

# Efforts In Settling Anemia To Pregnant Women Through The Empowerment Of The Use Of Ronggeng Shrimp (*Harpiosquilla Raphidea*) As Functional Food

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**Abstract.** This study was conducted to know, analyze and examine the model of anemia occurrence prevention to pregnant women through the empowerment of pregnant women in the utilization of ronggeng shrimp (*Harpiosquilla raphidea*) becoming functional foods in the village of Percut Sei Tuan. The research was conducted to know the potential of crackers in settling anemia to pregnant women using *Quasi Experimental* with the design of *the Untreated Control Group Design with Pretest and Posttest*. Interventions conducted on 64 pregnant women divided into two groups. Group 1 was given crackers 6 pieces (60 grams) to be consumed every day for three months and given empowerment, while the second group, also given crackers without given empowerment. The empowerment was given in the form of education about the use of ronggeng shrimp becomes functional foods conducted four times of meetings for three months. The results of this study showed that intervention through the provision of ronggeng shrip as crackers along with the empowerment was more effective in settling anemia to pregnant women amounted to 78,13% compared to invtervention of providing ronggeng shrimp crackers without the empowerment which was only able to settle anemia in pregnant women amounted to 18,75%. Multivariate analysis was using Multiple Linear Regression showed that the variables that affect the increase in hemoglobin level of pregnant women are: empowerment of pregnant women in the utilization of ronggeng shrimp becomes functional foods, as well as the consumption of protein and iron (Fe) of pregnant women every day.

**Keywords:** Anemia, Pregnant women, Empowerment, Functional Foods, *Crackers*, *Harpiosquilla raphidea*

## 1. INTRODUCTION

Causes of maternal mortality that has been known include bleeding, intoxication during pregnancy accompanied by convulsions, abortion, and infection. However, of the various factors that cause maternal mortality, it is known that bleeding due to iron anemia is a major cause (28%) of maternal deaths (Ministry of Health, 2013). According to Ministry of Health (2013), efforts to improve maternal health still faces many challenges, especially in reducing the proportion of anemia in pregnant women, either directly or indirectly related to anemia problem and still remains one of the flagship programs of the government. Although the policy of iron tablet supplementation (iron tablets) has been launched by the government since the 1970s but the prevalence of anemia among pregnant women in Indonesia is still high. Hormonal changes during pregnancy that generally sometimes cause nausea to vomiting, dizziness and other common complaint constitutes the main factor of pregnant women taking iron tablets during pregnancy.

It suggests that could help more quickly to overcome health problems in the mother and child, should be taken in the form of promotions and health programs in the form of real intervention, cost-effective and community based. Based on a survey conducted by the Health Polytechnic of Medan in 2012 in the village of Percut which is a village close to the beach as ronggeng shrimp producer (*Harpiosquilla raphidea*) which are rich sources of iron, showed that 75% of pregnant women suffer from anemia. From interviews with nutrition staff in the Subdistrict of Puskesmas Percut Sei Tuan, it is known that pregnant women are reluctant to consume iron tablets given as a reason not liking the medicine and causes nausea. Hopefully, through empowerment of communities to utilize ronggeng shrimp becomes a functional food in the form of crackers can help meet the iron needs of pregnant women.

## 2. LITERATURE REVIEW

Anemia as a result of malnutrition is called as nutritional anemia, but because it is largely due to nutritional iron deficiency then commonly known as iron deficiency anemia (Kim Sook He, et al., 2002). Iron deficiency anemia is more likely to occur in developing countries, compared to developed countries. In a report Ministry of Health (2013) it is explainedlaska that the main challenge faced in efforts to improve maternal health is to reduce the proportion of anemia in pregnant women because there are still 37.1% of pregnant women with anemia, namely pregnant women with hemoglobin levels less than 11.0 g / dl, with proportions almost equal in urban areas (36.4%) and rural areas (37.8%). Disorders due to anemia in pregnancy viability, can include: abortion, obstructed labor immature / premature. While in the process of childbirth can cause interference to puerperal (subinvolution uterus), the lack of resistance to infection and stress and low milk production, then disorders in the fetus include: abortion, dysmaturity, mikrosomi, low birth weight and perinatal mortality. (Brabin,

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et al. 2001). Study results conducted by Ramakrishnan (2002) ; Department of Obstetrics & Gynecology, (2003) suggest to be given innovative intervention , simple, inexpensive and as needed in particular groups of pregnant women and children who have the highest risk of suffering iron anemia. Another study recommends to be able to find a new program strategy in particular to improve the status of anemia and nutritional status of pregnant women in accordance with the conditions of socioeconomic groups, especially among poor communities in rural and urban (Bentley, et al. 2003; Vitery, et al. 2005). Generally the occurrence of anemia (Kim Sook He, et al. 2002; Ramakrishnan, 2002) is caused by several things including: due to the lack of consumption of foods that are sources of iron such as: rice, beans, meat, poultry and fish. While to prevent/overcome iron deficiency, there needs to improve the quality of food by means of: choosing foods that are rich sources of iron. Research results conducted by Ramakrishnan (2002), concluded to get the appropriate intervention, it takes a new program strategy. Whereas Bentley, et al. 2003; Vitery, et al. 2005 stated that anemia in pregnant women can be addressed in accordance with the conditions of socioeconomic particularly among poor communities in rural and urban areas. For that, they need innovative intervention , simple, inexpensive and targeted specifically at groups of pregnant women and children who have a higher risk than other groups. The problem of iron anemia in pregnant women, is due to women do not realize the importance of nutrition for themselves. Various direct and indirect factors , have a close relationship with major problems, one of which is the lack of empowerment of women and the family as well as the lack of utilization of community resources contributing to the lack of education, knowledge, and skills of the community and the family (Brabin, et al. 2001). According to Ministry of Health (2012) in order to achieve the independence of health, one of the important elements is community empowerment. Community empowerment is very important to be carried out so that the people as the primary target has the will and the ability to maintain and improve their health. According to Chambers, Robert (1984) empowerment means it is a process of creating a powerful party that is not / less powerful. As for the opportunity, knowledge and skills to empower communities can be effectively done through counseling (Paul, 1987; Kartasasmita, 1996; Payne, 1997).

### 3. METHOD

The type of this research was Quasi Experimental by design of *Untreated Control Group Design with Pretest and Posttest* (Madiono in Sudigdo, 2011; Campbell, 1963; Shadish et al, 2002 and Erlina et al., 2018). The research was conducted to communities in Percut Village (64 pregnant women) divided into 2 groups respectively with interventions such as: group 1 was given intervention in a form of crackers consumed every day and empowerment. Group 2: given intervention in a form of crackers consumed every day without empowerment. The crackers provided were the results of the previous research. The division of crackers were carried out every first week in 3 (three) months to be consumed every day by group 1 and group 2 were amounted to 6 (six) pieces with weight of 60 gram. Empowerment activities conducted through counseling with

frequency of four times for three months. Counseling materials include: anemia danger for pregnant women; causes, consequences and prevention of anemia in pregnant women; and the potential of shrimp of ronggeng in overcoming anemia. The data collected before and after the intervention was hemoglobin level using *Hb Digital Check Up: Easy Touch*.

## 4. RESULTS AND DISCUSSION

### 4.1. Results

Prior to carry out intervention, all pregnant women were in anemia with average grade in groups without empowerment was 9,80 mg/dl and group with empowerment with average value of 9,21 mg/dl.

**TABLE 1 .**  
**Data of Hemoglobin Levels Prior Intervention**

No	Group	n	Average (mg/dl)	Hb level (mg/dl)		Anemia (Hb level < 11mg/dl)		Value-p
				Minimum	Maksimum	n	%	
1	With Empowerment	32	9,21	7,80	10,60	32	100	0,001
2	Without Empowerment	32	9,80	9,80	10,80	32	100	

Source Primer Data, 2015

After carrying out intervention for three months, the average Hb level in pregnant women in group with empowerment becomes 11.02 mg/dl and in group without empowerment averaged 10,26 mg/dl.

**TABLE 2.**  
**Data of Hemoglobin After Intervention**

No	Group	n	Average (mg/dl)	Hb level (mg/dl)		Value-p
				Average	Maximum	
1	With Empowerment	32	11,02	9,00	12,60	0,001
2	Without Empowerment	32	10,26	8,80	11,80	

Source : Primer Data, 2015

Based on Table 2 it can be seen that there occurred an increase of Hb Level with numbers of increase higher in the group with empowerment.

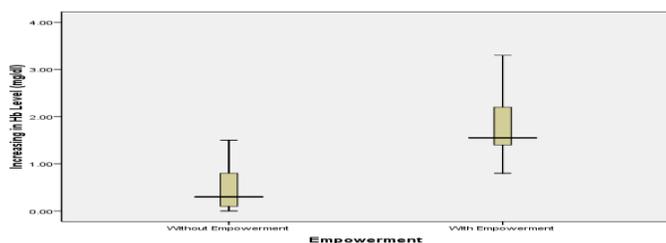
**TABLE 3.**  
**Data of Hemoglobin Level Increase**

No	Group	n	Average (mg/dl)	Increase of Hb Level (mg/dl)		Value-p
				Minimum	Maksimum	
1	With Empowerment	32	1,79	0,00	1,50	0,001
2	Without Empowerment	32	0,47	0,80	3,30	

Source : Primer Data, 2015

The results of analysis to know differences in the increase number of Hb in the group of empowerment and non empowerment was by using *Independent T-test*, showing

significant differences with value of 0,001 (Table 2). The differences of Hb level, can be drawn as follows.



**Figure 1. Differences of Increase in the Hb Level in the Group of Empowerment and Without Empowerment After Intervention**

If we were to differentiate the number of pregnant women who may change their conditions from anemia to normal, intervention through the provision of crackers with empowerment may change the anemia status of pregnant women from anemia to normal condition amounting to 78,13 %. In the group of without empowerment, only able to change anemia status of pregnant women to normal amounting to 18,75 % or still not able to encounter the problem of anemia in pregnant women amounting to 81,25 %.

**Table 4. Differences of Increase of Hb Level to Pregnant women Based on the Group after Intervention**

No	Group	Anemia (Hb level < 11 mg/dl)	Normal (Hb level ≥ 11mg/dl)	Value-p
		%		
	With Empowerment	21,87	5	,001
	Without Empowerment	81,25	8,75	

Source : Primer Data, 2015

#### 4.2. Discussion

Efforts to deal with the problem of anemia in pregnant women using food remains ineffective because pregnant women do not understand that the condition of anemia they experienced, it would be harmful to their health and the health of the fetus. Additionally, pregnant women also do not understand that the food provided will help to overcome the problem of anemia suffered. In the group that received crackers without empowerment showed significantly different results ( $p < 0,001$ ) compared to the group that received crackers and empowerment. The group only receiving crackers without empowerment, there were 81.13% of pregnant women with are still suffering from anemia or only 18.75% were able to overcome anemia in pregnant women. Another group given the same food, accompanied by empowerment showed that only 21.87% pregnant women were still suffering anemia or 78.13% were able to overcome anemia in pregnant women. This happened because the group of pregnant women given intervention with empowerment, in addition to the nutritional intake of crackers given it also resulted in the increased consumption of their food which can be improved its Hb levels. The results of this study conclude that efforts to control anemia in pregnant women would be more

effectively done through the provision of processed foods rich sources of iron prepared from local food that can be obtained easily and at low prices as well as empowerment of pregnant women in the utilization of local groceries mentioned. With the activities undertaken to process local foodstuffs that were previously less enthused by the group of pregnant women, as well as empowerment that in the end provided an increased understanding for pregnant women about the problems they suffer, able to make pregnant women to increase their food consumption. From these results, it was found new thing that conclude that the problem of anemia in pregnant women can be overcome by the provision of functional foods such as shrimp crackers of ronggeng and empowering pregnant women on the utilization of the local foodstuffs. The results of this study are expected to be able to assist the implementation of government programs to address the problem of anemia in pregnant women in accordance with the potential of the region, as well as social and cultural force in their respective territories. Hormonal changes when pregnant women generally sometimes cause nausea to vomiting, dizziness and other common complaint constitutes the main factor of pregnant women taking iron tablets during pregnancy which is a flagship program of government to address the problem of anemia in pregnant women. Based on the obstacles that still exist in society, at this time it is desperately needed another effort to help address the problem of anemia in pregnant women. Therefore, the results of this study, become a very effective alternative and can help the Ministry of Health's program to be optimized to achieve its objectives, namely to overcome anemia in pregnant women, so that these activities are expected to continue. The suggestions for follow-up plan is to address the problem of anemia in pregnant women through the use of local food into a functional food for pregnant women with empowerment so that they are able and willing to overcome the health problems they suffered effectively, and sustainably.

#### 5. CONCLUSION

The efforts to settle anemia on pregnant women with the utilization of local foods in a form of ronggeng shrimp without giving empowerment may help to encounter the issue amounting to 18,75 %, whereas if accompanied with empowerment it would be able to encounter the issue 4,2 times more effective (81,13 %). This study did not conduct medical examinations on infectious and genetic diseases which may be suffered and influence hemoglobin levels in the study sample. This research can be used as an alternative in the policy may help the government to overcome the problem of anemia in pregnant women.

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