

Development of “Alat Bantu Pengambilan Keputusan ber-KB” Application

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ABSTRACT

Women of childbearing age are very vulnerable to having difficulty in determining a proper contraceptive method due to poor knowledge about the safety of these contraceptive methods. Counseling with Decision-Making Aids is an important thing in the provision of family planning services. WHO has developed Decision-Making Tool as a manual family planning decision aid which was adapted by BKKBN and STARH as “Alat Bantu Pengambilan Keputusan ber-KB”. Such tool is made in the form of a booklet with two sides which is still rarely used by midwives when conducting family planning counseling. This study aims to analyze the results of trial on application-based “ABPK” product. This was a study with the Research and Development method. The study population was all midwives who provided family planning services as many as 10 people and Women of Childbearing Age who visited Sukorejo Community Health Center, Pasuruan for family planning service in August–October 2020 as many as 40 people. The samples involved Women of Childbearing Age who met the inclusion criteria selected with total sampling. The study instrument used here was a questionnaire. Data were analyzed using qualitative descriptive analysis technique. The results of the study showed that the developed “ABPK ber-KB” application was considered good and feasible to be used as a counseling media with a value of 86%. In addition, this android-based application medium was relatively easy to use, more interesting, and informative.

Wanita Usia Subur (WUS) sangat rentan mengalami kesulitan menentukan kontrasepsi. Hal ini karena ketidaktahuan tentang keamanan metode kontrasepsi tersebut. Konseling dengan Alat Bantu Pengambilan Keputusan menjadi hal penting dalam pemberian pelayanan KB. WHO telah mengembangkan Decision-Making Tool yang merupakan alat bantu keputusan ber-KB manual, yang diadaptasi oleh BKKBN dan STARH menjadi Alat Bantu Pengambilan Keputusan (ABPK) ber-KB. ABPK berbentuk booklet dengan dua sisi bagian yang masih jarang digunakan oleh Bidan saat melakukan konseling KB. Penelitian ini dilakukan untuk menganalisis hasil uji coba produk “ABPK” berbasis media Aplikasi. Desain penelitian menggunakan metode Research and Development. Populasi penelitian adalah seluruh bidan yang memberikan pelayanan KB sebanyak 10 orang dan WUS yang ingin ber-KB di Puskesmas Sukorejo Pasuruan bulan Agustus–Oktober 2020 sebanyak 40 orang. Sampel adalah bidan dan WUS yang memenuhi kriteria inklusi dengan total sampling. Instrumen penelitian berupa kuesioner. Analisis data dengan teknik analisis deskriptif kualitatif. Hasil penelitian menunjukkan bahwa media Aplikasi “Alat Bantu Pengambilan Keputusan Ber-KB” yang dikembangkan dianggap baik dan layak untuk digunakan sebagai media penyuluhan dengan persentase nilai 86%. Media aplikasi berbasis android ini relatif mudah digunakan, lebih menarik dan lebih informatif.

Introduction

On average, women of childbearing age have difficulty in determining the choice of contraception type. This can be seen from the percentage of active family planning (KB) participants among PUS in 2020 which was only 67.6% (Indonesian Health Profile, 2020). The limited choice of contraceptive methods and lack of knowledge about the safety of each method are the main factors which cause such condition. The other factors to consider are health status, potential side effects, consequences of failure, number of children desired, husband's approval, and cultural values in society. Therefore, counseling using Decision Making Tools as an integral part that is very important in providing family planning services (Saifuddin, 2008).

Quality counseling is one of the determinants of the success of the Family Planning program. Providing complete and accurate information will greatly affect the understanding of prospective acceptors on the family planning method to be chosen. Prospective acceptors are expected to be able to identify their respective health conditions before finally deciding to use one of the family planning methods. Thus, guaranteeing complete information about contraceptive methods is needed in making decision to get contraceptive services (Yusraini, 2012).

Contraceptive method in women of childbearing age needs to be planned early. Counseling regarding the plan to use contraception should be able to provide optimal benefits for prospective acceptors. The effectiveness of this counseling implementation can be increased by using supporting instruments, one of which is the "Alat Bantu Pengambilan Keputusan ber-KB" or further called ABPK. By using the right ABPK, midwives will find it easier to convey correct information according to the conditions of prospective acceptors. And vice versa, the prospective acceptors will also find it easier to understand the information conveyed with the help of images and charts as illustrations. Thus, prospective acceptors and their husbands can understand it better regarding the need for their reproductive rights and can make decisions to use quality contraception (Herlyssa, Mulyati S, Dairi M, 2014).

Counseling is an interactive process of exchanging information between clients and officers which aims to help clients in identifying needs, choosing the best solution and making decisions that are most appropriate to their conditions. Counseling about family planning during pregnancy can meet the contraceptive needs of women after childbirth (BKKBN et al., 2014). The motivation of Couples of Childbearing Age in using contraception right after childbirth can be improved when midwives provide counseling during pregnancy (MoH RI, 2014). Tang et al (2013) published that the use of educational script counseling media about LARC (Long Acting Reversible Contraception) used in North Carolina was not able yet to increase the use of LARC among 6 months postpartum women. Therefore, more systematic use of counseling media is still needed.

The Decision-Making Tool for Family Planning Clients and Providers (DMT) has been developed by WHO as a tool for clients and job aids as well as a manual reference for providers. DMT is effective as a tool for healthcare workers in increasing their understanding regarding Family Planning and assisting clients in making decisions about the use of certain contraceptive methods (Kim and

Muller, 2008). DMT was adapted by the BKKBN and Sustaining Technical Achievements in Reproductive Health (STARH) into a Decision-Making Tool (ABPK) as one of the family planning counseling instruments (BKKBN, 2015).

ABPK contains a lot of clear information about the type of contraception, how to use it, the risks of use, benefits, the side effects and how to overcome them, effectiveness, the possibility of changing methods, and flexibility in use (MoH RI, 2012). Such application also provides a lot of information related to manage clients with special conditions, such as young clients, aged 40 years, postpartum, and HIV. The use of “Alat Bantu Pengambilan Keputusan ber-KB” has also been shown to be effective in increasing KB participation after abortion (Nurchasanah, 2011).

ABPK is a tool that midwives can use during the counseling process for prospective acceptors to determine the type of KB, help solve the problems, provide technical references/info about KB and visual tools for training the new providers (Directorate General of Development of Nutritional and Mother and Child Health, Ministry of Health of the Republic of Indonesia, 2008). So far, ABPK is in the form of a booklet consisting of two parts, namely the front page as the main information for prospective acceptors and the back page which contains more detailed information about the contraceptive method to be explained (Ningrum, 2016). ABPK is easy for midwives to use and contains information in the form of attractive images so that prospective acceptors can easily understand it. However, unfortunately, in providing counseling to Women of Childbearing Age, midwives rarely use ABPK (Lia Nurcahyani, Dyah Widyastuti, 2020). The results of a preliminary study conducted by researchers among 10 midwives who provide family planning services showed that 4 people occasionally used ABPK in Family Planning counseling, and 6 people rarely used ABPK in Family Planning counseling.

Based on the results of the preliminary study, the researchers are intended to develop ABPK in the form of an application that can be installed on a smartphone or computer, so that it can assist midwives in providing Family Planning counseling to Women of Childbearing Age to make the right decisions for proper contraceptive method. The specific objectives of this study were: (1) Exploring potential problems according to the study topic; (2) Collecting data through experts as material for consideration in planning the "Alat Bantu Pengambilan Keputusan ber-KB" application; (3) Designing media requirements for the "Alat Bantu Pengambilan Keputusan ber-KB" application; (4) Validating the design through an assessment on media needs for the "Decision Making Tool for KB" Application; (5) Revising the design after the expert validation on "Alat Bantu Pengambilan Keputusan ber-KB" application and (6) Analyzing the results of product trial on media needs for the “Alat Bantu Pengambilan Keputusan ber-KB” application

Methods

This study applied the Research and Development method. The population in this study involved midwives who provided KB services and Women of Childbearing Age who visited the Sukorejo CHC, Pasuruan for Family Planning Service in August – October 2020. The samples were 10 midwives and

40 women of childbearing age who met the inclusion criteria (planned for contraceptive method and are willing to be respondents), who were selected through total sampling technique. The study instrument used here was a questionnaire and a checklist which contained the subjects and aspects to be observed. The questionnaire was developed by the researchers and had been tested for validity using the Spearman Rank correlation analysis which obtained r of ≥ 0.30 for all question items and reliability using Cronbach's Alpha which obtained r of > 0.60 for all question items. Thus, the study instrument was valid and reliable. Data collection using this instrument was adjusted to the Likert scale type, with the criteria from very positive to very negative with a score of 4-0. The development steps taken by the researchers are illustrated in the following diagram:

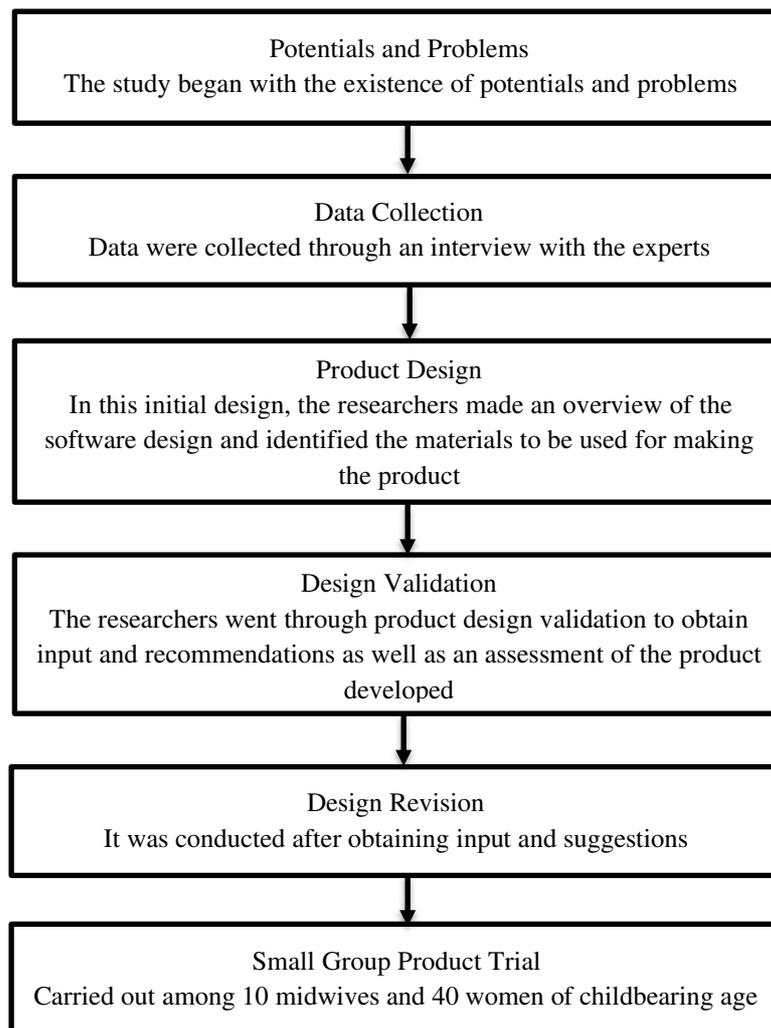


Figure 1. Steps for developing the application

Step 1: Potentials and Problems

This study began with the potential and problems found based on the needs analysis. Researchers conducted a needs analysis by collecting data through books, journals, and magazines. The results of the data collection were analyzed and concluded to design the ABPK application so as to create an application which can provide maximum benefit to users. The results of the data from the interview with the coordinator midwife found that midwives rarely

used ABPK while providing Family Planning services. Moreover, if the family planning services were carried out outside the CHC, the manual APBK was never brought.

Step 2: Data Collection

Data were collected by conducting interviews with the coordinating midwife regarding the use of the existing ABPK and how to use it while providing Family Planning services.

Step 3: Product Design

Product design started from determining the application design. The number of pages from the APBK in the form of application was the same as the Manual ABPK. Therefore, when using the application, midwives no longer need to re-learn the ABPK. Besides can be installed on Android, this application can also be installed on a computer.

Step 4: Design Validation

Application design validation was conducted to obtain criticism and recommendations as well as an assessment of the applications developed by the researchers. Design validation was carried out by experts, namely 1 IT expert and 10 midwives who provided Family Planning services. Based on these criticisms and recommendations, the advantages and disadvantages of applications that have been developed were found and application improvements could be made.

Step 5: Design Revision

Design revisions were made after receiving criticism and recommendations. Researchers revised the application developed based on the results of expert validation.

Step 6: Group App Trial

At this stage, the researchers tested the application on the study subjects of 40 Women of Childbearing Age using a questionnaire as a data collection on the application medium developed. This trial was conducted to find out the limitations and shortcomings of the developed application. This step was carried out after the application trial was conducted on respondents of 40 Women of Childbearing Age who obtained family planning services at Sukorejo CHC. The results were then analyzed to determine the feasibility of the product.

Data Collection Stages:

Activity	Data Collection Technique	Respondent
Preliminary Study	Assessment of data and information through interview	Coordinator Midwife
Expert Validation	Interview regarding product feasibility questionnaire with 1 (one) IT expert and 10 midwives	1 (one) IT expert, and 10 midwives
Small Group Trial	Assessment using questionnaire	40 Women of Childbearing Age who obtained family planning services

Data analysis:

Descriptive qualitative analysis was applied on the study data that described the results of application development in the form of ABPK Application. The results of data analysis were further used as the basis for revising the developed application.

Questionnaire data regarding the responses of women and a team of experts were analyzed using descriptive statistics through the following criteria:

1. Converted the assessment results from qualitative to quantitative data by using a Likert scale.
2. Calculated the average score by using the formula:

$$\bar{x} = \frac{\sum x}{N}$$

Description:

\bar{x} = Mean Score

$\sum x$ = Total Score

N = Number of Respondents

3. Changed the mean score into a qualitative value (Eko Putro Widoyoko, 2009) based on the assessment of the counseling media of “Alat Bantu Pengambilan Keputusan ber-KB” application with a minimum score of B (Good). If the mean value provided by material experts, media experts, midwives, and the responses of Women of Childbearing Age was B, then such application was declared feasible.

Results

This section describes the results of the development of extension media for KB Decision Making Tools based on Research and Development steps.

1. Problems

The stage of needs analysis was conducted by the researchers before developing the ABPK media to find out the existing potentials and problems. The first step was a literature study from books, journals, and the internet to obtain data to be concluded and analyzed as a reference for developing the product. Furthermore, the researchers conducted a field study at the study site (Sukorejo CHC). The researchers conducted interviews with the Coordinator Midwife and several midwives who were responsible for family planning services at the CHC. Based on the results of the interview, it was found that the problem to be considered to develop better counseling was ABPK in the form of application that could be installed on smartphones and computers. In this step, the researchers conducted an assessment through interviews.

2. Information/Data Collection

The researcher further conducted a preliminary study at Sukorejo CHC to collect data and information to be used as material for planning the application. The researchers conducted interviews with the Coordinator Midwife and all the midwives involved to determine the problem of counseling media used in Family Planning services. Based the results of data collection, researchers obtained information that Family Planning counseling services carried out at Sukorejo CHC were still rarely done and still used manual ABPK media. Based on these problems, the researchers created the ABPK application as a counseling medium in providing family Planning services.

3. Product Design

- a. App Design Concept

Researchers compiled a concept map that contained an overview of making applications that had been adapted to the needs analysis. This concept map also contained the limitations of the media that will be made by the researcher. Product design began with determination of application to be made. Researchers design the application in the form of menu buttons and explanations. After the slides and explanations were collected, the researchers combined them using the Apache Cordova application to create the appropriate product design.

b. Media Creation Process

The researchers prepared tools and materials/software to be used to create ABPK applications, such as PCs/Computers with an internet browser installed. The supporting software used was Apache Cordova. Furthermore, researchers produced applications using the software with the help of App Inventor to assist program computers and create software applications, especially for systems based on the Android operating system.

The material used was the same as that on the manual flipchart ABPK in 94 pages containing: an introduction, types of contraception, advantages and disadvantages, side effects, and management of side effects. These materials were made in the form of an application with a menu list as shown below:



Figure 2. List menu of ABPK Application

c. Post Media Creation

This is the step wherein the finished application in the form of an installer/driver was installed on a Smartphone or laptop.

4. Design Validation

Design validation is done to get suggestions and input in making media. The researcher gave an assessment sheet to media experts from the Health Polytechnic of Malang, Department of Applied Health, and material experts from the Malang District Health Office, to see the feasibility of the media from the material and application design aspects. The validation step carried out by the researcher was to visit the experts, namely lecturers of media experts and material experts who were appointed as validators and were asked to assess and provide input on the advantages and disadvantages of the

products developed. The limitation and shortcomings of the developed application were then formulated. Limitations that had been identified were then revised and used as a basis for improvement to produce a better product as expected.

a. Expert Revision

Material Experts:

The finished product was tested by material experts to know whether there were errors in the material or content of animation video in the learning media product. Recommendations obtained by researchers when conducting trial activities with material experts were as follows:

Table 2. Revision obtained from the Material Expert

Revision	Follow-up
Add the list menu	Add the list menu
The material was good, but the interface was too small, and sometimes it's difficult to install	Improve the display, improve the installation process

Media Expert:

The finished product is then tested by media expert so that the researchers know whether there are deficiencies in terms of application, appearance, quality, and product results. This is intended for the use of media to be easily understood by WUS so that they can make appropriate decisions on family planning.

Suggestions received by researchers when conducting product testing activities for media expert are as follows:

Table 3. Revision from the Media Expert

Revision	Follow-up
Text and background lack contrast	Change the background and text color
Should be accompanied by a user manual for the application	Make a reference book/application usage guidelines

The product is repaired after getting input from media experts and asking media experts to assess the effectiveness of the product and validate the product regarding its feasibility to proceed to the next stage.

b. Expert Assessment Results

Material Experts:

The material experts in this study were 10 midwives at Sukorejo CHC who provided family planning services. After viewing and trying the ABPK Application, the following validation results were obtained:

Table 4. Validation Results from the Material Experts

Aspects Assessed	Score	Maximum Score	%	Description
Materials and Learning Objectives	41	55	74.4	Good (Feasible, no revision required)

Based on the results of the validation questionnaire above, a score of 41 was obtained out of total score of 55. It can be concluded that the material for the ABPK Application was in a good category. This is in line with Ketamo's (2010) statement that the media created must adhere to the existing materials and objectives so as to be appropriate with the field under study.

Media Expert:

The media expert in this study was a person from CV. Mount Mas. After seeing and trying the ABPK Application, the following validation results were obtained:

Table 5. Validation Results from the Media Expert

Aspects Assessed	Score	Maximum Score	%	Description
Media Aspect and Media Technique Quality	62	85	72.9 %	Good (Feasible, no revision required)

Based on the results of the validation questionnaire above, a score of 62 was obtained out of total score of 85. It can be concluded that the media material for the ABPK Application was in a good category.

c. Results of the trial of “Alat Bantu Pengambilan Keputusan ber-KB” Application

The use of the ABPK Ber-KB application aims to make it easier for WUS to understand the material presented during counseling. In addition, the benefits for midwives are to be more effective and efficient in the use of media so that they can assist WUS in making decisions regarding the use of contraceptives according to their needs.

Previously, the medium used at the Sukorejo CHC was the manual ABPK in the form of a flipchart consisting of 192 pages. This flipchart is quite large with a size of 24 cm x 31 cm and a weight of about 200 grams. It is perceived of being less effective when carried and is rarely used as a counseling medium for WUS who want to have family planning. Based on these reasons, the researcher made several differences which can be seen in the form and method of use of the media. The old medium (manual ABPK) is still in the form of a flipchart consisting of 192 pages. It is large and heavy with a fairly expensive price, and not all midwives have it. So, it was rarely used when providing family planning counseling. Meanwhile, the new medium is in the form of an application that can be installed on Android or a computer. So, there is no need to carry flipcharts when providing counseling. Family Planning service providers can have it at any time by installing the application.

5. Design Revision

After the media was assessed by media expert and material experts, then the media was revised according to inputs and criticism derived from media expert. Furthermore, the product went to the next step.



Figure 3. Results of application revision

6. Product Trial

At this stage, the researchers conducted a trial of the application to the study subjects, namely 40 Women of Childbearing Age who visited Sukorejo CHC for family planning services in the Sukorejo CHC to determine the limitations and shortcomings of the application. This product trial step was conducted using a questionnaire containing an assessment towards the developed application. Then the researchers used the respondents' assessments as material for the improvement of the developed media. The results of the assessment among Women of Childbearing Age were as follows:

Table 6. Media Feasibility Results by Women of Childbearing Age

Aspect Assessed	Score	Maximum Score	%	Description
Application Quality and Effectiveness among Audiences	47.6	55	86%	Good (Feasible, no revision required)

Discussion

The development of the product of "Decision Making Tool for Family Planning" Application was conducted by researchers using an R&D model. The media development applied Apache Cordova and App Inventor software which refers to the storyboard concept that has been created by the researchers. The existing products could be said to be feasible and was appropriate to be used for the family planning counseling process in the community. The process of developing the "Decision Making Tool for Family Planning" application was carried out through several development stages and validation stages from experts to obtain an animated video counseling media product that was categorized as feasible. This development process went through several stages of material and media tests.

Based on the data obtained in the process of "Alat Bantu Pengambilan Keputusan ber-KB" application development, it can be seen that the product was declared to be feasible for family planning counseling and could help Women of Childbearing Age in understanding the material about family planning. Further, it can assist women in making decisions to choose proper contraceptive method. This can be observed in the data obtained during the content validation process by material and media experts.

Based on the data derived from the test results of the product, "Alat Bantu Pengambilan Keputusan ber-KB" application was said to be valid/feasible by the material experts and could be applied to assess its feasibility in the counseling process. The counseling medium in the form of "Alat Bantu Pengambilan Keputusan ber-KB" application can be said to be valid/feasible regarding the aspect of media technique quality since the test obtained a percentage of 72.9% of the maximum value of 100%.

The assessment provided by material experts regarding the aspects of learning material showed that the medium was in the good category. This can be interpreted that the program objective was achieved. Wina Sanjaya (2013) states that the media used by healthcare workers must be appropriate and directed to achieve the goal of counseling. Media is not used as an entertainment tool, or not solely used to make it easier for extension workers to deliver material, but really to help people learn by the goals to be achieved. This is also supported by the theory of Arsyad, Azhar (2008) that audiovisual is a way of producing or delivering material using mechanical and electronic machines to convey audio and visual messages.

Through the data obtained from media expert, it can be interpreted that the "KB Decision Making Tools" learning application was involved in good category regarding the materials and learning objectives with a percentage of 74.4%. Furthermore, regarding the aspect of program display, it was in a good category with a percentage of 60%. This is in accordance with the theory explained by Omar Hamalik in Arsyad, Azhar (2008) that audio-visual media has characteristics that can attract audience interest. On the other hand, the third aspect regarding the technical quality and effectiveness of the medium, such product was stated to be good with a percentage of 80%. This is in accordance with the theory according to Arsyad (2008) that the techniques used in audio-visual media meet the requirements and are quite satisfactory. These results are based on the reference range of the product category to be assessed as the good category and can be considered appropriate for the feasibility test in the counseling process (Ningrum et al., 2016). It can be concluded that the "Alat Bantu Pengambilan Keputusan ber-KB" application was good in terms of media quality. The display aspect of the program was stated to be good and the effectiveness aspect was stated to be good. Thus, the "Alat Bantu Pengambilan Keputusan ber-KB" application could be declared feasible to be applied in the counseling process.

Based on the data derived from the media feasibility test, the product was found to be feasible. The feasibility test process was conducted during the counseling process towards 45 respondents at Sukorejo CHC with the result of 86% in a very good category. Such finding is in line with the theory proposed by Wina Sanjaya (2013) that audio-visual media can generate motivation and stimulate participants to learn well, the media can generate new desires and interests and the media can control the audience's learning speed.

Based on the description of media feasibility, the media created by the researcher was included in the good category and could be said to be feasible to be applied in the education and counseling process. Respondents agreed that the "Alat Bantu Pengambilan Keputusan ber-KB" application was more interesting than flipchart, not boring, and could add insight into contraception more easily.

The android-based application developed by this research was considered easy to use and effective to deliver education to the public. A study conducted by Nugroho (2011) in Siti Masfiah (2016) reported that health education using audio-visual media tended to be better since video media was more interesting and informative. This statement is also supported by the theory which states that video media can convey factual messages as well as fictional, informative, and educative (Arsyad, Azhar. 2008). Audio-visual media are considered to be able to attract attention, increase knowledge and change one's behavior (Brown H. Douglas, 2014).

Conclusions

Based on data derived from the analysis results, it can be concluded that: (1) The problems encountered included the rarely use of manual ABPK media by midwives when conducting counseling; (2) Data collection was conducted using literature study and field study; (3) The design of the manuscript and product of "Alat Bantu Pengambilan Keputusan Ber-KB" Application had been adjusted to the problems and data obtained; (4) The score of product feasibility was 74.4% with a feasible category; (5)

There was a revision of the media in accordance with the inputs and recommendations given by media experts and material experts; and (6) Based on the results of trials among Women of Childbearing Age, "Alat Bantu Pengambilan Keputusan Ber-KB" application media was developed well and was suitable for use in counseling with a score of 86%.

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