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The use of rule-based web information systems to increase knowledge about anemia in pregnant women

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ABSTRACT

Anemia in pregnant women does not have a bad impact, good for the health of the mother and baby. The level of knowledge of pregnant women about anemia will greatly affect the condition of the mother in maintaining self-health in order to be free from anemia because knowledge will affect the health of the brain so that it does not contain anemia. The higher the level of knowledge of pregnant women about anemia, the less likely that pregnant women do not maintain their health conditions. Therefore, this paper uses an information system to increase knowledge in pregnant women. The use of this information system can be an effort to increase insight into the problem of anemia in pregnant women.

The quasi-experimental method with pre-post-post with a control group. The number of samples was 20 respondents, then pretest was done in the second group and given freedom in the experimental group, the groups were then given using information systems, the control group used leaflets. Interventions were given for 14 days, on the 15th-day posttest was carried out in both groups.

The results of this study indicate a significant speed between groups and controls at the level of knowledge (P-value = 0,000)

Keywords: Anemia, Pregnant Women, Information Systems, Knowledge.

INTRODUCTION

The proportion of pregnant women who are higher is anemic. Despite efforts to reduce iron-deficiency anemia during pregnancy, few women take iron supplements as recommended. Reduction of iron content in the body of the mother is called anemia. The most common anemia in pregnancy is anemia due to iron deficiency due to lack of iron intake in food, impaired absorption, worms, increased iron requirements or because too much iron comes out of the body, for example in bleeding. Pregnant women need iron around 40 mg per day or twice the need for a non pregnant condition.

Maternal death during pregnancy and childbirth or fast as a result of pregnancy complications. In addition, pregnant women who suffer from anemia also show a tragic condition, namely the occurrence of bleeding during childbirth. Besides its effects on death and bleeding, anemia during pregnancy

affects fetal growth, low birth weight, and increased perinatal mortality.

Factors that influence the health behavior of a person or community are knowledge, tradition and public trust, level of education, socioeconomic level and availability of health facilities. Knowledge of cognitive is a very important domain in shaping a person's behavior6. The level of knowledge of pregnant women about anemia will be strongly related to the mother's behavior in maintaining her health to be free from anemia, the mother's behavior in consuming the correct tablet of blood, the behavior in daily hygiene hygiene to be free from worms, because knowledge will influence behavior in maintaining conditions his health so as not to get anemia. The higher the level of knowledge of pregnant women about the consequences of anemia, the less likely it is for pregnant women not to maintain their health conditions because they are related to the health of their babies.

Anemia is often considered only a common disease, many ordinary people in the health sector must also have good knowledge about the types of diseases and their symptoms and how to handle or prevent them so that the risks can be minimized. To utilize information technology and help in the health sector, especially as a medium of information to convey information.

Based on the description above, researchers are interested in conducting research entitled the use of information systems to increase knowledge about anemia in pregnant women.

The type of research used is quantitative research, with the experimental non-equivalent control group design queasy method. A sample of 20 respondents divided into two groups. In the treatment group, respondents used a rule-based web-based information system for 14 days. In the control group, respondents used leaflets. Then on the 15th-day posttest was carried out in both groups.

The dependent variable in this study was the detection of anemia and the effectiveness of the information system, and the independent variable was a web-based information system. The sample in this study was midwives who met the inclusion criteria, Midwives aged 20-35 years, Midwives who could operate computers/laptops or cellphones, Midwives who are willing to become respondents.

The instrument used is a questionnaire. Test hypotheses in each group using Paired-samples T-test, while different tests between groups using Independent-samples T-test.

RESULTS

Table 1. Differences in knowledge of pregnant women before and after intervention in the treatment group and control group

Variabel	**intervention**		**control**	
	Mean	**SD**	***Mean***	**SD**
Before Knowledge score	17,17	7,782	12,64	5,409
After	6,45	2,622	8,73	1,849
Difference in knowledge score	10,73	8,650	3,91	5,486
p-value	**0,002**		**0,040**	

Based on Table 4.14 shows the results of p-value <0.05, which means that statistically there is a significant difference between knowledge scores before and after intervention in the treatment and control groups. Mean results of the difference in knowledge scores indicate that between before and after the intervention in the treatment group there was a decrease in the average score (10.73) which was a greater number of scores compared to the control group (3.91).

Table 2. Differences in knowledge after intervention between treatment groups and control groups

Variabel	group	*Mean*	SD	mean difference (IK95%)		p-value
				Lower	*Upper*	
knowledge score	intervention	6,45	2,622	-4,290	-0,255	0,029
	control	8,73	1,849			
Difference in difference knowledge score	intervention	-10,73	8.650	-13,260 -	-0,376	0,039
	control	-3,91	5.486			

Based on table 4.15 the results of the Independent-Sample Test obtained p-value <0.05 and the confidence interval (95% CI) did not cross the zero point, which means that statistically there were differences in knowledge scores after intervention between the treatment group and the control group.

DISCUSSION

The results showed that there was a decrease in knowledge scores after being given rule-based information system interventions, the difference in mean scores before and after using a rule-based web information system of 10.73. Knowledge scores are said to be good if you get a score of ≤5, the smaller the number of scores the better the knowledge. Knowledge of anemia is defined based on the mother's ability to correctly state at least one symptom of anemia and at least one treatment or strategy to reduce anemia. Mothers with low knowledge of anemia have a 12-fold prevalence of anemia compared to mothers with high knowledge [1].

Knowledge and data are the information base of intelligent systems. Knowledge of information, which describes the main order of the problem area to enable humans to solve certain problems [2]. this knowledge not only helps the analysis and recognition of new information but also contributes to preserving it for future generations [3].

A rule-based web-based information system can improve the quality of counseling and promoting women's knowledge of anemia is an important strategy to increase the use of iron supplements. promoting women's knowledge about anemia is an important element to improve service utilization [4]. Lack of comprehensive knowledge about anemia and not being able to get advice about the importance of supplements during pregnancy [5]. Promotive and preventive activities through anemia counseling are very important to improve the knowledge of pregnant women to reduce the incidence of anemia. Given the fact that one-to-one counseling using pamphlets is rarely implemented. [6]Based on table 4.15 the results of the Independent-Sample Test obtained p-value <0.05 and the confidence interval (95% CI) did not cross the zero point, which means that statistically there were differences in knowledge scores after intervention between the treatment group and the control group.

The independent sample-T test results showed that the p-value <0.05 between the groups given intervention using the rule-based web information system with the group given the leaflet, which means that there is an influence of the use of rule-based web information system on the knowledge of anemia in pregnant women after intervention using rule-based web-based information systems. A rule-based web-based information system is an application and mobile device offering timely and relevant data to help users gain self-knowledge to monitor, and even change, their behavior, with applications ranging from reminders of monitoring mental health status [7].

The results of this study are in line with previous studies on the effect of the mHealth information system on the advancement of knowledge in pregnant women indicating that the mHealth information system improves knowledge to a better value of p = 0.000 after treatment with health.

Knowledge enhancement is an implementation challenge and can inform stakeholders about the optimal level of investment in new technology[8]. many pregnant women who do not have a high awareness of the dangers of anemia and also do not have basic knowledge about this anemia and have limited time so rarely consult a doctor. Therefore, an expert system is needed that can replace the role of a doctor and provide education on general

knowledge about anemia to the public and pregnant women [5, 6]. The major increase in technology over the past time means that its use increases exponentially. Artificial intelligence, as a result of these improvements, can provide basic assistance to people. the advice needed for the stage of pregnancy, etc [9]. will be able to use his intelligence to bring the advice to a higher level, because of the lack of awareness, resources, and skills that mothers expect to face many difficulties during their pregnancy [10].

CONCLUSION

The rule-based web-based information system has an effect on increasing knowledge about anemia in pregnant women. The results of this study are expected to increase knowledge and insight in pregnant women, so that the web-based information system is used as an information and education media for pregnant women.

RECOGNITION

On this occasion, the author hopes that this journal will be beneficial for the health environment and for all people who read in general.

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