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## The Influence of Android-Based Leukorea Education on Knowledge of Pregnant Women at Puskesmas Tamalanrea Makassar



Hasrida<sup>1</sup>, Mardiana Ahmad<sup>2</sup>, Yusring Sanusi B<sup>3</sup>, Syafruddin Syarif<sup>4</sup>, Stang<sup>5</sup>, Sri Ramadany<sup>6</sup>

<sup>1,2</sup>Midwifery Study Program, Postgraduate School, Hasanuddin University, Indonesia

<sup>3</sup>Linguistics Study Program, Faculty of Humanities, Hasanuddin University, Indonesia

<sup>4</sup>Electrical Engineering Study Program, Faculty of Engineering, Hasanuddin University, Indonesia

<sup>5</sup>Faculty of Public Health, Hasanuddin University, Indonesia

<sup>6</sup>Faculty of Medicine, Hasanuddin University, Indonesia

**Abstract**— Education is an effort to influence individuals, groups, and communities to have knowledge that can be used to improve health status. In implementing education, learning media can be used, one of which is using an android application. Information on women's reproductive health, especially leukorrhea, is very important for women, especially pregnant women, because of the various effects. This study aims to determine the effect of education on increasing pregnant women's knowledge about leukorrhea using the Mapaccing application. This study used a pre-experimental method (one group pre-test and post-test design). The number of samples is 30 taken using the accidental sampling technique. In the first stage, the socialization of the use of the Mapaccing application was carried out for two days. The Mapaccing application is installed on their respective Android phones. The mother was then reminded to read and study the leukorrhea material every day for two weeks, with 10 minutes of studying/reading. Based on the research results, it was obtained that the pre-test value was 74.66 and the post-test score was 108, there was an increase in knowledge of 25.34%, with a P-value of 0.000 smaller than the value of  $\alpha$  0.05. Based on the results, it can be concluded that the Android-based Mapaccing educational media application increases the knowledge of pregnant women about leukorrhea.

**Keywords:** Media, Knowledge, Leukorea, Android, Pregnant Women

### Introduction

Education is an ongoing interaction between humans and the environment expected to produce changes in knowledge, skills, and attitudes. In this regard, the implementation of education requires media that follows the planned targets so that the educational process and the reception of messages conveyed run well and can be received effectively. Today, the development of information and communication has progressed rapidly; this is evidenced by the increasing number of android users who fulfill the need to communicate with each other and become a medium to get information easily [1]. It can also make it easier for someone to understand what is being learned [2].

The use of communication technology, both e-health and m-health, is growing rapidly to improve public health. It is possible because this technology offers high accessibility and also reduces costs. Technologies, including web information, online discussion forums, mobile devices, and video-conferencing, have great potential to improve the quality of information delivery to the public. The use of mobile phones in Indonesia to access the internet reaches 85% [3]. Meanwhile, the use of smartphones to find information related to education reached 96%. Research on android-based educational media found that android-based learning media responded to students with a positive response of 92%. It indicates that the use of Android-based learning media is one of the choices because it is generally designed very attractively, and its presentation is easy to understand. Thus it can be said that android-based educational media can be a means of learning media [4,5].

Based on this explanation, the researchers designed an Android-based reproductive health education media application called the Mapaccing application to get closer to reproductive health information, especially leukorrhea.

### Research Methods

This study used a pre-experimental method (one group pre-test and post-test design). The number of samples is 30 taken using the accidental sampling technique. In the first stage, the socialization of the use of the Mapaccing application was carried out for two days. For mothers who were willing to participate in the study, a pre-test of knowledge about leukorrhea was carried out. After that, there was socialization on using the Mapaccing application for two days at the Puskesmas Tamalanrea Makassar. After all, mothers understand the application correctly; the Mapaccing application is installed on their respective Android phones. The mother was then reminded to read and study the leukorrhea material every day for two weeks, with 10 minutes of studying/reading. After being given the educational media, a post-test was carried out to measure the mother's leukorrhea knowledge. Data analysis used the Wilcoxon Signed Rank Test to calculate the difference in the pre-test and post-test scores.

### Research Result;

**Table 1 Characteristics of Research Respondents**

Characteristics	n	%
<b>Age</b>	<20 Years	20
	20-35 Years	60
	>35 Years	20
<b>Total</b>	<b>30</b>	<b>100</b>
<b>Education</b>	JHS	6,7
	SHS	60
	D3/S1	33,3
<b>Total</b>	<b>30</b>	<b>100</b>
<b>Job</b>	Housewife	56,7
	General Employees	30
	Civil Servants	13,3
<b>Total</b>	<b>30</b>	<b>100</b>

Table 1 shows that most respondents' age is in the age range of 20-35 years (60%), while for the highest level of education at the senior high level of 60%, the most types of work in this study were housewives at 56.7%.

**Table 2 Respondents' Knowledge about Leukorrhea**

	Median	Minimum – Maksimum	P-Value
<b>Pretest (n=30)</b>	74,66	40 – 93	
<b>Posttest (n=30)</b>	100	93 – 100	0,000

Based on the research results, it was obtained that the pre-test value was 74.66 and the post-test score was 100, there was an increase in knowledge of 25.34%, with a P-value of 0.000 smaller than the value of  $\alpha$  0.05.

## Discussion

Health education is part of health promotion and disease prevention to improve health. Health education is used as a tool to increase knowledge that can influence habits. The use of media in health education will help clarify the information conveyed because it has an attractive appearance, displays a strong message, is easy to operate, and involves many of the five senses. Audio-visual electronic aids are one form of educational media that is effective compared to words in conveying information. The results show that audio-visual media is more effective than flip chart media in increasing knowledge of dental and oral health. The same result shows that providing health education through audio-visuals is better than print media to increase knowledge and change one's behavior [6,7]. Research in Nigeria shows that mobile health as a medium for health promotion is significant in influencing one's knowledge and attitudes [8]. Smartphones are the most frequently used devices for communication, and nearly 27% of consumers use smartphones for online activities. A survey in the United States of more than 10 million users uses smartphones to search for information and health facilities. More than 40,000 mobile health applications are available for tablets and smartphones. More than 500 health projects worldwide using the Smartphone application [9]. have a significant impact on consumers and their lifestyle because mobile phones can work like small computers. Therefore, many applications and services have been developed and provided on mobile phones. One such application area is health applications [10].

Factors that influence knowledge Increasing one's age can affect the increase in knowledge acquired. In Hurlock's theory, it states that the more sufficient the level of maturity and strength of a person is, the more mature they will think and work. It is a result of the maturity of his soul. This study shows differences in knowledge about vaginal discharge in pregnant women. The overall knowledge of pregnant women increases by an average of 100% after being given the Mapacing application (appa'guruang clever media, complete & interesting). In this application, there is a material understanding of vaginal discharge, various kinds of vaginal discharge, causes of vaginal discharge, prevention of vaginal discharge, and the impact of vaginal discharge on mother and baby. Research is in line with research. Who use applications to increase knowledge of pregnant women, such as early pregnancy risk detection (DDILAN), the mHealth social media application. From these studies using the application, it is found that the whole can increase the knowledge of pregnant women, especially on the dangers of pregnancy [11,12].

Digital media during pregnancy is a source of information widely accessed by women in countries worldwide; this includes websites, blogs, online discussion forums, applications, and social media. The reason digital media is very popular is that it is easy to find [13]. Then research that was also carried out using a text message service application has the potential and benefit of increasing ANC practice scope; messages conveyed through the application can also positively influence mothers and children [14]. Health education that can be accessed with an attractive appearance is the foundation for changing health behavior. Increased access to effective health education can contribute to improved health outcomes [15].

This study empirically found more pregnant women who do not know the complications from the incidence of leukorrhea that can cause abortion; pregnancy is not long term and intellectual disabilities in infants. A study conducted in Beirut, Lebanon, said that the incidence of candida in pregnant women has a significant positive relationship with pregnancy complications.

Although the researchers found that the average pre-test knowledge was 74.66%, pregnant women did not know the impact of complications that could occur if they experienced abnormal vaginal discharge. It can be seen that women have very little knowledge about the disease consequences of reproductive health problems [16]. With digital technology searching and finding information such as websites and social media, it is very useful to use curiosity to produce information and learn about the disease and health care [17]. Thus knowledge can be obtained from an Android-based educational media application (Mapacing).

## Conclusion

Android-based educational media using the Mapaccing application significantly increases the knowledge of pregnant women about leukorrhea.

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