

# Counseling and Training for Stunting Management Through Provision of Red Kidney Bean Cookies in Kubah Sentang Village Pantai Labu District

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**Abstract.** Indonesia still has a relatively high stunting prevalence of children under five years. Deli Serdang Regency is one of regencies in North Sumatera Province that has acute-chronic nutritional problems. Provision of additional food in the form of red kidney bean cookies is carried out to overcome nutritional deficiencies that occur in the toddler age group, as well as increase society understanding about stunting, its impact and how to handle it. This community service activity was carried out in Kubah Sentang Village, Pantai Labu District, Deli Serdang Regency, North Sumatera Province. Counseling and training on stunting handling through making red kidney bean cookies was attended by 50 participants consisting of mothers who were members of the PKK group, posyandu cadres, mothers with toddlers, and youth groups. Based on the results of the pre-test and post-test, there was a decrease in the number of participants who had knowledge about stunting in the category less than 41.3% to 13.0%, and as many as 56% of participants had knowledge about stunting in the good category.

**Keyword:** Counseling, Training, Red Kidney Bean Cookies, Stunting

**Abstrak.** Indonesia masih memiliki prevalensi balita stunting relatif tinggi. Kabupaten Deli Serdang merupakan salah satu kabupaten di Provinsi Sumatera Utara yang memiliki masalah gizi akut-kronis. Pemberian makanan tambahan berupa cookies kacang merah dilakukan untuk mengatasi kekurangan gizi yang terjadi pada kelompok usia balita, serta meningkatkan pemahaman masyarakat tentang stunting, dampaknya dan cara penanganannya. Kegiatan pengabdian masyarakat ini dilakukan di Desa Kubah Sentang Kecamatan Pantai Labu Kabupaten Deli Serdang provinsi Sumatera Utara. Pendidikan dan pelatihan penanganan stunting melalui pembuatan cookies kacang merah diikuti oleh 50 orang peserta terdiri dari ibu-ibu yang tergabung di dalam kelompok PKK, kader posyandu, ibu yang memiliki anak balita, dan karang taruna. Berdasarkan hasil pre-test dan post-test maka terjadi penurunan jumlah peserta yang memiliki pengetahuan tentang stunting dengan kategori kurang dari 41,3% menjadi 13,0%, dan sebanyak 56% peserta memiliki pengetahuan tentang stunting dengan kategori baik.

**Kata Kunci:** Penyuluhan, Pelatihan, Cookies Kacang Merah, Stunting

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## 1. Introduction

Indonesia is one of the developing countries that has a relatively high prevalence of stunting in children under 5 years old, which is 29.6% in 2017. The results of the National Nutrition Status

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monitoring in 34 provinces in Indonesia in 2017 show that Deli Serdang Regency has problems Acute-Chronic nutrition with stunting prevalence of 33.3% and wasting (thin and very thin) of 5.0% in children under 5 years. The stunting prevalence rate in this district is even greater than the stunting prevalence of North Sumatra Province, which is 28.5% [1].

Incidence of stunting can be caused by inadequate nutritional deficiency and is usually followed by repeated infections in the first 1000 days of life. Stunting conditions that occur in this period are irreversible and permanent so that growth failure will occur [2]. As a result, cognitive development and productivity in adulthood will decline [3]. Children aged less than 5 years who experience stunting will also experience a decrease in income by up to 20% as adults [4].

To overcome the nutritional deficiencies that occur in the under-five age group, it is necessary to provide additional food (snacks). Supplementary feeding is an intervention program for under-fives who suffer from malnutrition. The aim of this supplementary is to improve the nutritional status of children and to meet the nutritional needs of children, so that nutritional status, and good nutritional conditions are achieved according to the child's age.

The formula given to toddlers refers to WHO standards, is quite energy and protein dense, consists of ingredients that are easily available in the community at affordable prices. To increase the nutritional content, these ingredients can be substituted with local food sources of protein and vitamin A. Red kidney bean (*Phaseolus vulgaris* L.) is one of the local food ingredients with high nutritional value, easy to access by community, so that it can be used as additional food ingredients.

Red kidney bean is good source of energy, protein, carbohydrate, mineral, and vitamin [5,6]. It is also renowned for its higher dietary fiber. It possesses excellent nutritional profile such as 22.7% protein, 1% fat, 57.7% carbohydrate consists of 38.6% starch and 18.8% dietary fiber, and 3.5% mineral. Lysine is the highest amino acid in its protein about 5% [7,8].

Red kidney beans are also rich in B vitamins consisting of thiamin 0.88 mg/100g, riboflavin 0.14 mg/100g and niacin 2.2 mg/100g. The protein has a complete composition of essential amino acids. The limiting amino acids in red kidney bean protein are methionine and cysteine with relatively low content of 10.56 and 8.46 mg/100g [9].

So far, the use of red kidney beans is still limited in food production, namely in the form of red bean soup, cakes or as a mixture of vegetables. In Indonesia, red beans are usually only processed into ice cream and soup. Besides being processed into these two products, red beans can be processed into flour. Processing red beans into flour can extend the shelf life of red beans and provide wider application opportunities. Red bean flour can be used as a mixture in various products such as bread, cakes, and cookies. Cookies were chosen because they are very popular with the public, especially among adults and children.

The results of Nainggolan's research [10] in Kubah Sentang Village on 26 children aged 13-36 months by giving red kidney bean cookies as much as 200 grams per week for 3 months there was an average increase in height of 1.25 cm and an increase in body weight of 0.70 kg. These results indicate that the provision of red kidney bean cookies in a sustainable manner can improve the nutritional status of children under five.

Therefore, as an effort to utilize red kidney beans, community service activities are carried out which aim to increase public understanding about stunting and its effects, increase understanding in making red kidney bean cookies as an alternative food for stunting sufferers, and increase public understanding about making red kidney bean cookies as a functional food for toddlers.

## **2. Method**

This community service activity was carried out in the village of Kubah Sentang, Pantai Labu sub-district. The participants of this activity were a group of PKK women, village midwives, “posyandu” cadres, mothers with toddlers, and youth groups (Karang taruna). The number of participants in the activity is 50 people. The activities carried out consisted of counseling about stunting, training, and practice of making red bean cookies, and evaluating activities.

### **2.1 Tools**

The tools that used include tools for counseling and training activities. Tools for counselling activities include extension media, namely LCD, pocket books, and stationery. Tools for training activities include tools for making red kidney bean flour and cookies products, including drying ovens, blenders, 50 mesh sieves, scales, mixers, and toaster ovens.

### **2.2 Counselling About Stunting in Children**

Counselling activities were carried out in the form of lectures and discussions using LCD media and pocketbooks on stunting. Before participating in the training, the participants first gave a pre-test to determine the level of participants' understanding of stunting. After completing the counseling, participants were again given a post-test, to find out changes in participants' understanding of stunting in children.

### **2.3 Training and practice of red kidney bean cookies making**

In this activity, participants were given training to make red kidney beans cookies, and after that participant were asked to practice it themselves at home. The purpose of this activity is so that participants in this community service activity are able to carry out the process of making red kidney bean cookies at home and can then be used as additional food for toddlers, for the prevention of stunting in children. Cookies are made using red kidney bean flour.

### *2.3.1 Manufacturing of red kidney bean flour*

The steps for making red kidney bean flour are as follows: red kidney beans are sorted, peeled, washed with boiling water, and boiled for 90 minutes. The boiled red kidney beans are then cooled and reduced in size using a knife. The pieces of red kidney bean were dried in an oven at 50 oC for 5 hours until the water content was 6-6.5%. Dried red kidney beans were mashed using a blender and sieved through an 80 mesh sieve to obtain red kidney bean flour.

### *2.3.2 Manufacturing of red kidney bean cookies*

The ingredients for making cookies consist of 35 g of powdered sugar, 1 egg yolk, 50 g of wheat flour, 50 g of red kidney bean flour, 4 g of skim milk, ¼ g of baking powder, 40 g of margarine. 40 g butter, and ½ tsp salt. The process of making cookies is as follows: sugar, salt, and margarine are mixed by shaking using a mixer until a soft cream is obtained, then egg yolk is added, and shaken again until the dough is homogeneous. Wheat flour, red kidney bean flour, and milk powder are added to the cream mixture and stirred again until homogeneous and a dough with a soft texture is obtained. The dough is taken and molded using a spoon and then placed on a baking sheet that has been smeared with margarine, and the distance is adjusted so that it does not stick together when baking. Cookie dough is baked in an oven at 180 oC for 20-30 minutes or until cooked, then cooled to room temperature, and packed in airtight jars.

## **2.4 Evaluation**

Evaluation will be carried out at the beginning of implementation and at the end of community service activities towards achieving goals. The indicators used in the evaluation of the implementation of activities can be seen in Table 1.

**Table 1.** Indicators of the success of community service activities

<b>Activities</b>	<b>Success Indicator</b>
Counselling about stunting and red kidney bean benefits	<ul style="list-style-type: none"> <li>• Participants follow the counseling from start to finish</li> <li>• Participants are able to answer questions orally at the end of the activity</li> </ul>
Training in making red kidney bean flour	<ul style="list-style-type: none"> <li>• Participants are skilled in making red kidney bean flour with the given principles and procedures</li> </ul>
Training and practice in making red kidney bean cookies and its benefits for toddlers	<ul style="list-style-type: none"> <li>• Participants are skilled at making red bean cookies</li> <li>• Participants understand the benefits of red kidney bean cookies to prevent stunting in children</li> </ul>

## **3. Results and Discussion**

### **3.1 Counselling About Stunting in Children**

The counseling materials provided included the definition of stunting, the causes of stunting, the symptoms of stunting in children, the benefits of exclusive breastfeeding (ASI) in preventing stunting, and the importance of sanitation to prevent stunting. Prior to the counseling, a pre-test

was conducted to see the level of participants' understanding of stunting. In the pretest activity, only 46 people filled out the questionnaire from 50 participants. The results of the pre-test can be seen in Table 2.

**Table 2.** The results of the pre-test of participants' knowledge about stunting in children

No	Score	Level of understanding	Number or participant	
			Pre-Test	Post test
1	20-55	Less	19	6
2	56-75	Enough	9	14
3	76-100	Good	18	26
<b>Total</b>			<b>46</b>	<b>46</b>

Based on the results of the pre-test, the participant with the lowest score only correctly answered 4 questions and the highest score was the participant who was able to correctly answer 20 of the 20 questions given, and the average correct answer from the participants was 13 questions out of 20 questions. The results of the post test showed an increase in the understanding of the test participants which can be seen in Table 2.

### 3.2 Training of Manufacturing of Red Kidney Bean Cookies

Red kidney bean cookies are a source of iron, protein and zinc [9], so they can be used as a snack for children, in an effort to prevent stunting. Based on the results of this training, participants already know how to make red bean flour cookies. The observation results on the ability of participants to make red kidney bean cookies also showed good results. Making cookies does not require special skills, so that the cookie products produced by the participants at home have a good appearance, taste, aroma, and texture that are liked by children.

### 3.3 Evaluation on Counselling Activities

Based on the results of the pre-test and post-test in Table 2, it can be seen that participants experienced an increase in knowledge about stunting after counseling. Level of participant understanding about stunting before and after counselling and training activities are shown in Table 3.

**Table 3.** Level of Understanding of Training Participants about Stunting Before and After Community Service Activities

Score / Level of Understanding	Before Counselling		After Counselling	
	n	%	n	%
20 – 55 (less)	19	41,3	6	13,0
56 – 75 (enough)	9	19,6	14	30,4
76 – 100 (good)	18	39,1	26	56,6
<b>Total</b>	<b>46</b>	<b>100</b>	<b>46</b>	<b>100</b>

Table 3 shows that before the extension, 41.3% of the participants' knowledge was in the less category, while after the extension, only 13.0% of the participants' knowledge had a less level of understanding or a decrease of 28.3%. Meanwhile, in sufficient knowledge, the participants'

knowledge increased by 10.8%. The number of participants with good knowledge was 56.6% or an increase of 17.5%. So, it can be concluded that counseling can increase the knowledge of counseling and training participants.

#### 4. Conclusion

Participants in this community service activity were mothers with stunted children, PKK cadres, and 50 youth groups who participated in the activities with great enthusiasm. The results of the activity showed that there was an increase in participants' knowledge about stunting after counseling, and participants also understood and were able to make red kidney bean flour and cookies products. The nutritional composition, especially protein and high minerals in red kidney bean cookies, can be used to prevent stunting in children. Therefore, it is recommended that the manufacture of red bean cookies can be developed into a household business.

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