

# The Effect of One-to-One Counseling to Pregnant Women's Knowledge about Anemia in Semarang

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**Abstract.** The incidence of anemia in Semarang was constantly increasing years by years. The promotive and preventive activities through counseling of anemia were essential to increase the knowledge of pregnant women for reducing the incidence of anemia. Given the fact that one-to-one counseling using pamphlet was rarely implemented, so that this research about one-to-one method needs to be done. The aim are to determine the difference between participant's pre and post-intervention knowledge about anemia and to determine the correlation among age, education, occupation, income, history of anemia (confounding variables) with the participant's post-intervention knowledge. The study used quasi experimental design without control group. The research subjects were pregnant women from Puskesmas Gayamsari Semarang which were chosen by cluster random sampling method. There were 48 research subjects recruited from antenatal care (ANC) and home visits. The pre-intervention knowledge scores were 10 (5-21), while the post-intervention scores were 24 (9-33) ( $p < 0,05$ ) so that, there was significant difference between pregnant women's pre and post-intervention knowledge about anemia. Confounding variables were insignificantly correlated with post-intervention knowledge. The conclusion is one-to-one counseling effects the pregnant women's knowledge about anemia in Semarang.

**Keywords:** one-to-one counseling, knowledge about anemia, pregnant women.

## 1. Introduction

The prevalence of anemia in pregnant women was increased from 17,93% (2011) to 19,14% (2012) in Semarang[1]. Pregnant women are more vulnerable to have anemia than others because of the elevated iron demand to produce more red blood cells, expand the plasma volume and feto-maternal growth[2].

The number of anemia in pregnant woman can be decreased by some actions, start from promotive, preventive, and curative actions. Iron and folic acid supplements, B12 vitamin and healthy foods are essential for pregnant women to prevent anemia[3]. The preventive and curative action cannot run smoothly without the promotive action. Therefore, counseling is chosen as the main action in promoting healthy life which can directly increase participant's knowledge[4], so that the participant especially pregnant women become more concern about their health and supposed to consume nutritious meals within the pregnancy



period. But, education, mass media, social culture, economic, environment, past experiences and age give big influences for someone's knowledge[5].

This far, the healthcare providers tend to conduct the counseling using group approach (one way communication) which involve many pregnant women in once counseling than individual approach using one-to-one communication. It made the participants absorb the information ineffectively so there is no enough knowledge's enhancement. There was no research about the effect of one-to-one counseling using pamphlet to pregnant women's knowledge about anemia. So that the research which determines the difference between participant's pre and post-intervention knowledge about anemia (definition, normal amount of Hemoglobin (Hb) in pregnant woman, vulnerable group, causes, sign and symptom, effect, comorbid factor and prevention) as well as the correlation among age, education, occupation, income, history of anemia (confounding variables) with the participant's post-intervention knowledge need to be done as multicenter research in Indonesia. The research conducted in Semarang is a part of Multicenter Research held by National Analysis and Research Development Institution of Indonesian Medical Student Senate Association or *Badan Analisis dan Pengembangan Ilmiah Nasional Ikatan Senat Mahasiswa Kedokteran Indonesia (BAPIN ISMKI)* which is headed by Medical Faculty Indonesia University Team as the Main Center of this research after winning multicenter research proposal in Temu Ilmiah Nasional (TEMILNAS) 2015.

## 2. Research Method

### 2.1 Research plan

The study used *quasi experimental* design without control group to determine the difference between pregnant women's pre and post-intervention knowledge about anemia from one-to-one counseling using pamphlet about anemia [Fig 1]. The primary data were collected by fulfilling the questionnaire and interview during January to February 2016.

### 2.2 Sample

The participants are pregnant women who were fit into the inclusions criteria such as Indonesian citizen, reproductive ages, have been diagnosed as pregnant woman by physician, approve the informed consent and regularly join antenatal care (ANC) in Puskesmas while automatically exclude if they belong to the criteria such as no longer visiting the Puskesmas, have physical and mental disorder, and cannot face to face during interview. The research center that was chosen in Semarang City region. Samples collection was done by *cluster random sampling* method using free randomized software on [www.random.org](http://www.random.org). This method was chosen because it is one of the best method of *probability sampling* to represent the population of the sample. The number of the samples are 660 in entire Indonesia, divided into 14 Institution Center who joined this multicenter research so each Institution Center (include Semarang) got 48 samples to be collected.

### 2.3 Research plot

The research carried out one-to-one and face-to-face counseling between the counselor and participant. It began by giving the participants pre-intervention questionnaire, counseling about anemia using pamphlet [Fig 1] and it ended by giving the same post-intervention questionnaire. The pamphlet consists some aspects, such as the definition of anemia, normal amount of Hb in pregnant women, vulnerable group of having anemia, causes, signs and symptoms, effects of anemia, comorbid factors and how to prevent anemia [Fig 1]. The questionnaire consists of sample's bio-data (age, level of education, occupation, income, history of anemia, and history of having counseling about anemia) and six questions about anemia aspects with different scores, they are vulnerable groups of anemia (maximum score is 4), vulnerable group of having anemia (maximum score is 6), causes of anemia (maximum score is 6), signs and symptoms (maximum score is 7), effects of anemia (maximum score is 6), how to prevent anemia (maximum score is 7). The maximum score for all aspects is 36.

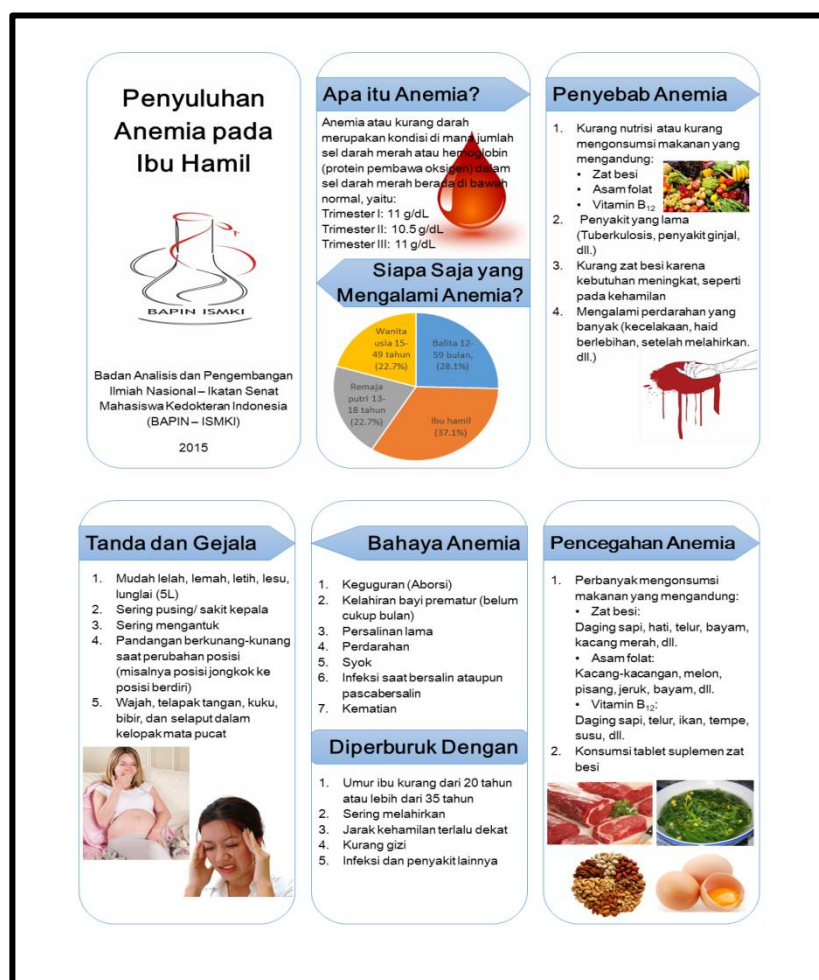


Figure 1. Pamphlet about anemia

## 2.4 Data Analysis

Wilcoxon test was used to analyze the difference between participant's pre and post-intervention knowledge about anemia, because there was no normal data distribution found by seeing the result from *Test of Normality Shapiro-Wilk* ( $p < 0,05$ ), and there was no normal data distribution after transforming the data. Confounding variables (age, education, occupation, income, and history of anemia) were analyzed in bivariate with post-intervention knowledge to find the correlations among those variables.

## 3. Result and Discussion

Puskesmas Gayamsari Semarang was chosen as the research center using *cluster random sampling* by dividing Semarang region into four regions, they were North Semarang, East Semarang, South Semarang, and West Semarang. 48 participants who fit into inclusions criteria were recruited by visiting the Puskesmas on antenatal care schedules. They came from eight different villages. The description of participant's characteristics are available on Table 1.

The result of Wilcoxon test showed the value  $p = 0,000$  ( $p < 0,05$ ) which means that there was significant difference between participant's pre and post-intervention knowledge about anemia as the effect of one-to-one counseling about anemia using pamphlet [Table 2].

Meanwhile, the result of bivariate analysis between each confounding variables to participant's post-intervention knowledge were not correlated. *Spearman* correlation test showed the  $p$  value of correlations between age, education, income (ordinal scale) to participant's post-intervention knowledge, they were 0,720; 0,276; and 0,499 ( $p > 0,05$ ). Those three confounding variables have very low correlation power ( $r$ ) (age = 0,053; education = 0,160; income = 0,100) with positive correlation direction [Table 3]. The result of biserial correlation test between occupation and history of anemia which categorized into nominal scale to participant's post intervention knowledge were not correlated too, with the value  $p = 0,541$  for occupation and  $p = 0,591$  for history of anemia [Table 4]. Table 3 and 4 show that there were no correlations among each confounding variables and participant's post-intervention knowledge. Therefore, the multivariate analysis is not necessary to be done to find the most correlated variables.

This intervention through one-to-one counseling using pamphlet as one of many methods used to promote healthy lifestyle especially prevention of anemia in pregnant women was successfully increased participant's knowledge about anemia. It is appropriate with the definition of counseling to spread information and embed some believes to everyone. This study have reached a step named "know" by analyzing the answers of the questionnaire pre and post-intervention[4]. There was similar study by giving counseling in a form of pregnant women class which show significant result between pre and post knowledge ( $p = 0.001$ ) about Maternal and Baby Health book[6]. There was also significant difference between pregnant women's pre and post knowledge about iron tablet ( $p = 0,000$ )[7].

Reflect to the result of correlations between confounding variables and participant's post-intervention knowledge (Table 3 and 4), seems there were no correlations among that variables which means that the one-to-one counseling was the one and only variable influencing the difference between pre and post intervention knowledge. It was caused by the homogeneity of participant's characteristic. However, this study contradict with the result of Ghimire *et al* who mentioned that pregnant women's knowledge were correlated with high level education ( $p = 0.002$ ) and ANC visits more than four times ( $p = 0.007$ )[8]. Onyeneho *et al* even said there was significant correlation between anemia prevention's knowledge and health service nearby house ( $p = 0.031$ ), secondary level of education ( $p = 0.001$ ), well payed occupation ( $p = 0.017$ ) and ages ( $p = 0.027$ )[9].

This counseling method was very useful. Every single pregnant woman had a chance to increase and improve their knowledge through this one-to-one counseling about anemia, no matter what their education levels, being a housewife or career woman, different numbers of incomes, have a history of anemia or not, and have received counseling before or not. The success of knowledge's improvement was born from the effective communication carried out by communicator and respondent which emphasize individual approach through two-ways feedback communication and face-to-face counseling[10]. Besides, the role of pamphlet was very important as the instrument used to help the participants in absorbing information, because of its attractive figures and clear explanations. Dwiatmoko *et al* also used pamphlet in his study as the instrument for two ways verbal-nonverbal communication[11]. On the other half, full concentration significantly affects the elevating of knowledge through active listening and active reading activities. Good concentration starts from effective communication where there are many chances for the communicant to speak and the communicator can appreciate the others as the God's creature so that the trustworthy relationship can be created, then the motivation and interest of certain information appears that help respondents to focus on one thing without easily distracted by anything around them[12],[13]. The other benefits are the flexibility of this method with no limitation in place and time, easily conduct in formal or informal way.

The limitations of this study are showed by the type of questionnaire which gave the same scale to each multiple choices and allowed the participants to choose more than one correct answers that can create enough bias because the respondent could think on their own without knowing whether it is true or false.

**Tabel 1.** Description of participant's characteristics

Characteristics	n	%
Age		
< 21 years old	3	6,3
21 – 35 years old	40	83,3
> 35 years old	5	10,4
Education		
Primary	2	4,2
Secondary	36	75
High level	10	20,8
Occupation		
No (housewife)	25	52,1
Yes	23	47,9
Income		
< Rp 1.5 million	15	31,3
Rp 1.5 – 3 million	25	52,1
Rp 3 – 5 million	5	10,4
> Rp 5 million	3	6,3
Diagnosis of anemia		
Have anemia	10	20,8
No anemia	38	79,2
Counseling about anemia		
Have counseling	5	10,4
Never have	43	89,6

**Tabel 2.** The difference between participant's pre and post-intervention knowledge about anemia

Knowledge	n	Median (minimum-maximum)	Mean ± SD	p
Pre-intervention	48	10 (5-21)	9,92±4,547	0,000
Post-intervention	48	24 (9-33)	22,27±6,229	

**Table 3.** *Spearman* correlation test between age, education, and income to participant's post intervention knowledge

Variables	p	r	Note
Age	0,720	0,053	Not correlated
Education	0,276	0,160	Not correlated
Income	0,499	0,100	Not correlated

**Table 4.** Bi-serial correlation test between occupation and history of anemia to participant's post intervention knowledge

Variables	Mean $\pm$ SD	Median (min – max)	<i>p</i>
Occupation			
No (housewife)	22,64 $\pm$ 6,23	24 (10 – 33)	0,541
Yes	21,87 $\pm$ 6,34	24 (9 – 30)	
History of anemia			
Have anemia	22,5 $\pm$ 7,71	26 (10 – 33)	0,591
No anemia	22,21 $\pm$ 5,9	24 (9 – 30)	

#### 4. Conclusion and Advise

Based on the result and discussion above, it can be concluded that the pre-intervention knowledge scores were 10 (5-21), while the post-intervention scores were 24 (9-33) ( $p < 0.05$ ). There was a difference between participant's pre and post-intervention knowledge ( $p = 0.000$ ) so that the one-to-one counseling effects the pregnant women knowledge about anemia in Semarang. Meanwhile, there were no significant correlations among confounding variables and post-intervention knowledge.

Health Care Providers are expected to directly apply the one-to-one counseling using pamphlet to every single pregnant woman (with or without anemia) who regularly come to ANC in every health care services around Indonesia in order to increase the pregnant women's knowledge about anemia. Not only "know" about anemia but also constantly apply the preventive action of anemia. It is also good to change the questionnaire type into essay or open-ended question to get and assess more critical, clear and specific answers in case on avoiding the bias.

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