

Article

Qualitative Study: The Diffusion Innovation Theory to Long Term Reversible Contraception Method Selection in High Risk Women, Malang District.

Linda R. Wati, Kunawati T. Dewi², Erdiana D. Putri³

¹Department of Midwifery, Faculty of Medicine, Brawijaya University, East Java, Indonesia

²Department of Midwifery, Faculty of Medicine, Brawijaya University, East Java, Indonesia

³Department of Midwifery, Faculty of Medicine, Brawijaya University, East Java, Indonesia

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CORRESPONDENCE

Phone: 085708009696

E-mail: linda.ratna@ub.ac.id

A B S T R A C T

Research objective: Long-term reversible contraceptive method (LTRC) is the most effective form of contraception but women prefer lesser effective method. In this study we explored whether women of reproductive age will accept or reject LTRC as their contraceptive innovation, and how their perceptions on the innovation's attributes influence their decision in choosing LTRC. Design, participants, interventions, and outcomes: The research design used was a qualitative descriptive study with high-risk reproductive women who were over 35 years old (16 people) spread over 4 health centers (*puskesmas*) as participants. Data collection was done by using focus group discussion. The results were analyzed using thematic content analysis.

Result: Data analysis revealed that there were 2 subgroups of participants based on their tendency to use LTRC: positive (n 6) and negative (n 10). Most of the participants were aware of the advantages of long-term reversible contraceptive methods. They get information from health workers, the media and other people's experiences. They think that both IUD and implants have a high complexity / difficulty, especially the IUD. The characteristics of innovation in the form of relative advantage, compatibility, complexity, trialability and ease of observation greatly influence the decision to choose a long-term reversible contraceptive method. Most of the participants refused to try using the LTRC because it was too risky to try and too complicated to use.

Conclusion: Most women are still hesitant to choose LTRC as a contraceptive, especially intrauterine contraceptives. They need more information about the advantages of LTRC.

I. INTRODUCTION

Indonesia is the fourth most populous country in the world, since the results of the estimated population in 2014 amounted to 252,124,458 people, consisting of 126,921,864 male residents and 125,202,594 female residents. If it is seen at the increase in population in the last 4 years which has continued to increase rapidly, it is necessary to regulate policies and limit the number of births through the Family Planning Program (which then abbreviated as *KB*) (Ministry of Health, 2014). One of the efforts made for birth control is by providing information, counseling and contraceptive method services. Long-term reversible contraceptive method is the most effective contraceptive method for preventing pregnancy, however the use is still very low. Based on data from the Indonesian Health Profile Report in 2017 by the Ministry of Health, the most contraceptive methods used is injection (62.77%) and pills (17.24%), while for long-term contraceptive methods is intra uterine device (IUD) (7, 15%) and implants (6.99%). Data collected from the *BKKBN* of East Java in 2015, the use of injection contraceptives reached 443,110 (59.49%), the contraceptive pills were 156,384 (20.99%), implants were 63,918 (8.58%), condoms were 22,748 (3.05%). IUD was as much as 45,809 (6.15%), and *MOW* was as much as 12,864 (1.72%).

The characteristics of the contraceptive method chosen evidently have an influence on the choice of contraception. Some characteristics such as the benefits it gives, low cost and simple procedures will increase the interest of women of reproductive age to use the contraceptive method. Previous research on the application of the diffusion theory of innovation on adolescents' perceptions of using long-term reversible contraception conducted in the UK, showed that adolescents get inadequate information about long-term contraception through various different sources. Thus, they tend to have perceptions that prevent them from choosing this method. Adolescents need more adequate information about the advantages of using the contraceptive method and must involve their partners in either counseling and selecting (Murphy, 2017).

Based on the aforementioned conditions, the researchers are interested in knowing how the characteristics of innovation, the characteristics of long-term reversible contraception, influence the intention of women of reproductive age to choose or not to choose the method. This was done by using the innovation diffusion framework developed by Rogers.

II. METHODS

This study used qualitative descriptive design, which describes the characteristics of the participants and innovation as well as the level of acceptance of the participant to the long-term reversible contraceptive method (IUD and implants). The population was women of reproductive age in high-risk groups in the District Health Office of Malang Regency. Each *Puskesmas* (Community health center) was represented by 4 participants, so that the total participants were 16 people. The sampling technique used was purposive sampling, with predetermined participant criteria. The data collection method was carried out by using focus group discussion (FGD) recorded with an audio recorder for 1 hour at each *puskesmas*. FGD was conducted 2 times. The data analysis used thematic content analysis

III. RESULT

Participants Categories

All of the participants were women over 35 years of age and had given birth more than 3 times. They have never applied a long-term reversible contraceptive method as illustrated in Table 1. The identification results show that most informants were within the age range of 40-45 years (62.50%) and have secondary education (62.5%) on the average. For their socioeconomic status, mostly they were middle class, with an income of 1.5-2 million / month (50%). The pregnancy interval was quite balanced between <2 years and > 2 years. The number of births or the majority of parity was in grand multiparous, that are those who have more than 4 children (68.75%)

Table 1. Participant characteristics

Characteristics	N	%
Age group		
• 35-40 yo	6	37,50%
• 41-45 yo	10	62,50%
Education Level		
• Low	3	18,75%
• Middle	10	62,50%
• High	3	18,75%
Economic Level		
• < 1,5 million/month	4	25%
• 1,5-2,5 million/month	8	50%
• >2,5-3,5 million/month	2	12,25%
• >3,5 million/month	2	12,25%
Birth spacing		
• < 2 years	8	50%
• > 2 years	8	50%
Parity		
• Multiparous	5	31,25%
• Grand multiparous	11	68,75%
Contraceptive use		
• Pills		25%
• Injection (1 month)	4	25%
• Injection (3 month)	4	50%
The Length of Contraceptive Use		
• > 3 years	2	12,25%
• 3-5 years	10	62,50%
• > 5 years	4	25%

Focus group discussion 1

In the first FGD, several aspects that explored specific knowledge of long-term reversible contraceptives, IUDs and implants, were discussed. Of the 16 informants, there were only some of them who were aware of the LTRC's effectiveness, advantages and disadvantages, contraindications, how to use and costs:

"I heard that it can last a long time...., well maybe until 3 or 5 years, if I'm not mistaken, I don't know how much it costs..."

(AK, 41 yo, *PuskesmasTuren*)

"The midwife said it was more effective, some were free too, but I'm afraid ..."

(RW, 40 yo, *PuskesmasKepanjen*)

"I don't know, i heard that it lasts (longer and) we don't need to replace it, (maybe it is) expensive, maybe because it can be used for a long time, but... I'm afraid (when it is inserted in my body) ..."

(I, 42 yo, *PuskesmasSingosari*)

Most of the informants stated that the reason they did not use the contraceptive method was because of fear. Particularly, they were afraid the process of insertion within their body since (they might believe that) it might be complicated and painful.

"I am afraid only by imagining (how it is inserted in my boy). Thus, we don't want to do it (inserting the LTRC)"

(L, 41 yo, *PuskesmasSingosari*)

"(I heard that they are) tearing my body, it makes me afraid, (and) the other one (IUD) is inserted in here (vagina), I am afraid"

(M, 43 yo, *PuskesmasKetawang*)

"Cost is not the big deal, besides it's free at the *puskesmas*, but you know it feels horrid?"

(J, 41 yo, *PuskesmasTuren*)

According to most informants, they do not have a culture or belief that prohibits using contraceptive methods, either implants or IUDs. There are no cultural and religious beliefs that prevent them from choosing this contraceptive method

Focus group discussion 2

In the second FGD, a discussion was held about participants' perceptions and understandings regarding: 1). Relative advantages of IUD and implant contraceptive methods, 2) compatibility of IUD and implant contraceptive methods. 3) the complexity of the IUD and implant contraceptive method. 4) ability to try IUD and implant contraceptive methods, 5) ease of observation of IUD and implant contraceptive methods, 6) Selection of IUD and implant contraceptive methods.

Relative advantage

Most of the informants knew the IUD and implant contraceptive methods advantages and gave their positive appraisal of the advantages of the two contraceptive methods:

"The side effects are not making us fat, having low cost, long-term, and we should never be afraid of being forget such as injections, then it doesn't cause high blood pressure ..."

(LM, 41 yo, *PuskesmasKepanjen*)

"it can be used for a long time, no need to be regularly injected, it's more effective and it doesn't make me fat unlike when I use injection."

(J, 41 yo, *PuskesmasTuren*)

"What I know is that I can still get my period regularly, it can be used for long time, and it is more effective"

(TU, 38 yo, *PuskesmasSingosari*)

Beside the advantages of the IUD contraceptive method, most of the participants also understood the advantages of using implants.

Compatibility

Compatibility is the opinion expressed by women of reproductive age about the suitability of using IUD / implant contraceptives. Most of the respondents think that they fit well when using the implant, but for the IUD some informants were still confused about whether it is right for them to use IUD since they had checked their condition to the doctor first:

"It seems that implants suit me better, because I often get pre-menstrual syndrome such as stomachache, I heard that the pain will worsen if I use IUD"

(L, 41 yo, *PuskesmasSingosari*)

"I don't know whether IUD suits me because I haven't checked my condition (to the doctor), but I think implant, thank God suits my condition based on the previous explanation"

(AK, 38 yo, *PuskesmasTuren*)

Complexity

From the results of the discussion, most informants thought that using IUD was more complex than using implants, this made the informants hesitant to choose the IUD:

"I am afraid, (I heard) I will feel the pain during the installation. Moreover, I have a neighbor who also uses an IUD, after a few months, she said that she feels pain whenever she got her period. After she checked (her condition) it turned out that she can't find the (IUD) thread. She was being taken to the doctor, the doctor said that her IUD was getting deeper into her uterus. I am so scared (after listening to my neighbor's story)"

(L, 41 yo, *PuskesmasSingosari*)

"The installation took a long time and I am scared. It is different from injection. I only need to come and get injected and it only take 5 minutes. So simple. (I heard that) Installing IUD / implant will make me feel the pain, because it needs tools, and I heard that I must be anesthetized first. It is so scary"

(S, 43 yo, *PuskesmasTuren*)

"The installation is more complicated compared to the injectable one that I am using. I am also afraid that if I install the IUD the thread will hit my husband ('s penis) during the intercourse, it seems that the IUD will be even more difficult "

(R, 44 yo, *PuskesmasKetawang*)

"They're both complicated, they take long time (for the installation), then they (the medical workers) will put the tools (into my body), I should be anesthetized and my skin would be cut, oh this makes me terrified. I am a coward even I can't open my eyes wide whenever I am injected.

(RW, 40 yo, *PuskesmasKepanjen*)

The Trialability

All informants agreed that it is very difficult for IUDs and implants to be tried out before making sure to use (one of) them continuously. According to all informants, these contraceptive methods cannot be tried out, because of the complexity of the procedure and the pain it causes. When someone wish to use one of them, that is the only time it can be installed. It is unlike other contraceptive methods that can be tested first. Such as the pill, when someone feels appropriate and it does not cause side effects, that person can continue to use it.

According to a small number of participants trying out using the LTRC requires a lot of courage because of the procedure:

"Both are impossible to be tried out, someone can just use it only if she wants to try it"

(RW, 40 yo, *PuskesmasKepanjen*)

"I don't dare (to try it), they both need my body be cut. It makes me more afraid "

(RH, 42 yo, *PuskesmasKetawang*)

"It's not like an injection, you can try injection for a month. Then if it doesn't fit your body, you can stop using it. It only needs a single shot. These LTRC is scary. I am afraid that it doesn't fit my condition. It will give disadvantages because of the pain and the cost"

(SS 43 yo, *PuskesmasTuren*)

Participants in all FGD groups shared their history of trying and stopping various contraceptive methods because of unwanted side effects. Besides, the most burdensome is the long term of using this method, its invasive action, and the reliance on a healthcare provider for inserting and removing it. Therefore, trying LTRC requires a greater commitment than other methods.

The Ease of Observation

Most of the participants stated that the implant is easier to observe when compared to the IUD. An implant that is inserted in the arm is easier to feel than an IUD that is in the uterus:

"It seems nice to implant, just touch it in the arm, you don't need to go inside (the vagina), if you feel the tool, it means the position is safe. "

(AK, 38 yo, *PuskesmasTuren*)

"The spiral one (IUD) is a bit difficult, you have to touch the threads, I am afraid that the needle will be pulled out when I insert my finger inside my vagina... And I know that it's dangerous ..."

(N, 36 yo, *PuskesmasKetawang*)

"Implant is easy to check because they are outside"

(S, 38 yo, *PuskesmasTuren*)

For a small number of participants, it is quite difficult to imagine how to check the IUD or implant, they do not have any knowledge of what the correct result is or which position is the right one, of the two contraceptive methods. By merely touching or inserting a finger into the genitals is not sufficient to state that the contraceptive device is in the right position and that there will be no problems occur.

The Selection of IUDs and implants

After understanding about all advantages, complexity, ease of observation, the trialability and the suitability. Some of the participants decided that they would try to use a long-term

contraceptive method, especially the one that were mostly chosen, implants. On the other hand, some other informants still choose the old contraceptive method. They stated that they did not want to take the risk of changing the contraceptive method that had been used for a long time. The fear of incompatibility and side effects is one of the things they consider, apart from the complexity and pain due to the insertion procedure:

"I think I am interested in using the implant. Since there is no need to insert a device in the uterus and I think, even if I am anesthetized. I might not feel hurt so much.

(S, 37 yo, *Puskesmas Singosari*)

"For me, I tend to get implants, I think it is not too scary since it is only my arm that is being anesthetized.

(N, 36 yo, *Puskesmas Ketawang*)

"I haven't been interested. Because (I think) it's good to use injections and I have no problem with it..."

(RW, 40 yo, *Puskesmas Kepanjen*)

IV. DISCUSSION

Relative advantage is the degree to which a new idea is considered a better one than existing ideas. Relative profit rates are often expressed in terms of economic benefits. But the dimensions of relative advantage can also be measured in other ways (Rogers, 1983). Besides being able to be measured by economic benefits, relative benefits can also be examined through the extent of savings, or security, or their effect on the social position that the communicant will accept as an adopter (Levis, 1995 in Murphy, 2017).

Based on the result of the study, most of the informants knew the IUD and implant contraceptive methods advantages and gave their positive appraisal of the advantages of the two contraceptive methods. IUDs and implants have advantages over other contraceptive methods. IUDs and implants are highly effective in preventing pregnancy. The effectiveness of IUD is about 97% in preventing pregnancy (Prawiroharjo, 2012). In addition, IUDs and implants have a fairly long period that is around 3-8 years, and can quickly restore fertility. This good knowledge was obtained from the amount of information that participants had about the LTRC contraceptive method, from health workers, the media and their friends. There is a significant influence between the level of education, information and support from the social environment on the use of modern contraceptives (Alo, et al, 2020).

Positive profit characteristics will increase the likelihood of adoption of an innovation. In this study, respondents have a positive opinion of the benefits of the IUD and implants. However of course the participants also understand about the disadvantages of these two contraceptive methods. According to the informant, the advantages are more on the long usage period and its high effectiveness. A research conducted by Murphy in 2017 stated that all participants were aware of several contraceptive options available to them and none of the participants indicated that LARC (Long-Acting Reversible Contraception) was entirely good or completely bad.

Compatibility is the extent to which an innovation is considered consistent with existing values, past experiences, and the needs of the recipient (Rogers, 1983). An innovation can be compatible or incompatible (1) with sociocultural values and beliefs, (2) with previously introduced values, (3) with the recipient's need for innovation (Rogers, 1983). Many illustrations show that innovation that is not compatible with the values and norms prevailing in society will be very difficult to accept.

Most of the informants think that they fit well when using the implant, but for the IUD some informants were still confused about whether it is right for them to use IUD since they had checked their condition to the doctor first and what makes them hesitate was the pain during its insertion. The results show that there are serious concerns about fertility and pain in the future when inserting LARC (Murphy, et. Al, 2017). A small proportion of informants felt that they were not suitable for using IUD contraception and implants and felt that they were much suitable for using the contraception that had been used. This is in accordance with the results of Murphy's study (2017) that LARC is not in accordance with their desire to avoid the inconvenience of obtaining a contraceptive and their belief that having a foreign object in their body is dangerous.

In general, people are not or less interested in complicated matters, because in addition to being difficult to understand, they also tend to be seen as new additional burdens. From the results of the discussion, most informants thought that using IUD was more complex than using implants, this made the informants hesitant to choose the IUD. A small proportion of informants had other people's negative experiences with the IUD which increased their opinion on the difficulty of using this contraceptive method. In addition, there is also pain that will be felt when installing either IUD or implant. This makes most of the informants feel that this method is quite complicated. In accordance with the results of other studies, it was stated that participants in all groups were concerned to varying degrees on the complexity of obtaining the LARC method associated with the method and by whom it can be done, as well as the pain and discomfort associated with inserting a device into the body. In addition, they have heard the scary story about LARC.

Trialability is the degree to which an innovation can be tried on a small scale (Rogers, 1983). Ideas that can be tried out are usually adopted sooner than innovations that cannot be tried out first. An innovation that can be tried out will reduce the risk for adopters. All informants agreed that it is very difficult for IUDs and implants to be tried out before making sure to use (one of) them continuously.

According to all informants, these contraceptive methods cannot be tried out, because of the complexity of the procedure and the pain it causes. When someone wish to use one of them, that is the only time it can be installed. This is consistent with the results of other studies that its invasive procedure, and reliance on health care providers for insertion and removal led participants to believe that trying LARC requires greater commitment than other methods of contraception. Trying out this method is a long process that should be done more carefully and requires more preparation than other methods (Murphy, et. al, 2017).

Based on the results of the discussion about the perception of the ease of examination of IUD / implant contraceptives after use, most stated that implants were easier to observe compared to IUDs. Perhaps the perceived ease is because the implant is placed in an area of the body that is easy to see. This is in line with the research conducted by Aldila in 2019 which stated that one of the causes of more implant contraceptive methods used compared to IUDs in East Nusa Tenggara is the ease of observation of implants, where family planning participants just need to touch their arms.

Based on the result of the study, some of the informants decided that they contraceptive would try to use a long-term contraceptive method, especially the one that were mostly chosen, implants. On the other hand, some other informants still choose the old contraceptive method. This shows that in making the decision to adopt a new innovation, many factors can influence and be considered. They are the characteristics of the innovation itself, which in this study are the characteristics of relative advantage, complexity, compatibility, trialability, and ease of observation.

Although some informants already knew the relative advantages of long-term contraceptive methods, either IUDs or implants, they did not completely decide to choose one of their contraception. It means that just knowing and understanding the advantages of an innovation, does not guarantee that prospective adopters will choose the innovation. The second is related to compatibility, the results of the study show that most informants think that they are more comfortable in using the implant contraceptive method instead of the IUD. This is inseparable from the physical condition they have, the values and beliefs that are held and believed in relation to a contraceptive method and the ability to assess the appropriateness of a method.

Besides, it is also influenced by the characteristics of the complexity and the trialability, which both of these methods have a high level of complexity in the installation procedure. Both of these methods are also quite difficult to test, so that this affects the selection decision. This is consistent with research conducted by Murphy et al. that in order to actively plan for LARC deployment, we need to understand where the process of innovative decision making, the movement towards innovation adoption are messed. The results of this study indicate that the difficulty and uncertainty created in trying LARC is when participants decide to reject LARC, especially if they believe their contraceptive needs are adequately met with other methods. Therefore, the relative disadvantages of LARC compared to other methods is that LARC can be limitedly tried out, especially the IUD (Murphy, 2017).

V. CONCLUSION

The results of this study indicate that most of the participants are aware of the advantages of long-term reversible contraceptive methods. They get information from health workers, the media and other people's experiences. However, despite having good knowledge on the benefits of this method, it did not make the participants choose this method as their contraception.

Most of the informants think that implant will suit them better rather than IUDs. They feel that both IUD and implants have a high complexity / difficulty, especially the IUD. The characteristics of innovation in the form of relative advantage, compatibility, complexity, trialability and ease of observation greatly influence the decision to choose a long-term reversible contraceptive method, especially on the characteristics of complexity and observation ability.

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BIOGRAPHY

First Author

Lecturer in midwifery department, medical faculty, Brawijaya University. She is now studying in doctoral program in medical science. She has published 5 international and national publications in the last 5 years. She is interested in reproductive health, pregnancy, lactation and the environment research. She is an active member of professional associations, AIPKIND and LAMPTKES.

Second Author

Midwifery undergraduate student, department of midwifery, medical faculty, Universitas Brawijaya.

Third Author

Midwifery undergraduate student, department of midwifery, medical faculty, Universitas Brawijaya.