

Application-Based Medical Eligibility Criteria Model of Contraception Use

Haspita Rizki Syurya Handini¹, Lita Angelina Saputri¹ & Yuliva¹

¹ Padang Health Polytechnic of Health Ministry, Indonesia

Correspondence: Haspita Rizki Syurya Handini, Midwifery Department, Padang Health Polytechnic of Health Ministry, Jl. Simp. Pondok Kopi, Nanggalo, Padang, West Sumatera, Indonesia. E-mail: haspitarizki80@gmail.com

Received: September 6, 2019 Accepted: November 28, 2019 Online Published: December 30, 2019

doi:10.5539/gjhs.v12n1p158

URL: <https://doi.org/10.5539/gjhs.v12n1p158>

Abstract

Reproduction health problem including family planning is one of the unresolved issues in MDG's. According to the Indonesia Health and Demography Survey in 2012, the use of modern contraception was only 57.9% and unmet need reached 8.5%. One of the causes of high unmet need and drop out was the limitation of contraceptive services. The use of decision making aids (ABPK) with flip chart form in contraceptive service was seen as less practical. The advance of technology allows the use of applications in various purposes including health services. The purpose of this study was to determine the Application-based Medical Eligibility Criteria Model of Contraceptive Use. This study was research and development (RnD). The population in this study were midwives in independent practice in Padang, with purposive sampling technique. Data were analyzed qualitatively and quantitatively to determine the respondent's level of satisfaction about the application based model. The results showed that most respondents expected the decision making aids to be simple, systematic, not in "back and forth" form and pictures included. The results of the preliminary field testing showed that 56.2% of respondents performed high level of satisfaction about the application-based model. In main product revision, improvements were made by adding information and images about contraceptive methods. This research invent the design of application based medical eligibility model of contraceptive use titled "Application of Clinical Decision Making System of Contraceptive Use".

Keywords: medical eligibility, contraception, application

1. Introduction

Family planning plays a major role in achieving Sustainable Development Goal's (SDG's) including to ensure universal access to sexual and reproductive health. At present, the situation of the family planning program does not show significant progress as indicated by 57,9% modern contraceptive prevalence rate and unmet need reached 8.5% which was initially targeted at only 5% (BPS, BKKBN, Kemenkes and ICF International, 2013). The decline of total fertility rate from 3.0 in 1991 to 2.3 in 2015 was not followed by a significant decrease in unmet need. Unmet need is the unfulfilled contraceptive use need. The condition implies the desire of partner in childbearing age for a type of contraception that is not available, so they make the decision not to use contraception at all (Listyaningsih et al., 2016).

In addition to the problem of unmet need, the incidence of drop out is also a problem in contraception services in Indonesia. Drop out is the cessation of being a family planning acceptor. The number of drop out events in Indonesia increased from 11.46% in 2008 to 15.09% in 2012. The impact of high unmet need and drop out is the increase in population which will have an impact on the level of welfare, quality of education, development and health, thereby reducing the quality of population (BPS, BKKBN, Kemenkes and ICF International, 2013).

One of the causes of high unmet need and drop out is the limitation of contraception services. Quality of service for contraception decision making can affect the rate of contraception use. Health service providers are required to provide information related to the choices of methods, including the benefits and risks, the place of counseling, contraception use services and continuity of services. The quality of information provided to partners in childbearing age really depends on the competency of the service provider (Aini, 2016).

Family planning service and information is an effort key to improve women's health. To improve the access of

qualified family planning services, health providers need to do a variety of strategies, one of them is by carrying out counseling and family planning services based on updated medical eligibility of contraception use. Family planning counseling is very influential in making decisions about the use of contraception methods (Affandi, 2013).

Counseling for prospective family planning acceptors can be optimized by using a tool kit. So far, the aids that usually used is ABPK/ Alat Bantu Pengambilan Keputusan (Decision Making Aids). ABPK is an aid in booklet that is useful for health providers to help client in making decision, solve problems and provide references to family planning methods. However, one of the weaknesses of the ABPK is that it is less practical due to the size that is quite large and heavy, so that if the midwife provides family planning counseling at home, the aid is quite burdensome (Herlyssa & Dairi, 2014).

In 2009 WHO issued a diagram of evaluating the medical eligibility in using contraception as an aid in family planning counseling (WHO Wheel). This aid is very simple and applicable for the use of contraception services. Currently there has been an application based on WHO Wheel. The disadvantage of this aid is that it can only be used as a tool for assessing the medical eligibility of prospective acceptors, but it can not provide information about the types of contraception. For this reason, in its use, WHO Wheel Criteria must still be combined with ABPK for the provision of information. Herlyssa et al. in 2014 shows that there is no difference in effectiveness between the use of ABPK and WHO Wheel Criteria in making decision in post natal contraception use (Herlyssa & Dairi, 2014; Rahim-Ing, 2017).

Development of technology allows the use of applications in various purposes, including in improving the quality of education and public services. Application-based health services provide convenience in giving care for clients. Several methods of screening in the health service have been made using software applications. Tarmodjo in 2018 has made a Nutrition Screening Application Using a Subjective Global Assessment Method based on software to identify individuals who have nutritional problems (Darmojo, 2018). Besides that, Chuzick made a model of breast cancer risk assessment named Tyrer- Chuzick model using a computer program (Cuzick & Brentnall, 2016).

In contraception services there has not been found an application of an aid that contains a complete medical eligibility assessment as well as adequate information about contraception that can be used in family planning counseling. Based on the background above, the researcher was interested in conducting research on the Application-based Medical Eligibility Criteria Model of Contraception Use at Midwives Independent Practice in Padang.

2. Research Method and Material

This study was mixed methods with research and development approach. Research and Development (RnD) is used to produce specific products and test the effectiveness of the product. The population of this study was 26 midwives in independent practice in Padang. Samples were selected by purposive sampling technique with the inclusion criteria, at least have diploma of midwifery level of education, have been carrying out independent practice at least for 5 years and able to give family planning service.

The stages of this study were adapted from the theory of Borg & Gall. Borg and Gall (1983) in Sugiyono (2016) developed eight stages in developing the model, as follows (Sugiyono, 2016):

- a. Research and information collecting, includes the study of literature relating to the problems studied, measurement of needs, small-scale research and preparation to formulate a research framework
- b. Planning, prepares a research plan which includes formulating skills and expertise related to the problem, determining the objectives to be achieved at each stage, design or steps of the research and if possible carrying out a limited feasibility study
- c. Developing preliminary form of product, which is developing the form of the beginning of the product to be produced. This step includes preparation of supporting components, preparing guidelines and manuals, and evaluating the feasibility of supporting tools
- d. Preliminary field testing, which is conducting field trials on a limited scale, involves 6-12 subjects. In this step data collection and analysis can be done by interview, observation or questionnaire
- e. Main product revision, which is making improvements to the initial product produced based on the results of the initial trial.

This study used primary and secondary data. Qualitative data was the data obtained through field studies conducted to explore problems in order to gather information for drafting a model, while the quantitative data was obtained for finding out the effectiveness of the model through preliminary field testing with pre experimental

study design. The method of data collection was by interviewing and filling out questionnaires. The data of this study were analyzed using qualitative and quantitative technique. Qualitative data analysis was carried out through a process of reduction, data presentation and conclusion. Quantitative data was analyzed from a descriptive way by using the formula:

$$K = \frac{\sum ni}{N} X$$

Information:

K: Percentage of scores obtained;

$\sum ni$: Number of scores obtained;

N: Maximum number of scores.

3. Results

a. Plan of application-based medical eligibility criteria model.

Based on preliminary observation and interview with midwives who carried out contraceptive services, the results of the identification of the problem were that more than half midwives provide independent practice in midwifery services including family planning services for more than 20 years. Communication, information and education (KIE) for contraceptive services was carried out starting from the third trimester, according to the client's condition and the contraceptive services provided with the average time for KIE for one client was 10-15 minutes. Midwives used an aid/ flipchart instruments while doing KIE. KIE activities so far have been optimal but sometimes there were still limited time in giving KIE. Factors that have caused KIE contraceptive services not optimal were the client's trust in a contraception method, limited time, lack of client knowledge about family planning and the lack of husband's participation.

Respondents also considered that the aids in KIE is very important. Existing KIE aids were considered optimal and have accommodated all information and screening for contraception use but they should be brief and explained in more detail to clients. KIE should be carried out in accordance with family planning service standard and use aids such as ABPK and give family planning decisions to clients. The expected KIE aid is short, systematic, not in "back and forth" form and pictures included.

Based on the results of the identification of the problem, the application of decision making in contraception use was expected to be able to accommodate all the problems and assist midwives in conducting screening so as to reduce side effects and drop out rates.

b. Preliminary product of application-based based medical eligibility criteria model for contraception use.

The application was based on WHO medical eligibility diagram in contraception use of 2nd edition issued in 2017. This application was named "Clinical Decision Making System of Contraception Use". This application was expected to be able to complete contraception services carried out by midwives to support quality services and in accordance with client conditions. It was also expected to be able to provide recommendations to midwives on contraception methods that can be chosen according to the client's current medical conditions based on the results of the screening.

The current medical history and health conditions of the client that were assessed in an application-based on medical eligibility in contraceptive use from WHO are:

- 1) History of venous thromboembolism
- 2) History of having pelvic inflammatory disease
- 3) Is client nullipara?
- 4) Is client aged <18 years old?
- 5) Is client in postpartum and breastfeeding <6 weeks?
- 6) Is client in postpartum and breastfeeding 6 weeks to 6 months?
- 7) Does client have headaches not migraines?
- 8) Does client have migraine headaches?
- 9) Does client smoke and aged <35 years?
- 10) Do client smoke and aged > 35 years?

- 11) Is client obese (BMI ≥ 30)?
- 12) Does client have hypertension 140-159 / 90-99 mmHg?
- 13) Does client have hypertension ≥ 160 / ≥100 mmHg?
- 14) Does client have unexplained vaginal bleeding?
- 15) Does client have a uterine myoma?
- 16) Does client suffer from sexually transmitted infections?
- 17) Does client suffer from pelvic inflammatory disease?
- 18) Does client suffer from sepsis?
- 19) Does the client suffer from cervical cancer?
- 20) Does client have breast cancer?
- 21) Does client suffer from a liver tumor?
- 22) Does client suffer from hepatitis?
- 23) Does the client suffer from venous thromboembolism
- 24) Do clients have varicose veins
- 25) Does the client suffer from a stroke
- 26) Does the client suffer from ischemic heart disease
- 27) Does the client have diabetes
- 28) Does client suffer from HIV
- 29) Does client consume drugs that interact with antibiotics
- 30) Does client consume drugs that interact with rifampicin and anticonvulsants

All history and client conditions are combined to make basic formula using Microsoft Excel which displays available contraception that can be used in certain medical conditions. This application will show contraception choices that can be used for clients with several medical conditions so it can make contraception use saver, does not cause side effects and reduce the drop out rate. The application also considers the purpose of contraception use such as to postpone, place or stop pregnancy.

The initial design of this application used an excel program based on medical criteria from WHO. Every medical condition was coded with contraception choices that is permissible. Excel formula which was the basis for making applications can be seen in the picture below:

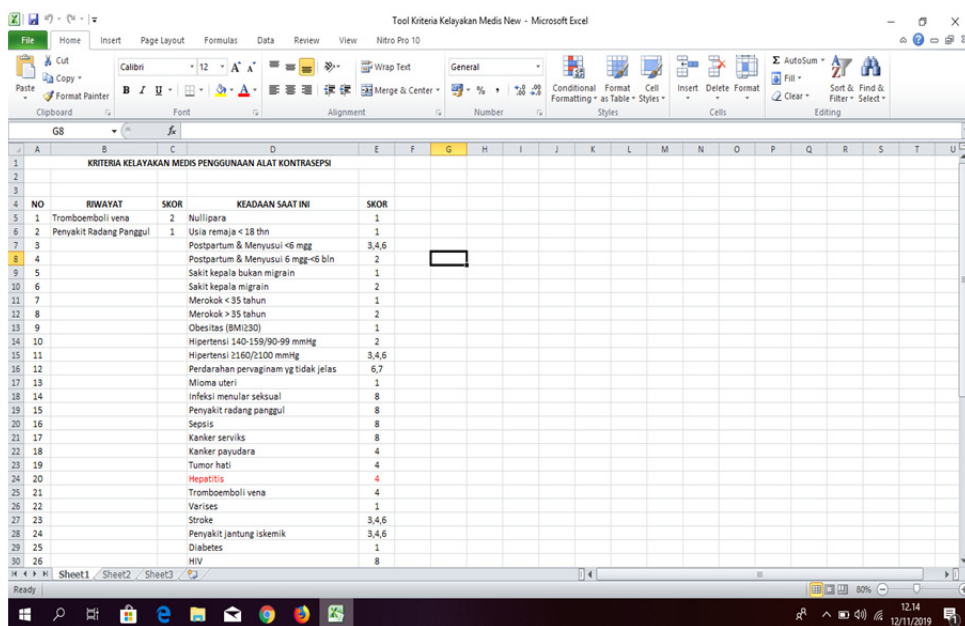


Figure 1. Formula excel of application

c. Preliminary field testing application-based medical eligibility criteria model of contraception use

At this step, the researcher carried out an application trial at the preliminary stage. At this stage, the researcher involved 16 independent midwives who had carried out independent practices for at least 5 years, had a minimum education level of Diploma Midwifery and provided contraception services. After explaining the purpose and the procedure of the study, respondents were asked to fill out and sign an informed consent. Then the respondent were sent the application link via WhatsApp with the link: https://drive.google.com/file/d/1qEwtiVaGFv2sT_mYc9mODsePzYGuhfaG/view?usp=sharing

The application was downloaded using Google Drive. After downloading, an icon will appear on the Android screen as follow:

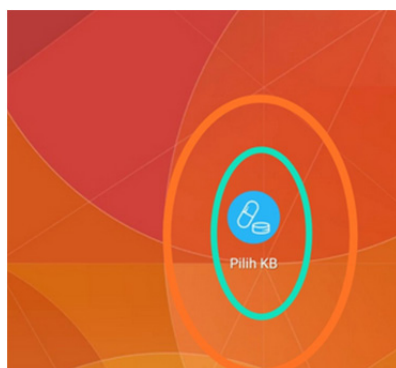


Figure 2. Early display of application

The downloaded application contains several questions that must be filled about the purpose of family planning and the health conditions of prospective family planning acceptors. Respondents were asked to use the application in giving counseling to prospective contraception acceptors, then respondents were asked to fill out questionnaires related to the satisfaction of using the application.

The questionnaire consists of closed and opened questions / statements. The closed statements were then analyzed, with the results 56.2% of respondents had high level of satisfaction to clinical decision making system application of contraception use and the average value was 9 (in range of 0-10).

Based on opened questions about the impression of using the application, it can be concluded that all respondents said that this aid was very suitable to use for prospective contraception acceptors and all respondents strongly agreed to use this application in daily practice. This can be seen in the following table of information:

Informant 4	Informant 5	Informant 10	Informant 11
This application is good and easy to use in helping client to make decision	It is very easy and appropriate to give KIE to new acceptors	I strongly agree because it makes it easy to determine what contraception is suitable for client	This application is very simple and very helpful for my job in contraception service

For the question “what do you think if this application is then used as an aid in contraception communication, information an education?”, all respondents answered agree.

Informant 3	Informant 8	Informant 12	Informant 16
Strongly agree because it gives much benefits in time , effective and efficient for the provider	Agree	Agree	Strongly agree

For the question “what is your suggestion for improving this application for the future?”, Most respondents answered that it should add more information about family planning in this application to be more complete.

Informant 6	Informant 13	Informant 14	Informant 16
More information about family planning is added	Nothing, because this is already good	This application should be socialized with all health provider because it relates to clinical decision making	If possible, information should be given pictures

d. The main product revision application-based medical eligibility criteria model of contraception use

Based on main product field testing, the product revision was done according to the input from the respondent, while the revisions made are related to information about the choices of contraception, which is equipped with advantages and disadvantages accompanied by product images.

4. Discussion

a. Preliminary Field Trial (Preliminary Field Testing)

Decision support system is a computer based information system that produces various alternative decisions to help management in handling various structured or unstructured problems by using data or models (Pratiwi, 2016). One certain thing in decision support system is that if the process is complicated and complex which needs high precision in calculation, so it would be difficult to do without a tool (computer system with analysis ability, data storage and quick process). Therefore, the decision support system possibly should be a computer based system. The system will compile useful information from raw data, knowledge documents and/ or personal business models to identify and solve problems and suggest appropriate decisions (Utama, 2017).

This result is consistent with Rosalina et al on the Development of Android-based Family Planning Mobile Device Applications by Implementing User Centered Design, in which the application has a level of satisfaction in a good context. Based on the analysis of answers to opened questions about the application of contraception use clinical decision-making systems, all respondents gave the impression that this application was easy, effective, efficient and practical and the respondents agreed if this application was used as an aid in Contraception Education Information and Communication (Rosalina, Brata, & Fanani, 2018).

Decision support systems are useful for (Pratiwi, 2016):

- 1) Helping client to make decisions to solve semi- structured problems.
- 2) Supporting assessment.
- 3) Improving the effectiveness of decision making.

Decision support system is a combination of human and computer expertise that is useful for supporting clinical decision making.

There are still respondents who are not satisfied with the application because there are still respondents who say they have not been able to use this application maximally and feel that the information about contraception provided is incomplete.

b. Main product revision (main product revision)

The main product improvements carried out on the application of clinical decision making systems for contraception use are related to the information about contraception choices. In the revision, the advantages and disadvantages of each contraception were added, the effectiveness of each contraception device, and the mechanism and the side effects of each contraception device.

This application is expected to improve the family planning service. By improving the quality of family planning services, the potential to increase its uptake, and the consequent positive impact on women's reproductive health is enhanced (Cleland et al., 2012).

5. Conclusion and Recommendation

Preliminary study on midwives who provide contraception services results that there is a need for a model of medical eligibility criteria for contraception use that is application based. The preliminary product model of the medical eligibility criteria for contraception use was a debug application with the title "Clinical Decision Making System for the Contraception Use". The results of the preliminary product field testing shows that 56.2% of respondents have a high level of satisfaction with the application and the average rate is 9 (scale 0-10). Main product revision of the application-based medical eligibility criteria model of contraception use was carried out in accordance with the input from the respondents, where there were an additional information and pictures about contraception.

The result of this study is expected to be used as a reference, and can be continued into the stage of main product field testing and operational product revision. This application can also be considered as an aid in clinical decision making of contraception use as an effort in improving quality of midwifery service.

References

- Affandi, B. (2013). *Buku Panduan Praktis Pelayanan Kontrasepsi*. Pt Bina Pustaka Sarwono Prawirohardjo.
- Aini, A. N. (2016). *Faktor-faktor yang berhubungan dengan kejadian drop out akseptor KB di Kecamatan Tembalang Kota Semarang*. Retrieved from <https://ejournal3.undip.ac.id/index.php/jkm>
- BPS, BKKBN, Kemenkes and ICF International. (2013). *Indonesia Demographic and Health Survey 2012 Statistics Indonesia*. Jakarta: BPS, BKKBN, Kemenkes and ICF International; 2013.
- Cleland, J., Conde-Agudelo, A., Peterson, H., et al. (2012). Contraception and health. *Lancet*, 380. [https://doi.org/10.1016/S0140-6736\(12\)60609-6](https://doi.org/10.1016/S0140-6736(12)60609-6)
- Cuzick, J., & Brentnall, A. (2016). *Breast Cancer Risk*. Retrieved from <http://www.ems-trials.org>
- Darmojo, R. T. (2018). *Aplikasi Screening Gizi Menggunakan Metode*. Retrieved from <http://eprints.ums.ac.id/>
- Herlyssa, M. S., & Dairi, M. P. (2014). WHO WHEEL CRITERIA dan Alat Bantu Pengambilan Keputusan (ABPK) Dalam Pemilihan Kontrasepsi. *J Ilmu dan Teknol Kesehat [Internet]*, 2, 9-18. Retrieved from <http://ejurnal.poltekkesjakarta3.ac.id/index.php/jitek/article/view/113>
- Listyaningsih, U., Satiti, S., Geografi, F., Mada, U. G., Studi, P., & Mada, U. G. (2016). Unmet Need : Konsep Yang Masih Perlu Diperdebatkan. *Populasi [Internet]*, 24, 72-90. <https://doi.org/10.22146/jp.23696>
- Pratiwi, H. (2016). *Buku Ajar Sistem Pendukung Keputusan*. Sistem Pendukung Keputusan.
- Rahim-Ing, AKD, AKDR, T., Kali, P., & Darurat, K. (2017). *Diagram Lingkaran Kriteria Kelayakan Medis Dalam Penggunaan Kontrasepsi WHO Edisi 2*. WHO, Kemenkes, BKKBN, IDI, IBI; 2017.
- Rosalina, L., Brata, A. H., & Fanani, L. (2018). Pembangunan Aplikasi Perangkat Bergerak Program KB Berbasis Android Dengan Menerapkan User Centered Design. 2018;2(12):6915–21. vc
- Sugiyono. (2016). *Metode Penelitian dan Pengembangan (Research and Development/R&D)*. Bandung: Alfabeta.
- Utama, D. N. (2017). *Sistem Penunjang Keputusan*. Yogyakarta: Penerbit Garudhawaca.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).