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The Effectiveness of Android-Based Education Media to Improve Marriage Candidate's Knowledge Concerning the Reproductive and Sexual Health

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Abstract

Background: Reproductivehealthis a conditionthatshows a person'sphysical, mental, andsocialhealthconditionsrelatedtotheirreproductivefunctionsandprocesses. Itisincluding not havingdiseasesordisordersthatcanaffectreproductiveactivitiesandsexuality. They all are a necessityforallpeople, bothyoungandold, regardlessofGender. Reproductiveandsexualhealthisessentialtobegivenatthepremaritalperiodtothebrideandgroomcandidates. **Aims:**This study aimstodeterminetheeffectivenessofandroid-basededucational media in theprospectivebrideandgroom'sknowledgeimprovementaboutsexualandreproductivehealth. The E-KCP applicationisaneducational media aboutreproductiveandsexualhealthdesigned in Android-basedapplicationtounderstandthe material byutilizingthe internet media efficiently.**Methods:**The Quasi Experiment method was used with a Non-equivalent control group design with pre-test andpost-test. This study's sample was 60 marriagecandidates using the purposive sampling technique registered at the Office of Religious Affairs (KUA) SombaOpu, Gowa Regency. This study used primary datawithWilcoxon and Mann Whitney test as statisticalanalysis.**Results:** The study showed theresultbefore and after the treatment group intervention(E-KCP application) and the control group (a pocket-book).The Wilcoxon test results in thetreatmentgroup obtained p = 0.000, and in the control group got p = 0.043.Itmeans that the educational media given to the treatment and control groups could increase the prospective bride and groom's knowledge. The Mann-Whitney test was then carried out to determinethe difference in knowledge level between the two groups.The pre-

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test results in the treatment and control groups obtained p-value = 0.229 (p> 0.05), which means no differences in knowledge between the treatment and control groups.The post-test results in the treatment group and control obtained p-value = 0.000 (p <0.05). There was a difference in the prospective bride and groom's knowledge about sexual and reproductive health after the intervention. **Conclusion:** Android-based educational media (E-KCP application) couldimprove the marriage candidates' knowledge concerning sexual and reproductive health.

Keywords: Reproductive and Sexual Health, E-KCP AndroidApplication, Knowledge, Marriagecandidates

Background

Reproductive health is a condition that shows a person's physical, mental, and social health conditions related to their reproductive functions and processes. Those are including not having diseases or disorders that affect reproductive activities (Kemenkes RI, 2018). Currently, reproductive health is the 3rd and 5th goal of the SDGs(Mishra & Lohiya, 2016). In developing countries, there are still problems related to reproductive health, so it is crucial to protect them to create public welfare(Lewis, 2016).

Reproductive and sexual issues before marriage need to be understood. Therefore it is essential to give it to the prospective bride and groom(Rokicki et al., 2017).Sexuality is an important part of reproductive health, both young and old, regardless of Gender or a need for everyone(Agarwal et al., 2016).

Before marriage, several prospective marriagecoupleslack knowledge and information about reproductive health in the family.So, that pregnancies are often not appropriately planned and supported by poor health status after marriage.

Based on the existing problems, the Indonesian government is holding a marriagecandidates course program.Its goal is that the prospectivebride and groom have sufficient knowledge to prepare for reproductive health and prepare for pregnancy to form a healthy family to produce a quality generation(Kemenkes RI, 2018).

Efforts to improve nutrition, prepare family health, prevent and control infectious and non-communicable diseases need to be provided. Therefore, the bride and groom are targeted in offering reproductive health information to safe sexual relations for potential partners(Mahmoodi, 2016).

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Doing healthy pregnancy planning must be done before pregnancy. It may take physical and mental preparation from each mother so that the pregnancy process can be appropriately planned, including the mother's physical and psychological adaptation for the better(Evrianasari & Dwijayanti, 2016).

Prenuptial counseling intervention is essential preparation for prospective brides.It affects and increases knowledge and attitudes. It will improve the quality of information transfer (transfer of knowledge).To improve maternal health status, it needs to monitor public health status so that there is a decrease in MMR and IMR achievement family planning(Nugraheni et al., 2018).

Inadequate understanding of reproductive health is the cause of risky sexual behavior. It is necessary to increase information and knowledge on reproductive health. In the current millennial era, people prefer to use android media to access all information, including reproductive health information. Therefore it is necessary to develop an android-based reproductive health education media to increase public knowledge and awareness and prevent risky behavior among the community(Gonsalves et al., 2015).

There is a need for a more comprehensive reproductive health education by providing new programs proven to be effective and accurate as a medium of information. One of which is the emergence of technology-based interventions. This program is centered on computers and androids to increase knowledge about reproductive health issues(Brayboy et al., 2018).

Indonesia is one of the countries with the fastest-growing internet user growth, where 85% of the users access the internet via mobile phones(Perdana et al., 2017).Android or website is one of the technology-based health education media that can be applied in Indonesia. Ownership of cellphones has increased according to technological developments to encourage android-based educational media in health. Providing health education through applications can be used as an effective intervention in improving public health, reproductive and sexual health outcomes, awareness of risky sexual behavior comprehensively, up to date via smartphones(Lim et al., 2014).

The purpose of this study was to determine the effectiveness of android-basededucational media to increase knowledge of the prospective bride and groom about reproductive and sexual health.

Methods

This research was conducted at the Office of Religious Affairs (KUA) SombaOpu, Gowa Regency, South Sulawesi, in January 2021. The research design used a Quasi-experiment (quasi-experimental) with a non-equivalent control group design with pre-test and

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post-test. The sample was calculated using the Lemeshow formula and obtained a selection of 60 people divided into two groups, treatment groups (30 persons) and control groups (30 persons).The treatmentgroup receivedtheAndroid-basededucation media (E-KCP application). At the same time, the pocket-book was given to the control group as education media. Both media educationcontainedreproductiveand sexualhealthinformation.

Sampling in this study used purposive sampling with inclusionandexclusion criteria. The inclusioncriteriawere including the bride and groomcandidate who were registered<15 days before the wedding, had never been married, had never been pregnant and gave birth before,both were in productive age, had an android (smartphone), can operate Android, also willing to followandcompletethe ongoing research process. The exclusion criteria include not being able to read, having been married before, stopping during the research process, being absent while the research process is in progress. Data collection techniques for the treatment and control groups in providing reproductive and sexual health education were carried out once every two days, twice a day for two weeks.

The data analysis used a non-parametric test because the data were not normally distributed.The Wilcoxon Signed Rank Test was carried out to calculate the mean difference between the pre-test and post-test scores. The Mann-Whitney test wasusedto see the differenceinknowledge between the two groups. The p-value <0.05means a difference.

Result

1. RespondentCharacteristics

Characteristics of respondents obtained at the Office of Religious Affairs (KUA) SombaOpu, Gowa Regency are seen in the graph below:

a. Age

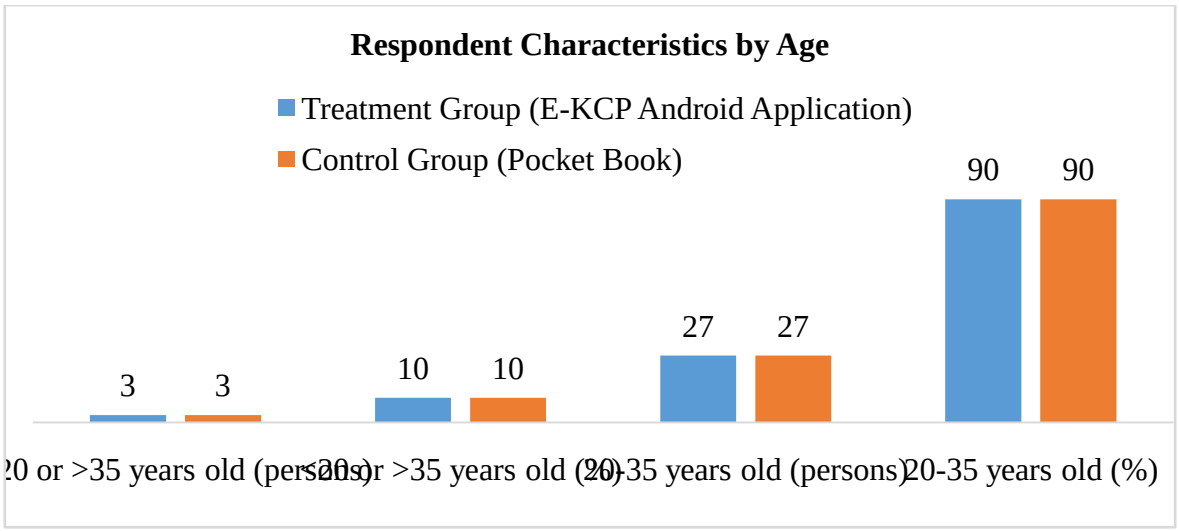

Figure 1. RespondentCharacteristicsby Age

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Figure 1 shows the age of the most respondents in the treatment and control groups, wasthe ages of 20 - 35 years as many as 27persons (90%).

b. Gender

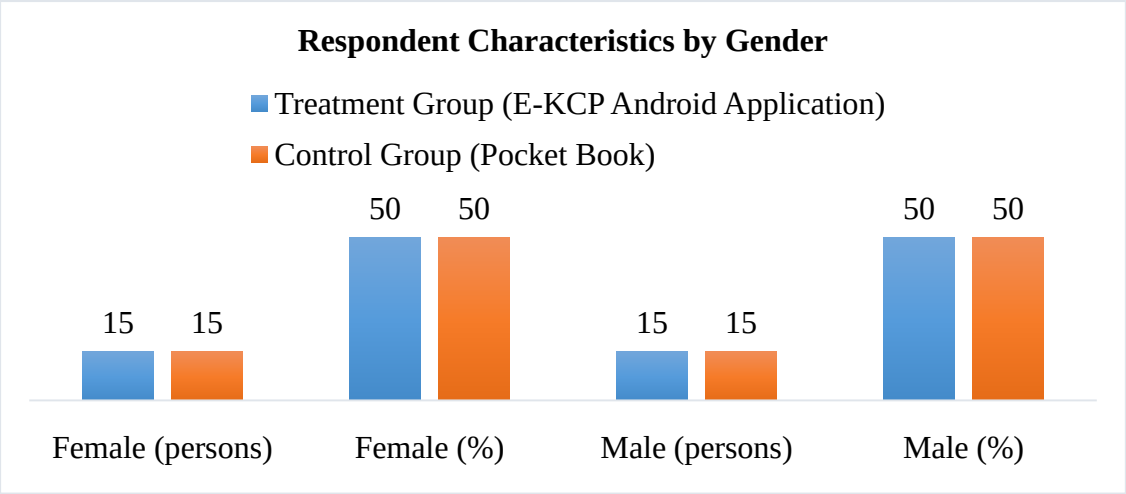

Figure 2. CharacteristicsofRespondentsbasedon Gender

Figure 2 shows that female and male respondents in the treatment and control groups were 15(50%).

c. Education

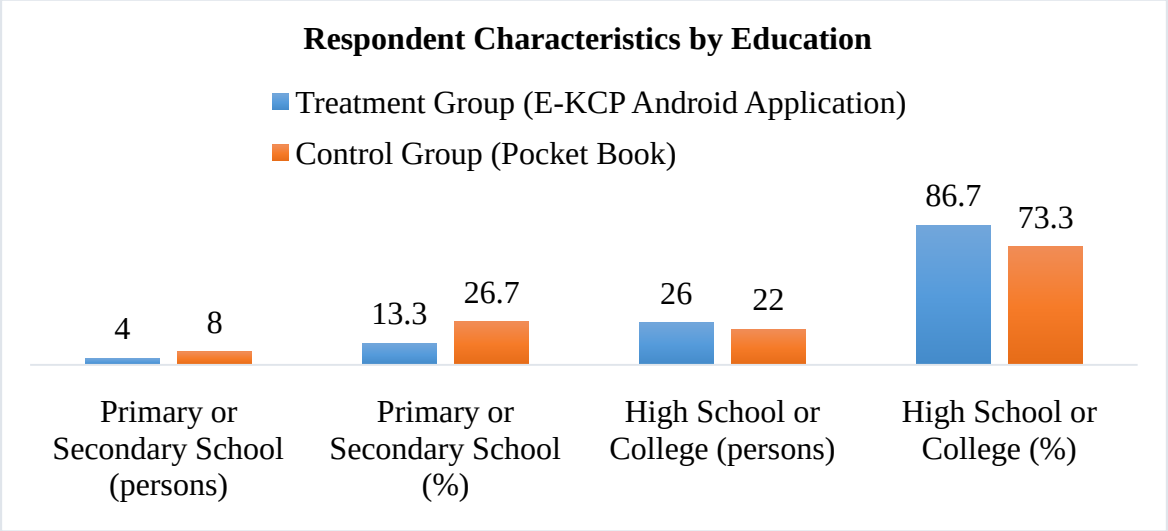

Figure 3. RespondentCharacteristicsbasedon Education

Based on Figure, the most recent respondents in both groups wereHighSchoolorCollege, withabout 26persons (86.7%) in thetreatmentgroup and 22persons (73.3%) in thecontrolgroup.

d. Occupation

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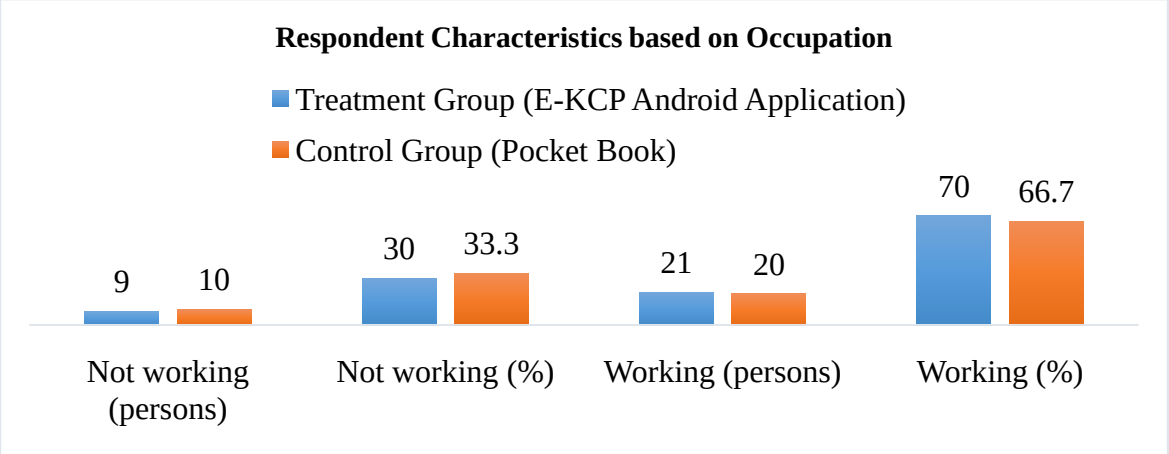

Figure4.RespondentsCharacteristicsbasedonOccupation

Based on Figure 4, the workingrespondent was dominatedin the treatment and control groups, as many as 21 persons(70%) and 20 persons(66.7%), respectively.

e. Exposure to Sexual and Reproductive Health Information

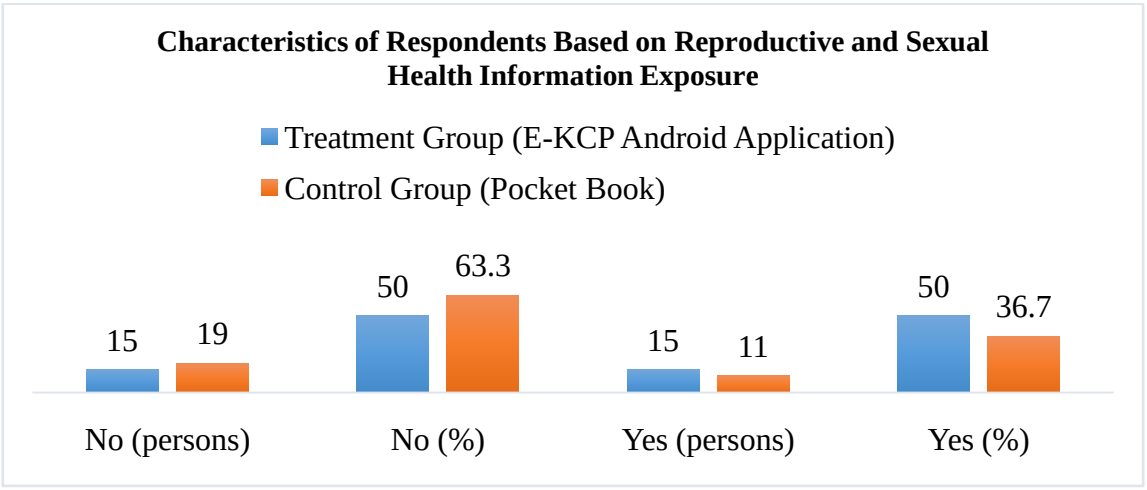

Figure 5.Characteristics of Respondents Based on Exposure to Reproductive and Sexual Health Information

Based on Figure 5, respondents in the treatment group who had never and ever been exposed to information on sexual and reproductive health were 15persons (50%)foreach. Most respondents have never been exposed to information on sexual and reproductive health in the control group, about 19 persons(63.3%).

2. Knowledge Level ofReproductiveand SexualHealth

a. WilcoxonTest

Table 1.The Knowledge Analysis of the Treatment Group (Android-based Media)

TreatmentGroup	Median	Minimum - Maximum	P-value
Pretest (n = 30)	70	55 - 80	0.000

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Posttest (n = 30)	95	75 – 100

Source: Primary data, 2021

Based on Table 1, The pre-test value was 70%, so the prospective bride and groom's knowledge was categorized as sufficient. After an intervention, the post-test value using the E-KCP application was valued at 95% and categorized as good knowledge. Thus, it can be stated that the knowledge of the prospective bride and groom already increased by 25% after the E-KCP applicationintervention. The Wilcoxon test obtained a p-value = 0.000 (p <0.05). There was a difference in knowledge between before and after the intervention.

Table 2: Results of the Knowledge Analysis for the Control Group (Pocket-Book Media)

ControlGroup	Median	Minimum - Maximum	P-value
Pretest (n = 30)	75	45 - 90	
Posttest (n = 30)	75	50 - 90	0.043

Source: Primary data,2021

Table 2shows before and after being given educational media using a pocket-book.The pre-test and post-test scores were 75%foreach.The knowledge of the prospective bride and groom could be categorized as sufficient. The Wilcoxon test results obtained p-value = 0.043 (p <0.05).It means that there was a difference in knowledge before and after the intervention.

b. Mann WhitneyTest

Table 3. Analysis of Differences in Knowledge between Treatment and Control Groups in Pretest

Pre-test	Good	Sufficient	Lack	P-value
	n (%)	n (%)	n (%)	
TreatmentGroup	5 (16.7)	18 (60)	7 (23.3)	0.229
ControlGroup	11 (36.7)	9 (30)	10 (33.3)	

Source: Primary data, 2021

Based on Table 3, it was found that the pre-test knowledge in the treatment groupmajoritywas sufficient, 18 people(60%). In the control group, theknowledgewas majority good, 11persons (36.7%). The results of the Mann Whitney test obtained p-value = 0.229 (p> 0.05). There was no difference in knowledge between the treatment and control groups before the intervention.

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Table 4.The Analysis of Differences in Knowledge between Treatment and Control Groups in Posttest

Posttest	Good	Sufficient	Lack	P-value
	n (%)	n (%)	n (%)	
TretamentGroup	28 (93.3)	2 (6.7)	0 (0)	0.000
ControlGroup	13 (43.3)	16 (53.4)	1 (3.3)	

Source: Primary data, 2021

Table 4showsthe post-test knowledge in the treatment group.The percentage of good knowledge was majorized, about 28persons (93.3%) than lackcategory. The controlgroup'sknowledgewasdominantbysufficient category, 16persons (53.4%) than lack category. The Mann-Whitney test results showed that the p-value of = 0.000 ($p < 0.05$). It means a difference in knowledge between the treatment and control groups after the intervention.

Discussion

The study results on 60 respondents before the intervention showed that the marriage candidates' average knowledge in the treatment and control groups could not answer questions about reproductive and sexual health. These questions included the definition of reproductive health, reproductive and sexual rights, reproductive organs, nutritional preparation, maintaining reproductive health, signs of the fertile period, danger signs of pregnancy, and pregnant women's emotional condition. Then,it can be an input for health workers to more comprehensively provide knowledge about reproductive health, including in preparation for pregnancy.

Knowing the marriage candidate's condition and the prospective children to be born is necessary to determine the bride and groom's readiness. Thus, to assist the couple in making decisions and realizing reproductive rights responsibly. They include genetic issues, chronic diseases, sexually transmitted infections, and others. Many people think that reproductive Education for future brides before marriage is not important(Januarti et al., 2020).

Based on the pre-test and post-test knowledge analysis in the treatment and control groups using the Wilcoxon test, there was a difference in knowledge between before and after the intervention.The treatment group obtained a value of $p = 0.000$ ($p < 0.05$), and in the control group, the value was obtained. $p = 0.043$ ($p < 0.05$). The change occurred because the control group was also given reproductive health education through a course for the bride and groom with a lecture method using powerpoints and a pocket-book. However, the control group's improvement was lower than in the treatment group.It means that providing

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reproductive and sexual health education through bride and groom courses can also increase knowledge.

For differences in knowledge before intervention in the treatment and control groups, the analysis using the Mann Whitney test showed that the value of p = 0.229 (p> 0.05).There was no difference in knowledge about sexual and reproductive health between the treatment and control groups before the intervention. As for the difference in knowledge after the intervention in the treatment and control groups, the analysis results using the Mann Whitney test showed that the value of p = 0.000 (p <0.05).It means a difference in knowledge about sexual and reproductive health between the treatment and control groups.

The knowledge of the marriagecandidate at the Office of Religious Affairs (KUA) SombaOpu, Gowa Regency about reproductive and sexual health showed an increase in reproductive and sexual health knowledge after intervention using android-based education media (E-KCP Application). This study showed that the knowledge of android-based reproductive and sexual health given to the prospective bride and groom couldincreasesexual and reproductive health knowledge.

Based on this research, the knowledge of the marriagecandidates about sexual and reproductive health can be affected by being exposed to reproductive and sexual health information. Since in the control group, most respondents have never been exposed to reproductive and sexual health information, which is one of the influencing factors. People exposed to various health media will have a better knowledge level than people who have never been exposed to information media(Fitryya, 2012) (Achmad H et al, 2020).

The findingis in line with Mayasari et al. (2020), whichfound that cellular-based health education affects the increase in prospective brides and grooms' knowledge on reproductive health. Theirstudy revealed an increase in respondents' knowledge in the treatment group by 5.67% after intervention via cellular, compared to 2.2% in the group not given reproductive health education via cellular.

Also,itisin line with research conducted by Torkian et al. (2020). They showed that after the intervention, knowledge increases, meaning that the application of mobile-based Education and counseling increases the knowledge of marriagecandidates in premarital Education. In this study, there was an increase in respondents' knowledge in the treatment group by 12.64% after interventions using mobile applications on premarital health. Besides, the improvement in the control group was only 3.71%. Therefore, it is suggested that this type of Education (mobile app) be used to promote premarital education classes.

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Conclusion

Android-based educational media (E-KCP application) improved the prospective bride and groom's knowledge about reproductive and sexual health. In this study, an increase in the treatment group's knowledge was obtained by 25% after intervention using the E-KCP application.

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