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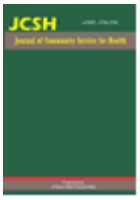

Empowering Women in Giving Moringa Biscuits to Prevent Anemia to Pregnant Women in Jatinom Village

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Abstract

Anemia in pregnancy was still one of the main health problems in Indonesia, the main cause of anemia in pregnant women was a lack of nutrients needed for erythrocyte synthesis, especially iron, folic acid and vitamin B12. One complete prevention of anemia was by gives moringa biscuits which can be consumed by pregnant women as an additional food or complementary food. The method used in implementation this community service was through 2 activities. The first activity was provided education to Jatinom posyandu cadres, Blitar Regency. The second activity was trained in make a Moringa biscuits. The results of the service showed that the knowledge of service participants before provided education was 50% cadres in the poor category, 30% cadres in the sufficient category, and 20% cadres in the good category. Knowledge after being given education was 80% cadres with good knowledge and 20% cadres with sufficient knowledge. Increasing health cadres' knowledge about anemia prevention will create positive rights for pregnant women because health cadres' knowledge will be transformed to pregnant women in their area. Apart from being transformed, health cadres will also support and accompany pregnant women in implemented anemia prevention. It was hoped that this will reduce the rate of anemia in pregnant women.

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INTRODUCTION

Anemia in pregnancy has remained one of the main health problems in Indonesia for the last few years. Anemia in pregnancy is a condition in pregnant women where the number of red blood cells or hemoglobin concentration in the blood is lower than normal(Arini & Hutagaol, 2021). The main cause of anemia in pregnant women is a lack of nutrients needed for erythrocyte synthesis, especially iron, folic acid and vitamin B12 (Nua et al., 2021). Anemia in pregnant women has health impacts on mothers and unborn children, including increasing the risk of babies with low birth weight, miscarriage, premature birth and death in mothers and newborns. Pregnant women with Hb levels(Anisya et al., 2021). The prevalence rate of anemia in pregnant women worldwide in 2019 was 36.9%. The prevalence of anemia in pregnant women is estimated in Asia at 49.4%, Africa 59.1%, America 28.2% and Europe 26.1%, and in developing countries there are around 40% of maternal deaths related to anemia in pregnancy. then in Indonesia in 2018 the prevalence of anemia in pregnant women aged 15-49 years was 42.7%, in 2017 it was 43.2%, in 2018 it was 43.7% and in 2019 it was 44.2% (World Health Organization, 2021). This condition shows that anemia is quite high in Indonesia and shows that the number is approaching a serious public health problem (*severe public health problem*) with an anemia prevalence limit of more than 40%. The incidence of anemia in pregnant women in East Java is 49.5% (Irwanti et al., 2019).This figure is still included in the high category (WHO standards; 5-9% low, 10-19% moderate, 20-39% high, > 40% very high) (World Health Organization, 2021). ased on data from the Blitar District Health Service in 2014, it is known that the number of cases of anemia in pregnant women was 250 (Prasetyanti DK., 2015).

Prevention of anemia in pregnant women is carried out by adding Fe supplements, with a daily dose of 1 (one) tablet (60 mg Elemental Iron and 0.4 mg Folic Acid) consecutively for a minimum of 90 days during pregnancy. In 2019, the percentage of pregnant women in East Java who received 30 Fe-1 tablets was 97.72% and those who received Fe3 was 95%. When compared with the Fe-3 achievement in 2018 of 90.8%, the achievement in 2019 of 95%, there is an increase. Even though it has not yet met the target of 98%. So, it is necessary to prevent anemia in pregnant women so that the prevalence of anemia can be reduced. One complete prevention of anemia is by giving moringa biscuits. Moringa (Moringa Oleifera Lam) is a local plant that contains many micronutrients needed by pregnant women such as beta carotene, thiamine (B1), riboflavin (B2), niacin (B3), calcium, iron, phosphorus, magnesium, zinc. and vitamins(Khuzaimah et al., 2015). The content of Moringa compounds has been researched and reported by Nua et al. It is stated that Moringa leaves contain 28.29 mg of iron (Fe) in 100 grams(Nua et al., 2021).

Moringa can also be processed into healthy snacks that can be consumed by pregnant women as an additional or complementary food. One preparation made from Moringa leaves which contains the iron needed by pregnant women with anemia is Bikelor. As a complementary food for pregnant women, Moringa leaves can be consumed together with iron tablets and also as a healthy snack because they contain high nutritional value. One of the nutrients contained in Moringa leaves is vitamin C which is needed to speed up the process of iron absorption(Khuzaimah et al., 2015). Moringa Oleifera is found in many tropical and sub-tropical areas, including Indonesia. Moringa oleifera is a plant that is easy to find. Moringa can grow in the hardest and driest soil, although almost no other plant can grow in the same place. One of Moringa's nicknames is “never die” because of its extraordinary ability to survive harsh weather and even drought(I’anah et al., 2023).

Jatinom Village, Blitar Regency has 20 cadres and has an active pregnant women's class with pregnant women's exercise facilities, however the number of pregnant women with anemia is 45%. Therefore, to prevent anemia from continuing and preventing anemia, cadres are being empowered as the front guard to provide education and training in making Moringa biscuits, this is because Jatinom village has fertile land for agriculture and every house has a Moringa tree.

METHOD

The method used in implementing this community service was through 2 activities. The first activity was providing education to Jatinom posyandu cadres, Blitar Regency. The second activity was training in making Moringa biscuits. Determining the number of partners involved used a purposive sampling technique, with the following inclusion criteria: cadres who are active at the posyandu, cadres who are not sick, and who have signed informed consent. Namely 20 posyandu cadre participants in Jatinom Village, Blitar district.

The effectiveness of counseling or education was determined by administering questionnaires before and after the implementation of educational activities. The preparatory stage for the activities carried out consists of: 1) outreach to partners, namely midwives in the Jatinom village area of Blitar district regarding the community service activities that will be carried out, 2) meetings with village midwives and representatives of toddler posyandu cadres, 3) preparation by the team implementing and preparing outreach materials. The material provided consisted of education on the use of Moringa leaves as an effort to improve the health of pregnant women at the Toddler Posyandu, Jatinom Village, Blitar Regency. The method for implementing this community service consists of: 1) controlling partner health; 2) Filling out a knowledge questionnaire before education and Empowering is carried out; 3) Education and Empowering cadres by the implementing team in the form of lectures and practices given directly by the presenters; 4) questions and answers; 5) Moringa biscuit training for cadres. After the series of activities have been carried out, at the end of the activity a questionnaire is given again to measure the partner's level of understanding regarding the material that has been explained

RESULT

Implementation of community service activities to diversify Moringa leaves as an effort to improve the health of pregnant women to prevent anemia at the Posyandu for toddlers in Jatinom Village. This is carried out by providing education to partners about the nutritional and nutritional value contained in Moringa leaves. Then carry out training in making Moringa biscuits.

Table 1: Frequency Distribution of Respondents

Characteristic	∑	%
Age		
20-25 years old	12	60
26-30 years old	9	45
> 30 years old	2	10
Education		
- High School	16	80
- Collage	4	20
Occupation		
- Not Working	16	80
- Self-employed	4	20

The table above shows that the ages of the service participants are 12 cadres aged 20-25 years and 9 cadres aged 26-30 years. Then 16 cadres have high school education and 16 cadres do not work..

Table 2: Level of Knowledge Before and After Education

Category	Knowledge			
	Before		After	
	F	%	F	%
Good	4	20	16	80
Fair	6	30	4	20
Less	10	50	0	0
Tottally	20	100	20	100

Based on the results from table 2, it is known that the knowledge of service participants before providing education was 10 cadres in the poor category, 6 cadres in the sufficient category, and 4 cadres in the good category. Knowledge after being given education was 16 cadres with good knowledge and 4 cadres with sufficient knowledge.

DISCUSSION

The community service activity was attended by 20 participants, namely Jatinom village cadres as partners. This service activity is divided into 2 stages, the first stage is providing education about the benefits of Moringa leaves for preventing anemia in pregnant women. Then the second stage is how to make Moringa biscuits as a snack for pregnant women to prevent anemia because Moringa leaves contain iron. According to research from Khofifah & Mardiana (2023), showed that there was an effect of giving Moringa leaf biscuits on hemoglobin levels in anemic adolescent girls (Khofifah & Mardiana, 2023). This is also in line with research from Nua et al (2021), that the results of statistical tests show that there is an effect of giving Bikelor on increasing Hb levels in pregnant women with anemia (Nua et al., 2021).

Figure1. Providing Education about Moringa

The first stage aims was to increase participants' knowledge by providing education about anemia in pregnant women and preventing anemia with Moringa leaves which can be diversified into biscuits. From the evaluation results, it was proven that there was an increase in knowledge with a good category of 80% (16 participants). his is because the method used uses interactive lectures and is assisted by the staff on duty. This is because the cadres have the motivation to improve themselves, both in knowledge and work performance, this is what encourages them to keep learning. They said they would be very happy if the health team provided counseling to them so as to broaden their insight. Increasing health cadres' knowledge about anemia prevention will create positive rights for pregnant women because health cadres' knowledge will be transformed to pregnant women in their area. Apart from being transformed, health cadres will also support and accompany pregnant women in implementing anemia prevention. It is hoped that this will reduce the rate of anemia in pregnant women. According to Miskin et al's research, it was found that in 100 mothers in the Posyandu working area of the Pineleng Community Health Center, the role of cadres had an influence on mothers' knowledg(Miskin et al., 2016). Added research from Sari & Renityas proves that there is an influence of health education on cadres' knowledge about preventing anemia(Sari & Renityas, 2022)Knowledge can be influenced by several factors, one of which is the information factor. The results of research conducted by Bulahari et al, show that there is a relationship between information and knowledge factors with a p value of 0.024 (<0.05) meaning that the more information obtained, the better the knowledge obtained(Bulahari et al., 2015)herefore, so that pregnant women have good knowledge about preventing anemia during pregnancy, health cadres' knowledge must be optimized, one of which is by providing health education.

The second stage was to make Moringa biscuits with supporting facilities and infrastructure so that the cadres are very enthusiastic about making Moringa biscuits.

Figure 2. Dried Moringa Leaves

In the second picture, before the moringa becomes flour, the moringa leaves are dried for 3 days by the cadre's mother. Then blend it and sift it to make Moringa flour as the main ingredient for making Moringa biscuits.

Figure 3 Moringa Biscuits

Figure 3 is a Moringa biscuit that is ready to be consumed by pregnant women to prevent anemia.

CONCLUSION

Based on the results of the implementation of community service activities that have been carried out, there has been an increase in knowledge of Jatinom village cadres regarding the diversification of Moringa leaves as a means of fulfilling nutrition during pregnancy. The pre-test showed that 50% of cadres had knowledge regarding the diversification of Moringa leaves, and after being given education, the post-test results showed that 80% of cadres had knowledge in the good category.

SUGGESTION

It is hoped that cadres will be at the forefront of improving the health of pregnant women in their villages, so Moringa biscuits will be socialized to pregnant women and make Moringa biscuit products to improve the prevention of anemia in pregnant women.

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CONFLICT OF INTEREST

All authors fully contributed to the community service activity started from making the concept of the activity, managing the tabulation of the data, writing a draft manuscript and analysis. Every author made a positive contribution to the activity

from the beginning until the end including publishing the articles in this journal.

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