

# Factor affecting

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**Submission date:** 05-Oct-2022 04:39PM (UTC+0800)

**Submission ID:** 1917202136

**File name:** rnalwp-contentuploads20211261-M-15.-2252-Mira-Triharini-.pdf.pdf (198.31K)

**Word count:** 2560

**Character count:** 14432

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**Factors Affecting Anemia Prevention Behavior in Pregnant Women based  
on Lawrence Green's Theory**

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**Abstract**

Anemia during pregnancy is associated with maternal morbidity and indirect causes of maternal deaths. Poor anemia prevention behaviors in pregnant women are one of the contributing factors of anemia during pregnancy. This study aimed to analyze the relationship of knowledge, belief and husband support with anemia prevention behaviors in pregnant women.

This study used a correlational design with a cross-sectional approach. The total samples were 153 pregnant women selected using purposive sampling. The independent variables of this study involved knowledge, belief, husband support, and the dependent variable was anemia prevention behaviors. Data were collected through questionnaires and analyzed using the Spearman's Rho with the significance level of  $\alpha = 0.05$ . Results: Knowledge ( $p = 0.000$ ) and husband support ( $p = 0.000$ ) significantly had a relationship with anemia prevention behaviors. While there was no relation between belief and anemia prevention behaviors ( $p = 0.227$ ).

The increase in knowledge of pregnant women about the anemia prevention improves the mindset and ability to apply anemia prevention behaviors. Belief does not affect anemia prevention behaviors because modernization in the urban society has affected to result in a positive belief. Husband support is important in motivating pregnant mothers to comply with anemia interventions performed by health workers.

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Clinical article (J Int Dent Med Res 2021; 14(4): 1705-1708)

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Keywords: Anemia, health behavior, health promotion, maternal health, pregnant women.

Received date: 15 February 2021

Accept date: 06 August 2021

**Introduction**

Anemia in pregnant women becomes a global health issue affecting both mother and fetus. Anemia during pregnancy is associated with the cause of maternal morbidity and indirect causes of maternal deaths globally<sup>1</sup>. The prevalence of iron deficiency anemia is still high due to low anemia prevention practices by pregnant women. Some main factors causing the high number of anemia cases in pregnant women are poor eating habits during pregnancy, low adherence to consumption of iron tablets and irregularities in attending antenatal care (ANC) services<sup>2</sup>. The prevalence of women suffering from anemia worldwide was 36%, of which 41.8% and 30% were pregnant women and non-pregnant women, respectively,

The 2018 Basic Health Research states

that the incidence of anemia in pregnant women in Indonesia increased in 2013-2018 from 37.1% to 48.9%<sup>3</sup>. Data published by the Surabaya City Health Office show that the number of anemia cases in Surabaya in 2016-2017 rose from 3,569 cases to 7,847 cases, respectively<sup>4</sup>.

Health behaviors such as high iron dietary regulation, routine consumption of iron tablets, and participation in antenatal care (ANC) during early pregnancy can reduce the prevalence of anemia in pregnant women<sup>5</sup>. Noncompliance with the consumption of iron tablets occurs due to lack of knowledge about the benefits and side effects of iron tablets.

In relation to that, a previous study has found that pregnant women believe that the side effects of iron tablets can harm baby's health<sup>6</sup>. The irregular participation of pregnant women in ANC can be seen from some delays in starting ANC and the unachieved target of ANC attendance<sup>7</sup>.

Anemia prevention behaviors can be influenced by internal and external individual factors. Health behavior can be observed from

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someone's behaviors which will determine health factors affecting it<sup>8</sup>. This study explains the relationship of knowledge, beliefs and husband support with anemia prevention behaviors in pregnant women.

### Materials and methods

This study used a correlational design with a cross-sectional approach and was conducted from May to June 2019. This study examined the relationship between independent variables, such as knowledge, beliefs and husband support, and a dependent variable, which was anemia prevention behavior.

The research population involved pregnant women attending ANC S3otopo Wetan Primary Healthcare Center in Surabaya, Ea5 Java, Indonesia. This study only involved pregnant women who received iron supplements from the primary healthcare center and who lived with their husbands. Pregnant women who had complications, such as preeclampsia or eclampsia, were excluded from the samples. The total final sample was 153 pregnant women.

Data were collected using questionnaires about demographic characteristics, knowledge, beliefs, husband support, and anemia prevention behaviors. Questionnaires about knowledge consisted of 12 questions with three sub-items for each<sup>9-12</sup>. These questionnaires were tested for validity and reliability with Cronbach's alpha of 0.773.

In addition to that, this study distributed questionnaires about beliefs. They consisted of 12 questions with three sub-items for each<sup>13-15</sup>. These questionnaires were tested for validity and reliability with Cronbach's alpha of 0.881.

Questionnaires about husband support consisted of 12 questions with three sub-items<sup>6,16,17</sup>. These questionnaires were tested for validity and reliability with Cronbach's alpha of 0.750, respectively.

The last questionnaires were about anemia prevention behavior and consisted of 11 questions with three sub-items<sup>6,17,18</sup>. These questionnaires were tested for validity and reliability with Cronbach's alpha of 0.760, respectively.

Respondents who met the inclusion criteria were selected using purposive sampling. During the data collection, they were informed about the research objectives and given an informed

consent sheet and the questionnaires. The data analysis was performed using the Spearman's rho statistical test, which aims to determine the relationship of two or more ordinal scale variables by comparing p values with  $\alpha$  of 0.05

### Results

Table 1 shows that the majority of respondents were 21-35 years old (83%). Mostly, they were pregnant in the third trimester (53.6%). In addition, the majority had the parity of  $\leq 3$  (96.1%). The dominant ethnicity of the respondents was Javanese (59.5%). The most recent education level of the respondents was senior high school (46.2%). The majority were housewives (77.1%).

The results of data analysis using the Spearman's rho statistical test present that knowledge ( $p = 0.000$ ;  $r = 0.491$ ), and husband support ( $p = 0.000$ ;  $r = 0.581$ ) significantly correlated with anemia prevention behaviors. There was no relationship between beliefs and anemia prevention behaviors ( $p = 0.227$ ;  $r = 0.098$ ).

### Discussion

Good knowledge and husband support about anemia prevention causes good anemia prevention behaviors, and vice versa. Oumer and Hussein support this finding by saying knowledge, attitudes and anemia prevention behavior in pregnant women was moderately correlated with knowledge about iron deficiency anemia prevention<sup>2</sup>. Mosunmola, Adekunbi and Fulonso have emphasized husband support which becomes the most important factor in promoting the health of pregnant women and infants during pregnancy, childbirth and postpartum<sup>17</sup>. This study shows that beliefs did not have a significant correlation with anemia prevention behaviors. Positive beliefs mean what is believed to be good for individuals. Otherwise, negative beliefs are something bad for them. This study supports the finding of Ugwa's research showing nutrition practices and food taboos rarely restrict pregnant women to eat more to ensure babies' health<sup>19</sup>. Beliefs according to Giddens are associated with the community values individually or communally<sup>20</sup>.

No.	Variable	Category	f (n=153)	%
1.	Age	<20 yrs	9	5,9
		21-35 yrs	127	83
		>35 yrs	17	11,1
2.	Gestational age	Trimester I	14	9,1
		Trimester II	57	37,3
		Trimester III	82	53,6
3.	Parity	≤ 3	147	96,1
		> 3	6	3,9
4.	Ethnic	Javanese	91	59,5
		Madurese	61	39,9
		Sundanese	1	0,6
5.	Education level	Elementary School	37	24,2
		Junior High School	29	19,0
		Senior High School	73	47,6
		High School		
		University	14	9,2
6.	Occupation	Housewife	118	77,1
		Factory employee	24	15,7
		Merchant	7	4,6
		Teacher	4	2,7

**Table 1.** Distribution of Sociodemographic Characteristics on Pregnant Women.

Variable	Category	n	%	p	r
Knowledge	Low	74	48,4	0.000	0.491
	Medium	41	26,8		
	High	38	24,8		
Belief	Negative	44	28,8	0.227	0.098
	Positive	109	71,2		
Husband support	Low	72	47,1	0.000	0.581
	Medium	21	13,7		
	High	60	39,2		
Anemia Prevention Behavior	Low	71	46,4		
	Medium	59	38,6		
	High	23	15		

**Table 2.** Knowledge, Belief, Husband support and Anemia Prevention Behavior on Pregnant Women.

Knowledge is a significant domain in shaping individual's actions. Behavior can be shaped when individuals use reasoning to recognize certain objects or events that have not been experienced before. Knowledge-based behavior will be more constant than that without the basis of knowledge. Individuals who have good knowledge will think about actions and direct greater attention to the consequences of actions taken<sup>21</sup>. Pregnant women with good knowledge about anemia prevention would better understand harmful things in pregnancy, such as anemia during pregnancy, thereby avoiding triggers for anemia<sup>22</sup>.

According to Mubarak, an individual behavior is influenced not only by knowledge, but also other factors such as age, experience, and environmental factors, including positive thoughts of people around. As health workers are significant to the respondents, they will follow their advice despite lacking knowledge about it<sup>21</sup>. As a result, they can perform good prevention behavior. Pregnant women with good knowledge are supposed to have insights and abilities in making decisions, but in fact they do not always have good behaviors. In relation to this idea, Green and Kreuter state that good knowledge does not always lead to behavior change as knowledge alone is not enough to make someone apply healthy behaviors<sup>8</sup>.

Beliefs might certainly stem from things yet unproven. Factors affecting beliefs are personality, reputation of others, and actual experience. As this study was conducted in urban areas, the respondents did not fully believe about anemia prevention behaviors despite the fact that their family supported them. In line with that, Bhakta and Mani have found that cultural, social and religious beliefs of pregnant women related to anemia prevention are more significant to urban than rural populations<sup>14</sup>.

People with good knowledge will not believe in myths of pregnancy yet unproven. Shrimarti et al. further confirm that pregnancy and childbirth myths in Madurese culture are still strong due to low education levels, local culture and adherence to parental recommendations<sup>23</sup>. Beliefs could protect a pregnancy and baby from unwanted risks. A cultural shift due to modernization affected people's beliefs<sup>3</sup> which may be stronger. However, most pregnant women who have support and attention from their husbands were more likely to be more

receptive and adhere to health worker advice<sup>24</sup>. The pregnant women had weak beliefs and, thus, did not have good prevention behaviors.

### Conclusions

Knowledge and support from husbands will encourage pregnant women to practice anemia prevention behaviors. Pregnant women are expected to enhance their knowledge about anemia prevention, and their family members shall support and motivate them to perform anemia prevention measures. Furthermore, health workers should promote anemia prevention measures and services related to it for pregnant women.

### Acknowledgements

We would like to thank Sidotopo Wetan Primary Healthcare Center Surabaya, Indonesia for permitting us to conduct our research. We appreciate and thank the mothers who participated in this study.

### 5 Declaration of Interest

The authors declares that there is no conflict of interest.

This study has accorded with research ethics. This study has obtained an ethical approval No. 1408-KEPK from the Ethics Committee of the Faculty of Nursing, Universitas Airlangga.

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