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Balanced nutrition education as an effort to prevent nutritional problems in toddlers within the SEHATI PT Pertamina program

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ABSTRACT

Nutritional problems among toddlers remain a significant public health issue, often caused by limited knowledge of balanced nutrition. This community service activity aimed to address this issue by improving the knowledge of mothers with toddlers regarding balanced nutrition as an effort to prevent nutritional problems. The beneficiaries were 21 mothers participating in the SEHATI Pertamina program within the Tabaringan Community Health Center (Puskesmas Tabaringan) working area, Makassar. The program included educational counseling and practical training on making anchovy sausages as a nutritious food alternative. The methods used were lectures and interactive discussions, followed by knowledge assessments through pre-tests and post-tests. Factors contributing to the lack of knowledge about balanced nutrition included maternal factors, household environment, poor food quality, inappropriate feeding practices, food and beverage safety, breastfeeding, infections, socio-economic and political conditions, healthcare services, education, social and cultural aspects, agricultural and food systems, water, sanitation, and the environment. The evaluation results showed a significant improvement in the participants' knowledge. Before the education, 28% of participants had good knowledge, which increased to 61% after the program, indicating the effectiveness of educational interventions in enhancing the understanding of balanced nutrition. The findings highlight the importance of continuous educational interventions to improve maternal knowledge and practices related to child nutrition, which can contribute to reducing nutritional problems in the long term.

ABSTRAK

Masalah gizi pada balita masih menjadi isu kesehatan masyarakat yang signifikan, yang sering kali disebabkan oleh keterbatasan pengetahuan tentang gizi seimbang. Kegiatan pengabdian kepada masyarakat ini bertujuan untuk mengatasi permasalahan tersebut dengan meningkatkan pengetahuan ibu balita mengenai gizi seimbang sebagai upaya pencegahan masalah gizi. Sasaran kegiatan adalah 21 ibu balita penerima manfaat program SEHATI Pertamina di wilayah kerja Puskesmas Tabaringan, Makassar. Program ini mencakup penyuluhan edukatif dan pelatihan praktis pembuatan sosis ikan teri sebagai alternatif makanan bergizi. Metode yang digunakan meliputi ceramah dan diskusi interaktif, yang diikuti dengan penilaian pengetahuan melalui pre-test dan post-test. Faktor-faktor yang berkontribusi terhadap kurangnya pengetahuan tentang gizi seimbang meliputi faktor maternal, lingkungan rumah tangga, kualitas makanan yang rendah, praktik pemberian makan yang tidak tepat, keamanan makanan dan minuman, pemberian ASI, infeksi, kondisi sosial-ekonomi dan politik, layanan kesehatan, pendidikan, aspek sosial dan budaya, sistem pertanian dan pangan, air, sanitasi, dan lingkungan. Hasil evaluasi menunjukkan peningkatan pengetahuan peserta yang signifikan. Sebelum edukasi, 28% peserta memiliki pengetahuan baik, yang meningkat menjadi 61% setelah program, menunjukkan efektivitas intervensi edukatif dalam meningkatkan pemahaman tentang gizi seimbang. Temuan ini menekankan pentingnya intervensi edukatif yang berkelanjutan untuk meningkatkan pengetahuan dan praktik ibu terkait gizi anak, yang dapat berkontribusi pada penurunan masalah gizi dalam jangka panjang.

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INTRODUCTION

Nutritional problems in children under five are influenced by food intake and infectious diseases. Suboptimal intake of nutrients in food can lead to problems of undernutrition, and overnutrition. Nutritional problems in toddlers include, among others, protein energy deficiency (PEM) is a condition where there is a lack of macronutrients which are sources of energy, including protein, vitamin A deficiency (KVA) which makes children experience growth disorders, iron nutrition anemia (AGB) is inhibited growth in children, disorders due to iodine deficiency (GAKY) can cause growth and development disorders, and overnutrition (Susilo & Kuspriyanto, 2016). The problem that often occurs in toddlers is the problem of stunting (Kemenkes RI, 2018). The nutritional status of a toddler (1-5 years) requires more nutrition because this is considered the golden age. During this period a child will experience physical, mental development, and will discover various new things, so the fulfillment of nutrition at this time is very important (Hasdianah, Siyoto, & Peristyowati, 2014).

The onset of nutritional problems in toddlers according to the United Nations International Children's Emergency Fund (UNICEF) theory can be caused by two factors, namely direct factors and indirect factors (Par'i et al., 2017). Direct factors are infectious diseases related to sanitation problems, health behavior, and immunity, as well as the type of food consumed both in quality and quantity. Meanwhile, indirect factors include socioeconomic and household-level food security, inappropriate parenting, history of exclusive breastfeeding, pregnancy history such as too close birth spacing, education, knowledge, environmental factors, and low behavior towards health services (Yuwanti et al., 2021).

Nutritional problems that occur in children under five years of age can have various adverse effects on the child's further development. The short-term impacts of nutritional problems in children under five include impaired brain development; impaired intelligence levels; disrupted physical growth and development; and metabolic disorders. In addition to the short-term impact, there is a long-term impact of nutritional problems in children under five years old, including decreased cognitive abilities and learning achievements; decreased immunity, so that it is easy to suffer from disease; has a high risk for the occurrence of several diseases such as vascular and heart disease, diabetes mellitus, obesity, cancer, stroke, and disability at a later age; and suboptimal work quality which will ultimately result in low economic productivity (Kemenkes RI, 2015).

Health education, as described by Notoatmodjo (2010), is a strategic effort aimed at persuading or educating individuals to engage in practices that promote and improve their overall health. Consequently, health education can be conceptualized as a proactive initiative designed to spread knowledge about health by providing related information. As described by Nursalam and Efendi (2008), the primary goal of health education is to effect a transformation in the attitudes and behaviors of individuals, families, specific demographic groups, and communities, thereby encouraging the development and maintenance of healthy lifestyles while facilitating active engagement in the pursuit of optimal health outcomes. A study in Bogor showed that providing education to parents about balanced nutrition practices in stunted toddlers had an effect on parental knowledge (Juliyanti et al., 2024).

Based on preliminary studies conducted on mothers in Kertamaya, it was found that 19.3% of patterns in feeding were poor and 66.7% of patterns in feeding were in the moderate category, and only 14% of patterns in feeding were in the good category. While exclusive breastfeeding was not given by 15.8% of mothers. In addition, 87.7% of mothers' knowledge was in the moderate category related to child feeding. Based on the data above, it is very important to provide health education to parents, especially mothers, related to balanced nutrition in infants and toddlers. This counseling activity aims to increase the knowledge of parents, especially mothers so that the number of nutritional problems in infants and toddlers can be prevented as early as possible. This activity aims to increase community knowledge (mothers of toddlers) about nutritious eating for toddlers. With this activity, the community (mothers of toddlers) can find out about balanced nutrition as an effort to prevent nutritional problems and conduct training in making relatively cheap anchovy sausages as a way to minimize the occurrence of malnutrition problems.

METHODS

In this community service activity, the methods used include educational counseling through lectures and question and answer sessions or discussions, as well as evaluating participants' knowledge using pre-test and post-test related to health service preparedness in dealing with nutritional problems. The targets of this activity are mothers of toddlers who are beneficiaries of the Sehati Pertamina program in the Tabaringan Puskesmas working area, with a total of 21 participants (see Figure 1).

Evaluation is conducted to measure the extent to which educational activities can be accepted by participants and provide changes in knowledge related to balanced nutrition. This evaluation design includes several stages. First, the evaluation was carried out by filling out a knowledge questionnaire about balanced nutrition before and after the educational activities. The questionnaire consisted of 10 questions related to the educational material on balanced nutrition in an effort to prevent nutritional problems. Each correct answer is given a score of 1, while the wrong answer is given a score of 0, with a maximum score of 10 and a minimum of 0. The score results are then categorized into three levels of knowledge, namely Good, Fair, and Poor, based on predetermined scoring guidelines. Second, the evaluation time was conducted in two stages, namely the pre-test before the educational activity and the post-test after the educational activity. Each stage was allocated 20 minutes to complete the questionnaire. Third, the evaluation criteria included the participants' ability to answer questions related to the concept of balanced nutrition. The questionnaire is used as a measuring tool to assess changes in the participants' knowledge level measured through comparison of pre-test and post-test results. Fourth, the target achievement indicator in this activity is the increase in participants' knowledge score after participating in educational activities. The success of this activity is assessed by an increase in the average post-test score compared to the pre-test score, which indicates an increase in participants' understanding of the material provided. In addition, the percentage of participants who reached the good category in the post-test is one of the main indicators in measuring the effectiveness of the counseling provided.

Figure 1. Educational Activity Process

RESULTS AND DISCUSSION

Education provided to mothers of toddlers was carried out by giving a pre-test before educational activities and a post-test after education to measure the knowledge of respondents who participated in activities in the Tabaringan Health Center working area in 2024.

Table 1. Comparison of mother's knowledge before and after intervention

Criteria Knowledge level	Pre Test		Post Test	
	n	%	n	%
Good	6	28	13	61
Simply	10	47	5	23
Less	5	23	3	14

Table 1 shows the results of the Pre Test of participants' knowledge about balanced nutrition on nutritional problems are in the category of good knowledge as many as 6 people (28%), sufficient knowledge as many as 10 people (47%) and less knowledge as many as 5 people (23%). The results of the Post Test showed that the participants' knowledge of balanced nutrition on nutritional problems was in the category of good knowledge as many as 13 people (61%), sufficient knowledge as many as 5 people (23%) and less knowledge as many as 3 people (14%). The results of the Pre Test and Post Test showed that after education to participants, there was an increase in participants' knowledge about balanced nutrition against nutritional problems, which was originally a level of knowledge with a good category of 28% to 61%.

Balanced nutrition is crucial for early childhood development, as it lays the foundation for a child's physical, cognitive, and emotional growth. The first 1,000 days of life, from conception to the second birthday, are particularly critical, as they represent a period of rapid growth and development. Adequate nutrition during this time is essential for optimal health outcomes, including preventing stunting and promoting cognitive abilities. Research indicates that poor maternal nutrition can lead to adverse birth outcomes, such as low birth weight and intrauterine growth retardation, which subsequently affect the child's health and development (Zhang et al., 2019; Likhar & Patil, 2022; Akhtar & Satapathy, 2021).

Maternal nutrition plays a significant role in shaping the health of both mothers and their children. Studies have shown that adequate maternal nutrition not only supports healthy fetal development but also enhances the growth and cognitive development of newborns (Zhang et al., 2019; Likhar & Patil, 2022; Chamova et al., 2023). For instance, interventions that focus on improving maternal dietary habits have been linked to better health outcomes for children, emphasizing the interconnectedness of maternal and child nutrition (Likhar & Patil, 2022; Chamova et al., 2023; Koletzko et al., 2019). Furthermore, the introduction of complementary foods after six months of exclusive breastfeeding is vital to meet the growing nutritional needs of infants and toddlers, ensuring they receive a balanced diet rich in essential nutrients (Seun, 2022; Weker et al., 2022).

Childhood malnutrition, particularly in the form of wasting and stunting, has been associated with delayed cognitive and physical development. Research indicates that children who experience acute malnutrition are at a higher risk of developmental delays, which can have long-term implications on their educational attainment and overall well-being (Husin et al., 2019; Khanna et al., 2021; Lyaatu et al., 2024). For example, a study highlighted the association between wasting and delayed development in children aged 12 to 60 months, underscoring the importance of addressing nutritional deficiencies early on (Husin et al., 2019; Khanna et al., 2021). Additionally, promoting best feeding practices and nutritional education among parents is crucial for preventing malnutrition and ensuring healthy growth trajectories for children (Kadium, 2024; Siregar, 2024; Mya et al., 2019).

The broader implications of balanced nutrition extend beyond individual health, influencing societal productivity and economic development. Malnutrition in early childhood can lead to a cycle of poverty, as children who do not receive adequate nutrition are less likely to perform well in school and secure better employment opportunities later in life (Ekholuenetale et al., 2020; Lyaatu et al., 2024; Yeshaneh et al., 2021). Thus, addressing nutritional needs during early childhood is not only a public health priority but also a critical investment in the future workforce and economic stability of communities.

Nutrition education is a critical component in preventing nutritional problems among toddlers, as it directly influences maternal knowledge and practices regarding child feeding. The importance of nutrition education lies in its ability to empower mothers with the knowledge necessary to make informed dietary choices that promote the health and development of their children. Research indicates that increased maternal knowledge about nutrition significantly correlates with improved nutritional status in toddlers, as mothers who are educated about balanced diets are more likely to provide diverse and nutrient-rich foods to their children (Junita et al., 2023; Junita et al., 2023).

One effective approach to nutrition education is the use of technology-based platforms, such as websites and mobile applications, which have been shown to enhance mothers' understanding of nutritional needs and dietary diversity for their toddlers. For instance, a study demonstrated that

smartphone-based nutrition education improved the nutritional knowledge of mothers and subsequently increased the variety of food intake among toddlers, thereby addressing issues like stunting and malnutrition (Junita et al., 2023; Junita et al., 2023). This highlights the potential of innovative educational tools to reach a broader audience and facilitate better dietary practices.

Furthermore, targeted nutrition education programs can address specific health issues, such as anemia in toddlers. A study found that educating mothers about the importance of iron-rich foods and overall dietary balance significantly improved iron intake among their children, thereby reducing the prevalence of anemia (Suryana et al., 2022). This underscores the necessity of tailored educational interventions that focus on prevalent nutritional deficiencies within specific communities.

The role of maternal education in shaping toddler nutrition cannot be overstated. Higher levels of maternal education are associated with better nutritional outcomes for children, as educated mothers are more likely to seek out and understand nutritional information, leading to healthier feeding practices (Idris et al., 2024; Kii et al., 2024; Maulizar et al., 2023). Conversely, low maternal education levels often correlate with inadequate knowledge about nutrition, resulting in poor dietary choices that can adversely affect a child's growth and development (Hanim, 2020; Kamelia et al., 2023).

Moreover, effective communication within families about nutrition can further enhance the impact of education. Research suggests that when families engage in discussions about dietary practices and nutritional needs, it leads to improved compliance with recommended feeding practices, ultimately benefiting the nutritional status of toddlers (Nurprastiwi et al., 2024). This indicates that nutrition education should not only target mothers but also involve family members to create a supportive environment for healthy eating.

CONCLUSION

This community service activity effectively increased the knowledge of mothers with toddlers regarding balanced nutrition, demonstrated by the increase from 28% to 61% in the good knowledge category after the educational intervention. The hands-on training on making anchovy sausages also provided participants with practical skills to prepare nutritious food for their children. Based on these findings, it is recommended that similar educational programs be conducted regularly and expanded to reach a larger community. Future initiatives should incorporate follow-up assessments to measure long-term knowledge retention and behavior changes related to balanced nutrition. Additionally, collaboration with local healthcare providers and stakeholders is essential to ensure the sustainability of such programs in preventing nutritional problems among toddlers.

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