

THE USE OF ANDROID-BASED APPLICATIONS “DRINKING ALERT” TO INFLUENCES ON KNOWLEDGE AND ATTITUDE OF ADOLESCENTS IN FULFILLMENT MINERAL WATER CONSUMPTION IN BENGKULU CITY

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ABSTRACT

Humans in everyday life need source of energy, one of them is the need for drinking water. It is known that 70% of the parts in the human body are liquid. Humans need an adequate supply of water to maintain freshness and physical fitness. A study in Indonesia found that 49.5% of adolescents and 42.5% of adults were mildly dehydrated. Teenagers are more often dehydrated because of the many physical activities of adolescents that can drain energy and body fluids, causing a lack of fluid consumption. The purpose of the study was to determine the effect of the use of an android-based application drinking alert on the knowledge and attitudes of adolescents in fulfillment water consumption in Bengkulu City. This study was quantitative with the quasi-experimental design. There were 60 respondents that chosen by purposive sampling method in the intervention group dan control group with inclusion are adolescents aged 12-14 years, and adolescents who can be invited to communicate and have an android device and distinguish the exclusion of adolescents who experience impaired kidney function and do not want to be involved in research. There were 60 respondents who were engaged to this study. The data was analyzed using Wilcoxon and Mann-Whitney test. Based on the results of the study there is difference on the knowledge and attitude scores of adolescents given an android-based application using drinking Alert and control cards with ($p < 0.05$). The use of the android-based application “drinking alert” is more influential in increasing the knowledge and attitudes of adolescents compared to control card media.

Keywords: attitude, drinking alert, knowledge, mineral water consumption

INTRODUCTION

Eating and drinking are human needs every day. The need for drinking water is closely related to fluids where 70% of the human body is filled with fluids. Therefore, for health and physical fitness, the body requires adequate water intake (Rokhmalia dan Hermiyanti, 2020).

Fluids are a vital need for humans, but their intake can be obtained from various fluid sources other than water. Proper fluid selection, the timing of intake, and the choice of supplements are very important for optimal health, especially in young people (Putra RS, 2013).

The body requires the consumption of drinking water of at least 1-2 liters or 6-8 glasses per day, which is sufficient for the body and can help the body’s metabolic processes (Sunandar et al. 2021). The research results of Noor et al. (2017) show that many teenagers and adults experience

dehydration. A study in Indonesia found that 49.5% of adolescents and 42.5% of adults experienced mild dehydration.

Teenagers are more likely to experience dehydration because teenagers do a lot of physical activity which can drain energy and body fluids, causing a lack of fluid intake (Zahra and Muhlisin 2020). According to the results of *survey Indonesian Regional Hydration Study* Regarding water intake in Indonesia, the incidence of mild dehydration in adolescents was 49.5%, higher than in adults, which was 42.5%.

Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 75 of 2013 concerning the Nutrition Adequacy Rate (RDA) for Indonesian people, namely 1,900 ml for children aged 7 to 9 years and 1,800 ml for children aged 10 to 12 years. Recommendations for water from *the US Institute of Medicine (IOM)*

is 1700 ml/day for children aged 4-8 years and 2100 ml/day for girls and for girls aged 9-13 years is 2400 ml/day (Santoso, et al. 2017).

Adolescents' knowledge and attitudes about the importance of sufficient consumption of drinking water can be increased if the adolescent obtains information as additional insight into drinking water; one of the methods used by adolescents today is the use of *smartphones* used to access the required information. Currently, Android users in Indonesia are the fifth largest smartphone users in the world. In addition to current technological developments, Android can be used as a means of educational information about health (Dinengsih and Hakim, 2020).

In this modern era, technological developments have made people very dependent on smartphones, so most of their activities are carried out via smartphones. according to data *Smartphone User Persona Report* (SUPR), cell phones are most often used by people under the age of 30 (61% of smartphone users are teenagers).

Based on the information presented in the background section, researchers conducted this research to analyze the effect of using android-based applications on the knowledge and attitudes of adolescents in fulfilling water consumption in Bengkulu City.

METHOD

This research used quantitative research with a quasi-experimental research design. Before data collection, research ethics, and research ethics were issued by the Bengkulu Ministry of Health Poltekkes Ethics Committee with the ethics number KEPK.M/182/10/2021. The independent variable of this research is the android application "*Drinking Alert*". The dependent variable in this study is the knowledge and attitude of adolescents toward water consumption.

The population in this study were 254 class IX students of SMPN 1 Bengkulu City and 281 SMPN 7 Bengkulu City. The sampling technique in this study is technique *purposive Sampling* which is based on inclusion criteria, namely willing to be respondents, adolescents aged 12-14 years, and adolescents who can be invited to communicate

and have gadgets *android*. The sample in this study amounted to 60 respondents.

The data analysis used was univariate analysis and bivariate analysis using the test *Wilcoxon* and *Mann Whitney* 254 people and SMPN 7 Bengkulu City, totaling 281. The sampling technique in this study is technique *purposive Sampling* which is based on inclusion criteria, namely willing to be respondents, adolescents aged 12-14 years, and adolescents who can be invited to communicate and have a gadget *android*. The sample in this study amounted to 60 respondents. The data analysis used was univariate analysis and bivariate analysis using test *Wilcoxon* and *Mann Whitney*.

RESULTS AND DISCUSSION

Tabel 1. Characteristics of Respondents Based on Age and Gender.

Characteristics	Group			
	Intervention (N= 30)		Control (N= 30)	
	F	%	F	%
Age				
13 years	3	10	0	0
14 years	21	70	17	56.7
15 years	6	20	10	33.3
16 years	0	0	3	10
Gender				
Man	13	43.3	16	53.3
Woman	17	56.7	14	46.7

Based on table 1, it was found that most of the intervention group, 70%, was 14 years old, while some of the control group (56.7%) were 14 years old. Most of the respondents in the intervention group (56.7%) were women. While in the control group most (53.3%) were men.

Tabel 2. Average knowledge of adolescents about drinking water before and after in the intervention group and the control group

Variabel	Intervention (n=30)		Control (n=30)	
	Mean ± SD	Min-Max	Mean ± SD	Min-Max
Before	6.80 ± 1.095	5-9	5.93 ± 1.112	4-8
After	9.87 ± 0.346	9-10	7.70 ± 1.317	5-10

Based on table 2, shows the results of the average knowledge of adolescents about the consumption of drinking water after being given the influence of using Android-based applications *drinking alert* in the intervention group, namely 9.87, while in the control group using control card media, namely 7.70.

Tabel 3. Average attitudes of adolescents about the consumption of water before and after in the intervention group and the control group

Variable	Intervention (n=30)		Control (n=30)	
	Mean ± SD	Min-Max	Sikap	Mean ± SD
Before	28.53 ± 2.713	23-24	27.47 ± 2.417	22-32
After	30.17 ± 1.949	26-34	28.77 ± 2.528	24-34

Based on table 3, the results show that the average score of adolescent attitudes regarding drinking water consumption after being influenced by the use of an android-based drinking alert application in the intervention group was 30.17, while in the control group using the control card media, namely 28.77.

Tabel 4. The Effect of Using Drinking Alert Android-Based Applications on Adolescents' Knowledge About Consumption of Drinking Water Before and After Given Intervention and Control Media.

No	Group	Mean Rank		
		Before	After	Δ Mean
1	Intervention	15.63	45.37	29.74
2	Control	20.45	40.55	20,10

p* Wilcoxon p**Mann Whithney

Based on Table 4, it shows that there was an increase in the knowledge score with a mean rank of the intervention group of 45.37 with a difference before and after 29.74 while the control group was 40.55 with a difference before and after 20.10. Test results on *parametric Wilcoxon signed rank* earned value $p=0.000$ intervention group and control group. Where according to the significance of (p) where $p=0.000 < 0.05$. Likewise, the results of the statistical test showed that there were differences in the scores of adolescent knowledge before and after being given the influence of using an Android drinking

alert-based application using the test *parametric Mann Whithney* ($p=0.000$). Where according to significance $p=0.000 < 0.05$. From these results, it can be concluded that the android application *drinking alert* is more influential in increasing adolescent knowledge about drinking water consumption compared to control card media.

Tabel 5. The Effect of Using Drinking Alert Android-Based Applications on Adolescents' Attitudes About Drinking Water Consumption Before and After Given Intervention and Control

No	Group	Mean Rank			p*
		Before	After	Δ Mean	
1	Intervention	25.23	36.77	29.74	0,018
2	Control	26.62	34.38	20,10	0,082
p**		0,000	0,000		

p* Wilcoxon p** Mann Whithney

Based on table 5, the attitude score increased by an average of 36.77 with a difference of 29.74 before and after in the intervention group, while in the control group, it was 34.38 with a difference before and after 20.10. Non-parametric test results *Wilcoxon signed rank test* obtained $p=0.018$ in the intervention group and the control group. Where is the significance (p) where $p=0.082 < 0.05$. Likewise, the results of statistical tests show differences in adolescent attitude scores before and after being given the influence of using the application *drinking alert* android based using non-parametric test *Mann-Whitney* ($p=0.000$). Where is significant (p), where $p=0.000 < 0.05$. It can be concluded that the android application *drinking alert* is more influential in increasing adolescent attitudes about drinking water consumption compared to the control card media.

A study conducted by the Asian Food Information Center (AFIC) in Singapore showed that most of the sample had good knowledge about water, their total water consumption was still below the recommended level. This is not in line with Azlam's research (2016) where there is a relationship between knowledge about the benefits of fluids and water consumption behavior. Water is the source of life. All living things need water to drink, quench thirst, and meet their hydration needs. Water in the body plays a very important role in digestion and metabolism.

This result is in line with the research of Sedayu (2017) and Rosmaida (2018), who found that students who have good knowledge are more likely to drink enough water than students who lack knowledge. This is inseparable from the information received by students and other information received by students either through print media, electronic media, or the social environment, and this is not by the theory put forward by Notoatmodjo (2012) that knowledge from personal experience or the experiences of others can obtain, while the source of knowledge collection comes from the mass media, electronic media, manuals, media posters, and close relatives.

According to Gustam (2012) the more information one gets, it can influence or add to one's knowledge and this knowledge can raise awareness that eventually a person acts and behaves according to the knowledge he has. This is in line with research that has been carried out by those who say that giving applications *Drinking Alert* is an educational approach that can significantly increase knowledge on a specific purpose.

A person's positive attitude toward health may not automatically have an impact on his behavior to be positive, but a negative attitude toward health will almost certainly hurt a person's behavior. Another study explains that a person's attitude toward consuming mineral water will be related to their behavior to consume mineral water (Agustini, 2014). In the digital era, the majority of teenagers experience a decrease in the quantity of physical activity. They have more free time with minimal activity so this is related to the level of consumption of mineral water among adolescent groups.

The results of this study are in line with the views of Wawan and Dewi (2018) who define attitude as the result of an assessment of the attitude object which is embodied in cognitive, affective, and behavioral processes. Attitude can be understood as a conscious process that determines the actual actions and actions that individuals can take in their social life.

Smartphones provide new possibilities for dietary interventions. Mobile health (mHealth) is a new field and describes the range of health services

offered on portable devices. This includes health applications in various fields, such as nutrition, fitness, health, diagnostics, and systematic studies of therapy in the rare mHealth field (Haryono, Koko., 2014). The difference between *Drinking Alert* and existing applications, namely the *Drinking Alert* application, has a reminder feature for water consumption to meet fluid needs in the body.

There is a reminder feature for water consumption in the *Drinking Alert* application so that water consumption in adolescents is not less and fulfilled every day. This is following Hermina's research in 2016 which showed that health education through brochures increased knowledge ($p=0.001$) and attitudes ($p=0.013$) regarding the use of the "Healthy Toddler" mobile app which significantly increased the knowledge and attitudes of mothers in monitoring the growth and development of toddlers. These results are in line with research by Juliana (2016) which states that the use of M-Health affects increasing knowledge, attitudes and behavior to prevent risk signs of pregnancy in pregnant women ($p=0.05$). Sridinengsih's research (2020) shows that providing an Android application increases reproductive health knowledge among adolescents.

Based on the discussion above, it can be concluded that the use of the Android-based application *Drinking Alert* is more influential in increasing the knowledge and attitudes of adolescents regarding the fulfillment of water consumption compared to the control card because the *Drinking Alert* application has a direct reminder feature to remind teenagers to meet daily water consumption.

CONCLUSION

There is a difference in the mean scores of knowledge and attitudes before and after giving android-based applications a "drinking alert" in fulfilling water consumption. Utilization of the android-based application "drinking alert" has more influence in increasing the knowledge and attitudes of adolescents compared to the control card media.

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