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The smart adolescent reproductive health promotion strategy based on android

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Abstract

The study was carried out aimed at developing adolescent reproductive health promotion based on Android via analysis research with Quasi-Experimental design. The results showed that there were significant differences between adolescent reproductive health knowledge before and after getting health promotion through an android application ($p = 0.001 < 0.05$). In conclusion, adolescent reproductive health programs should be based on the needs, characteristics, and capacity of adolescents. Android application is a health promotion method that can be developed to increase knowledge and also can be used for baseline data on adolescent health.

Keywords: Adolescents, Health Promotion, Mobile Phone.

La estrategia inteligente de promoción de la salud reproductiva del adolescente basada en Android

Resumen

El estudio se realizó con el objetivo de desarrollar la promoción de la salud reproductiva de los adolescentes basada en Android a través de una investigación de análisis con diseño cuasi-experimental. Los resultados mostraron que hubo diferencias significativas entre el conocimiento de la salud reproductiva de los adolescentes antes y

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después de obtener la promoción de la salud a través de una aplicación de Android ($p = 0.001 < 0.05$). En conclusión, los programas de salud reproductiva de los adolescentes deben basarse en las necesidades, características y capacidad de los adolescentes. La aplicación de Android es un método de promoción de la salud que se puede desarrollar para aumentar el conocimiento y también se puede utilizar para obtener datos de referencia sobre la salud de los adolescentes.

Palabras clave: Adolescentes, Promoción de la salud, Teléfono móvil.

1. INTRODUCTION

Adolescence is a critical period of transition from children to adults. In adolescents, there are hormonal, physical, psychological and social changes that take place sequentially. In girls, the onset of puberty occurs at the age of 8 years while boys occur at the age of 9 years. Genetic factors, nutrition, and other environmental factors are considered to play a role in the onset of puberty. Physical changes that occur in the puberty period are also followed by emotional and psychological maturation. Everything that interferes with the process of physical and hormonal maturation in adolescence can affect psychological and emotional development so that a good understanding of the process of change that occurs in adolescents is needed from all aspects.

According to the World Health Organization (WHO), those included in the group of adolescents are those aged 10-19 years, and the demographic group of adolescents is divided into 10-14 years age

groups and 15-19 years age groups. While Undang-Undang No. 23 in the year 2002 concerning Child Protection classifies everyone who is up to 18 years old as a child so that based on this law, most adolescents are included in the group of children.

Adolescent knowledge about adolescent reproductive health is relatively low as indicated by the results of the Indonesian Adolescent Reproductive Health Survey in 2007. 13% of adolescent girls did not know about their physical changes and almost half (47.9%) did not know the fertile period of a woman. The thing to be concerned with adolescent knowledge regarding the most important ways to avoid HIV infection is turned out still limited. Only 14% of adolescent girls and 95% of adolescent boys mention abstinence from sex, 18% of adolescent girls and 25% of adolescent boys mention using condoms and 11% of adolescent girls and 8% of adolescent boys mention limiting the number of partners (do not change sexual partners) as a way to avoid HIV-AIDS.

Description of another adolescent reproductive health can be seen from the behaviour of adolescents. 0.7% of girls aged 15-19 years and 4.5% of boys aged 15-19 years have had premarital sexual relations. The reasons for premarital sexual intercourse were mostly out of curiosity (57.5% of boys), just happen without any particular reason (38% of girls) and forced by partners (12.6% of girls)¹. This evidence reflects the lack of understanding of adolescents about healthy life skills, the risk of sexual intercourse and the ability to reject relationships that they do not want.

The attention of the Indonesian Ministry of Health to the development and health problems of adolescents is quite large. Since 2003, the Ministry of Health has developed a youth health program using a special approach known as youth care health services namely *Pelayanan Kesehatan Peduli Remaja (PKPR)*. This approach aims to encourage providers, especially *Puskesmas*, to be able to provide comprehensive, appropriate health services and meet the needs of adolescents who want privacy, to be recognized, valued and involved in planning, implementing and evaluating activities.

Sexuality and reproductive health education in schools have not been comprehensive and in accordance with the reality of sexual behavior and sexual risk faced by adolescents have implications for student knowledge that is still limited. The sexuality and reproductive health education provided in schools tend to view adolescent reproductive health and sexual aspects to be limited to biological phenomena only and tend to construct teen sexuality as a taboo and dangerous thing that is controlled through moral discourse and religion².

Based on the 2014 National Standards for youth care health services namely *Pelayanan Kesehatan Peduli Remaja (PKPR)*, one of the problems raised in the implementation of the *PKPR* Program was that the community, especially parents, did not understand the needs of adolescents and had not received information about *PKPR* and most *Puskesmas* officers were not aware of their personal values related to adolescent health problems faced. With the many problems mentioned above, we can draw a common thread that reproductive health

behaviors at risk for adolescents are one of them due to lack of knowledge in adolescents regarding reproductive health and one of them is because community or education still considers reproductive health education (especially sexual education) as a taboo thing and adolescent health care providers at the Puskesmas still make teenagers feel uncomfortable (PAKASI & KARTIKAWATI, 2013).

Reproductive health education in adolescents requires a specific approach just so it can be delivered well and can be accepted by adolescents themselves. The provision of reproductive health information at the moment has been carried out with various kinds of methods. Adolescent reproductive health services in health facilities have also been supported by various media but more on printed media such as leaflets, posters, and module books. Access to information, in general, has also been widely spread through electronic media with websites or internet media as a basis. But information obtained from internet media is not all information that can be trusted truthfully and often is one-way information. While the provision of two-way information that involves interaction between information providers and recipients of information has not been done much.

Based on the preliminary survey, it is known that so far the adolescent reproductive health program is still conventional or classic, namely through the lecture method. The results of the preliminary survey show that 90.6% of adolescents have been exposed to the program through lecture methods and media 56% of printed media. Whereas according to adolescents the lecture method and printed media are not in accordance with the characteristics of adolescents

even seem to be boring. Therefore adolescents need health promotion efforts that are in accordance with their characteristics, needs, and capacities. All adolescents are definitely using smartphones and access applications in the PlayStore. Therefore this study aims to develop adolescent reproductive health promotion based on Android (KEMENKES, 2014).

The development of Android-based adolescent reproductive health promotion is one of the efforts to increase adolescent knowledge about adolescent reproductive health. Furthermore, this application can also be used as a multisector adolescent health information system (health, education, religion, and population and civil registration sector) and become the basis of information that can be easily accessed by adolescents in general and safely.

2. METHODOLOGY

This research is quantitative analysis research with Quasi-Experimental design and data was collected using a pre-post-test questionnaire for adolescent needs about adolescent health programs. Adolescent Health Program was given to respondent in this study. The Program called Remaja Sehat Application can be downloaded in the play store without charge. The respondents were 842 senior high school students, aged 14-19 years taken with simple random sampling.

3. RESULT

a. An Overview of the Characteristics of Respondents

The frequency distribution of respondents' characteristics by gender and age is illustrated in table 1.

Table 1: Characteristics of Respondents by Gender, and Age

Characteristics of Respondents		Frequency	Percentage (%)
Gender	Girl	492	58,4
	Boy	350	41,6
Age (Year)	14	24	2,9
	15	327	38,9
	16	363	43,1
	17	107	12,7
	18	19	2,2
	19	2	0,2
Total		842	100

b. Adolescent Knowledge regarding Reproductive Health Before and After using the Healthy Adolescent Application

The aim is to identify the level of understanding of adolescents regarding reproductive

Table 2: Percentage of Adolescents Who Know the Concept of Adolescent Reproductive Health

Topics	Knowledge	
	Before	After
Definition of Reproductive Health	50,0%	74,7 %
Physical Reproductive Health	69,0 %	81,1 %
Function Reproductive Health	68,3 %	81,4 %
Wet dream	59,1%	77,4%
Period of menstruation	52,1%	70,5%
Fertile period	37,3%	47,6%
Pregnancy	38,9%	51,8%
p value = 0,001 < α = 0,05		

Based on table 2 and table 3 it can be seen that there is an increase in knowledge of the concept of adolescent reproductive health and the factors that influence it significantly. This shows that some topics of adolescent reproductive health greatly influence adolescent health behavior. Therefore, an increase in adolescent knowledge about reproductive health must be pursued through adolescent-based reproductive health promotion based on Android or methods favored by adolescents, thus giving a significant effect of improvement.

Table 3: Percentage of Adolescents Who Know about Factors Affecting Adolescent Reproductive Health

Concept	Before	After
Reproductive Health Care	77,5%	84,5%
Healthy lifestyles	78,7%	82,3%
Dietary Habit	75,7%	80,2%
Alcohol	75,7%	82,5%
Smoking Behavior	75,8%	82,6%
Mental Health	62,2%	75,9%
Exercise	71,7%	79,,4%
p value = 0,001 < α = 0,05		

c. Application Evaluation

Questionnaires aimed at evaluating the effectiveness of applications made.

Table 4: Ease of Use of Application

User-Friendly	Frequency	Percentage (%)
Very difficult	34	4
Difficult	210	25
Easy	429	51
Very easy	169	20
Total	842	100

Based on the evaluation results, this application is easy to run. This shows that the application designed meets user-friendly criteria. This means that the application of healthy adolescents is in accordance with the characteristics, needs, and capacities of adolescents.

d. Overall Application Display

The aim is to find out the level of interest in the application.

Table 5: Respondents' Opinions after Using the Overall Program

Application Display	Frequency	Percentage (%)
Very uninteresting	9	1
Uninteresting	109	13
Interesting	429	51
Very interesting	295	35
Total	842	100

Based on the evaluation results stated that the appearance of the application is interesting, which means the user needs for the application elements are fulfilled.

4. DISCUSSION

Adolescent reproductive health programs have been pursued year by year by both the government and non-government. The

Ministry of Health has developed adolescent health programs using a special approach known as youth care health services namely Pelayanan Kesehatan Peduli Remaja (PKPR) since 2003. In the 2012 SDKI survey, the Indonesian government placed adolescent reproductive health programs as a priority in national development based on the Strategy and Policy of Reproductive Health in the year 2005-2010. Adolescent health programs are a priority with the aim of improving the status and degree of health as well as the development of human resources in Indonesia. This shows that the attention of the Indonesian Ministry of Health to the development and health problems of adolescents is quite large. The policy is the basis and direction for various sectors, local governments, NGOs, professionals, private sector, and business parties to support the success of reproductive health programs in Indonesia.

Based on the 2012 SDKI data, the knowledge of adolescents boys about wet dreams is part of puberty as much as 34%, while adolescents girls are 29.7%. Knowledge of adolescent girls related to menstruation is part of puberty is 82.8%, while adolescent boys are 43.2%. In the 2017 SDKI, the knowledge of adolescents boys about wet dreams is part of puberty as much as 51.1%, while adolescents girls are 37.6%. Knowledge of adolescents girls related to menstruation is part of puberty as much as 88.7% and adolescent boys 58%. Percentage of adolescents girls who have had sexual relations before marriage 0.9%, while adolescents boys 3.6%.

Based on the study of PURWATININGSIH (2001) about an analysis of adolescent needs for reproductive health services as much

as 31.5% of respondents answered that the kind of service they needed was information about sexuality. Adolescents also state that they need sexual education. Reproductive health services that are expected by adolescents are youth-friendly services. Research by RUSADY, SHALUHIYAH & HUSODO (2017) on the analysis of reproductive health education needs, as many as 53% of respondents have a high need for reproductive health education. The results of the study also stated that there is a relationship between reproductive health education needs and sexual behavior.

Adolescent knowledge regarding reproductive health can be influenced by several factors, one of the factors is the involvement of adolescents in the program. MUTHMAINNAH's (2013) research states that teenagers are only as program objects. Adolescents should be the pioneers of adolescent health programs, so programs that run from adolescents and adolescent, according to the needs of adolescents. Based on the analysis of adolescent needs, adolescent reproductive health promotion is important and needed by adolescents. The intended reproductive health promotion is an appropriate program that analyzes the needs of adolescents. The existence of adolescent reproductive health promotion that is youth-friendly, innovative and attractive in accordance with adolescents. One of them is health promotion through educational games.

Educative education or also called edutainment is a means to educate while entertaining. Basically, there are three educational games, including auditory, kinesthetic and visual. Auditory means hearing. This auditory-based game will motivate children to learn.

Motivation arises when hearing certain sounds, such as music. The other one is kinesthetic which means dynamic motion where games make a person learn while moving actively. This type of game is often used by companies when conducting training so it does not cause boredom for the trainees. While the type of visual or vision provides settings for lighting that can provide a conducive atmosphere for the learning process. Educational games that are in line with adolescent reproductive health promotion, one of which is the development of educational media through the android application.

YANI'S (2018) research states that information is very important, so information needs to be managed properly and safely. One of them is by utilizing technology that develops rapidly, can be utilized for health information. Especially adolescents who are identical and tend to follow technological developments, technology indeed can be used for more optimal and useful health services. In PERDANA, MADANIJAH & EKAYANTI (2017), research an Android-based educational media has been applied and seen its influence on the behavior of students' balanced nutrition. PERDANA ET AL. (2017) research uses Android-based nutrition education media and websites with balanced nutrition themes. Android nutrition education media shows better results compared to websites⁷. The results of the study also showed that there were positive changes to the knowledge, attitudes, and practices of students after getting nutrition education through android. Adolescent reproductive health programs should be based on the needs, characteristics, and capacity of adolescents. Android application is a health promotion method that can

be developed to increase knowledge and also can be used for baseline data on adolescent health.

5. CONCLUSION

There were significant differences between adolescent reproductive health knowledge before and after getting health promotion through an android application. Adolescent reproductive health programs should be based on the needs, characteristics, and capacity of adolescents. Android application is a health promotion method that can be developed to increase knowledge and also can be used for baseline data on adolescent health.

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