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## THE EFFECT OF EXPLOSION BOX ON KNOWLEDGE AND COMPLIANCE TEENAGE GIRLS IN CONSUMING IRON TABLET SUPPLEMENT

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### Abstract

Female adolescents are at increased risk for anemia since their iron needs peak between the ages of 14 and 15. Youth iron deficiency can lead to serious health problems, including anemia. One student in a group of nine reported having a hemoglobin (Hb) level of 12, and the other four reported experiencing fatigue, weakness, difficulty focusing in class, and other symptoms of anemia. The purpose of this study is to learn how exposure to the media shown in Exploding Box affects young women's self-control and decision-making when consuming dietary supplements. Method: This study has a pre-experimental design with a single-group pre- and post-test. In this study, we used a completely random sample of participants. Students from grades 10, 12, and 15 at MTs Al- Muhajirin Loa Janan make up the study's sample population. Female students fill questionnaires, and male researchers use lembar observatories to compile the data. SPSS is used for both univariate and bivariate data analysis. Research shows that both before and after receiving the intervention, the media explosion box had a significant impact on knowledge ( $p0,000$ ) and respondent accuracy ( $p0,003$ ). What this means is that young women at MTs Al- Muhajirin Loa Janan are more knowledgeable about and more likely to follow guidelines for taking tablet supplements of blood. Conclusions Based on research and analysis, it can be concluded that the media's influence on young women's knowledge of and behavior surrounding tablet consumption of added blood sugar is real. The hope is that this media explosion box will serve as a resource for raising awareness and encouraging action among young women to prevent anemia.

**Keywords:** Anemia; Explosion Box Compliance, Knowledge

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### INTRODUCTION

Adolescent reproductive function is regulated by simultaneous physical growth and mental, cognitive, and psychological development. Therefore, various health problems will arise in adolescents, one of which is adolescent nutrition, namely iron anemia [1].

Hemoglobin (Hb) levels of 12 g/dL or less are considered anemia in young women. Because adolescent girls' iron absorption needs peak between the ages of 14 and 15, they are at higher risk of developing anemia. Teenagers who don't get enough iron may experience a variety of health problems, including decreased academic performance and productivity. Imperfect height and weight are not the only things that can be caused by iron deficiency. This can also weaken teenagers' immune systems, making them more susceptible to disease [2].

According to the World Health Organization (WHO), the prevalence of anemia in 2021 among women of productive age aged 15-49 years globally, namely 29.9%, is still relatively high among adolescent girls [3]. One of Indonesia's six current nutritional problems is anemia. Based on 2018 Riskesdas data, 32% of teenagers (15-24 years) experience anemia. This figure is equivalent to around 3.5-4% of all teenagers. Anemia affects 20.3% of men and 27.2% of women [4]. Accordingly, this explains why women have a higher rate of anemia than males do.

Cases of anemia are still a serious concern for the East Kalimantan Health Office, considering that 32% of teenagers suffer from anemia [5]. Meanwhile, the coverage of blood supplementation tablets consumed  $\geq 90$  tablets in East Kalimantan is 44.40%. The coverage of blood supplementation tablets in Samarinda

Regency/City is 53.68% compared to Kutai Kartanegara which is 33.80%.

Several other causal factors include lack of iron intake, vitamin deficiency, illness, blood loss, and injury or surgery which can cause blood loss, causing anemia [6]. Considering these factors, it is important to offer Blood Supplement Tablets (TTD) to women who are developing [7]. Blood Addition Tablets (TTD) are distributed to young women as part of a government program. Based on the results [4] that 89% of young women who used blood supplement tablets (TTD) did so while still at school; 19.1% of young women who used TTD stated that they did not do so when they were still at school. The percentage of people who do not receive TTD is 23.8%. TTD consumption was 98.6% in those who consumed less than 52 items and 1.4% in those who consumed more than 52 items.

Knowledge is essentially the sum of the results of the act of knowing about an object, which can be objects or events experienced by the subject [8]. The lack of information and attitudes of the school community towards anemia and the benefits of providing blood supplement tablets contribute significantly to the poor implementation of the campaign to increase adherence to taking blood supplement pills among young women in schools [9]. What is meant by compliance is the transition from rule-breaking behavior to rule-following [10].

Adolescent girls who suffer from anemia can benefit from health education. Improving public health is carried out with the ultimate aim of making society healthier [11]. Media designed specifically for audiences can be quite effective in health promotion. Media that aims to improve health can also be seen as a means of disseminating relevant information and encouraging dialogue. *Explosion Box* is a form of health education media whose contents will be presented in a fresh, easy-to-understand style, thus giving a fun and interesting impression.

According to Laswell, communication will run well if it goes through five stages: Who: Who conveys the communication (communicator), Say What: What is the message being conveyed?, In Which Channel : What channel is used to convey the communication message, To Whom: Who is the recipient of the communication message? (communicant), and What effect : What changes occur when the communicant receives a communication message [12].

From several studies, according to the results of research [13] in Chababar City among high school teenagers, video media influenced increasing awareness, attitudes, and behaviors of female students in preventing anemia. The results obtained were the difference in the average score compared to before the intervention, namely ( $p < 0.05$ ).

MTS Al-Muhajirin SMP level is located on Jl. Soekarno Hatta Loa Janan. There were 22 male students from classes 1, 2, and 3 and 37 female students, for a total of 59 people. One of the reasons researchers chose this location was because of the lack of health counseling or education from schools and other parties. Media designed specifically for audiences can be quite effective in health promotion. Media that aims to improve health can also be seen as a means of disseminating relevant information and encouraging dialogue. *Explosion Box* is a form of health education media whose contents will be presented in a fresh, easy-to-understand style, thus giving a fun and interesting impression.

In a preliminary study of 11 female students from class IX at MTS Al - Muhajirin who took blood supplement tablets, only 2 female students did so regularly and 9 female students did not. Of the 9 female students, there was 1 female student who stated that her Hb level was  $<12$  and 4 female students who often felt dizzy, tired quickly, lacked concentration in studying, and decreased learning achievement, which included the characteristics and symptoms of anemia. In terms of knowledge, there were 5 female students whose scores were still below 75 and 6 female students whose scores had reached 75.

Author was interested in studying how "The Effect of *Explosion Box* Media on Knowledge and Compliance with the Consumption of Blood Supplement Tablets in Young Women at MTS Al - Muhajirin" could influence the behavior of young women at MTS Al-Muhajirin. The study's goal is to learn how much young women learn from *Explosion Box* media and how often they take their blood supplement tablets.

## METHOD

Researchers apply quantitative methods with the type of research used, namely experimental research. In experimental research, activities or actions (treatment) or causes that are believed to cause differences

are called independent variables, while those that are influenced are called dependent variables. The research design used is a pre-experimental design with a one-group pretest-posttest design.

**Method of collecting data**

The data collection method in this research used the method of filling out questionnaires and filling out checklist sheets. The sample in this study was total sampling. As a result, all members of the population will become members of the sample, namely 37 respondents covering grades 7, 8, and 9. The research instruments were questionnaires and checklists regarding anemia and blood supplement tablets. Students in grades 6 and 7 of MTS Al-Muhajirin Loa Janan were surveyed on their knowledge about anemia and blood supplement tablets. Means, standard deviations, and extreme results were analyzed using univariate analysis. Paired sample t-tests were used to test the unique aims of this study. This is due to the comparative nature of the research design, the ordinal scale of the dependent variable, and the paired research data structure.

**RESULT**

**Tabel 1** Distribution of respondent characteristics

Characteristics	Intervention Group		Std. Deviation
	(n)	(%)	
<b>Age</b>			0.763
12 years old	0	0	
13 years old	10	27	
14 years	<b>16</b>	<b>43.2</b>	
15 years	11	29.7	
<b>Display of information about blood supplement tablets from the Community Health Center</b>			0.347
Once	<b>32</b>	<b>86.5</b>	
Never	5	13.5	

Source: Processed Primary Data, 2023

From table 1, data is obtained regarding the largest age percentage, namely 14 years old, with 16 out of 37 female students. Apart from that, the standard deviation of age characteristics is 0.763. Based on exposure to information about blood supplement tablets from the community health center, respondents who had been exposed to information about blood supplement tablets from the community health center were 32 female

students (86.5%), and respondents who had never been exposed to information about blood supplement tablets from the community health center were 5 female students (13.5%). Apart from that, the standard deviation of exposure to information about blood supplement tablets is 0.347.

**Table 2** Knowledge with explosion box media

Test	Knowledge		p-value
	Mean	elementary school	
<b>Pre Test</b>	74.59	14,210	0,000
<b>Post Test</b>	91.35	7,786	

Source: Processed Primary Data, 2023

From table 2 above, the mean of the pre-test is 74.59 and the standard deviation is 14.210. It is known that the respondent's mean from the post-test is 91.35 and the standard deviation is 7.786. Apart from that, the results of knowledge analysis using explosion box media were obtained with a p-value of 0.000.

**Table 3** Compliance with explosion box media

Test	Obedience				p-value
	Indicator				
	Obedient	Not obey			
	(n)	(%)	(n)	(%)	
<b>Pre Test</b>	5	(13.5)	32	(86.5)	0.003
<b>Post Test</b>	14	(37.8)	23	(62.2)	

Source: Processed Primary Data, 2023

From table 3 above, respondents in the obedient category during the pre-test were 5 female students (13.5%), and respondents in the disobedient category during the pre-test were 32 female students (86.5%). Respondents in the obedient category during the post-test were 14 female students (37.8%), and respondents in the disobedient category during the post test were 23 female students (62.2%). Apart from that, the results of the compliance analysis with explosion box media were obtained with a p-value of 0.003.

**DISCUSSION**

**Age**

Adolescence is the period when a child begins the process of becoming an adult [14]. Based on the results of this study, respondents, including 14 year old students, were 16 (43.2%) in the intervention group. According to Krori in [15], adolescence is a

period of significant social change, characterized by increasing peer influence, more developed patterns of social behavior, the formation of new social groups, and the formation of new values in choosing friends and leaders. and acceptance of others.

According to research [16], it shows that respondents who are 14 years old and female see more media as electronic and the attitudes of teenagers before and after the intervention. Based on researchers' assumptions, as humans age, they can obtain more knowledge from any media.

### **1. Display of information about blood supplement tablets from the Community Health Center**

Information has the potential to shape a person's understanding from then on [17]. Based on the results of this study, most of the 32 children who participated in the intervention (86.5%) reported having heard about blood supplement tablets. Puskesmas data regarding blood supplement pills used in the survey.

This is also in line with research [17] which states that a person's ability to learn and retain information increases with the frequency of exposure. This is also in line with research [18] which says the widespread availability and use of these forms of electronic communication has a negative impact on people's interpersonal ties. Social media is growing very quickly, as are cell phones.

Based on researchers' assumptions, information exposure can be obtained from anywhere and received by anyone. The information obtained will also form a person's knowledge.

### **2. Explosion box media on knowledge of blood supplement tablets between pre-test and post-test research**

The aim of health education is to increase knowledge through information transmission methods and health resource materials [17]. After comparing the knowledge of 16 female students before and after the intervention, it was discovered that 43.2% of female students had good knowledge before receiving the intervention. Apart from that, post-test data shows that the majority of respondents have sufficient knowledge, namely 36 students (97.3%). This shows that the 20 students who were

given intervention using exploding box material experienced an increase in their level of knowledge.

Based on Table 4, it is known that the mean of the pre-test is 74.59 and the standard deviation is 14.210. It is known that the respondent's mean from the post-test is 91.35 and the standard deviation is 7.786. Ho was rejected because there was a significant influence on respondents' knowledge both before and after being given the intervention using blast box media (knowledge significance value = 0.000; p value 0.05). The results of the paired sample T test showed that the intervention using exploding box media had a significant effect on young women's understanding of blood supplement tablets at MTs. Loa Janan, Al-Muhajirin.

The results of this research are in line with research conducted [19], which stated that there was an influence of *explosion box media* on knowledge about anemia in young women. The results of the knowledge of adolescent girls show that the knowledge of adolescents before being given intervention with *explosion box media* was 71.43%, while the knowledge of adolescent girls after being given intervention with *explosion box media* was 85.71%.

Based on researchers' assumptions, *explosion box media* has an influence on respondents' knowledge about blood supplement tablets. Responses after respondents were shown the explosive box media showed a high level of familiarity with the subject matter. Several statements with a knowledge significance value of 0.000 and a p value of <0.05 increased between the pre- and post-test surveys.

### **3. Explosion box media on compliance with blood supplement tablets between pre test and post test research**

Behavior regarding medication, food, and lifestyle changes in accordance with medical guidelines is referred to as "adherence" [20]. Based on the identification of female students' compliance before and after being given the intervention, it is known that the majority of respondents who fell into the obedient category during the *pre-test* were five female students (13.5%). Apart from that, it is known that all respondents were included in the obedient category during *the post-test*, namely 14 female students

(37.8%). From this, it can be concluded that the number of respondents in the obedient category increased by 9 female students after being given intervention using *explosion box media*. *Explosion box media* on respondents' compliance, where the significance value of compliance was (0.003) and the *p-value* <0.05 means that *Ho* was rejected. The results of statistical tests using the *paired sample t test* explained that the *explosion box media intervention* had a significant influence on female students' compliance with blood supplement tablets at MTs Al-Muhajirin Loa Janan.

The results of this research are in line with research [21], which states that explosion boxes as educational media have been proven to increase student engagement. This is shown by the most signs of student activity in the application of explosion box media in solving individual class problems, which are outlined in each layer of explosion box media, indicating an increase in student involvement.

Based on researchers' assumptions, *explosion box media* influences compliance with the consumption of blood supplement tablets in young women. With increased compliance due to being provided with *explosion box media*, there is an increase in positive compliance regarding the meaning, causes, signs, and symptoms of anemia that can occur. In addition, there are various other factors that contribute to compliance, such as knowledge, personal experience, or the influence of a more dominant individual or group.

## CONCLUSIONS

*Explosion box media* on knowledge and compliance with the consumption of blood supplement tablets in young women. It is hoped that young women, armed with the knowledge gained from this research, will faithfully consume blood supplement tablets every month. It is believed that this could become the basis for similar research in the future. More work needs to be done at research sites to help young women take blood supplement tablets as directed.

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