

# Fertility tracking tool for visually impaired and non-visually impaired women: A qualitative study



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## Abstract

**Background:** A natural family planning device, Fertility Tracking Tool (FTT), was developed to serve as a visual and tactile guide in monitoring the fertile and infertile days of the menstrual cycle. However, there is lack of preferences about the tool among visually impaired and non-visually impaired women. Therefore, understanding their viewpoints will provide additional input for the final design of the product.

**Objective:** This study aimed to explore the opinions of potential users of FTT in terms of acceptability, price sensitivity, buying intention, product placement, branding, and packaging.

**Methods:** The study employed a qualitative research design with data gathered from focus group discussions. Eleven FGD sessions were conducted participated by one group of visually impaired and ten groups of non-visually impaired women from Iligan City, Philippines, selected through purposive sampling technique. Semi-structured FGD guide was utilized, and the sessions were audio-recorded. The data were analyzed through thematic analysis.

**Results:** The themes that emerged in the study were “adaptable” with three sub-themes (easy to use, safe to use, and aesthetic), “cost-effective”, “marketable”, “accessibility convenience”, “remarkable brand”, and “complementary packaging”. The study shows that the FTT is acceptable to both visually impaired and non-visually impaired women because it is user-friendly, has no side effects, and has a unique design. The accounts implying less price sensitivity, buying intention, accessibility preferences, notable branding, and auxiliary packaging are indications of the business potential of FTT.

**Conclusion:** This study made a novel contribution to the nursing practice as the FTT is a newly invented device for natural family planning. The strong support from the government is necessary for FTT commercialization or even free distribution to the qualified users, not only in the research locale but extending the nationwide. The extensive FTT use may increase the natural contraceptive utilization in the Philippines, resulting in improved women’s health and population control. The FTT utilization can also be adapted across the globe to result in a better impact.

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## Keywords

contraceptive agents; standard days method; natural family planning; menstrual cycle monitor; nursing; Philippines

## Background

Contraceptive methods are beneficial to women’s health. They prevent not only unplanned pregnancy but also pregnancy-related morbidity and mortality. Nurses have a prominent role in providing family planning education to clients and helping them gain access to their chosen contraceptives (French, 2017). Better knowledge and improved access to various contraception methods, as part of women’s rights, will certainly decrease the incidence of unintended pregnancies. However, according to the United Nations (2020), there are several

challenges to the universal attainment of women’s rights due to economic perplexity, austerity measures, and cultural and religious forbearance. Women’s human rights include equality, dignity, autonomy, information, bodily integrity, respect for private life, the highest attainable standard of health, including sexual and reproductive health, and freedom from torture and cruel, inhuman, and degrading treatment. Furthermore, equality in reproductive health includes access to affordable, quality contraception, including emergency contraception, without discrimination.

Maternal health is one of the indicators of Sustainable Development Goal No. 3, which is “good health and well-

being". Setbacks in this indicator included approximate everyday death of 810 women in 2017 from preventable causes related to pregnancy and childbirth; 94 percent of all maternal deaths happened in low and lower-middle-income countries; young adolescents (ages 10-14) were at more high risk of pregnancy complications and death than other women; and maternal mortality ratio in developing regions is still 14 times higher than in the developed regions (United Nations, 2020). However, the increased utilization of contraception may help resolve these issues concerning maternal health, as complications related to pregnancy and childbirth from unwanted pregnancies will be prevented.

In the Philippines in 2019, the modern contraceptive prevalence rate (CPR) was only 25.6 percent. This implies that the family planning education and access among Filipinos must be improved (Philippines FP2020, 2020). Several factors hindered the utilization of contraception in the Philippines. One factor is the non-utilization of contraception by unmarried women because of the social norm to avoid sexual activity until marriage. Another reason is the infrequent sexual intercourse without being cautious if done on a fertile day. In addition, the common barrier is the fear of side effects such as weight loss/gain, excessive bleeding, and several misconceptions like chemical toxicity from prolonged use, build-up of blood if menstruation stops, the device could get lost inside the body, and others. Other barriers include religious opposition and low accessibility of supplies (Nagai et al., 2019).

In the research locale, Iligan City, Philippines, for 2017, the Maternal Mortality Rate was 124.61 per 100,000 live births, while the CPR was 38.15% (Iligan City Health Office, 2018). These imply that realignment of priorities should be instituted to give focus on Family Planning (FP). The low FP outcome could be due to the cessation of supplies for artificial contraception and the failure of the city government to allocate the FP commodities, as well as the non-compliance of the local government units to implement the Contraceptive Self Reliance policy of the Department of Health. These data indicate the need to increase contraception utilization in the area to decrease maternal mortality. Since the inhabitants of Iligan City are predominantly Catholics, natural methods should be promoted. The Catholic Church only permits natural FP methods such as having sexual intercourse during infertile days and presumes that artificial birth control methods could encourage marital infidelity and decrease moral standards (Ignaciuk & Kelly, 2020). There may be arguments about the effectiveness of natural FP methods as these require discipline from the couple abstaining from sexual intercourse during fertile days of the woman; however, commitment will most likely be achieved with proper education and training.

This study focused on the modern fertility awareness-based FP method, the Standard Days Method (SDM), developed and tested by the Institute for Reproductive Health in 2001. SDM enables women with menstrual cycles ranging between 26 and 32 days to monitor their fertile periods, which are most likely to happen between days 8 to 19 of the cycle, referred to as the fertile window. They should abstain from unprotected sexual intercourse during the 12-day fertile window to prevent pregnancy. The SDM is found to be 95 percent effective in perfect use and 88 percent effective in typical use. It was shown that the method is simple to teach,

learn, and use. Thus, it has the potential to be provided through community development and non-governmental and social marketing organizations (Arévalo et al., 2002). SDM is contraindicated for recent pregnancy and breastfeeding, which can affect the regularity of the menstrual cycle (Sinai et al., 2004).

The original device used for SDM is the Cyclebeads, composed of color-coded beads connected in a string to help the woman track the fertile days of her menstrual cycle. It has a rubber ring to be moved over each bead every day. The beads are of the same size and shape, serving their purpose as a visual guide in monitoring fertility. In 2012, the free iCycleBeads app was introduced and piloted as a digital version of the CycleBeads for download on a mobile device (Institute for Reproductive Health, 2022).

The CycleBeads is not conveniently available in the research locale because it is purchased online, with the shipping fee adding to its cost. In Iligan City, Philippines, SDM utilization is only 1.08 percent. This is because SDM is not popular in the community because of a lack of information dissemination due to the unavailability of the tool used. This instance actuated the development of the Fertility Tracking Tool (FTT), which serves not only as a visual guide but also a tactile guide in tracking the fertile days of the menstrual cycle. Fruit-shaped beads are used to signal the fertile days of the woman so that she can easily associate the fruits with her fruitful or fertile days. This device will provide reproductive women, both visually impaired and non-visually impaired, a choice for a safe, easy-to-use, and inexpensive method of FP. The variation of the shape, size, and texture of the beads makes the product user-friendly for the visually impaired women as the sense of touch is utilized in this method. It is also favorable for low-income women as it is low-cost, availed locally, and does not necessitate mobile phone and internet connection.

The Fertility Tracking Tool characterizes a visual and tactile guide in monitoring the menstrual cycle. It is composed of 32 beads that are arranged vertically in a string. Each bead represents a day of the menstrual cycle. Each FTT is composed of eighteen small circular beads, one big circular bead, twelve fruit-shaped beads, and one spherical red bead. Each bead is threaded into the string towards the metal ring according to each indication, whether it indicates a fertile or infertile day. There is no difference in terms of FTT use between visually impaired and non-visually impaired women. Any user must move down a bead every day, starting on the first day of the menstrual cycle. If a non-fruit bead is being moved down, it indicates a non-fertile day. If a fruit bead is moved down, it shows a fertile day; thus, unprotected sexual intercourse must be avoided to prevent pregnancy. **Figure 1** illustrates the mode of use of FTT.

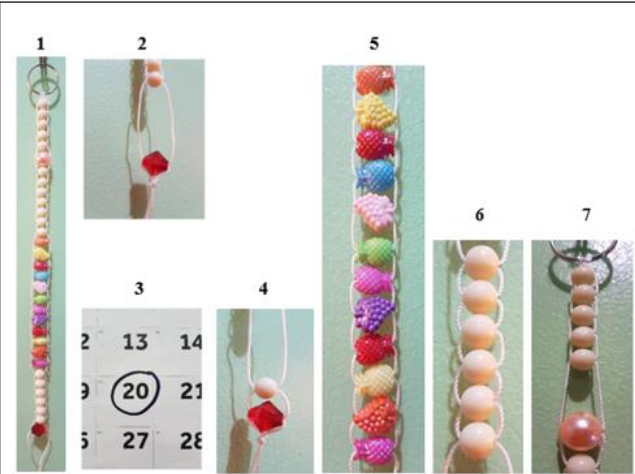
This study is of utmost importance to determine the preferences of the intended users toward FTT so that their viewpoints to enhance the product will be incorporated into the final design. FTT is used for the modern natural FP Standard Days Method; thus, it has no side effects. This study aimed to explore the opinions and preferences of the potential users of FTT, both visually impaired and non-visually impaired women, in terms of acceptability, price sensitivity, buying intention, product placement, branding, and packaging.

**FERTILITY TRACKING TOOL (FTT) FOR "STANDARD DAYS METHOD"**

**STANDARD DAYS METHOD** is a modern natural family planning method which can be used by women with menstrual cycles between 26-32 days. Count the length of the menstrual cycle from the first day of menstruation until the day before the next menstrual flow.

**HOW TO USE FTT?**

1. Hang or position the FTT in vertical position through the metal ring.
2. At the first day of menstrual flow, move the **lowest** bead (RED) down toward the knot.
3. **Encircle** the date of the first day of menstruation in your calendar.
4. **Move down** one bead every morning. Always move a bead down toward the **lowest** bead.
5. If a **"FRUIT"** bead is being moved down, it indicates that the woman is fruitful or fertile and most likely to become pregnant if there is unprotected sexual intercourse.
6. If a **"CIRCULAR"** bead is moved down, it indicates an infertile day and the woman is less likely to become pregnant even sexual intercourse happens.
7. When the **"BIG"** circular bead is moved down, it indicates that the next menstrual flow will happen anytime and the **"lowest"** bead will be moved down again.



**See your health care provider if:**

- Your menstruation comes before the "BIG" circular bead is moved down.
- Your menstruation does not come despite all the beads are already moved down.

**Figure 1** The mode of use of fertility tracking tool

## Methods

### Study Design

The study employed a qualitative research design with data gathered from focus group discussions (FGDs). One of the main advantages of FGDs is that the group interactions provide insight into a range of opinions, perceptions, or feelings that people have about a specific issue, practice, or idea that would be less accessible in one-on-one interviews (Doody et al., 2013). Furthermore, focus groups can identify the factors that influence opinions, behaviors, or motivations in a collective context. Focus groups enable a more natural environment, as participants influence and are influenced by others as they are in real-life settings (Krueger & Casey, 2009). The FGDs primarily captured the individual level insights on FTT acceptability, price sensitivity, buying intention, product placement, branding, and packaging among the visually impaired and non-visually impaired participants. This study did not compare the opinions of the two types of participants.

### Participants

The study was participated by a total of 108 participants composed of eight visually impaired and 100 non-visually impaired women from Iligan City, Philippines, selected through a purposive sampling technique. The visually impaired participants were members of the association of persons with disabilities in the city. There were only limited visually impaired women of reproductive age in the research locale, so having an equal number of visually impaired and non-visually impaired participants was not possible. More focus groups were composed of non-visually impaired women since more potential users of FTT are from this group. The non-visually

impaired participants were recruited from the ten populous barangays in the city to take the opportunity of introducing the FTT to the potential users because there is a plan to pilot test the FTT utilization in those locations soon. The participants were selected through the following criteria: female, between 18-45 years of age, married or has a common-law partner, has a monthly menstrual cycle between 26 and 32 days, and a resident of Iligan City, regardless of educational attainment, socioeconomic status, number of children, cultural group, and religious affiliation. Exclusion criteria were infertility and reluctance to use natural FP methods.

### Data Collection

There was a total of eleven focus groups composed of one group of visually impaired women and ten groups of non-visually impaired women, with eight to ten participants per group. FGDs are semi-structured, carefully planned, and cautiously executed, with groups composed of 4-12 participants geared toward exploring a specific set of issues (van Eeuwijk & Angehrn, 2017). The moderators usually start the FGD by asking broad questions about the topic of interest before asking the focal questions. The participants are not only encouraged to answer the facilitator's questions individually but also to talk and interact with each other (Krueger & Casey, 2009). The group interaction encouraged participants to explore and clarify their individual and shared points of view. One facilitator moderator and one assistant moderator conducted the eleven focus groups in a meeting room at the barangay office or health center that was convenient for the study purpose. The participants were seated around to indicate the equal importance of each participant's contributions. Before the start of each session, some guidelines were provided. These included the informed consent, essential questions, expectations for the group

interaction, recording of the discussion, and the manner of sharing the results with stakeholders, such as observing confidentiality. The FGD started with a round of introduction to the participants followed by an engagement question, “what were your experiences using any method of contraception?”, to make the participants feel at ease and comfortable. Then each participant was provided with the FTT. The facilitator-moderator explained the purpose and usage of FTT to the participants and encouraged them to speak freely about their ideas and opinions. This was followed by the exploration questions such as “what can you say about the Fertility Tracking Tool?” Emphasis was placed on asking simple, flexible, open-ended, and direct-to-the-point questions. The discussion was focused on the acceptability of the product, price sensitivity, buying intention, product placement, branding, and packaging. The same questioning route was used in all the focus groups. Each FGD lasted from one hour and forty minutes to two hours, and the FGDs were audio-recorded for easy documentation of responses. Data saturation was reached after six focus groups; however, the remaining five groups were pursued to take advantage of the opportunity to introduce the FTT to the ten populous barangays, which could be the research locale for the future pilot testing of FTT.

### Data Analysis

The responses were manually transcribed and matched with the corresponding variable to perform thematic analysis by [Vaismoradi et al. \(2013\)](#), which included the key steps of transcribing the recorded data, getting to know the data, producing initial codes, searching for themes, reviewing themes, and defining and labeling themes. The truthfulness and accuracy of the data were verified through follow-up interviews with the participants. The local dialect “Visayan” was considered and translated to English for common understanding.

### Rigor and Trustworthiness

This study utilized the Consolidated Criteria for Reporting Qualitative research (COREQ) to guide the reporting ([Tong et al., 2007](#)). The use of purposive sampling ensured that the

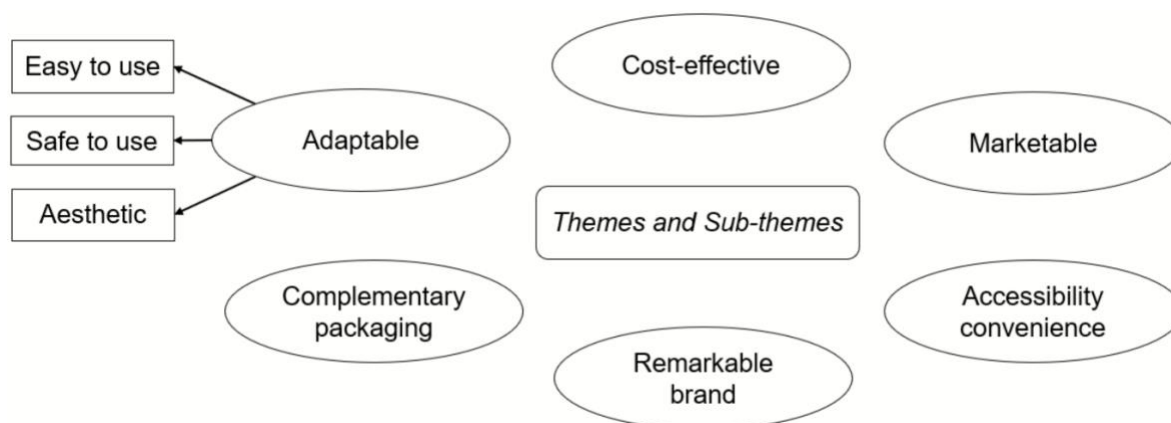
participants’ accounts offered adequate descriptions of the phenomenon under study. The FGDs were guided by semi-structured, open-ended questions that allowed them to express as much as they wanted regarding their opinions freely. The discussions strived to promote dialogue and asked for clarification of the narratives to achieve credibility. Furthermore, the analysis process was conducted in a reflective dialogue among the researchers. The research team conducted the FGDs for dependability. The recordings were transcribed verbatim, and quotes from the participants were presented in the findings for conformability. The research team performed coding, analyzing, and categorizing of the data. The team then further checked and confirmed the data to reach a consensus on allocating and matching findings to sub-themes and themes. The results might be transferred to improve other nurses’ capability to identify the business potential of a certain innovation in health care that they may develop.

### Ethical Consideration

The study was granted approval by an Institute Ethics Review Committee (IERC) of Mindanao State University-Iligan Institute of Technology before its final conduct. The participants were explained about the purpose of the study, emphasizing their rights, such as the right to refuse or withdraw participation, confidentiality of the data gathered, and the possible risk and benefits. The consent form with detailed information about the rights was provided and signed by the participants.

## Results

The opinions of both visually impaired and non-visually impaired participants on the Fertility Tracking Tool were formulated in six themes and three sub-themes. The first theme developed was (1) adaptable, with three sub-themes, (1.1) easy to use, (1.2) safe to use, and (1.3) aesthetic. The second to the sixth themes were (2) cost-effective, (3) marketable, (4) accessibility convenience, (5) remarkable brand, and (6) complementary packaging ([Figure 2](#)).



**Figure 2** The formulated themes and sub-themes of the study

## Theme 1: Adaptable

The first theme formulated from the responses of the participants was “adaptable”. This theme encompasses the opinions suggesting the acceptability of the FTT. It refers to its features such as being user-friendly, having no side effects, and appealing design.

### 1.1 Easy to use

A visually impaired participant mentioned that the product is easy to use, and the mechanism is easy to understand. The distinction of the beads, fruit-shaped and non-fruit beads, made it easy for them to distinguish between fertile and infertile days through the sense of touch. The non-visually impaired participants also acknowledged the product’s attribute of being easy to use. They expressed that the mechanics are very easy to learn, as they only need to move a bead every day. The presence of fruits is very significant as these indicate their fruitful or fertile days; thus, tracking the fertile days is much easier. Therefore, a very good guide in timing sexual activity. The following accounts were shared by the participants.

*“The presence of the different shapes of beads makes FTT use easy to familiarize through touch” (p1)*

*“FTT is nice and easy to use because I will just have to move a bead every day” (p9)*

*“It’s easy because you can easily determine the days you are safe and when you can be pregnant.” (p10)*

*“It is easy to use because when a fruit bead is being moved down, it will remind me that I should not engage in unprotected sex” (p11)*

*“I appreciate that it is not complicated to use; however, what shall I do if my husband would like lovemaking on fertile days?” (p12)*

### 1.2: Safe to use

Both the visually impaired and non-visually impaired participants responded that they like the product as it is a natural method of preventing pregnancy and thus has no side effects. Some verbalized that they have tried artificial contraceptives before, and they manifested adverse effects. However, they recognized the FTT’s attribute of being safe to use because it naturally tracks the fertile and infertile days of the woman. The following statements were verbalized by the participants.

*“FTT is safe to use, because you will know the days when you are fertile or not, without worrying of side effects” (p2)*

*“I need this type of family planning method because I have tried pills before, and I manifested adverse effects. I think it’s a good alternative” (p13)*

*“I like this FTT because nothing is taken or introduced into the body. I had IUD before, and I experienced heavy menstruation” (p14)*

*“I also tried the depo injection, and I was worried because my menstruation stopped. I like this FTT because it is a natural family planning” (p17)*

### 1.3 Aesthetic

The participants loved its aesthetic value. They said FTT is colorful, attractive, and looks like an accessory. They even mentioned that they could give it as a gift to their friends. These quotes were shared by the participants.

*“I can feel that it is beautiful because I can touch different shapes of beads” (p3)*

*“I like it because it’s colorful. It is attractive, and looks like a bracelet” (p20)*

*“Oh, I can use it as a keyholder too” (p25)*

*“It looks very good. I can give it as a gift to my friends!” (p30)*

## Theme 2: Cost-Effective

The second theme formulated was “cost-effective”. This theme refers to the attribute of FTT, which is having a significant use without costing a lot. The participants were asked about their budgetary perspective and how much amount they were willing to spend to acquire the product at its present design. A visually impaired participant verbalized that she considers it economical because they will just buy it for once, although it has been usable for years. The visually impaired group expressed to buy it between Php50-100 as most of them are merely masseuses by occupation. The non-visually impaired participants considered the product as affordable at Php100 and below. Some also remarked that they would buy FTT at Php120 if it comes with a box. Some mentioned that Php150 should be the peak price. However, another participant stressed that she would still buy the product even for a higher price, considering its invaluable use. A participant also mentioned that the product should be priced between Php30-50 to be afforded to low-income women. And several women raised that it would be much better if the government provided FTT for free. On average, the desired price was Php75.

*“I can say that FTT is economical because I will buy it only once, but I can use it for years unless lost or damaged.” (p4)*

*“We can only afford it between Php50-100 because we are only masseuses” (p5)*

*“If above 100, it is already costly for me. It should be Php100 and below only” (p32)*

*“I will buy it at Php120 if there is a box” (p33)*

*“I suggest that Php150 is the peak price” (p35)*

*“I am still willing to buy the product even for a higher price because its usefulness cannot be discounted” (p36)*

*“I hope for a low price like Php30-50 to be afforded by poor women” (p38)*

*“I wish that the government will just give it for free” (p40)*

## Theme 3: Marketable

The third theme formulated was “marketable”. This theme means that the product will have potential buyers when already available in the market. The participants were asked if they were willing to buy the product once already available in the market. A visually impaired participant responded that she is very interested in purchasing the product if she has money because it is beneficial. Some stated that they would buy the product, especially if it comes with a box, because they find it more attractive and can be given as gifts to their friends. Some verbalized that it is not budgeted at this time, so they hoped for free distribution of the product to the interested qualified users. This is a challenge to propose to the local government

of the research locale to procure a bulk of FTTs to be distributed to the health centers for provision to women willing to use the product. The following accounts were shared by the participants.

*"I am very interested in buying the FTT because it is very useful"* (p7)

*"I am really interested in buying the product because it is really helpful in monitoring my fertile and infertile days"* (p41)

*"Yes, I will buy this product, especially if it has a beautiful container that you can open that can be added to my collection"* (p43)

*"I can also give it as a gift to my friends"* (p45)

*"I hope the government will just give it to us for free because I have no budget for it at this time"* (p47)

#### Theme 4: Accessibility Convenience

The fourth theme formulated was "accessibility convenience". This theme encompasses the preferences of the participants as to where they would want to access the product. They suggested several locations of product placement that they considered convenient.

A visually impaired participant raised that she wants to avail the FTT in the City Social Welfare and Development (CSWD) office, where they have regular meetings with other persons with disabilities. Meanwhile, most visually impaired and non-visually impaired participants desired to avail of FTT either from the health centers, pharmacies, malls, or barangay offices. The following accounts were shared by the participants.

*"It's convenient to buy at the CSWD office because we come for our regular meetings"* (p8)

*"I prefer to buy at the health center because I can get the needed explanation on how to use the product"* (p49)

*"It is convenient to avail at the pharmacy, where other contraceptive supplies are also bought"* (p50)

*"It can be at the mall. However, the budget might be diverted to other things"* (p51)

*"At the barangay office, so that no more money will be spent for the fare"* (p52)

#### Theme 5: Remarkable Brand

The fifth theme formulated was "remarkable brand". This theme reflects the practical brand names of the product derived from its unique characteristics. Most of the participants verbalized that the FTT has unique attributes despite its simple style. The participants commended the product's uniqueness and deserved a brand name corresponding to its function. Several brand names were proposed by both visually impaired and non-visually impaired participants, such as "fruity/fruit beads", "jewelry planning", "pearl of the night", "simple family planning", and others. A participant also remarked that the name FTT is acceptable; however, a tagline may be added. The following remarks were stated by the participants.

*"I want the product to be called "fruity beads", because the fruit beads are the highlight of this tool. The distinction in size, shape,*

*and texture of the fruit beads from the other beads is significant for us to be alerted of our fertile days"* (p53)

*"I like the presence of fruits because they remind me of my fruitful days. "Fruit beads" is easy to recall"* (p54)

*"I suggest jewelry planning because it looks like a jewelry"* (p55)

*"I like to call it pearl of the night" because it guides in scheduling lovemaking which usually happens at night"* (p4)

*"How about simple family planning? Because it's just simple to use"* (p56)

*"It can be called beads, beads method, beads control."* (p57)

*"I'm fine with its name FTT, but a tagline must be added, particularly about its attribute of preventing pregnancy without side effects."* (p58)

#### Theme 6: Complementary Packaging

The sixth theme was "complementary packaging". This theme means that the product's appeal and marketability may be enhanced through attractive and functional packaging. The participants suggested some types of packaging to secure the product and entice them to buy it. For example, a visually impaired participant wanted a small box to easily identify it when touched. Several non-visually impaired participants were amenable to a jewelry box or even resealable cellophane; if there is a package insert of instructions on how to use the FTT. The following accounts were shared by the participants.

*"I suggest a small box with cover, so I can easily feel it when touched, and the FTT inside will not be lost"* (p7)

*"Any secure container will do, either a box similar with a jewelry box or resealable cellophane. What is important is the accompanying instruction inside"* (p59)

*"I recommend that the box will be made of hard/thick paper with a transparent upper part so that the FTT inside can be seen and will be attractive to the non-visually impaired buyers"* (p8)

*"I want the packaging to be colorful so that I can give it as a gift to my friends"* (p60)

*"I am fine with a pouch with a string to be pulled to tighten or open"* (p53)

## Discussion

The FGDs conducted on both visually impaired and non-visually impaired participants gathered positive responses on the Fertility Tracking Tool in terms of acceptability, price sensitivity, buying intention, product placement, branding, and packaging.

The first theme formulated "adaptable" indicates the acceptability of FTT to the potential users as a modern natural FP method. This conforms to the findings of [Ojewole and Marvellous \(2017\)](#) that 62.5% had a positive attitude toward natural FP use, 78.7% signified acceptance, and 60.7% had a high utilization rate. The theme adaptable was entwined by three subthemes, "easy to use", "safe to use", and "aesthetic".

The first subtheme "easy to use" denotes the appreciation of the simple mechanism of use of FTT, making the users

quickly understand and remember the steps like moving a bead down every day. The presence of the fruit-shaped beads as indicators of the fertile days further helped the women identify the days to avoid unprotected sexual intercourse to prevent pregnancy. Thus, FTT is user-friendly. According to Webster et al. (2021), acceptance of modern contraception methods is influenced by values and beliefs, the users' confidence in their ability to avoid harm and allow the method to work, and their understanding of the method and its mechanisms. However, a concern was raised if the partner wants sexual intercourse during unsafe days. This situation may be given attention because the woman must be protected from unintended pregnancy without depleting the couple's relationship. This gave rise to the idea of a possible mixture of SDM and condom use to prevent pregnancy should sexual activity during fertile days cannot be avoided. This calls for a health care policy to amend the guidelines of FP utilization, from the stern use of one contraception to a mix of two methods.

The second subtheme "safe to use" implies the participants' recognition of the fact that FTT has no harmful effects on the woman's health. Thus, she will not manifest the undesirable hormonal effects because no medication is taken, and no device is implanted or introduced to her body. It is consistent with the findings of Weis and Festin (2020) that the majority of SDM users chose this method primarily because it has no health effects, while others commended its low cost, less health visits, convenience, or familiarity with periodic abstinence as an FP method.

The third subtheme "aesthetic" refers to the added feature of FTT as an accessory because of its attractive design. Most of the participants appreciated its creative style, which can be given as a gift to reproductive women who qualifies the SDM criteria. This finding agrees with Logkizidou et al. (2019) that products with added art factors are gorgeous and pleasurable to buy. This concept was confirmed by Baumgarth and Wiekler (2020) that the infusion of art positively affects luxury perception and product evaluation.

The second theme "cost-effective" recognizes the advantage of FTT over other contraceptives in terms of efficiency without costing much. FTT is a tool for the modern natural FP method SDM which is proven to be 95 percent effective when used correctly (Weis & Festin, 2020). Furthermore, this theme indicates the money-saving attribute of FTT since it is bought only once unless it is lost or damaged. Less price sensitivity was also noted as there were participants who gave importance to the applicability of FTT over monetary considerations; thus, they are still willing to buy it even for a higher price. Price sensitivity, the extent to which the price affects the purchasing behavior of the consumer, helps determine if customers are interested in the product features created (Kagan, 2020). Furthermore, some participants desired to maintain a lower price to be afforded by low-income women. Therefore, they pleaded to the government for the free distribution of FTT to the qualified users as part of the health programs of the Department of Health.

The third theme "marketable" connotes that the potential users of FTT have the intention to buy it once available in the market; thus, it has business potential. Product marketability is essential because it determines whether the product has commercial viability. Product features, functional needs, price

points, and newness are powerful marketing tools (Morello, n.d.). The target market of the product is women of reproductive age, both visually impaired and non-visually impaired, who choose natural contraception due to fear of side effects from artificial methods, those with religious/cultural prohibitions, and those who cannot afford expensive contraceptive supplies. FTT is the cheapest among other tools of SDM, as it is availed locally and does not require high technology gadgets and internet connectivity. However, due to budget considerations, many participants aspired for a free supply of FTT from the government.

The fourth theme "accessibility convenience" refers to the ease of availing of the product by the prospective buyers. Product placement is essential for increasing sales, improving brand awareness, and enhancing brand reputation and value (Accion Opportunity Fund, 2021). The participants suggested several strategic locations, such as the CSWD office, for the convenience of visually impaired women. Many preferred to avail it from the health centers to be taught further and be monitored on the product utilization. If an FTT user is registered at the health center, she can be monitored accordingly. Some preferred to buy the product at the pharmacies for convenience since other contraceptives are also sold there. Others also suggested that FTT can be positioned at the mall so that they can have a one-stop shop as they buy other commodities. But they raised the disadvantage of diverting the budget to other products. The barangay office is also favorable because of its proximity so that no more fare will be spent.

The fifth theme "remarkable brand" refers to the brand identity of FTT that makes it unique and advantageous over other contraceptives. Creating a brand identity will set the product apart from the competitors. Product branding will showcase the product design and tell a story about the product that will make it stand out, especially from the existing similar prototype in the market. According to Holmes (2021), product branding makes the product recognized immediately, sets the product apart from others, builds an emotional connection with customers, and makes the product the often-selected item for a specific category. Several brandings were proposed by the participants, such as "fruit/fruity beads", as the fruit-shaped beads are the highlight of the FTT because they are associated with the fertile days of the menstrual cycle. Another name suggested was "jewelry planning" since the product looks like an accessory or jewelry. Some also wanted to call it the "pearl of the night" as it is being used as a guide when to perform lovemaking which is usually done at nighttime. Others preferred to call it "simple family planning" as its utilization is very simple. "Beads", "beads method", and "beads control" were mentioned as straightforward brands of the product. Some were fine with the name FTT; however, they suggested that a tagline must be added. The study came up with the branding "Fruity Beads, prevents pregnancy the natural way". This branding makes FTT easily recalled because of the fruit-shaped beads representing the fertile days and highlights its usage as a natural FP tool.

The sixth theme "complementary packaging" illustrates the importance of the product package to enhance the charisma of the product. In marketing, product packaging is very important because a memorable presentation of the product influences the customers to keep buying it. The selection of

colors for the packaging also counts because some colors affect the purchasing decisions, such as yellow, which stimulates joy; pink induces beauty and sensitivity; black fires up strength and power; and the like. Moreover, the functionality of the packaging is equally important to its attractiveness. Packaging prevents damage to the product during transport and exposure. Therefore, the importance of packaging cannot be underrated because it helps entice the customers to buy the product and even persuade others to buy it, eventually resulting in increased sales (LaMarco, 2019). The participants suggested several types of packaging to secure the FTT and make it more desirable to the customers. The visually impaired participants emphasized a small box to easily identify it through touch. The non-visually impaired participants suggested that the box will have a transparent lid to see the beauty of FTT inside. Most of them stressed that the packaging, would it be a box, pouch, or any other, should be colorful so they could give it to their friends as a gift. Above all, the participants underscored the importance of the package insert of instructions for their guidance.

The conduct of FGDs was the strength of the study as they were focused on gathering valuable information from the specific target markets; thus, the final product will be enhanced as what the participants desired. Part of the study's limitation is the unavailability of literature regarding potential users' opinions because FTT is a newly developed product. Another limitation is the lack of a clear mandate on the utilization of mixed methods of FP. Thus, it is recommended that the Department of Health may allow the use of condoms during fertile days and record the woman as a mixed user of SDM and condom to give the woman an option of birth control should lovemaking fall on an unsafe day. Allowing the woman to use condoms on fertile days eliminates the limitation of SDM utilization. Moreover, the city health office may provide training to the health workers such as physicians, nurses, and midwives on how to teach SDM using FTT and screen potential users, to better their counseling capability. The pilot testing of FTT is foremost recommended to determine any issue with its utilization.

## Conclusion

This study made a novel contribution to the nursing practice as the Fertility Tracking Tool is a newly invented device for natural FP. The FTT is an addition to the alternative choices of FP methods to be advised to women who do not conform to artificial contraceptives. Its mode of use eliminates discrimination from the visually impaired users, providing them equal access to a safe contraceptive method. This study also compels a probable health care policy of mixed-use of SDM and condoms.

With the acceptability of the FTT by the potential users, visually impaired and non-visually impaired alike, the strong support from the government is necessary for the product to be commercialized or even distributed for free to the qualified users, not only in the research locale but nationwide. Quality training for health workers, widespread FTT information dissemination, and collaboration with organizations advocating FP can significantly improve its utilization rate. The extensive use of FTT may increase the natural contraceptive

utilization in the Philippines, improving women's health and helping control population growth, thereby further alleviating poverty among Filipinos. Furthermore, FTT utilization can be adapted by other parts of the world to result in a better impact.

## Declaration of Conflicting Interest

The authors declare no conflicts of interest in this work.

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## Authors' Contributions

RMB was the project leader of the study and was responsible for coordinating with funding and other agencies, planning the activities, taking charge of the procurement of equipment and materials, supervising the actual conduct of the study, analyzing the data, and writing the final report. RMV and PFP assisted in planning the activities, applying for funding, gathering data, and interpreting results. All authors agreed with the final version of the manuscript.

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## Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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