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Effectiveness of Digital Pocketbooks and Posters on Anemia Knowledge in Adolescent Women

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ABSTRACT

Teenager woman is one of the groups at high risk of suffering from anemia. As a prospective mother who will give birth to the next generation of the nation, the problem of anemia in young women needs serious attention because if it continues later during pregnancy it will have a negative impact on both the health of the mother and the fetus including, namely, post partum bleeding, weak uterine contractions and can reduce the mother's immune system so that the mother will be more susceptible to infection. One of the causes of anemia is a lack of knowledge about anemia resulting in difficulties in cultivating good health behavior. This study aims to analyze the effectiveness of digital pocketbooks and posters on anemia knowledge in young women. This study used a quasi-experimental design with pre-test, post-test, and control group design approaches. sampling technique using simple random sampling. The population and sample in this study were 52 grade 7 girls at SMPN 13 Jember. The analysis used the Mann-Whitney U Test. The results of this study stated that there was a difference in knowledge of anemia after being given a digital pocketbook and a poster, namely the P value 0.017 <0.05 with the mean ranks between the digital pocketbook 31.44 and the poster 12.56. So, it can be concluded that digital pocketbooks are more effective in increasing knowledge of anemia in adolescent girls.

Keywords: digital handbook; poster; anemia knowledge; teenager woman

INTRODUCTION

Anemia is a public health problem in Indonesia that can be experienced by all age groups, including teenagers, due to a lack of nutritional intake, which has an impact on adolescent nutritional status. Anemia is a condition where the number of red blood cells or a person's hemoglobin (Hb) is less than normal, namely < 12 g/dL. Young women are vulnerable and at ten times greater risk of suffering from anemia than young men (Widyanthini & Widyanthari, 2021; Novelia et al., 2022). This is because young women experience menstruation, so they bleed a lot every month and are in a period of growth, which makes young women need more iron intake. Another factor that can also cause anemia in young women is an improper diet that is followed by young women to keep their bodies slim. The purpose of this improper diet is to reduce food portions and limit food consumption without paying attention to the intake of nutrients needed by the body. As the future generation of the nation, the problem of anemia in young women needs to receive serious attention because if it continues to be ignored, it can make teenagers easily tired, weak, fatigued, limp, and lethargic (5L), reduce fitness, and can reduce academic grades due to decreased concentration and achievement learning and disruption of work productivity (Vaira et al., 2022)

Some data shows that cases of anemia among young women in Indonesia are still high. According to Riskesdas 2013, the prevalence of adolescent girls experiencing anemia was 37.1%, and the prevalence increased in 2018 to 48.9%, with the proportion of anemia in the age groups 15-24 years and 25-34 years (Zhang et al., 2021). Based on data from the East Java Province Health Office 2020 (in Cover, 2020), 42% of adolescent girls suffer from anemia in East Java.

One of the factors that can influence the occurrence of anemia is the level of one's knowledge. Caturiyantiningtyas, in his research on the relationship between knowledge and the incidence of anemia in young girls in grades X and XI at SMA Negeri 1 Polokarto, Sukoharjo Regency, concluded that someone with less knowledge is at higher risk of experiencing anemia due to the lack of information obtained about anemia (Ahdiah et al., 2018). Lack of knowledge can also affect a person's mindset, so it will be quite difficult to cultivate one's intention to achieve better health behavior.

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One must know beforehand; after that, one is willing and able to carry out good health behavior based on the knowledge gained. This theory is also corroborated by research conducted by Ahdiah in 2018, which found a significant relationship between knowledge and the incidence of anemia in young women. in SMA PGRI 4 Banjarmasin (p=0.037). The same research was conducted by Laksmita and Yenie in 2018, which showed a significant relationship between knowledge of anemia and the incidence of anemia. The Odds Ratio (OR) value was 2.222, meaning that young women with less knowledge are at risk of experiencing anemia 2.222 times (Kusnadi, 2021).

To increase one's knowledge in order to influence better health behavior, one can provide education through various kinds of learning media (Arwin, 2017). There are various kinds of learning media that can be used for health promotion, one of which is through electronic media such as digital pocketbooks and posters. Both of these media can be used as a solution and considered as some media that can be used to increase one's knowledge. This is evidenced by the results of research conducted by Putri Anggita in 2021, which showed that there was an effect of health education through pocketbooks on increasing student knowledge, and research conducted by Oktaverina in 2022, which stated that there was an increase in knowledge from before and after being given media posters regarding anemia in young women at SMAN 1 Kartasura. Both of these methods can be used as a solution to increase one's knowledge about anemia, and it is hoped that this can be applied in everyday life later. This study aimed to determine the difference between digital pocketbooks and posters on anemia knowledge in young women.

METHOD

In this research, researchers used a quasi-experimental design with a pre-test-post-test control group design approach where the researcher provides a questionnaire to determine the respondent's knowledge before being given the pocketbook digital and poster media in pretest form and then reviewed the increase in respondents' knowledge after giving digital pocketbooks and poster media in the form of a posttest.

The population of this study was all 60 female students in grade 7 at SMPN 13 Jember. The sample was taken using a simple random sampling technique using the Slovin formula with the criteria of young women who had a smartphone and were willing to be respondents, and a sample of 52 female students was obtained, which were divided into 2 groups, namely 26 female students in the digital pocketbook group and 26 female students in the poster group.

The instrument used in this study was a questionnaire containing a total of 20 questions regarding anemia. Then, the researcher gave a questionnaire to determine the respondents' knowledge before being given treatment to the two groups in the form of a pretest. After that, learning media will be distributed in the form of digital pocketbooks to the digital pocketbook group and poster media to the poster group so that they can be studied and understood first. Media is sent via the WhatsApp group that has been created previously. Five days after being given the intervention, respondents will be given another questionnaire in the form of a posttest to determine the respondents' anemia knowledge after being given treatment in both the digital pocketbook and poster groups. After all the data was collected, analysis was carried out using the Mann-Whitney U Test.

This research has been declared ethically feasible according to 7 (seven) WHO Standards 2011, namely 1) Social Value, 2) Scientific Value, 3) Equalization of Burden and Benefits, 4) Risks, 5) Persuasion/Exploitation, 6) Confidentiality and Privacy, and 7) Consent After Explanation, which refers to the 2016 CIOMS Guidelines by the Ethics Commission of the Health Polytechnic of the Ministry of Health Malang with ethically proper number No. 205/IV/KEPK_POLKESMA /2023.

RESULTS

In the following, the characteristics of respondents will be presented based on age, whether or not the respondent has received information about anemia, and the sources of information obtained about anemia.

Based on Table 1. it is known that most of the respondents aged 13 years were 73.1% in the digital pocketbook group and as much as 69.2% in the poster group. Judging from whether or not the respondents had received information about anemia, almost all of the respondents had received information about anemia, namely as much as 92.3% in the digital pocketbook group and as much as 88.5% in the poster group. The source of information found on Respondents who answered that they had received information about anemia found that the majority came from social media, as much as 66.6% in the digital pocketbook group and 66.7% in the poster group.

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Table 1. Characteristics of Respondents Based on Age, Whether or Not Respondents Have Ever Received Information about Anemia, and Sources of Information Obtained

Characteristics	Digital Pocketbook		Poster	
	N	%	N	%
Age				
12 years old	6	23.1	7	27
13 years old	19	73.1	18	69.2
14 years	0	0	0	0
15 years	1	3.8	1	3.8
Total	26	100	26	100
Once				
Yes	24	92.3	3	11.5
No	2	7.7	23	88.5
Total	26	100	26	100
Source				
Health provider	6	25	1	33.3
Social media	16	66.6	2	66.7
Family	1	4.2	0	0
Friend	1	4.2	0	0
Total	24	100	3	100

Table 2. Frequency Distribution of Anemia Knowledge Before and After Distribution of Digital Pocketbooks and Posters

Category	Digital Pocketbook		Poster	
	N	%	N	%
Before				
Good	2	7.7	3	11.5
Enough	13	50	11	42.3
Not enough	11	42.3	12	46.2
Total	26	100	26	100
After				
Good	19	73	11	42.3
Enough	7	27	12	46.2
Not Enough	0	0	3	11.5
Total	26	100	26	100

Based on Table 2. it is known that in the digital pocketbook group, before being given treatment, half of the respondents had sufficient knowledge, namely as much as 50%, and after being given treatment, there was an increase, namely most respondents had good knowledge of 73%. Whereas in the poster group, almost half of the respondents had insufficient knowledge before being given treatment, namely as much as 46.2%, and after being given treatment, there was also an increase where almost half of the respondents had sufficient knowledge of 46.2%.

Table 3. Differences in Knowledge of Anemia in Young Women After Giving Digital Pocketbooks and Posters

Variable	N	Mean Ranks	p-value
Knowledge of anemia after being given a digital pocketbook	26	31.44	0.017
Knowledge of anemia after being given a poster	26	21.56	

Based on Table 3, a p-value of 0.017 or less than 0.05 is obtained, which means that there is a difference in the increase in knowledge of anemia in young women after giving digital pocketbooks and posters with the mean ranks or the average difference in increasing knowledge on digital pocketbooks is 31.44 and 21.56 on posters.

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DISCUSSION

Most of the respondents ((71.2%) were 13 years old, (51.9%) respondents had gotten information about anemia, where almost all of the respondents (51.9%) were in the digital pocketbook group, namely (88.9%) respondents and the majority of respondents (66.7%) got information from social media. Table 2 shows an increase in anemia knowledge, which can be seen from the respondents' knowledge after being given the digital pocketbook namely (73%) of respondents had good knowledge, and (27%) of respondents had sufficient knowledge. Meanwhile, in the poster group, it was found that (42.3%) of respondents had good knowledge, (46.2%) of respondents had sufficient knowledge, and (11.5%) of respondents had poor knowledge. In table 3, it shows the Asymp. Sig (2-tailed) value of 0.017 or smaller than 0.05 means that there is a difference in the average increase in anemia knowledge among adolescent daughters after being given a digital pocketbook and poster media.

Knowledge is the result of knowing, which can usually happen after someone senses a certain object. The more things a person observes, the higher the level of knowledge of that person. Knowledge includes reasoning and understanding of everything, which includes solving life's problems that have not been done systematically. A person's good knowledge is obtained from several factors, namely experience and frequent exposure to or obtaining information (Anggrainy, 2017).

One factor that influences knowledge is the mass media or sources of information (Yuliana, 2017). The mass media can provide various kinds of information to be used as a source of new knowledge. Supported by current technological advances that provide various types of mass media that can influence one's knowledge of the latest information. Various kinds of communication media, such as TV, newspapers, magazines, counseling, and even social media, have a big influence on opinion formation and one's belief in something. In addition, one of the functions of the mass media is education, which is a function in providing information with the aim of adding insight to the public regarding various aspects, one of which is the health aspect. However, this can be influenced by inhibiting factors, namely, not everyone can receive this information properly. This is consistent with the findings in this study, wherein the digital pocketbook group, almost all respondents had received information about anemia through the mass media.

In the theory of the cone of experience by Edgar Dale, he believes that there is a way to learn a person can influence the learning process and outcomes. The picture cone made by Edgar Dale, commonly known as Edgar Dale's Cone of Experience, says that there is a relationship between learning activities carried out with the results of the material that is remembered. The higher the percentage, the material remembered will be smaller than at the bottom. This also has something to do with the use of learning media someone uses. From the cone image, it can be explained that if someone learns from what they read, so only 10% of the material can be learned and remembered. If a person learns from what he hears, his ability to consider it increases to 20%. Learning methods by reading and listening to both produce the ability to define, describe, and explain. If someone learns from what they see, such as by looking at pictures or watching videos, these methods can influence their ability to remember, which is 30%.

In this study, some respondents were 13 years old in both the digital pocketbook and poster groups. Education is also one of the factors that can affect one's knowledge. One's education can affect the process of learning. The higher the education, the easier it is for him to receive information. Formal education does not absolutely increase one's knowledge, but knowledge can also be obtained in non-formal education. One's knowledge of an object contains 2 aspects, namely positive and negative aspects. Both of these aspects determine a person's attitude towards an object. The more positive aspects obtained will foster a positive attitude towards the object.

On Table 2, it is known that almost half of the respondents have less knowledge in the poster group. The lack of knowledge of anemia among respondents before being given a poster was due to the education of the respondents who were still in grade 7 of junior high school where the respondent was transitioning from elementary to junior high school, of course, the information and experience obtained was not as much as the age above, even information about anemia was new for them. The level of education is related to the level of one's knowledge. Someone with higher education is expected to gain more knowledge. One important thing is that education is not a benchmark in determining one's knowledge; people with low education do not mean their level of knowledge will be low because the level of education does not apply to people who are actively seeking information and are always curious about new things.

Knowledge is the whole thoughts, ideas, and understanding that a person has. To increase one's knowledge to influence better health behavior, one can provide education through various kinds of learning media (Arwin, 2017). There are various kinds of learning media that can be used to increase one's knowledge, such as digital pocketbooks and posters for example.

Digital pocketbooks are electronic books that contain certain information in the form of text or images and even videos that can be viewed on digital screens such as tablets or smartphones and are easy to carry anywhere and anytime.

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In addition, digital pocketbooks can also be used as a medium to convey certain information or material in one way so that it can develop the potential of students or other communities to become independent learners. Digital pocketbooks can also disseminate information more quickly and with a wider reach.

Digital pocketbooks that are well presented can later attract readers and increase their interest in reading, making it easier for readers to understand the message conveyed. Digital pocketbooks are considered as one of the media that can be used to increase one's knowledge. This is evidenced by the results of research conducted by Putri Anggita in 2021, which shows that there is an effect of health education through pocketbooks on increasing student knowledge.

Poster media is one of the publications containing education, which is a combination of writing, pictures, or a combination of the two. Some of a person's knowledge can be obtained through the sense of sight and the information obtained will be easier to remember if someone can read the information independently. The use of poster media with the aim of providing information that is designed in an attractive, easy-to-understand, and easy-to-remember manner with short material.

Posters have a specific purpose, namely, to provide information and have a persuasive nature or to invite the general public by communicating messages briefly. Posters can also be used to increase one's knowledge, according to research conducted by Suriadi and Kurniasari in 2017 with the results of the study that there was an effect before and after being given poster media on knowledge and attitudes about preventing diarrhea in fourth-grade students.

The results of this study indicate that digital pocketbooks are more effective in increasing knowledge of anemia in young women, as seen from the results of the mean ranks. This finding is in line with research conducted by Rini in 2021, which stated that learning using pocketbooks was considered more effective than learning using leaflets in increasing pregnant women's knowledge about anemia. Digital pocketbooks that are well presented can later attract readers and increase their interest in reading, making it easier for readers to understand the message conveyed.

The learning media used plays an important role in increasing one's knowledge. The more senses used during the learning process, the more influence the results of the information obtained. Learning media containing text, images, and even videos, which are a combination of auditory and visual learning styles, will make it easier for someone to receive this information. The more sensing is used during the learning process, the more material will be remembered.

The digital pocketbook in this study contains information about the characteristics of anemia, the causes of anemia, the effects of anemia, and how to deal with anemia in the form of text, pictures, and a short video about anemia. Based on Edgar Dale's Cone of Experience theory, learning methods by watching videos can affect a person's memory by 30%. Meanwhile, poster media is a learning media that contains information about anemia in the form of text and images so that it can only affect a person's memory by 10% of the material read.

CONCLUSION

The conclusion of this study shows a difference in the knowledge of anemia in young women after being given digital pocketbooks and posters, where digital pocketbooks are more effective than posters in increasing knowledge of anemia in young women.

Suggestions for further research in order to be able to create the latest learning media that are more interesting and effective and make it easy for everyone to access the media as an effort to increase knowledge of anemia. As for health workers, there is a need for counseling or education regarding anemia in adolescents, especially young women, so that adolescents' knowledge increases and can reduce the incidence of anemia in young women.

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