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The Importance of Analyzing Child Development and Understanding of Milk-Based Fortified Foods for Primary Health Care Issue

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Abstract

Indonesia is already facing a high nutritional problem. Early detection of child wasting is the key to successful prevention and treatment. Increasing animal protein intake for children is one of the government's steps to address child malnutrition. Consumption of fortified milk as one of the animal proteins may support the growth and development of children. The general purpose of this community service is to increase the knowledge and the implementation of dairy products to improve child immunity and growth. This community service activity was carried out at the Sidodadi village hall, Central Bengkulu in 2021. Participants in the community service activity were maternal and child village health workers, plus representatives from the Puskesmas and village officials with a total of 32 participants. The methods used are socializing information, questions and answers with participants based on experience and field findings, providing materials related to sources of milk food ingredients and their fortification, carrying out copyright quizzes on milk-based healthy food recipes, and monitoring with evaluation. Evaluation sheets are used to assess participant satisfaction and record things that are still needed by cadres for further socialization activities. The performance test was carried out with a quiz on preparing healthy milk-based food recipes for children. Activity results are described with a satisfaction survey. Increasing education through health counseling greatly influences the knowledge of village health worker to be wise in providing education on fortified milk-based foods and providing examples of useful recipes for malnourished children.

Keywords: *child, development, fortification, malnutrition, milk*

A. Introduction

The overburdened condition of health facilities, disrupted food supply chains, and loss of income due to COVID-19 could lead to a sharp increase in the number of children experiencing malnutrition in Indonesia [1]. Even before COVID-19, Indonesia was already facing high nutritional problems. Currently, more than two million children suffer from malnutrition and more than seven million children under the age of 5 are stunted. The number of under-fives with nutritional problems in Sidodadi village was not properly recorded because the results of weighing the children were not evaluated every month. So far, due to the evaluation of the analysis of nutritional problems in the form of existing notes in the form of complaints and subjective data. However, data from the health office shows that children's health problems with stunting and other nutritional problems are around 22%. The critical problem was that there are many reports of children with anemia and when they are sick and referred to hospitals in the city, it turned out that they have nutritional problems, so much of the sharing during activities is related to experiences that have occurred.

Children with wasting have weak immune systems and a nearly 12 times increased risk of death compared to adequately nourished children [2]. Nutrition services for vulnerable children and families must still be carried out, including growth monitoring, distribution of micronutrients, support for mothers to feed infants and young children adequately, and screening of children with malnutrition [3].

Early detection of child with growth problem is the key to successful prevention and treatment. A simple measurement of a child's upper arm circumference indicates whether a child needs additional nutritional support [4]. Often, simple home-based solutions, including basic medicines and the consumption of ready-to-eat therapeutic foods, are all that is needed for a child to become healthy again. Efforts to optimize the condition of children who have a high risk of experiencing nutritional problems that lead to decreased

immunity can be pursued through the public health sector involving the health center health system. Problems with appetite and the reluctance of children who are not used to consuming quality food is one of the causes that contribute to the formation of eating patterns that do not meet the requirement of health in children [5].

Milk contains protein, vitamins and minerals needed to meet children's nutritional needs, so they can avoid micronutrient deficiencies such as iron deficiency anemia to macronutrient deficiencies such as malnutrition which can lead to stunting. Milk can help boost immunity by promoting the growth of beneficial bacteria in the gut [6]. Studies have shown that children who drink milk have reduced rates of asthma, allergies, eczema, ear infections, hay fever, and respiratory infections. These benefits are likely related to active immune factors, biodiversity, prebiotics, intact protective proteins and other elements found in milk. Milk fortification which is defined as the process of adding micronutrients such as essential vitamins has been practiced for more than 80 years [7].

Milk is one source of complete nutrition and contains high nutrition. Cow's milk contains high calcium, fat and lactose. Nutrient fortification is useful for increasing the functional value of a product at an affordable price. In addition, the nutritional claims of food products suggest that a fortified food product must be beneficial to health. Milk is a drink that contains the most complete nutrition.Vitamins in milk may vary from vitamin A, vitamin D, vitamin B1, vitamin B12. Vitamin A in milk is called a retinoid, because it comes from animal products. Vitamin D is very important to help the absorption of calcium. Vitamin D is a substance needed to maintain bone density and tooth growth [8], [9]. Minerals in milk consist of calcium, phosphorus, zinc, and magnesium. Calcium in milk is the best food source of calcium and is easily absorbed by the body. This calcium content normalizes muscle contractions and nerve performance in the heart organ. While phosphorus is an important element in the body that is not only beneficial for bones but provides a significant role for overall health [10], [11].

The aspect of improving immunity, one of which is by increasing the supplementation of dairy products, is still a problem in Indonesia because access and consumption habits of milk are still limited so that the taste and preparations are slightly less acceptable to children [12]. Many research results showed strong evidence of a relationship between stunting (malnutrition in children who look short for their age) and indicators of food consumption of animal origin, such as eggs, meat/fish and milk or their processed products (cheese, yogurt, etc.). Animal protein contains a complete set of essential amino acids, which play an important role in the process of child development. Data states that consumption of food derived from more than one type of animal protein is more beneficial than consumption of food derived from a single animal [13]. Unfortunately, although it is useful for preventing stunting in children, protein consumption per capita is still relatively low. Milk consumption in Indonesia is still low, based on data from the Central Statistics Agency in 2020, milk consumption in Indonesia averages only 16.27 kg/capita/year [14]. Stunting could not only affect a child's height and weight, but also growth and development, as well as a cognitive development in the future. Several types consist of breast milk, fomula, UHT, or pasteurized, all consumption must be adjusted to the age of each child. UHT milk should be consumed by children over 1-2 years old, while formula milk is usually formulated for children under 1 year old. Creativity in making food recipes, packaging, good appearance will be able to help increase children's food intake, especially increasing protein intake [15].

The Faculty of Medicine, University of Bengkulu, as one of the faculties that plays a role in the education of prospective doctors, also has responsibility for community service programs. This community service is held as one of the implementations of the Tri Dharma of Higher Education. Activities need to be carried out while based applying science, technology, and community-based. The activity aims to be able to provide knowledge and provide alternative solutions and educate the public so that a variety of milk-based foods with fortified minerals and vitamins that are beneficial for quality immunity can be easily implemented by families. In this community service activity, socialization will be carried out regarding child development and understanding of fortified processed foods from milk. These efforts include providing policy advice, coordinating and advocacy support, helping to generate evidence of best practice in nutrition, and providing technical assistance to expand the coverage and quality of high-impact nutrition services for children and women. On this occasion the service team carried out PKM activities in one of the assisted villages in the central Bengkulu region.

B. Methods

This community service activity was carried out at the Sidodadi village hall, Central Bengkulu from September to November 2021. Central Bengkulu Regency is the second highest district in Bengkulu

Province as a child with stunting. Based on data from the health office, the problem of child malnutrition was caused by parenting factors as well as economic factors that detain child development support. Participants in the community service activity were maternal and child village health worker, plus representatives from the Puskesmas and village officials with a total of 32 participants. The method used in community service activities are socialize information on child growth and development, questions and answers with participants based on experience and field findings, provide materials related to sources of milk food ingredients and their fortification, carry out copyright quizzes on milk-based healthy food recipes, and monitor evaluations. Some of the activities carried out were divided starting from preparation, organizing face-to-face activities, as well as conducting monitoring and evaluation for two months in collaboration with village health worker in implementing the results of community service. Organizing meeting was carried out by providing material on identifying nutritional problems, examinations, nutritional needs and strategic steps to meet daily nutritional needs followed by providing training on making several foods with milk-based ingredients to improve children's food intake. Feedback which is carried out two months after the first stage so that more comprehensive problems are identified which will be answered by the solution service team and their implementation.

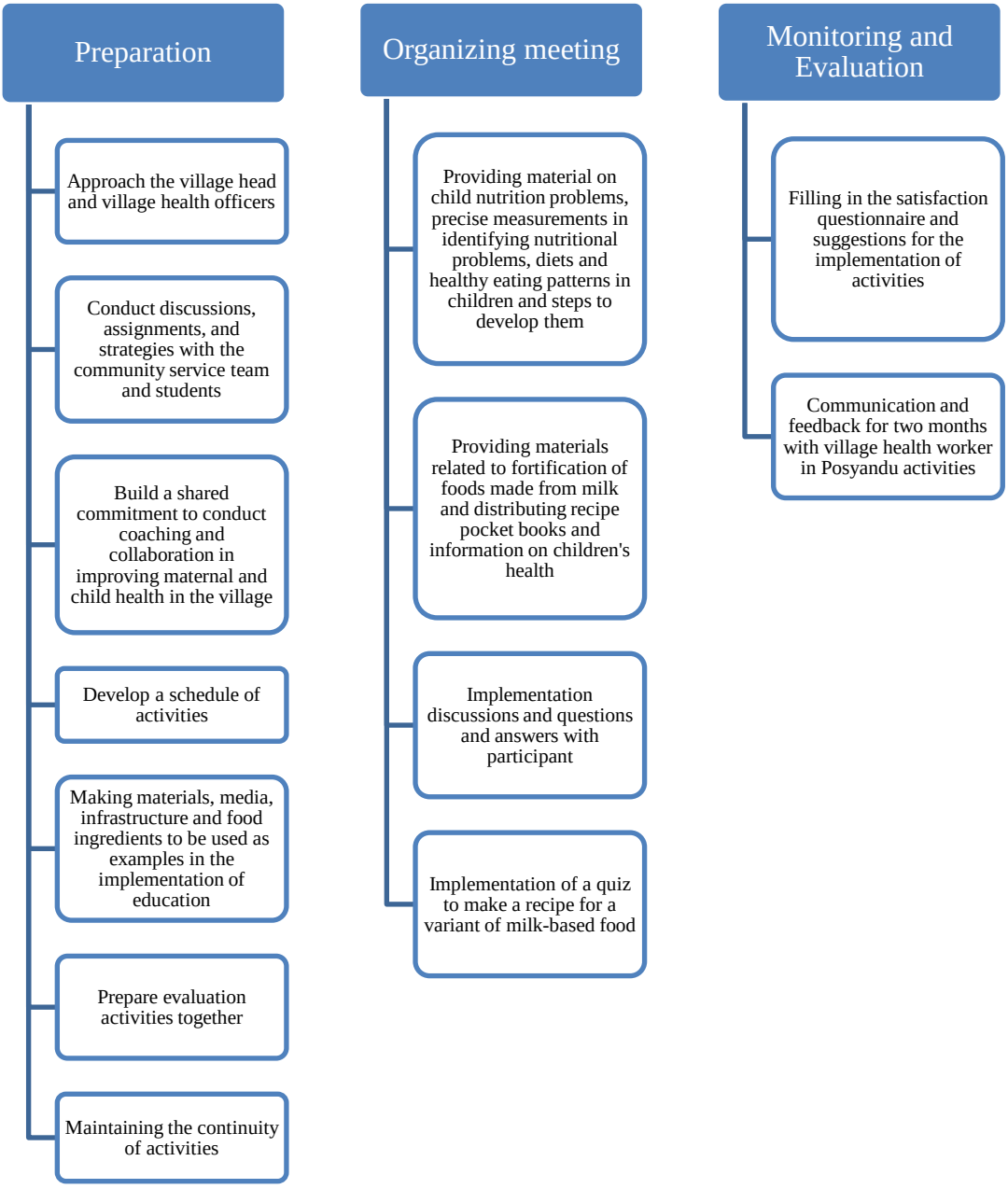

Figure 1. Stages of Community Service Activities

C. Result and Discussion

Based on the results of the activities, all activities went well. The participants were very enthusiastic in following all the activity processes as seen from active communication. the opening of the event was carried out by the village head and village officials. At the organizational stage, the participants were given material and education about healthy diets, the importance of understanding child growth, food fortification from milk. Education is also provided regarding nutrition, including being wise when viewing advertisements for nutritional products that are often not suitable for children.

The activity was carried out for 3 hours and was carried out face to face. The material is given for 2 hours using power points and educational videos, then followed by questions and answers. In the first material, participants were given education about child development from infancy to 18 years old. Child growth refers to the physical, language, thought, and emotional changes that occur in children from birth to adulthood. The growth and development of children is also strongly influenced by genetic factors, environmental factors, and various events that occur when children are growing. Health practitioners need to ensure the growth of children. Various developmental disorders that occur in children must be addressed properly to help children get a quality life. A lot of questions and answers and based on experience. this provided positive input as a sharing of experiences and methods for health programs in villages, especially for children.

The second material given was provided in how to design good and healthy recipes. The focus of this activity is recipes for children and utilizing dairy products as a source of healthy food. Participants were given material related to standard Indonesian traditional recipes for processed food. The team provides alternative steps to increase the calorie and protein value by using additional milk and eggs. For example, one of the food samples presented was sweet porridge made from processed sweet potatoes and rice flour. The service team explained that one way to make sweet porridge was to add milk at the end of making the porridge so that the milk content was not damaged by heat. If milk was not available, it could be replaced with the addition of alternative tofu, tofu or green beans. Other recipes discussed include rich milk-based drinks, milk-based jellies, milk bananas and milk balls that are easy to make as a snack for kids. During the discussion session the participants were given a list of food ingredients set by the service team. Participants were asked to discuss sample recipes for educational material by including milk in the recipe. After the discussion, a discussion was held together with the recipes for processed milk-based foods that had been written down. The service team provides input on the type of material used, the amount and method of manufacture. This explanation is intended to strengthen culinary knowledge and proper nutritional value in making food for children. Village health worker consisting of two teams were asked to make a recipe design from available materials. The best recipe obtained as many as five recipes. The service team then evaluates and discusses together the reasons for choosing the recipe. The performance test was carried out with a quiz on preparing milk-based healthy food recipes for children. It is hoped that with this activity the village health worker, the majority of whom are housewives, could become an educator in the community so that there will be improvements in the use of variants of dairy products in the community.

Figure 2. Documentation Community Service Activities at Sidodadi Village

The material was also conveyed through the provision of recipe books and photocopies of the presentation materials which were distributed to the participants. At the time of debriefing, the activity and enthusiasm of the village health worker was very good so that the debriefing of the time allotted was lacking. Most of the them in Sidodadi Village have been community provider for a number of years, so they have a lot of experience. The achievement indicator for this activity is the increased knowledge of village health worker to carry out education dan supervision in their working area. Based on the results of the satisfaction test, a value of 100% satisfaction was obtained for the activities. The suggestions that have been collected are the desire of the village health worker to continue to establish continuous activities and communication with the service team.

This activity can be one of the efforts to reduce the number of nutritional problems for stunting in toddlers in Bengkulu. The results of the 2021 Indonesian Nutrition Status Study for stunting in Bengkulu amounted to 22.1 percent which has decreased from the results of the 2018 Basic Health Research (Rikesdas) which released 27.98 percent, but Bengkulu province is the only area experiencing chronic nutritional problems and the highest national stunting rate (Litbangkes,2021). Utilizing the most recent data from the Indonesian Family Life Survey, and controlling for a full range of socioeconomic factors, it was revealed that mother's education, water and sanitation conditions, household poverty and access to health care strongly influence chronic malnutrition in children in Indonesia [17]. Nutrition education program, campaign for a healthy and balanced diet, fortification and protein consumption based local resources can be designated to assist the eradication of micronutrient deficiencies [18]. Fortified milk is an effective source of complementary nutrition to supplement children in need when consumed in the right amounts in addition to a normal diet. A systematic meta-analysis study in 2016 stated that fortified milk had minimal effect on weight gain (mean difference=0·17 kg; 95 % CI 0·02, 0·31 kg) compared to control milk. However, there was a decreased risk of anemia in the fortified milk group (OR=0·32; 95% CI 0·15, 0·66) compared to the control group [19].

D. Conclusion

The conclusion that can be drawn from this counseling activity is that increasing knowledge for village health worker greatly influences the skills. Village health worker need information media that can be used to increase knowledge, especially related to maternal and child health. Providing effective education can increase the knowledge of Posyandu official and community regarding the prevention of malnutrition through fortification, one of which is with milk products. In addition, this community service activity could improve the skills in planning and cooking fortification products with raw milk that can be used to educate the public. This community service activity needs to be carried out continuously with expanding coverage area, so that it can be transferred to mothers of toddlers as food providers in the household. Thus the food intake of toddlers will be fulfilled both from the needs of macronutrients and micronutrients through fortification products.

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