awareness Groups in each Neighborhood Association area which chaired by one Cadre. The Public Health Center can monitor the activities of the ASI awareness group every month. Collaborating with the Neighborhood Association administrator of each group for all of the activities related to exclusive breastfeeding.

KEYWORDS

Counseling;
Prelacteal Feeding;
Health Education;
Children's Growth



This is an open-access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license

1. Introduction

The national infant mortality rate according to the IDHS 2007 is 34 per 1,000 live births, and the infant mortality rate from the IDHS 2012 is 32 deaths per 1,000 live births. The infant mortality rate in East Java Province in 2007 was 35 per 1,000 live births and in 2012 it was 30 per 1000 live births, while the number of infant deaths in East Java province in 2010 was 5,533 cases. Although this condition shows a decrease, but the decrease is not too much. Some of the diseases that are currently the biggest cause of infant death include diarrhea, tetanus, perinatal disorders, and inflammation of the lower respiratory tract. To assist in reducing neonatal morbidity and mortality and to achieve the MDGs target, it can be carried out by optimization of early initiation of breastfeeding (IMD), giving colostrum in the early postnatal period and continued with exclusive breastfeeding from birth to 6 months of age. Actually, the definition of exclusive breastfeeding is only give breastfeeding for infants without additional food/drinks (formula/canned milk, bananas, honey, tea, etc.) except for medicine, until the age of 6 months.

Colostrum which is secreted during the first few days of life, it has very much compositon of immunoprotective factors and some vitamins and minerals, and should not be discarded or replaced with prelacteal foods, it means food or drink other than breast milk (ASI) in the first three days after birth (Liqian). Early consume colostrum will help clear meconium from the intestines, it is also nutritive or has high nutritional value and it is protective as a protection from infection. Although colostrum of the breastmilk only can be sucked in a few drops, this is sufficient for the baby's needs in the first days, but

sometimes mothers feels object to breastfeeding their babies and the reason is that the milk has not come out. Other reasons are the culture of giving prelacteal food, stopping breastfeeding because the baby or mother is sick, the mother has to work, and the mother wants to try formula milk.

In the Madurese society, there is a habit of throwing away the first yellow breast milk or what is commonly referred to as colostrum, they think that the colostrum is considered stale. So there is no need to give it to the baby, instead they give drink, honey, or similar food so that the baby is not hungry. Research conducted by Lely Defni in 2001 in Barangsiang and Katulampa Villages, East Bogor City District, Bogor City, West Java, showed that 70% of the samples did not give exclusive breastfeeding because babies had been introduced to prelacteal foods. Riskesdas in 2010 reported that 43.6% of infants were given prelacteal food in Indonesia and 48.1% in East Java. Research conducted by Mercy Corps in Jakarta shows that as many as 64% of mothers provide food or drink other than breast milk in the first three days after delivery. Among infants who received prelacteal feeding, the majority received formula milk, which was 66.5% or animal milk by 18.9%. Giving honey is also common, as much as 28.6%. People who often recommend giving such food include private midwives, the mother herself, nurses, parents, and public clinic midwives. As many as 20-53% of infants receive formula milk, especially when delivery is carried out in a hospital, midwife, and/or maternity clinic, while less than 9% of mothers who give birth at home receive or buy formula milk. Infants that born in urban areas, infants with mothers with secondary or higher education, delivery of mothers assisted by health workers at health care facilities, and high socioeconomic conditions have a higher tendency to obtain prelacteal food. Basically, this breastfeeding practices are significantly higher in mothers with two or more children compared to only one child. Women who have more than two children initiate breastfeeding, give colostrum and do not give prelacteal food because they already have previous experience.

The Jagir Health Center is one of the health centers under the Surabaya City Health Office. The Jagir Health Center is located on Jalan Bendul Merisi No. 1 Jagir, Wonokromo District, Surabaya. The Jagir Health Center serves outpatient and inpatient services. The Jagir Health Center is located in the Javanese and Madurese communities. In 2019, the achievement of exclusive breastfeeding was 120 babies (68%) of the total 176 babies. The Medokan Ayu Health Center is located on Jalan Medokan Asri Utara IV no 31 Medokan Ayu, Rungkut District, Surabaya City. This health center is located in a densely populated area and migrants from outside the area and many of the nursing mothers work outside the home. In 2019, the achievement of exclusive breastfeeding was 103 babies (72%) of the total 143 babies.

Child growth monitoring has been investigated by previous researchers. Sweden's unique data on young child growth helps fill the gaps identified by the World Health Organization research by Janson [1]. Codesign of an implementation strategy for a guideline for assessing children's growth in a dental setting was investigated by Villarosa [2]. The Effect of Mass Distribution of Azithromycin on Growth in Children in Niger was investigated by Arzika [3]. Parenting and family empowerment for child development: a systematic review researched by Dewi [4]. Relationship between fluoroquinolone exposure and growth and development of children: A multisite biomonitoring based study in northern China investigated by Shan [5]. The role of a soy-based vegetable formula supplemented with dietary fiber to support children's growth and development: Expert opinion researched by Vandenplas [6].

Birth Weight: Early Beacon of Child Growth! studied by Cunningham [7]. Animal foods as suitable complementary foods for better physical growth in children aged 6 to 24 months in low- and middle-income countries: a systematic review and meta-analysis of randomized controlled trials investigated by Asare [8]. Protein content of human milk at 3 weeks after birth and neurodevelopmental outcomes in preterm infants fed fortified breast milk were studied by Boquien [9]. The effect of pesticides on the growth and neurodevelopment of children was investigated by Buralli [10]. "Double Frozen Transfer" Can Affect Perinatal and Child Growth: A Nested Case Control Study of 6705 Life Cycles of Birth investigated by Gao [11]. Maternal Grandmother's Household Residence, Child Growth, and Body Composition are Unrelated in Urban Maya Families from Yucatan studied by Azcorra [12].

The effect of breastfeeding on the growth and development index of children up to the age of 6 months: The application of a multivariate linear mixed model was studied by Moradi [13]. Association between the Olympic Games and children's growth: evidence from China researched by Guo [14]. The method for selecting a machine learning-based evaluation model for children's growth and development was studied by Chen [15]. The longitudinal relationship between the growth mindset of children in high

school and the growth mindset of their parents was studied by Chen [16]. Prediction of Nutritional Needs for Growth and Development in Children and Adolescents Using Machine Learning was researched by Hermanto [17]. A Data Correlation-Based Feature Selection Model for Assessment of Child Development was studied by Zhao [18].

The Impact of Intimate Partner Violence on the Growth and Development of Iranian Children: A Descriptive-Analytic Study investigated by Lye [19]. Comparison of Cognitive Function in Stunting Children and Malnourished Children with Normal Stature was studied by Handryastuti [20]. Effect of Early Life Vitamin D Supplementation on Child Growth and Body Composition: A Systematic Review and Meta-Analysis of Randomized Controlled Trials studied by Ma [21].

Linear growth in young people with restrictive eating disorder: "Inching" toward consensus was studied by Downey [22]. The Relationship between Parents' Educational Expectations and Children's Growth and Development Based on the NVivo 12.0 Qualitative Software was studied by Guo [23]. Exploring the Factors Affecting Children's Development During a Pandemic was researched by Amjadi [24]. The relationship of maternal body composition and diet to breast milk hormones and neonatal growth during the first month of lactation was investigated by Ramiro-Cortijo [25]. Profiles and Predictors of Child Growth in Alphabet Knowledge was studied by [26]. Dietary intake and nutritional status of Korean children and adolescents: a review of national survey data investigated by Kang [27].

The use of growth monitoring and promotion services and malnutrition in children less than two years of age in Northern Ghana was investigated by Baguune [28]. Evaluation of the placental oxygenation index using magnetic resonance imaging (BOLD-MRI) which is dependent on normal blood oxygen levels during late pregnancy was investigated by Magawa [29]. The Training Model and Capacity Assessment of Public Health Volunteers in Anthropometric Measurements Using Rasch Stacking and Racking Analysis was researched by Sunjaya [30].

The purpose of this activity is to participate in efforts to improve infant health services through exclusive breastfeeding and prelacteal feeding at the Jagir Health Center, Surabaya City Health Office. This activity provides so many benefits for the community including the society will get the knowledge about exclusive breastfeeding, prelacteal feeding, forming a group aware of exclusive breastfeeding. For Puskesmas and health workers, it can increase the coverage of exclusive breastfeeding and improve the health status of children in the Surabaya city area.

2. Method

2.1. Pre Community Service

- a. Determining the Topic of Community Service based on the results of previous research.
- b. Approachment to the Surabaya City Health Office to determine the location of Community Service.
- c. Approachment to the Puskesmas in accordance with the direction of the Surabaya City Health Office
- d. Analyzing the Location of Community Service.
- e. Compilation of Community Service proposals to be submitted to Ministry of Health Polytechnic, Surabaya.
- f. Applying for a permit for community service activities at Bakesbangpol Surabaya City.
- g. Applying for a permit for Community Service activities at the Surabaya City Health Office.
- h. Collecting data on the number of cadres in the designated Puskesmas area.
- i. Approachment with the Village Head who is appointed for the location of Community Service.
- j. Coordinate with Midwives and Cadres in the designated area for Community Service locations (time and place).

2.2. Implementation of Community Service

- a. Have a coordination with Team Members and Students regarding the Implementation of Community Service related to the location, namely in Jagir Village. Implementation on 29-30 September 2021. The number of participants for this activity is 40 Cadre
- b. Implementing Health Education in the form of Counseling at a predetermined time and place.

2.3 Post Community Service

- a. Reporting the results of activities to related parties.
- b. Compile a Final Activity Report
- c. Publication to Community Service Journal
- d. Get the IPR module on Exclusive Breastfeeding and Prolactal Feeding.

3. Results and Discussion

3.1 Results

1. Results of Activity Implementation

a. Knowledge of Prolactal Feeding in Optimizing Child Development.

Community Service Activities began with a Pre-Test on Exclusive Breastfeeding and Prolactal Feeding Food. After that, continued with Counseling on Exclusive Breastfeeding for Postpartum Mothers. The pretest results that have been filled as follows in Table 1. From the following table, it can be seen that the knowledge of the participants of the Prolactal Feeding counseling in Optimizing Child Growth and Development at the Jagir Health Center was found to be 37.5% in the Enough assessment. Not yet achieved a good level of knowledge about Prolactal Feeding and Exclusive Breastfeeding. This is influenced by several factors including the level of education, as well as awareness of the counseling participants about the importance of exclusive breastfeeding.

Table 1. Knowledge Assessment of Pre-Test and Post-Test Respondents regarding Prolactal Feeding Extension in Efforts to Optimize Child Development at the Jagir Health Center.

Assessment Result	Pre Test		Post Test	
	Frequency	%	Frequency	%
Good	17	42,5%	33	82,5 %
Enough	15	37,5%	7	17,5 %
Less	8	20%	0	0 %

After the Pre-Test was conducted, Counseling on Exclusive Breastfeeding was delivered by resource person Dwi Wahyu Wulan S, SST., M. Keb, for 60 minutes, followed by Counseling on Nutrition for breastfeeding mothers with resource person Kharisma Kusumaningtyas, SSiT., M. Keb. This material is given for 60 minutes. The next activity was followed by a discussion session. In the Discussion session there were 2 questions from the counseling participants, namely:

1. How if the milk has not come out while the child is fussy?
2. is Jamu will affect breast milk production?

b. Prolactal Feeding Counseling and Counseling on the impact of Prolactal Feeding on children's growth and development.

The second day activity began with participant registration, followed by counseling about Prolactal Feeding, for 60 minutes. The material was delivered by resource person Titi Maharrani, SST., M. Keb. It was continued by delivering material on the impact of Prolactal feeding on children's growth and development, which was delivered by Dwi Wahyu Wulan S, SST., M. Keb. for 30 minutes followed by a

discussion session by extension participants. In the discussion activity there were 3 questions from the counseling participants, namely:

1. What is the danger if the child is given only plain water?
2. What kind of food is suitable for a 6 month old child?
3. How do we know if our child's growth is in normal condition or not?

c. Formation of Exclusive Breastfeeding Awareness Group

The establishment of exclusive breastfeeding awareness groups. In RW V, Jagir Village, Jagir District. Starting from mapping the area in RW V, then divided into 5 groups, each group is led by one Cadre. The division of groups based on the place of residence in the neighbourhood area. This ASI awareness group activity is planned to be held once a month together with posyandu activities.

d. Post Test Activities

Post-test activities are carried out after all of counseling activities are completed. From the post test results, it can be seen that the knowledge of the participants of Prelacteal Feeding counseling in Optimizing Child Growth and Development at the Jagir Health Center was found to be 82.5% in the Good rating. The scores at the post test showed an increase in good knowledge about Prelacteal Feeding and Exclusive Breastfeeding shown in Table 2. This is influenced by several factors including the level of education, as well as awareness of the counseling participants about the importance of exclusive breastfeeding.

Table 2. Knowledge Assessment of Pre-test and Post-test Respondents regarding Prelacteal Feeding Extension in Efforts to Optimize Child Development in Jagir Health Center.

Assessment Result				Total			
Decrease	Constant	Increase					
N	%	n	%	n	%	n	%
2	5	7	17,5	31	77,5	40	100

From the table above shows that the Prelacteal Feeding Extension activities in an effort to optimize Child Development can increase the knowledge of participants by 77.5%. This happened because the mother understands the knowledge about Exclusive Breastfeeding and Prelacteal Feeding so that the mother is committed to giving Exclusive Breastfeeding only without giving Prelacteal Feeding Food to her child.

3.2 Discussion

Prelacteal Feeding Extension Activities in Optimizing Child Development can increase participants' knowledge. This condition happened because the mother understands the knowledge about Exclusive Breastfeeding and Prelacteal Feeding so that the mother is committed to only giving Exclusive Breastfeeding without giving Prelacteal Feeding Food to her child.

4. Conclusion

Community Service Activities can increase knowledge after counseling is carried out by 77.5%. Community Service Activities can form ASI Awareness Groups in each Neighborhood Association area which is chaired by one Cadre. Suggestions from the public health center can monitor the activities of the breastfeeding awareness group every month. Cooperating with the neighbourhood administrator of each group for activities related to exclusive breastfeeding.

Acknowledgment

Special thanks to the internal funder for community service from the Ministry of Health Polytechnic Surabaya.

Author Contribution

Activity plan in the framework of community empowerment in monitoring the growth and development of children through health education about prelacteal feeding.

Funding

Special thanks to the internal funder for community service from the Ministry of Health Polytechnic Surabaya.

Conflict of Interest

The authors declare no conflict of interest.

References

- [1] A. Janson, "Unique Swedish data on young children's growth help to fill the gap identified by the World Health Organization," *Acta Paediatr.*, vol. 112, no. 6, pp. 1140–1141, Jun. 2023.
- [2] A. R. Villarosa, D. Maneze, L. M. Ramjan, A. Kong, and A. George, "The codesign of implementation strategies for children's growth assessment guidelines in the dental setting," *Res. Involv. Engagem.*, vol. 8, no. 1, p. 19, Dec. 2022.
- [3] A. M. Arzika et al., "Effect of Mass Azithromycin Distributions on Childhood Growth in Niger," *JAMA Netw. Open*, vol. 4, no. 12, p. e2139351, Dec. 2021.
- [4] R. K. Dewi and S. Sumarni, "Parenting style and family empowerment for children's growth and development: a systematic review," *J. Public Health Africa*, May 2023.
- [5] L. Shan et al., "Association between fluoroquinolone exposure and children's growth and development: A multisite biomonitoring-based study in northern China," *Environ. Res.*, vol. 214, p. 113924, Nov. 2022.
- [6] Y. Vandenplas et al., "The role of soy plant-based formula supplemented with dietary fiber to support children's growth and development: An expert opinion," *Nutrition*, vol. 90, p. 111278, Oct. 2021.
- [7] S. A. Cunningham and U. Mehlatat, "Birthweight: An Early Beacon of Children's Growth!," *Indian Pediatr.*, vol. 60, no. 2, pp. 96–97, Feb. 2023.
- [8] H. Asare, A. Rosi, M. Faber, C. M. Smuts, and C. Ricci, "Animal-source foods as a suitable complementary food for improved physical growth in 6 to 24-month-old children in low- and middle-income countries: a systematic review and meta-analysis of randomised controlled trials," *Br. J. Nutr.*, vol. 128, no. 12, pp. 2453–2463, Dec. 2022.
- [9] C.-Y. Boquien et al., "Breast milk protein content at week 3 after birth and neurodevelopmental outcome in preterm infants fed fortified breast milk," *Eur. J. Nutr.*, vol. 60, no. 7, pp. 3959–3969, Oct. 2021.
- [10] R. J. Buralli, R. C. Marques, and J. G. Dórea, "Pesticide effects on children's growth and neurodevelopment," *Curr. Opin. Environ. Sci. Heal.*, vol. 31, p. 100417, Feb. 2023.
- [11] J. Gao et al., "'Double Frozen Transfer' Could Influence the Perinatal and Children's Growth: A Nested Case-Control Study of 6705 Live Birth Cycles," *Front. Endocrinol. (Lausanne)*, vol. 13, Aug. 2022.
- [12] H. Azcorra, B. Bogin, F. Dickinson, and M. I. Varela-Silva, "Maternal Grandmothers' Household Residency, Children's Growth, and Body Composition Are Not Related in Urban Maya Families from Yucatan," *Hum. Nat.*, vol. 32, no. 2, pp. 434–449, Jun. 2021.
- [13] M. Moradi, K. Angali, M. Behzadi, and R. Farnoosh, "The effect of breastfeeding on children's growth indices up to 6 months: An application of multivariate t linear mixed model," *J. Res. Med. Sci.*, vol. 28, no. 1, p. 31, 2023.
- [14] C. Guo, X. Hu, C. Xu, and X. Zheng, "Association between Olympic Games and children's growth: evidence from China," *Br. J. Sports Med.*, vol. 56, no. 19, pp. 1110–1114, Oct. 2022.
- [15] Y. Chen, D. Li, N. Wang, C. Wu, and Z. Wang, "The Method of Selecting the Evaluation Model for the State of Children's Growth Based on Machine Learning," in *2021 4th International Conference on Artificial Intelligence and Big Data (ICAIBD)*, 2021, pp. 109–113.
- [16] J. Chen and C. Liu, "The longitudinal association between children's growth mindset in senior primary school and their parents' growth mindset," *Front. Psychol.*, vol. 14, Mar. 2023.

- [17] A. Hermanto et al., "Prediction of Nutritional Requirements for Children's Growth and Adolescents using Machine Learning," in 2022 International Seminar on Application for Technology of Information and Communication (iSemantic), 2022, pp. 263–267.
- [18] C. Zhao, C. Mi, and Y. Shi, "Data Correlation based Feature Selection Model for Children's Growth and Development Assessment," *J. Phys. Conf. Ser.*, vol. 1757, no. 1, p. 012133, Jan. 2021.
- [19] M.-S. Lye, M. Zarghami, J. Y. Charati, and F. Abdollahi, "Impact of Intimate Partner Violence on Iranian Children's Growth and Development: A Descriptive-analytical Study," *Oman Med. J.*, vol. 38, no. 1, pp. e464–e464, Jan. 2023.
- [20] S. Handryastuti et al., "Comparison of Cognitive Function in Children with Stunting and Children with Undernutrition with Normal Stature," *J. Nutr. Metab.*, vol. 2022, pp. 1–5, Jul. 2022.
- [21] K. Ma, S. Q. Wei, W. G. Bi, H. A. Weiler, and S. W. Wen, "Effect of Vitamin D Supplementation in Early Life on Children's Growth and Body Composition: A Systematic Review and Meta-Analysis of Randomized Controlled Trials," *Nutrients*, vol. 13, no. 2, p. 524, Feb. 2021.
- [22] A. E. Downey, A. Richards, and A. B. Tanner, "Linear growth in young people with restrictive eating disorders: 'Inching' toward consensus," *Front. Psychiatry*, vol. 14, Mar. 2023.
- [23] X. Guo, "Relationship between Parents' Educational Expectations and Children's Growth Based on NVivo 12.0 Qualitative Software," *Sci. Program.*, vol. 2022, pp. 1–8, Mar. 2022.
- [24] K. Amjadi, "Exploring Factors That Influence Children's Growth and Development During a Pandemic," *Glob. Pediatr. Heal.*, vol. 8, no. 3, p. 2333794X2110424, Jan. 2021.
- [25] D. Ramiro-Cortijo et al., "Association of maternal body composition and diet on breast milk hormones and neonatal growth during the first month of lactation," *Front. Endocrinol. (Lausanne)*, vol. 14, Mar. 2023.
- [26] S. B. Piasta, J. A. R. Logan, K. S. Farley, T. M. Strang, and L. M. Justice, "Profiles and Predictors of Children's Growth in Alphabet Knowledge," *J. Educ. Students Placed Risk*, vol. 27, no. 1, pp. 1–26, Jan. 2022.
- [27] M. Kang, S. Y. Choi, and M. Jung, "Dietary intake and nutritional status of Korean children and adolescents: a review of national survey data," *Clin. Exp. Pediatr.*, vol. 64, no. 9, pp. 443–458, Sep. 2021.
- [28] B. Baguune, D. M. Aminu, E. Bekyieriya, and M. N. Adokiya, "Utilization of growth monitoring and promotion services and undernutrition of children less than two years of age in Northern Ghana," *BMC Nutr.*, vol. 9, no. 1, p. 70, Jun. 2023.
- [29] S. Magawa et al., "Evaluation of placental oxygenation index using blood oxygen level-dependent magnetic resonance imaging (BOLD-MRI) during normal late pregnancy," *J. Matern. Neonatal Med.*, vol. 35, no. 25, pp. 5274–5281, Dec. 2022.
- [30] D. K. Sunjaya, D. M. D. Herawati, N. Indraswari, G. Megawati, and B. Sumintono, "Training and Assessing Model for the Ability of Community Health Volunteers in Anthropometric Measurement Using the Rasch Stacking and Racking Analyses," *J. Environ. Public Health*, vol. 2021, pp. 1–11, Sep. 2021.