COMMUNITY EMPOWERMENT THROUGH MAKING CRISPY RED BEANS FOR BUSINESS ACTORS IN CINUNUK VILLAGE, BANDUNG REGENCY

Widi Hastuti [1*], Mimin Aminah[2*] ,Yenny Moviana[3*], Shilka Amelia[4*],Muna Nur Aeni[5*]

[1*,2*,3*,4*,5)] Nutrition Department, Bandung Health Polytechnic Ministry of Health, Indonesia
Email : widihas77@gmail.com

Abstract, background: Young women are a high-risk group for anemia due to red blood cell loss through menstruation every month. The results of Riskesdas in 2013, the prevalence of anemia in Indonesia was 21,7% with anemia sufferers aged 5-14 years at 26,4%. This causes anemia in young women to become a health problem with a prevalence of > 15%.This community service activity aims to increase the knowledge and skills of business actors in making snacks that contain protein, namely crispy catfish and red beans to increase protein intake in young women. The snack is made using local ingredients of catfish and red beans to tap into the local potential.

Method: The target of the activity is business actors in Cinunuk Village, Bandung Regency. The series of activities includes 3 main stages, namely the preparation stage, the basic data collection stage which includes the collection of knowledge data, and skills. The third stage was carried out training on the practice of making crispy catfish and red beans snack, assistance for business actors in carrying out snack making practices, and ended with the collection of knowledge data, and skills.

Objectives: This activity can improve the knowledge, and skills of business actors in the practice of making snacks.

Result: The average pre-test result is 57.22 and the post-test is 80.03. There was a significant increase in pre and post-test results with a value of $p = 0.000$ ($p \leq 0.05$). The activity was carried out by lecturers of the Department of Nutrition, Bandung Health Polytechnic Ministry of Health assisted by students of the Department of Nutrition.

Keywords: catfish, red bean, snack, anemia

Background

Anemia is one of the health problems around the world. According to WHO, the prevalence of world anemia ranges from 40-58%. Anemia occurs a lot in society, especially in adolescents, reaching 46%. This causes anemia in young women to become a health problem with a prevalence of >15%. According to data from Riskesdas in 2013, the prevalence of anemia in Indonesia is 21,7% with anemia sufferers aged 5-14 years at 26,4% and 18,4% with patients aged 15-24 years. Women have the highest risk of developing anemia, especially young women. [1]

Young women are one of the groups at risk of developing anemia. Young women who have menstruation need iron to replace the loss caused by menstruation. The amount of iron loss during one menstrual cycle (about 28 days) is approximately 0,56 mg/day. This amount is coupled with the basal loss of 0,8 mg/day, so the total amount of iron lost is 1,36 mg/day. According to Tarwoto 2010 in Zainiyah and Khoirul Research 2019, the limit of Hb levels for young women to diagnose anemia is if the Hb level is less than 12 gr/dl. Anemia causes blood to not bind enough and transport oxygen from the lungs to the rest of the body which will result in difficulty concentrating, so learning achievement decreases, physical endurance is low so that it is easy to get tired, physical activity decreases, it is easy to get sick because of low endurance, as a result of which it rarely enters school. [2,3,4]

Iron is necessary for blood formation for hemoglobin synthesis. This happens because young woman every month have menstruation which has an impact on iron deficiency in the blood. The intake of nutrients in the body must be fulfilled, especially in adolescents. Protein intake in the body is very helpful for the absorption of iron, besides that vitamin C in the adolescent body must be sufficient because vitamin C is a reductor, then in the intestines, iron will be maintained in the form of Ferrous so that it is more easily absorbed by consuming food sources of iron. [5]

Anemia in young women can be caused by a low intake of protein sources. Based on Riskesdas, the population aged 16-18 years has average adequacy of protein consumption of 64,4%, and adolescents who consume below the minimum needs of 35,6%.[1]

Overcoming anemia problems that occur in young women can be done including supplementary feeding in the form of snacks that are much loved by young women such as Crispy. Young women's snacks are prioritized as animal and vegetable protein sources, based on local food.

Research conducted by Hastuti W, in 2020 produced Crispy Catfish products. This product contains protein but lacks fiber content. To process Crispy products that contain protein and fiber, it is necessary to add fiber-source foodstuffs, namely red beans with a fiber content of 4,0 grams/100 grams. Red beans have a fairly high iron content when compared to other types of legumes. Red beans have an iron content of 10,3 mg/100 gr. This figure is high when compared to other types of legumes such as green beans which contain iron as much as 7,5 mg/100 gr, soybeans 10,0 mg/100 gr, cashews 3,8 mg/100 gr, and peanuts 5,7 mg/100 gr. The total production of red beans in Indonesia reached 168.829 tons (Kristiani, S, 2014). The availability of catfish is abundant with the total production of catfish in Indonesia reaching 437.111 tons. The price is relatively affordable, making catfish chosen to be a food ingredient that is widely used by the Indonesian people to be used as food that can be consumed daily. [5,6,7,8,9]

The results of the research of Hastuti W and Aminah M, 2021 obtained the results that giving Crispy Catfish for 21 days can increase Hemoglobin levels in young women (p = 0.000). Crispy Fish products can be processed and served into practical processed products. Crispy catfish products are a processed alternative that can meet protein intake for female students and are expected to prevent anemia. [10]

This community service activity is in the form of training on making crispy catfish and red beans for business actors in Cinunuk Village, Bandung Regency. Businesses that have been initiated by business actors need to be developed by adding insight into knowledge and skills in making other businesses, namely crispy catfish and red bean snacks. The implementation of community service activities is carried out by lecturers of the Department of Nutrition, Bandung Health Polytechnic Ministry of Health, and assisted by students in Cinunuk Village, Bandung Regency

Method

The implementation method for this community service activity includes several stages of activity, namely:

Preparation

The initial stage of this activity is coordinating with business actors, making activity proposals, preparing the necessary equipment for activities, collecting initial data in the form of questionnaires with online interview methods via zoom media, as well as coordinating with team members and students.

Measurement of the Level of Nutritional Knowledge of Business Actors

At the beginning of the activity, basic data measurements were carried out to determine the level of nutritional knowledge of business actors before the training, and interviews were conducted with questionnaires that had been provided.

Implementation
1. Training on making crispy catfish and red beans snack for bussiness actors
2. Material on how to make crispy catfish and red beans snack
3. The practice of making crispy catfish and red beans snack
4. Assistance to business actors in carrying out the practice of making crispy catfish and red beans snack
5. Evaluate the practice of making crispy catfish and red beans snack
6. This activity is carried out on schedule for 5-6 months.

Evaluation
1. After the practice of making crispy catfish and red bean snacks, then the level of knowledge of business actors is measured again.
2. Evaluate skills in making crispy catfish and red beans snack.

Results & Discussion
Business Actors Characteristics
The number of business actors is 10 people. Characteristics of business actors by age, education, and occupation are presented in the following table.

Table 1. Characteristics of Business Actors according to Age, Education, and Employment in 2022

Characteristic	Business Actors	
	n (10)	%
Age		
19 – 29 years old	2	20,0
30 – 49 years old	7	70,0
50 – 64 years old	1	10,0
Education		
Junior High School	2	20,0
Senior High School	6	6 ,
D1 – D3	1	10,0
DIV/S1	1	10,0
Work		
Merchant	9	90,0
Laborer	1	10,0

Table 1. shows the highest proportion of ages ranging in age from 30 to 49 years as much as 70.0%). The level of education in most high schools is 60%, and the type of work is mostly 90.0%.

The results of Anggraini, Imantika, and Wijaya's research show that family income that is less than the Provincial Minimum Wage affects the occurrence of anemia. Low economic circumstances are generally closely related to the health problems encountered. A person with an upper-middle level of Education and socioeconomics will have many options in choosing a source of iron, especially the type of heme (animal) which is the largest source of Fe for the body. According to Permaesih (2005) in Ila Fadila's research (2018), it is stated that educational factors can affect a person's anemia status in connection with the choice of food consumed. Higher levels of education will affect knowledge and information about nutrition. This condition shows the need for further intervention regarding the provision of more intensive information about the importance of nutritional knowledge, especially those related to balanced nutrition guidelines for young women [11,12]

Nutritional Knowledge

Changes in partner nutritional knowledge are measured through pre-test and post-tests, presented in the following table.

Table 2. Changes in Pre-Test and Post-Test Results of Nutritional Knowledge The Beginning and End of Community Service Activities in Cinunuk Village Business Actors, Bandung Regency in 2021

No	Name of Business Actor	Pretest Score	Posttest Score	Change
1	ASH	66,67	80,00	13,33
2	ENT	40,00	86,67	46,47
3	AYJ	53,33	80,00	26,67
4	CHA	53,33	73,33	20,00
5	RBI	60,00	80,00	20,00
6	YYI	60,00	73,33	13,33
7	MAA	60,00	80,00	20,00
8	SLI	40,00	80,33	40,33
9	ESR	72,22	86,67	14,45
10	RHT	66,67	80,00	13,33
Total		**577,22**	**800,33**	**228,11**
Average		**57,72**	**80,03**	**22,81**

Table 2. shows that the average pre-test score is 57,72, and the average post-test score is 80,03. The change in the highest score to one was 46,47, the second was 40,33 and the third was 26,67. Differences in the results of pre-test and post-tests of nutritional knowledge at the beginning and end of community service activities in business actors in 2022 are presented in the following table.

Table 3. Differences in Pre and Post-Test Results of Nutritional Knowledge The Beginning and End of Community Service Activities in Business Actors in 2022

Variable	Mean	SD	P *value*
Pre Test	57,22	10,80	0,000
Post Test	80,03	4,45	

The data above shows that the average pre-test results of nutritional knowledge of business actors have increased significantly, namely in the pre-test of 57,22 and the post-test of 80,03 with a value of p = 0,000 (p≤0,05).

This is in line with other studies that have suggested that there was a significant change in knowledge between respondents' knowledge before and after the intervention, or in other words, there is an influence of nutritional education on respondents' knowledge .[13]

Assistance in Making Crispy Catfish and Red beans
After training and education to business actors, further assistance was carried out in making crispy interlude food for catfish and red beans. Assistance is more directed at how to make and use local foodstuffs.

The community service activity "Community Empowerment through Making Crispy Patin Fish and Red Beans to Business Actors in Cinunuk Village, Bandung Regency" can increase knowledge about the use of catfish as a local food ingredient that can be processed into alternative foods for protein sources. This is in line with community service activities by Kerans and Ngongo, 2022 which state that training on the use of local foodstuffs can grow and develop the spirit of entrepreneurship. Likewise with community conservation activities by Nurasia, Hidayat, and Anshori, 2021, business actors and MSMEs need assistance from related parties, both government and private, in increasing their business productivity. In addition, this community service activity is in line with women's empowerment activities through training on local food processing conducted by Saugi and Sumarno, 2015 which shows the development of products or variations of local food processing products. [14 ,15,16]

Conclusion
From the results of community service activities that have been carried out, it can be concluded that:
1. The target number of business actors is 10 people.
2. All business actor shave attended practical training on making crispy catfish and red beans snack
3. Training business actors carried out has been able to improve the nutritional knowledge and skills of business actors in making crispy catfish and red bean snacks.
4. The results of the implementation of training on the practice of making crispy catfish and red bean snacks to business actors, namely can be used as a variety of selling products.

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