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Herbal Moringa Tea Counseling for Preventing Stunting in Toddlers and Pregnant Women

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ABSTRACT

Objective: *This study aims to explore the utilization of Moringa oleifera leaves as a nutritional intervention to prevent and reduce stunting among toddlers through the development of Moringa herbal tea.* ***Method***: *A community-based education and training program was conducted involving members of the Family Welfare Empowerment (PKK) g roup. The program included stages of preparation, implementation, and evaluation, focusing on knowledge transfer regarding the nutritional benefits of Moringa leaves and hands-on training in herbal tea production.* ***Results***: *The training significantly improved participants' understanding of the nutritional content and processing techniques of Moringa leaves, particularly their rich composition in protein, beta-carotene, calcium, iron, magnesium, vitamin C, and vitamin A, along with potent antioxidant compounds.* ***Novelty***: *This initiative presents a localized and sustainable approach by empowering community members – especially women – as agents of change in combating malnutrition and stunting, through the production and promotion of Moringa-based functional beverages. The integration of traditional knowledge with scientific insight into nutrition showcases an innovative model of health promotion at the grassroots level.*

INTRODUCTION

The moringa tree (Moringa oleifera) is one of the most extraordinary plants ever discovered. Although it sounds very interesting, in fact, moringa has been scientifically proven to be a highly beneficial source of nutrition with a content that far exceeds that of other plants [1]. This makes moringa believed to have the potential to address issues of malnutrition, hunger, as well as the prevention and treatment of various diseases worldwide. Moringa is truly extraordinary, considered a gift from God that serves as a source of nutrition and medicine for humans [2]. The part of the moringa tree, namely the moringa leaves, can be consumed and have long been part of the prevention of stunting in pregnant women and toddlers [3].

Stunting is the most co mmon form of malnutrition (PE/micronutrients), affecting babies before birth and shortly after birth, related to the gestational age of the pregnant mother and fetal growth. The results of several studies show that the high rates of malnutrition and stunting in an area are caused by various factors, including low nutritional intake during the first 1000 days of a child's life and poor sanitation. Limited access to clean water and poor environmental sanitation and health. Additionally, poor parenting practices and inadequate nutritional intake that do not meet the standards for healthy child development, as well as mothers not receiving nutritious food, especially high-protein foods while breastfeeding, can also be caused by insufficient food intake. These factors can worsen the situation and hinder growth and development in children

under the age of 6. Stunting in toddlers can indirectly affect a child's intellectual development, which can result in decreased productivity, increased risk of diseases, degenerative conditions, and a higher likelihood of low birth weight babies in the future [4]. Stunting in toddlers has several characteristics, including: 1) Slow growth and development, 2) Appearance younger than children of the same age, 3) Weight not increasing and even tends to decrease, 4) Poor focus and learning memory, 5) Tends to be quieter, 6) Delayed tooth growth phase in children.

As an effort that can be made to prevent stunting, it can be done by providing tea made from moringa leaves. This is because moringa leaves have high bioactive compounds, making them a potential alternative to prevent stunting [5]. In this outreach, the KKN-P group 16 Umsida students independently made herbal tea from moringa leaves and utilized the moringa plants available in the surrounding environment. Here is the method for making moringa herbal tea:1) Prepare the tools and ingredients, especially the dried moringa leaves, 2) Grind them until semi-fine, 3) Pour half a tablespoon of moringa powder, 4) Add 1 cup of hot water,5) Wait for 10 minutes, 6) The moringa leaves are filtered and ready to drink [6].

Based on the explanation above, a community service activity was carried out by the KKN-P Umsida Group 16 students in Sumbersuko Village, aimed at providing knowledge to the PKK members as participants in the counseling about the use of moringa leaves as an alternative to prevent stunting.

RESEARCH METHOD

Stunting prevention counseling was held in the Hall of the Sumbersuko Village Office, Gempol District, Pasuruan Regency on February 4, 2024. The participants in this counseling session were the mothers who are members of the PKK of Sumbersuko Village. This activity involved presenting material on the definition of stunting, the characteristics of stunting, and ways to prevent stunting.In addition to the presentation, we also conducted a socialization on making tea from moringa leaves as an effort to prevent stunting in pregnant women and toddlers. After presenting the material and socializing the making of moringa tea, there was also a discussion and Q&A session.

No	Work Program	Implementation Method	Time	Location
1	Coordination with the Head of Sumbersuko Village	Coordinating with the Head of Sumbersuko Village regarding the work program in the field of environmental health and stunting prevention.From that coordination, the KKN-P Group 16 team presented the work program, activity plan, and	25 January 2024 Pukul 12.00-13.00 WIB	Room of the Head of Sumbersuko Village

No	Work Program	Implementation Method	Time	Location
		activity objectives to conduct outreach.		
2	Stunting Prevention Counseling	The KKN-P Group 16 team conducted a presentation on stunting prevention to the mothers who are members of the PKK and provided counseling on moringa leaf tea as an alternative material for stunting prevention.	4 February 2024 Pukul 09.00-11.00 WIB	Sumbersuko Village Office Hall

RESULT AND DISCUSSION

The health education program conducted by the Group 16 KKN-P Umsida Dimitra team at the Sumbersuko Village Hall, Gempol District, Pasuruan. Namely, conducting counseling and training to make herbal tea from moringa leaves independently and prevent stunting. This activity is carried out in various stages, starting from preparation, implementation of counseling, and training on herbal tea from moringa leaves.

Figure 1. Moringa Leaves

Moringa leaves have a very high nutritional value. Two branches below the bud up to branches 9 and 10 have a protein content of 28.25%, beta-carotene (provitamin A) 11.93 mg, Ca (2241.19 mg), Fe (36.91 mg), and Mg (28.03 mg) [7]. The vitamin C content in moringa is seven times that of oranges, the vitamin A content is four times that of carrots, the calcium (Ca) content is equivalent to four glasses of cow's milk, and the protein content is twice that of yogurt. In addition, it informs that moringa leaves also contain bioactive compounds such as phenolics and flavonoids that can function as high antioxidant compounds, even exceeding the antioxidant activity found in strawberries [8].

The high nutritional value and bioactive compounds in moringa can be utilized as an alternative food source to address and prevent malnutrition and stunting in toddlers [9]. In addition, moringa leaves are easily obtained as they are planted in almost every household yard, which can reduce procurement costs [10]. Therefore, moringa can not only be utilized as a vegetable but also processed into various products such as moringa powder, which can be added to the production of various dishes like nuggets, fritters, sausages, cakes, biscuits, cookies, chocolate, instant drinks, baby porridge, and other products.

Seeing the above conditions, coordinated and sustainable efforts are needed involving various stakeholders, including universities, to participate by organizing various activities such as involving students who are doing community service (KKN), and community service activities conducted by lecturers in areas with high rates of malnutrition and stunting.

Several research findings indicate that there are several causes of high rates of malnutrition and stunting in a region, including low nutritional intake during the first 1000 days of a child's life, poor sanitation facilities, limited access to clean water, and low environmental health and poor family sanitation and hygiene [11]. Additionally, it can be caused by inadequate parenting practices and nutritional intake that does not meet the standards necessary for child growth and development. Mothers who do not consume nutritious food, especially those high in protein, during the lactation period can worsen the situation and hinder the growth and development of toddlers [12]. Based on the above description, community service has been carried out by students from Universitas Muhammadiyah Sidoarjo (UMSIDA) aimed at providing education and additional knowledge to mothers participating in the counseling about the use of moringa leaves as an alternative material to prevent malnutrition and stunting in toddlers [13].

Figure 2. Extension on Making Moringa Leaf Tea

The making of herbal tea from moringa leaves begins by drying the moringa leaves until they are dry, after drying, the moringa leaves are crushed until they are semi-

fine [14], then pour half a tablespoon of moringa leaf powder into a glass, add 1 glass of hot water, wait until the color changes, then strain and the moringa herbal tea is ready to drink [15].

Figure 3. PKK Mothers Trying to Drink Moringa Leaf Tea

The moringa leaf counseling is a valuable moment where knowledge about making moringa leaf tea is introduced to the PKK mothers in Sumbersuko Village.So that it can help prevent stunting that occurs in pregnant women. During the outreach activity, the KKN P Group 16 UMSIDA students explained the process of making moringa leaf tea, from the measurements to the entire preparation process, and the PKK mothers also tried drinking the moringa leaf tea that had been brewed by the KKN P Group 16 UMSIDA students.

In the event, the PKK mothers were able to understand the process of making herbal tea from moringa leaves, starting from drying the leaves until the result was free of any musty smell.The KKN team, assisted by the village midwife from Sumbersuko, guided the participants, showing the detailed steps and the necessary ingredients.During the counseling session, participants will be invited to take part in the process of making moringa leaf tea, they can drink the tea that has been prepared beforehand, and they can also practice making moringa leaf tea independently at home.

This activity began with a speech from the partner, who also serves as the head of the PKK, Mrs. HJ. Ika Saiful Ma'arif.She expressed her immense gratitude for the organization of this outreach activity.This activity is expected to provide benefits to participants regarding Environmental Health Counseling and Stunting Prevention in Sumbersuko Village. Hopefully, this outreach will be a good first step to promote health development and community empowerment in Sumbersuko Village, Gempol, Pasuruan Regency.

CONCLUSION

Fundamental Finding : The environmental health and stunting prevention program initiated by the KKN/P team of UMSIDA in Sumbersuko Village successfully

raised awareness among PKK mothers about the nutritional benefits of *Moringa oleifera* and its potential to prevent stunting, especially in pregnant women. **Implication** : This community-based intervention demonstrates that empowering local women through targeted health education and practical training can foster sustainable nutritional practices that contribute to improved maternal and child health. The use of Moringa leaves as a daily dietary supplement or herbal tea offers a culturally appropriate and accessible solution to address micronutrient deficiencies. **Limitation** : However, this initiative was limited by its short implementation period and the absence of quantitative evaluation tools to measure behavioral change or nutritional outcomes. **Future Research** : Further longitudinal studies are recommended to assess the long-term impact of Moringa consumption on maternal and child health indicators, as well as to develop scalable models for similar interventions in other rural communities.

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