ISSN: 2345-2897; Health Education and Health Promotion. 2022;10(4):799-804.

Effect of the E-Book of Family Planning Services Guide on the Knowledge of Women of Childbearing Age

ARTICLE INFO

Article Type
Original Research

Authors
Susilawati E.[1] *PhD,*
Sari L.A.*[2] *PhD,*
Komariah N.[2] *PhD*

How to cite this article
Susilawati E, Sari L A, Komariah N. Effect of the E-Book of Family Planning Services Guide on the Knowledge of Women of Childbearing Age. Health Education and Health Promotion. 2022;10(4):799-804.

[1]Department of Midwifery, Faculty of Health, Health Polytechnic of Jambi, Jambi, Indonesia
[2]Department of Midwifery, Faculty of Health, Health Polytechnic of Palembang, Palembang, Indonesia

Correspondence
Address: Siwabessy No.42, Buluran Kenali, Kec. Telanaipura, Kota Jambi, Jambi 36122, Indonesia. Postal Code: 36122
Phone: +62 852-6746-8580
Fax: +741-445579
liaartikasari57@gmail.com

Article History
Received: September 26, 2022
Accepted: November 26, 2022
ePublished: December 13, 2022

ABSTRACT

Aims The high population growth is due to the high birth rate compared to the population death rate. Contraceptive methods have been presented to suppress population growth. This study aimed to analyze the effect of e-book-based learning media for family planning services on the knowledge of women of childbearing age.

Materials & Methods The current study is a quasi-experimental study with one group design and pretest-posttest, which was conducted from January to November 2021. The study population was women of childbearing age, from which 120 women were randomly selected. The research variable was the knowledge of women of childbearing age, which was evaluated using a questionnaire. Data were analyzed using the Wilcoxon test.

Findings The mean level of knowledge before the intervention was 6.18±3.09, which reached 12.15±4.91 after the intervention, and this increase was significant ($p<0.05$).

Conclusion E-book-based learning media on contraceptive services significantly affects the knowledge of women of childbearing age in Penyengat Rendah Village, Jambi City.

Keywords Family Planning Services; Contraception; Knowledge; Women

CITATION LINKS

[1] Perubahan Pelayanan Keluarga ... [2] Early effects of the COVID-19 pandemic ... [3] Contraception access during the ... [4] Kepesertaan Keluarga Berencana ... [5] Analisis Faktor Penyebab Penggunaan ... [6] Edukasi program Keluarga Berencana ... [7] Contraception in the era of ... [8] Profile Health Department of ... [9] Pengembangan Aplikasi Konsultasi ... [10] Analisis Perencanaan Dan ... [11] Guidelines and best practice ... [12] Doing things differently ... [13] Metode penelitian bisnis: pendekatan ... [14] Faktor-Faktor yang Berhubungan ... [15] Analisis Determinan Yang ... [16] Faktor-Faktor yang Berhubungan ... [17] Removing unnecessary medical barriers to ... [18] Engaging social media for health ... [19] Maternal-child ... [20] The development of mobile ... [21] Implementation guide for ...

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Introduction

In Indonesia, the population growth rate has increased by 1.49% or 4.5 million yearly [1]. This condition causes a mismatch of government programs in promoting contraception and family planning [2]. Family Planning is an effort to space births for couples of childbearing age to achieve prosperity. In addition, contraception is an effort to avoid unwanted births and regulate birth intervals by individuals or married couples [3].

During the COVID-19 non-natural disaster outbreak, a Large-Scale Social Restriction (PSBB) policy was implemented to prevent the transmission of Covid-19. This condition impacts the continuity of public health services, including contraceptive and reproductive health services [4, 5].

Contraceptive and reproductive health services will be maximized if women of childbearing age have good knowledge about family planning. On the other hand, if their knowledge is low, it will impact the use of modern contraceptives [6, 7]. Contraception is one of the most effective efforts to control fertility or suppress population growth. All contraceptive methods provided and offered to the public are expected to provide optimal benefits by minimizing side effects and complaints.

The main reason for the decline in the use of modern contraceptives, especially among the productive age group/young couples, is the insufficient knowledge of young couples about reproductive health and lack of access to accurate and reliable information about contraceptives [6]. The percentage of couples of childbearing age with contraceptive knowledge decreased from 70.5% in 2016 to 55.8% in 2017, 35.2% in 2018, and 19.4% in 2019 [8]. Another cause is the lack of health facilities, resulting in delayed visits to health facilities for consultation or contraception. This situation causes many family planning acceptors to drop out, resulting in a higher birth rate (baby boom) [9].

During the COVID-19 pandemic, the baby boom increased by 10% due to inactivity in family planning programs and could increase abortion cases, the risk of maternal and child mortality, premature birth, malnutrition in pregnant women and fetuses, lack of affection, and lack of care due to an unwanted child. If this is not taken seriously, it will cause an explosion of trouble [10].

The coverage of active contraception participants in Jambi Province was 68.81% in 2020. Active contraception participants for IUD use are 3.13%, MOP is 0.17%, MOW is 1.21%, condoms are 0.95%, implants are as much as 9.14%, injections 64.21%, and pills 21.18% [8]. Active contraceptive participation in Penyengat Low Village in 2020 was 1,465, with details on the number of active contraceptive participants by the contraceptive method in Penyengat Low Village as follows: 115 IUD use, 43 MOP and MOW, 41 condoms, 57 implants, 1,002 injections, and 207 pills [8].

Given these conditions, the family planning program is expected to fail during the COVID-19 pandemic. Therefore, couples of childbearing age need access to health services that are easy, fast, and efficient by using digital book-based learning media or often called Android-based E-books. It is an anticipation of the baby boom during the Covid-19 pandemic to continue implementing contraceptive services. E-books in the form of text and images in digital form are produced and published and can be read through computers or other digital tools [9]. Digital books are evidence of the development of advanced technology, which is expected to develop from time to time to renew traditional paper books for a prospective future [11]. Using a digital book or E-book media will make it easier for couples of childbearing age to know about the problems of contraception used, the advantages and disadvantages of each contraceptive, and the appropriate contraception [12].

Researchers assume or propose a hypothesis that education through e-books can increase women's knowledge of reproductive age about contraceptive services, which can improve contraceptive coverage. Considering that the birth rate is still high and the use of contraceptives is minimal, researchers were encouraged to analyze the effect of the e-book learning media for family planning services on the knowledge of women of childbearing age.

Materials and Methods

Participants

The current study is a quasi-experimental study with one group design and pretest-posttest, which was conducted from January to November 2021.

The study population was women of childbearing age (n=178), from which 120 women were randomly selected. These women had never participated in counseling activities on family planning and were familiar with Android applications.

The sample size was calculated using the Slovin formula at precision (d) = 0.05.

During the COVID-19 pandemic, we conducted briefings for all Community Health Workers (CHWs) on duty at Penyengat Bawah Jambi City regarding the information on prospective respondents who would participate in this study. The CHWs who had been trained then sent the contact numbers of women of childbearing age who met the criteria to the

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researchers for inclusion in the WA group of prospective respondents.

Intervention

The research variable was the knowledge of women of childbearing age. Before the intervention, the researcher first measured the level of knowledge of women of childbearing age (pre-test). After the intervention, the researcher again measured the level of knowledge of women of childbearing age (post-test). The intervention model provided was virtual education about contraception service, which was carried out once for 1 hour, i.e., 45 minutes of material delivery and 15 minutes of discussion). In this study, researchers explained the principles of contraception service and the type of contraception. The researcher presented the material with a poster or picture of the type of contraception.

To ensure the delivery of this e-book about contraception services, the research team sent this e-book file to each participant via WA. Follow-up after sending the e-book was done via chat and WA calls personally and in the WA group.

Rigid restrictions regarding mass gatherings in one location during the peak period of the pandemic forced the research team to provide instructions to respondents via chat and voice notes in the WA group. We also paid close attention to the respondent's ability to understand our directions and strictly monitored each respondent.

Study tool

The knowledge questionnaire consisted of 20 questions with correct and incorrect answer choices. If the woman of childbearing age answered correctly, she was given a score of 1; if the answer was wrong, she was given a score of 0. The range of scores obtained was between 0-20. The Guttman scale is used in this questionnaire.

The Guttman scale has an important feature; it is a cumulative scale and only measures one dimension of a multidimensional variable. Therefore, this scale is dimensionless. The data obtained are interval data or dichotomous ratios (two alternatives) [13].

The researcher has worked as a lecturer and researcher for 10-15 years and has Masteral and Doctoral degrees. The researcher has done much research in the health sector and has compiled many questionnaires, so the researcher prepared a questionnaire for this study. Before the study, the questionnaire was tested on ten postpartum mothers, and the results indicated that two questions should be replaced because they were invalid.

Educational content

Education through e-books about contraceptive services contained the meaning, types, benefits, contraindications, side effects, advantages and disadvantages, and how to use contraception. We also added a special topic on family planning services in the context of the covid-19 pandemic, such as postponing pregnancy until the covid-19 pandemic is over. Family planning acceptors should not visit a health worker unless there are complaints. If the implant/IUD has expired, it can be continued with a condom.

Ethical consideration

No economic incentives were offered or provided for participation in this study. Because the subject was still a minor, so the researcher asked for and obtained parental consent. The study was performed under the ethical considerations of the Helsinki Declaration. This study obtained ethical feasibility under the Health Research Ethics Commission of the Ministry of Health, Jambi, and registration number: LB.02.06/2/168/2021.

Statistical analysis

Data were presented as numbers and percentages for categorical variables. Continuous data were expressed as mean ± standard deviation (SD) or median with Interquartile Range (IQR). Then Wilcoxon test was used for bivariate analysis. All tests with p-value <0.05 were considered significant. Statistical analysis was performed using SPSS 16.0 software.

Findings

The frequency distribution of the respondents' characteristics, including age, education level, employment status, and parity, is presented in Table 1. Most of the mothers were 20-35 years (52.5%). The respondents' education level was mostly high school (56.6%). Most of the respondents were not working (63.3%) and were primipara (57.5%).

Table 1) Frequency distribution of respondents' characteristics

Characteristics	No.	Percentage
Age, y		
<20 and >35	57	47.5
20-35	63	52.5
Education level		
Basic	6	5.0
Junior school	30	25.0
High school	68	56.6
Associate degree	5	4.2
Bachelor	11	9.2
Employment		
Working	44	36.7
Not working	76	63.3
Parity		
Primipara	69	57.5
Multipara	51	42.5

The knowledge level of 17.5% of the respondents before the intervention was good. After the

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intervention, the knowledge level of 39.2% of women of childbearing age was good (Table 2).

The results of the Kolmogorov-Smirnov test were significant (p<0.05; Table 3), which means that the knowledge data on contraceptive services in the pre-test and post-test are not normally distributed. Therefore, the Wilcoxon test was used.

The mean level of knowledge before the intervention was 6.18±3.09, which reached 12.15±4.91 after the intervention, and this increase was significant (p<0.05; Table 4).

Table 2) Distribution of knowledge level before and after the intervention

Knowledge level	Pre-test, No. (%)	Post-test, No. (%)
Poor	40 (33.3)	19 (15.8)
Sufficient	59 (49.2)	54 (45.0)
Good	21 (17.5)	47 (39.2)

Table 3) Normality test results of knowledge pretest and posttest virtual education

Knowledge	Kolmogorov-Smirnov	df	Sig.
Pretest	2.507	120	0.0001
Posttest	1.797	120	0.024

Table 4) Average Knowledge Pretest and Posttest Virtual Education

Knowledge	Mean±SD	Median IQR (Q1-Q3)	P-value
Pretest	6.18±3.09	5 (4-6)	0.0001
Posttest	12.15±4.91	13 (7.5-15.5)	

Discussion

The barriers to providing contraceptive services during the COVID-19 pandemic are enormous. This condition demands creativity in providing health education while maintaining health protocols and significantly reducing direct contact with women of childbearing age who are the targets of implementing contraceptive services. This study aimed to analyze the effect of providing contraceptive services e-books on the knowledge of women of childbearing age.

The results reported that the knowledge of women of childbearing age about contraceptive services before e-book-based learning was mostly sufficient in the village of Penyengat Bawah, Jambi City. A small number of respondents knew about the purpose of contraception. The use of contraceptive methods is aimed at postponing pregnancy and creating space or adjusting the birth time interval. According to the researcher, the number of respondents who have less knowledge is because they are more interested in knowing information about contraception from their neighbors or acquaintances.

The current result is consistent with previous research [14], which reported that 63.6% of information about implant contraception did not come from health workers but from friends and neighbors. It can be said that this information is less valid due to individuality, and it does not explain all the information needed by the respondent. A few respondents know the right time to use the IUD. According to Maulina *et al*. [15], IUDs can be inserted several times, including during the menstrual cycle. IUDs can also be inserted after delivery. The ideal time for post-partum IUD insertion is 10 minutes after the delivery of the placenta or up to 48 hours postpartum at the latest.

According to the researcher, the less knowledge of the respondents is due to a lack of public awareness to take advantage of health facilities such as health centers. As a result, respondents do not know information about IUDs. This study's results align with research conducted by Halimahtussadiah *et al*. [16], which found that most of the respondents had less knowledge, as much as 68.3%. A lack of information about IUDs caused the common knowledge among mothers about IUDs. Their ignorance of some contraceptive information about the IUD is due to the lack of counseling with contraception officers or midwives.

After providing the e-book on contraceptive services, the knowledge of women of childbearing age about contraceptive services in Penyengat Low Village, Jambi City, was mostly in good level, meaning that there was an increase in knowledge level compared to before the intervention.

"Learning media" is a messenger technology that can be used for learning purposes. So learning media is a tool that can be used for learning [17]. Based on this opinion, it can be concluded that learning media are all equipment used to improve learning efficiency and make it easier for respondents to understand the material [18].

E-books must be in great demand due to their smaller size than books. E-books can also be carried anywhere. E-books also have other advantages, such as formats ranging from PDF, Exe, HTML, Microsoft Word, Plain Text, and many more. E-books ks are the format for the digital age we live in today. Especially in the future, it seems that the world is going paperless. Based on this opinion, it can be concluded that in the era of globalization with increasingly sophisticated technological advances, e-books have many formats that can be used with diversity, making these e-books more attractive and liked by readers [19].

This e-book-based learning media technology is a medium or tool for conveying content in the form of messages from researchers to learning respondents

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who can use e-books that are useful to support learning needs. Using a digital book or e-book medium is easier for couples of childbearing age to learn about the problems of contraception used, the advantages and disadvantages of each method of contraception, and to know what is the best method of contraception [20].

The current study results showed the effect of e-books on the knowledge of women of childbearing age about contraceptive services in the village of Penyengat Bawah, Jambi City. It was found that the p-value was 0.0001, which means that e-books have a significant effect on the knowledge of women of childbearing age about contraceptive services in Penyengat Rendah, Jambi City.

E-book-based learning media can be applied to contraceptive services to increase mothers' knowledge. E-book learning media can help mothers improve their understanding, present material excitingly and reliably, and make it easier for mothers to get information about contraceptive services [21].

In the future, e-book media can be used as an alternative in delivering material by health workers, especially during the COVID-19 pandemic, where there is an obligation to maintain health protocols, including limiting contact with the public. For this reason, researchers encourage related parties to disseminate the results of this study more broadly.

The strengths and weaknesses of study

The strength of the research lies in the intervention tool used, which is a continuation of the results of the researchers' study after conducting research and developing the e-book educational model on health services.

The weakness of this study lies in the small number of samples, so it tends to be inaccurate to generalize the results of this study to a larger population. Due to the Covid-19 pandemic, we could not control for confounding factors that might have influenced the research results.

Further studies can be conducted to compare the effectiveness of using Android-based e-books with the provision of in-person education to ensure the benefits of this application. In addition, the involvement of a wider range of participants could also provide a better picture of the effect.

Conclusion

E-book-based learning media on contraceptive services significantly affects the knowledge of women of childbearing age in Penyengat Rendah Village, Jambi City.

Acknowledgements: We would like to express our gratitude to the Director of Health Polytechnic Ministry of Health Jambi for providing facilities to conduct this research.

Ethical Permission: The study was performed under the ethical considerations of the Helsinki Declaration. This study obtained ethical feasibility under the Health Research Ethics Commission of the Ministry of Health, Jambi, and registration number: LB.02.06/2/168/2021.

Conflict of Interests: The authors declare no conflict of interest.

Authors' Contribution: Susilawati E (First Author), Introduction Writer/Methodologist/Main Researcher/Discussion Writer (50%); Sari LA (Second Author), Introduction Writer/Methodologist/Assistant Researcher/Statistical Analyst/Discussion Writer (30%); Komariah N (Third Author), Assistant Researcher/Statistical Analyst/Discussion Writer (20%)

Funding: This study received no funding.

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