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Development of an Android-Based Application for Family Planning Education and Consultation (SIDUTA KB)

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Abstract: In suppressing the rate of population growth, the government seeks to optimize the Family Planning (KB) program. Miroto Public Health Center is a health center in the Central Semarang District which experienced a decrease of 13.4% of new family planning memberships. The decline was caused by the increase in the number of births, the delay in contraceptive services and the soaring unmet need during the pandemic. To support the role of cadres in providing socialization easily without having to meet during this pandemic, a Family Planning Education and Consultation System (SIDUTA KB) was created. Methods: This study uses Research and Development (RnD) which refers to the Sugiyono model with limited trials. The research data analysis technique is descriptive analysis and the data collected consists of qualitative and quantitative. Results: In this study, design validation was carried out through media expert tests with a percentage score of 83.55% (5 experts), material experts at 81.11% (3 experts), and users by 86.72% (73 users). Conclusion: SIDUTA KB makes it easy for users to find educational content about family planning programs, conduct consultations, and choose Miroto Health Center facilities or services related to the family planning program.

Keywords: KB, SIDUTA KB.

1. Preliminary

Worldometers data shows that in March 2020, the total population of Indonesia was 273,523,615 people with a population density of 151 people per km² that this number tends to increase by 1.49% compared to 2019 which was 270,625,568 people (Yusita et al. 2020).

In reducing the rate of population growth, the government is trying to optimize the family planning program (KB) where if it is not handled properly it will have an impact on controlling birth rates and decreasing AKI (Maternal Mortality Rate), especially IMR (Infant Mortality Rate) and AKABA (Mortal Mortality Rate). Toddlers) which is one of the indicators of health development in the 2015-2019 National Medium Term Development Plan (RPJMN) and Sustainable Development Goals (SDG's) (Sitorus et al., 2020).

The population of Central Java Province based on population projections in 2017 is 34,257,865 people, consisting of 16,988,093 male residents and 17,269,772 female residents. Compared to the total population in 2016, the population of Central Java in 2017 grew by 0.71% (Widyawati et al., 2020). The growth rate in Semarang City has increased from 0.51% in 2018 to 1.57% in 2019 at the production age of 15-64 years due to increased fertility rates and limited access to contraception (BPS, 2019).

Miroto Health Center is one of the health centers in Central Semarang District which experienced a decrease in new family planning membership, namely 13.4% of participants with the number of repeat contraception participants as many as 436 participants out of a total service of 570 participants (DISDALDUK, 2020). The decline was caused by the increase in the number of births, the delay in contraceptive services and the soaring unmet need for family planning during the pandemic (BKKBN, 2020). The implementation of physical distancing in preventing the spread of Covid-19 can reduce family planning services which has an impact on decreasing family planning participants (Chairani, 2020).

Efforts to increase the capacity of cadres are due to the limited number of PKB, so in carrying out their duties, they are assisted by KB cadres who are local residents. Family planning cadres play more of a role in family planning counseling activities, because there are more numbers and the proximity of their places of residence makes interacting with the community more often so that family planning counseling activities are more optimal and effective (Devi et al., 2016).

In Karlina's (2020) research conducted the development of the "Smart Contraception" application as an IUD contraceptive education media using the ADDIE theory (Analysis, Design, Implementation and Evaluation). The analysis stage in this research is conducting land interviews. The initial design is made of flowcharts, storyboards and made a real application form. After that, the researchers did the implementation to the user. Evaluation is done to determine the quality. Users are selected with the inclusion criteria of husbands of women of childbearing age who are willing to be respondents, husbands of women of childbearing age who are in the working area of Depok II Health Center, husbands of women of childbearing age who have and can use Android smartphones (Karlina, 2020).

Rosalina's research (2018) carried out the development of family planning program applications by applying the User Centered Design (UCD) method including literature study, needs analysis, system design, interface design, user evaluation, system implementation, system testing, and drawing conclusions and suggestions. (Rosalina, 2018).

Lesmana's research (2017) conducted research by applying steps to create a system design using the Backward Chaining method in the selection of contraceptives. This research is a program that balances technological developments in today's

electronics sector such as Smart Phones (Lesmana, 2017).

The purpose of this study was to support the role of cadres in providing easy socialization without having to meet during this pandemic, so a Family Planning Education and Consultation System (SIDUTA KB) was created. In addition, this study also aims to describe the process of making product designs, product validity, product trials, making it easier for contraceptive users to consult with family planning cadres by using the WhatsApps API feature owned by SIDUTA KB, presenting interesting content and appearance of applications, informative, and up to date so that it can be of interest to many users (Users) and provides various features in applications that are useful for users (users) such as: Self Assessment Features, News, Consulting Facilities and Services, Educational Content, Family Planning Cadre Information, Call Center.

2. Research Methods

The research method used in this study is Research and Development (RnD) using a descriptive procedural model developed by Sugiyono. Sugiyono's model includes the model used in research and development methods to produce a product and test its effectiveness. Sugiyono's development model includes 10 stages of research and development, namely the potential and problem stages, data collection, product design, design validation, design improvement, product trials, product revisions, usage trials, product revisions and mass products. This research was conducted from July 1 to August 31, 2021 in the working area of the Miroto Health Center. retrieval technique the sample used is non-probability sampling with purposive sampling technique. Informants in this study consisted of material experts as many as 5 experts, media experts as many as 3 experts and users as many as 73 people consisting of family planning cadres and couples of childbearing age (PUS). Data collection techniques used are using questionnaires, interviews and product documentation. The instruments used in this study were questionnaire sheets and interview sheets. So that the instrument is feasible and can be used, it is necessary to test the validity and reliability test to test the validity and consistency of each question and answer in the questionnaire. In drawing conclusions, the method used is a scoring method based on the criteria or parameters used in the questionnaire which is converted in the form of points 1 to 5 for each

parameter. After determining the scoring, then the points are made in the form of a percentage by dividing the total value of each sub-variable by the maximum number of scores and then multiplying by 100%. Then the percentage obtained by each sub-variable will be determined by qualitative criteria based on certain intervals, namely 0 - 20% (very poor), 21 - 40% (poor), 41 - 60% (fair), 61 - 80% (good) and 81 - 100% (very good). This research has been issued by the Health Research Ethics Commission, Semarang State University on document number 222/KEPK/EC/2021.

3. Results and Discussion

The results of the SIDUTA KB testing were carried out through media expert validation, material expert validation and trials on family planning cadres and PUS (Pupes of Childbearing Age) by filling out an instrument in the form of a SIDUTA KB feasibility test questionnaire. The assessment instrument used in this study was adapted from a list of needs analysis and testing indicators for visual communication aspects as well as examples of learning media evaluation instruments according to Lukitaningrum (2016). Initial stage pDevelopment is done by looking for potential and existing problems to find out the situation or situation through literature study. Based on the potential and problems that have been collected, the next process is data collection. At the data collection stage, the researcher conduct a study of the content of materials and tools for the creation of an education system and consultation for family planning programs (SIDUTA KB). At this stage, researchers study the characteristics of the material and determine the content of the material that will be developed into the education and consultation system that is planned to be delivered to students users, after that the researcher determines the content of the content to be packaged in a system. Based on the data set, then the product design process is carried out. At this stage, the researcher makes an initial product plan for an Android-based educational system and consultation for family planning programs. The design carried out by researchers is to use several journal sources as the content of the material. At the design validation stage, the researcher consulted material experts, media experts, and users after the initial product was completed. This process is used to measure the feasibility of the system. The system developed by the researcher was assessed by several experts, then the product was revised (revised) to produce a system that was ready to be tested on fertile age couples and

cadres to determine the feasibility of this system. The total mean of SIDUTA KB testing conducted by media experts on the usability aspect obtained a percentage ratio of 81.50% with very good criteria, functionality aspect of 85.60% with very good criteria, and 75.20% visual communication aspect with good criteria. The following table summarizes the SIDUTA KB testing by media experts (Table 1).

Table 1. Recapitulation of SIDUTA KB Testing by Media Experts

No	Assessment Aspect	Number of items	Expert Score	Expected score	Percentage Criteria
1	Usability	8	163	200	81.50%
2	Functionality	5	107	125	85.60%
3	Visual Communication	10	188	250	75.20%
Total		23	Average		83.55%

Then at the validation stage, the material expert tests the quality of SIDUTA KB from the design aspect, material content, language and communication aspects. The total mean of SIDUTA KB testing carried out by material experts on the design aspect obtained a percentage ratio of 80.00% with good criteria, 83.33% material content aspects with very good criteria, and language and communication aspects 80.00% with good criteria. The following table summarizes the SIDUTA KB testing by material experts (Table 2).

Table 2. Recapitulation of SIDUTA KB Testing by Material Experts

No	Assessment Aspect	Number of items	Expert Score	Expected score	Percentage Criteria
1	Educational Design	6	72	90	80.00%
2	Contents	6	75	90	83.33%
3	Language and Communication	4	48	60	80.00%
Total		16	Average		81.11%

The SIDUTA KB has been successfully created and has been tested on 73 respondents. Each family planning cadre has 6 respondents and couples of childbearing age (PUS) in the working area of the Miroto Health Center as many as 67 respondents. The number in Miroto Village is 9 respondents or 13.3%, Pekunden Village is 14 respondents or 20%, Karang Kidul Village is 7 respondents or 9.3%, Brumbungan Village is 9 respondents or 12%, Jagalan Village is 19 respondents or 25.3% and Kelurahan Gabahan as many as 15 respondents or 20%. This stage is carried out to determine the feasibility of the media before it is used

for education and consultation. In this trial, cadres and couples of childbearing age (PUS) filled out a questionnaire containing 15 questions that tested usability. In this research, the expected score is 5475 points which is obtained from the maximum score for each aspect of the question multiplied by the number of questions. While the actual score obtained based on testing to the user has a total score of 4748 points. The ratio obtained to determine the eligibility criteria is by dividing the actual score by the expected score and multiplied by 100%. The results obtained based on this ratio are 86.72%. Based on the table of percentage range and qualitative criteria according to Akdon and Riduwan in 2013, the qualitative criteria were very good. The ratio obtained to determine the eligibility criteria is by dividing the actual score by the expected score and multiplied by 100%. The results obtained based on this ratio are 86.72%. Based on the table of percentage range and qualitative criteria according to Akdon and Riduwan in 2013, the qualitative criteria were very good. The ratio obtained to determine the eligibility criteria is by dividing the actual score by the expected score and multiplied by 100%. The results obtained based on this ratio are 86.72%. Based on the table of percentage range and qualitative criteria according to Akdon and Riduwan in 2013, the qualitative criteria were very good.

4. Conclusion

Based on the results of the study, it was concluded that the overall development of SIDUTA KB in the aspects of usability, functionality and visual communication as well as in the aspects of design, content, language and communication aspects can be categorized as very good. Test result SIDUTA KB by media experts is 83.55% with very good criteria, by material experts 81.11% with very good criteria, by 73 users 86.72% with very good category. The SIDUTA KB application product in the form of a website can be accessed via a browser using the address <http://sidutakb.com>. On the website, you can see a variety of available features that can make it easier for contraceptive users to consult with family planning cadres using the WhatsApps API feature, presenting content and application displays that are interesting, informative, and up to date. Some of the available features are as follows: Self Assessment, News, Consulting Facilities and Services, Educational Content, Family Planning Cadre Information, Call Center, and Health Tips Content. SIDUTA KB also has a User Friendly interface so that it is easy for users to understand and use. Therefore,

SIDUTA KB can be used as a medium for education and consultation for family planning programs.

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