Article

NATURAL FAMILY PLANNING METHODS: A SCOPING REVIEW

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Abstract: Natural family planning (NFP) is a type of family planning that is based on fertility awareness and its application in achieving the couple's goal of either having or preventing pregnancy. Any of the natural methods either independently or combined is a great alternative to other forms of alternative contraception. The general objective of this scoping review was to identify research gaps and clarify key concepts in existing literature with regards to NFP and to examine the extent, range, and nature of research activity about NFP. The scoping review was underpinned by the five-stage framework Arksey and O'Malley and one hundred ninety nine articles were included in the study. The results indicate that use of natural family planning involves an interplay of factors that influence either the user or the provider. Common goals for use are achieving or preventing preventing pregnancy. No adverse pregnancy outcomes were found. There is an increasing and evolving trend of research activity across all natural family planning methods.

INTRODUCTION

1.1 Background of the Study

Natural family planning (NFP) is a type of family planning that is based on fertility awareness and its application in order to achieve the couple's goal of either having or preventing pregnancy. Fertility awareness is based on the observation of the signs of the female's physiologic fertile and infertile phases of the menstrual cycle. Once the couple is aware of the times of fertility and infertility, sexual behavior is modified depending on the goal of the couple whether to achieve or prevent pregnancy.If the goal is to prevent pregnancy, abstinence is done by couples on days where the woman is on her window of implantation period. Some methods of natural family planning are the cervical mucus method (Billing's method), sympto-thermal method, sympto-hormonal method, basal body temperature (BBT) method, and calendar/rhythm method. These serve as an alternative for those who do not want or can't use hormonal or mechanical forms of contraception.

Family planning is increasingly being recognized as essential for social and economic development in countries in WHO's Eastern Mediterranean Region as Dale Gavlak reports from Jordan . This may already be a wake up call

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for doctors around the world to be open with population control but of course, in line with the values of people and what the church teaches. Jordan is a Muslim country yet they were able to be open with family planning. Educating the patient with the Natural Family Planning Method is the most suitable yet cheap method for the citizens of this country. In addition, this method is Catholic-church recommended in contrast to the artificial family planning methods.

Any of the mentioned natural methods either independently or combined is a great alternative to other forms of alternative contraception. Health promotion counselling by providers is more effective than outsourcing counselling to a specialist or health coach, in part because patients view physicians as the most trusted source of health information. Since physicians are key health role models and advisors who often meet with patients during potentially impressionable times, their own health behaviours may affect their ability to engage their patients in healthful behaviours (Oberg & Frank, 2009). Their health practices and beliefs greatly influence the patient's decision making. The researchers proposed to make a scoping study on the different natural family planning methods.

1.2 Statement of the Problem

To the best of the researchers' knowledge, there is yet to be a scoping review which would identify the extent of research activity in NFP. There were no studies which clearly identifies knowledge gaps in studies conducted about NFP, especially in countries such as the Philippines. In this study, the researchers aimed to conduct a scoping study on NFP and to utilize the information to identify knowledge gaps. The researchers also believed that this will be a step forward for medical doctors in their role as educators of society and their patient.

1.3 Objectives of the Study

The general objective of the researchers in performing a scoping review was to identify research gaps and clarify key concepts in existing literature with regards to NFP. Specifically, the researchers aimed to examine the extent, range, and nature of research activity about NFP.

1.4 Significance of the Study

Functional health literacy is the ability to apply reading, writing and numeracy skills ('basic skills') to health-related situations, at a level adequate to allow a person to participate in their own health care. Low literacy is a common but hidden problem independently associated with poorer health outcomes. Practitioners in reproductive health care place great emphasis on individuals taking responsibility for their own well-being, and participating in health promoting behaviours. Low functional health literacy creates barriers to fully understanding one's health/ illness, making informed choices and adhering to treatment regimes. Little is known of the effects of low literacy skills on engagement with family planning services, use of contraception and clinical outcomes, but adults with poor basic skills are more likely to have children at an early age and to have more children (Rutherford, et al, 2006).

The use of NFP is associated with past use of any type of NFP, understanding the body, and preference for something natural methods. Another factor is the user's perceived accuracy of NFP to identify the actual fertile period, acceptance of one's own body, desire for future pregnancies, and importance of religious belief. Acceptance of one's body is important in order to achieve success in observing signs of fertility. The study also stated that location is an important factor since it is possible that this could have some association with religious denomination such as Roman Catholicism. They also found that there is an association between religiosity and interest in use of Natural Family Planning (Mikolajczyk, Stanford, & Rauchfuss, 2003).

Contraceptives are used by the majority of married or in-union women in almost all regions of the world. In the 4th Asia Pacific Population Conference, the Bali Declaration on population and sustainable development was adopted which set future demographic goals. Goals included: attainment of replacement level fertility of around 2.2 children per woman by the year 2010; reducing infant mortality to 40 infant deaths per 1000 live births; and reducing maternal mortality by 50% in those countries with high levels. Approaches should include flexible management, multi-sectoral partnerships, and wide community participation. Countries with low fertility are urged to attain self-sustainability. In Indonesia, Malaysia, the Philippines, Singapore, and Thailand family planning programs are directly supported and provide unlimited access to modern contraception. Thailand has a successful family planning program due to the provision of an extensive system of contraceptive distribution and the efforts to create a normative preference for fewer children.

However, in light of the ongoing debate regarding the use of artificial methods in preventing unwanted pregnancies in the Philippines, being a Catholic country, and the threat which they pose to the dignity and life of both the mother and the unborn child, a plethora of natural family planning methods have been developed based on the natural cycle and physiology of the woman's body.

Various sectors of society, may it be religious, medical, government, or non-government, have promoted natural

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family planning in their own way. As medical professionals and educators of our patients, it is a moral duty to uphold natural family planning to promote responsible parenthood and to care for the wellbeing of mother and child. The researchers believed that although there are both natural and artificial means of family planning, it is the former which has a wholistic approach. Among these, the practice of self-restraint or abstinence from sexual activity, responsibility, and care is upheld in natural family planning. This is aimed to be of benefit not only to the every family, but also to the dignity of the mother and her unborn child. This study enabled the researchers to make a scoping review on the natural family Planning Methods.

The outcome of this study may help promote awareness among people most especially medical doctors aid in their role as educators of the society with regards to natural family planning as well as responsible parenthood.

REVIEW OF RELATED LITERATURE

2.1 Natural Family Planning

Natural family planning, sometimes referred to as fertility awareness-based methods of family planning, uses physical signs and symptoms that change with hormone fluctuations during a woman's menstrual cycle to help women identify the days of the cycle on which they are fertile (Choi, Chan & Wiebe, 2010).

There are a number of natural biological markers used in modern methods of NFP to determine the start, peak and end of the fertile time. One marker that can be monitored is the mucus released from the cervix. This cervical mucus can be felt and seen externally. A woman learns to identify a changing cervical mucus pattern, which identifies the start, peak and end of the fertile phase of the cycle. A second marker that can be monitored is a woman's basal body temperature (body temperature at rest). Due to hormonal activity, a woman's resting temperature changes during her menstrual cycle. The temperature pattern identifies the end of the fertile phase of the cycle. A third marker that can be monitored is changes in the consistency and position of the cervix. The changes in the cervix identify the start, peak and end of the fertile phase. Finally, the levels of two key fertility hormones can be simply monitored by the use of The Clearblue Easy Fertility Monitor® to identify the start, peak and end of the fertile time. Observing, recording and interpreting one or all of the biological markers of fertility and infertility forms the basis for all methods of NFP (Archdiocese of Boston, n.d.). This is an effective and fulfilling method of avoiding pregnancy that has developed significantly over the past 80 years. Because many physicians lack a correct understanding of modern NFP methods, they may underestimate the effectiveness of NFP and offer limited information to their patients. Between 40 and 60 percent of surveyed women report that they are interested in learning more from their physicians about nonhormonal, nonbarrier, and nonsurgical methods of birth control. This interest reaches across geographic regions, religions, and socioeconomic and education levels (Warniment and Hansen, 2012).

NFP methods are based on the observation of the naturally occurring signs and symptoms of the fertile and infertile phases of a woman's menstrual cycle. No drugs, devices, or surgical procedures are used to avoid pregnancy.

Fertility awareness-based (FAB) method is a term that includes all family planning methods that are based on the identification of the fertile time. They are based on the woman's observation of physiological signs of the fertile and infertile phases of the menstrual cycle. This knowledge can be used to plan or avoid pregnancy. FAB methods depend on two key variables: first the accurate identification of the fertile days of a woman's menstrual cycle (the fertile time) and second the modification of sexual behaviour either to plan a pregnancy or to use this knowledge to avoid pregnancy. When couples use FAB methods of family planning to avoid pregnancy, they practise different sexual behaviour during the fertile time. When FAB methods involve sexual abstinence during the fertile time, this method is called natural family planning.

When FAB methods involve occasionally using a barrier method during the fertile time, the method is called FAB method with barriers. It must also be recognized that although many couples state they are practising a FAB method, sometimes they do not adhere to the guidelines and unprotected intercourse or other kinds of genital contact occur during the fertile time (Baur, et. al, 2005).

1. Periodic abstinence

Abstinence refers to delaying or avoiding some or all sexual behaviours. Abstinence may mean different things to different people. From a family planning perspective, it is only necessary for couples to avoid sexual acts that involve the introduction of seminal contents into the vagina; however, certain STIs may be transmitted from skin-to-skin contact. Primary abstinence refers to delaying some or all sexual behaviours by those who have never been sexually active. Secondary abstinence refers to the conscious decision to delay or avoid some or all sexual behaviours among those who have been sexually active in the past. Periodic abstinence refers to abstaining from penile–

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vaginal intercourse during the fertile window of the menstrual cycle. Abstinence is 100% effective in terms of family planning, provided that semen is not introduced onto the vulva or into the vagina (Canadian Contraception Consensus Part 2 of 4, 2015).

2. Calendar Method

A woman must track her natural menstrual cycle length for 6 to 12 months prior to using this method (during which time the risk of conception is significant). To determine the start of the fertile window, subtract 20 days from the length of her shortest cycle. To determine the end of the fertile window, subtract 10 days from the length of the longest cycle. Unprotected intercourse should be avoided during that time (Canadian Contraception Consensus Part 2 of 4, 2015).

3. Billing's Ovulation Method

The Billings Ovulation Method is based on the observation and interpretation of changes in cervical mucus to determine the fertile and infertile phases of the menstrual cycle. The methodology is based on the work of various scientists including Billings and Odeblad.

4. Basal Body Temperature

Wake-up body temperature is measured every day, using a special BBT thermometer, after at least 6 hours of sleep. The BBT is then recorded on a chart (or entered into a computer program) so that the woman can observe the rise in her BBT following the post-ovulatory elevation of progesterone. The BBT should rise by at least 0.5ºC. To avoid pregnancy, there should be no unprotected intercourse from the beginning of the cycle until after 3 consecutive days of temperature elevation (Canadian Contraception Consensus Part 2 of 4, 2015).

5. Sympto-Thermal Methods (STM)

The methods that observe several signs of fertility and cross-check two or more of the signs to pinpoint ovulation are commonly called the "Sympto-Thermal Method" or "STM" (Stoppler,n.d). These observations are done to have a double-check system (European Society for Human Reproduction and Embryology, 2007). STM typically combines charting of the Basal Body Temperature (BBT) and cervical mucus with other optional indicators, such as changes in the cervix and secondary fertility signs (Stoppler, n.d.).

The first fertile day is when the woman first identifies either: 1) first appearance or change of appearance of cervical secretion, or 2) the sixth day of the cycle. After 12 cycles, this second guideline is replaced by a calculation that subtracts seven days from the earliest day to show a temperature rise in the preceding 12 cycles, in order to identify the first fertile day. The woman is then in her fertile period. The fertile phase ends after the woman has identified: 1) the evening of the third day after the cervical secretion peak day, and 2) the evening when the woman measures the third higher temperature reading, with all three being higher than the previous six readings and the last one being 0.2 degrees C higher than the previous six (European Society for Human Reproduction and Embryology, 2007).

A number of NFP providers teach a variety of approaches to the observation and charting of these signs (e.g., Couple to Couple League, Northwest Family Services, various diocesan programs, etc.).

6. Lactational Amenorrhea Method

LAM is only effective when all 3 following key criteria are met: the woman is less than 6 months postpartum; she is fully or nearly fully breastfeeding; and she has remained amenorrheic. When used correctly, LAM is 98% effective. The primary mechanism of action of LAM is suppression of the hypothalamic–pituitary–ovarian axis via disruption of GnRH pulsatility, resulting in decreased LH production and anovulation. Although ovulation may occur during LAM in the first 6 months postpartum, ovulation and the luteal phase rarely have normal characteristics. Only 60% of ovulations that precede the first menses have an adequate luteal phase to support a pregnancy (Canadian Contraception Consensus Part 2 of 4, 2015).

7. Sympto-Hormonal Cross Check Method

The Sympto-Hormonal Cross Check method is based on the observation and interpretation of changes in cervical mucus, basal body temperature and includes hormonal monitoring with the Clearblue Easy Fertility Monitor™ to determine the fertile and infertile phases of the menstrual cycle. This methodology is based on the work of various scientists including Billings, Doering, Roetzer , Vollman, Frank-Herrmann and Fehring. This method includes the Marquette Model and the Archdiocese of Boston Sympto-Hormonal Cross Check Model.

8. Standard Days Method

This method requires avoiding unprotected sexual intercourse on days 8 to 19 of the menstrual cycle in women who have a menstrual cycle from 26 to 32 days in length (Canadian Contraception Consensus Part 2 of 4, 2015).

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9. Two-Day Method

Two Day Method checks for cervical secretions at least twice a day. If the woman notices secretions of any type, color, or consistency either "today" or "yesterday," the woman considers herself fertile. A woman can use a simple card to help her keep track of the days she has secretions. When a woman has cervical secretions, she is potentially fertile and can become pregnant from unprotected intercourse. An efficacy trial found TwoDay Method was more than 96% effective in preventing pregnancy with correct use. That means that out of 100 women using the method for one year, fewer than four of them would get pregnant if they used TwoDay Method correctly. With typical use, it is more than 86% effective (Institute for Reproductive Health Georgetown University, 2017).

10. Creighton/Fertility Care Model

The Creighton/ Fertility Care Method is based on the external observations of the vulvar area for the cervical mucus, presence of bleeding, and the days when no discharge is present, to determine the fertile and infertile phases of the menstrual cycle. Changes in cervical mucus discharge is correlated to the levels of estrogen, and Peak Day is correlates with ovulation. Hence, an important feature of this model is that it is versatile since it follows prospectively fertile vs. infertile days. This method is based on the work of various scientists including Billings, Odeblad and Hilgers.

RESEARCH METHODOLOGY

3.1 Methods

This scoping review is anchored on the five-stage framework of Arskey and O'Malley (2005). This increased the reliability of the search findings as well as the replicability of the search strategy. The following were the five-stage framework:

1. Identifying the Research Question
2. Identifying Relevant Studies
3. Study Selection
4. Charting the Data
5. Collating, Summarizing, and Reporting of Results

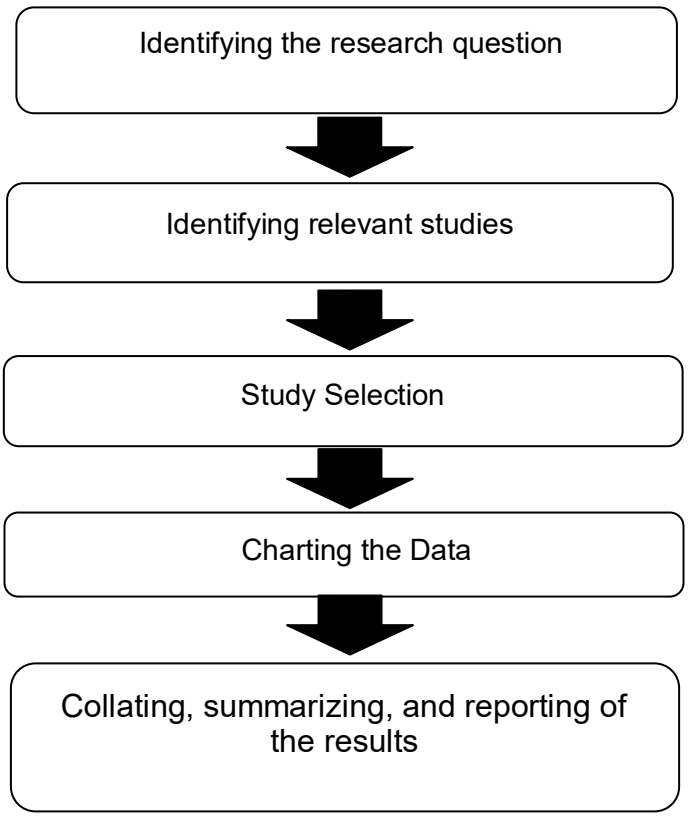

Figure 1. Methodological Framework of the Study (Adapted from Arskey and O'Malley's *Scoping Studies: Towards a Methodological Framework*)

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3.2 Identifying the Research Question

The focus of this scoping review was the exploration of knowledge gaps and research activity about NFP. Hence, the researchers posed the following research question to guide the search:

1. What are the trends in research conducted on Natural Family Planning?
    a. What is the trend of studies conducted for each Natural Family Planning Method?
    b. What is the trend of study designs used in the researches conducted about Natural Family Planning?
    c. What are the trends in the development of Natural Family Planning methods?
2. What factors influence the adoption and utilization of Natural Family Planning?

3.3 Identifying Relevant Studies

Through the aid of a content expert, key concepts and search terms were developed to capture literature that were related to Natural Family Planning. A method expert was also consulted who was an expert in the field of research. Their input was vital in the refinement of the search terms, as well as in identifying databases from which the search results appeared. (Inclusion and Exclusion criteria were also developed in the interest of comprehensiveness and feasibility.) A search strategy was also done to identify the relevant studies.

3.4 Search Strategies

Search engines such as EBSCO, Cochrane Library, BJOG: An International Journal of Obstetrics and Gynecology, Google Scholar, Journal of Obstetric, Gynecologic and Neonatal Nursing, Linacre Quarterly, PUBMED, The New England Journal of Medicine, Science Direct, Popline and Elsevier were used.

In addition, keywords were also utilized for searching strategy such as Fertility Awareness Based Contraception, Natural Family Planning Methods, Periodic Abstinence, Rhythm Method of Family Planning, Cervical Mucus Ovulation, Calendar Method, Calendar Rhythm Method, Standard Days Method, Symptoms Based Methods, Symptothermal Method, Lactation Amenorrhea Method, Creighton Fertility Method and Two-Day Method.

3.5 Study Selection

This study employed a three-step search strategy. The first step comprised an initial search in at least two online databases relevant to Natural Family Planning. This was followed by an analysis of the text words contained in the title and abstract of retrieved articles, as well as the index terms used to describe the said articles. After identification of the text words, a second search was conducted across all included databases. The third step required a search through the reference list of the chosen articles for additional studies.

3.6 Charting of Results

The following information from the identified studies was charted into a logical, and descriptive summary:

- Author(s)
- Year of publication
- Origin/country of origin (where the study was published or conducted)
- Study Design
- Type of Natural Family Planning Method
- Other Intervention

See Appendix B for the complete tabulation of all included articles

3.7 Ethics Review

The scoping study, being a secondary analysis did not require ethics approval. The researchers applied for an exemption from IRB review from the Ethics Review Board of the University of Santo Tomas Faculty of Medicine and Surgery on the premise that no human subjects were involved and all the journal articles included in the study were cited appropriately.

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CONCEPTUAL FRAMEWORK

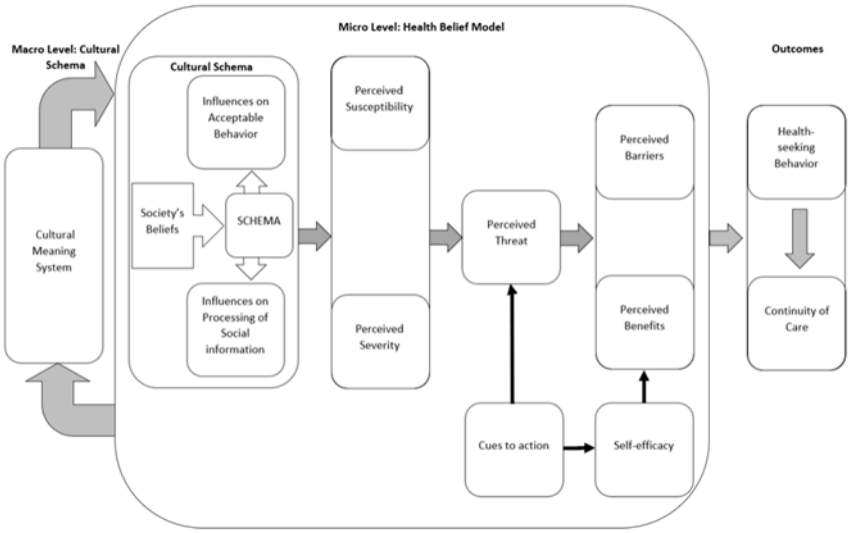

Figure 2. The Health Beliefs Model as Conceptual Framework of the Study (Adapted from Metta, Emmy Onifasi's *Health-seeking behaviour among adults in the context of the epidemiological transition in Southeastern Tanzania)*

Natural Family Planning requires a deeper understanding of the factors concerning its use. These factors are encompassed by human behavior, and it plays a vital role in the use and continuity of Natural Family Planning Methods (Metta, 2016). One such model for the analysis of human behavior is the Health Belief Model. It aims to aid in understanding the factors which shapes the user's behavioral practices and motivation for use and continuation of any intervention, such as Natural Family Planning. The model is based on the idea that people are more likely to adhere to the intervention if: (i) they perceive that they are at risk of contracting an unfavorable outcome (perceived susceptibility) and its severity (perceived severity), (iii) they perceive the proposed health behavior to be both effective and practical (perceived benefits), (iv) they perceive the barriers to adopting the behavior to be minimal (perceived barriers), (v) they perceive themselves to have the ability of applying and practicing the specific behavior proposed (perceived self-efficacy), and (vi) they have the cues for motivating their actions such as internal cues (pain, symptoms, past experiences) or external cues (advice from friends, relatives and mass media campaigns) (cues to action) (Metta, 2016) . In our study, the Health Belief Model and was used to guide the analysis of our data.

PERCEIVED SUSCEPTIBILITY

It refers to individuals' own beliefs regarding the risk of contracting an unfavorable outcome (such as unwanted pregnancy); the greater the perceived susceptibility, the greater the likelihood of engaging in behaviors to decrease the susceptibility (Metta, 2016). This includes the socio economic status of the person, religious affiliations dictating the choice of the user, demographic characteristics and desire for a natural approach.

PERCEIVED SEVERITY

This refers to individuals' beliefs about the severity of the unfavorable outcome might have on him/her if he does not perform health-seeking behavior (Metta, 2016). This includes unwanted pregnancy for users using NFP as a method for contraception and failure to attain pregnancy for users wanting to achieve pregnancy.

PERCEIVED THREATS

Refers to a combination of the perceived susceptibility and the perceived severity of the unfavourable outcome (Metta, 2016). This includes unwanted pregnancy for users using NFP as a method for contraception and failure to attain pregnancy for users wanting to achieve pregnancy.

PERCEIVED BENEFITS

Perceived benefit signifies an individual's own judgment on the advantages of adopting and continuing with the health-seeking behavior and intervention to achieve favorable outcomes (Metta, 2016). This includes lack of side effects, improved marital dynamics and control of pregnancy.

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PERCEIVED BARRIERS
This refers to an individual's evaluation as to what would stop him/her from adopting the health-seeking behaviour (Metta, 2016). This includes having a hard time in complying with the abstinence period of natural family planning, low popularity of fertility awareness based methods, lack of supportive healthcare professional to teach and cultural factors.

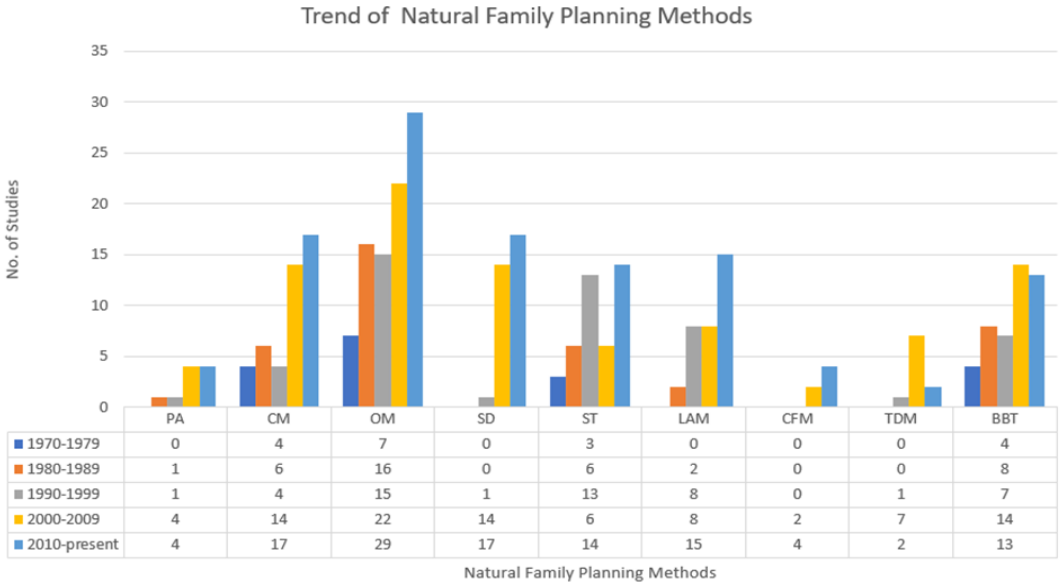
SELF-EFFICACY
This refers to the user's belief regarding his/her capability to practice the suggested health seeking behaviour successfully (Metta, 2016). This include mastery of the method by the user of NFP.

CUE TO ACTION
This relates to information and ideas about Natural Family Planning that users have and his/her sources thereof, whether internal (symptoms, past experiences) or external (health care workers, friends, relatives, mass media), which influence their health-seeking behavior and continuity with care (Metta, 2016). Which includes endorsement from a religious organization and non-health providers as sources of information including friends, relatives and elders.

FINDINGS AND DISCUSSION

4.1 What are the trends in research conducted on Natural Family Planning?

4.1.1 What researches on Natural Family Planning Methods have been undertaken through the years?



	PA	CM	OM	SD	ST	LAM	CFM	TDM	BBT
1970-1979	0	4	7	0	3	0	0	0	4
1980-1989	1	6	16	0	6	2	0	0	8
1990-1999	1	4	15	1	13	8	0	1	7
2000-2009	4	14	22	14	6	8	2	7	14
2010-present	4	17	29	17	14	15	4	2	13

Figure 3. Trends of research on natural family planning methods (*PA-Periodic Abstinence, CM- Calendar Method, OM-Ovulation Method, SD- Standard Days, ST- Symptothermal, LAM- Lactational Amenorrhea, CFM- Creighton Fertility Model, TDM- Two Day Method, BBT- Basal Body Temperature*)

Our research shows that there is an increasing and evolving trend of research activity across all natural family planning methods. Studies on natural family planning methods were found as early as in the 1970s; among these were Ovulation Method, Basal Body Temperature method, Rhythm/Calendar Method, and Symptothermal Method. These studies focused on identification of the fertile phase of a woman using clinical signs such as Basal Body Temperature and Cervical Mucus, as well as interobserver variability of such methods. Studies on the Lactational Amenorrhea and Periodic Abstinence methods were found in the 1980s, followed by an increase in the study of the Ovulation Method and the Basal Body Temperature Method. During this time period, studies compared and evaluated the efficacy between natural family planning methods and its implications among its users. Studies on Standard Days and Two-Day Method were found not until the 1990s, while the Ovulation Method and Symptothermal Method were the most studied Natural Family Planning Methods during that time period. During this time period, there were multicentre studies spanning multiple countries about the use of natural family planning methods. These studies were mainly evaluative, focusing on method acceptance and use. In the 2000s, Ovulation Method, Standard Days, and Basal Body Temperature methods were the most studied methods. In that same time

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period, there were 2 studies on the Creighton Fertility Method. It was during this period that there were diversity in studies conducted about natural family planning. Among these studies were topics on factors affecting natural family planning use, user's views on natural family planning, and efficacy of natural family planning methods through electronic hormonal monitoring. In the year 2010, digital apps, computer software, and electronic hormonal monitoring methods were used in the study of Natural Family Planning methods. This review suggests that studies on natural family planning methods have evolved and are continuously evolving.

4.1.2 What study designs were used in the researches conducted about Natural Family Planning?

Table 1. Number of study designs conducted on natural family planning

TYPE OF STUDY	NO. OF CASES
Cross-sectional/Survey	47
Review	44
Prospective Cohort	31
Qualitative Descriptive	30
Experimental	18
Randomized Control Trial	12
Retrospective Cohort	11
Meta Analysis	6
Case-Control	0

The cross-sectional study design was most widely used among studies conducted on Natural family planning. This was followed by reviews, qualitative or descriptive, and prospective cohort study design in decreasing order. Experiments were also designed in the study of natural family planning methods in an effort to evaluate the accuracy of natural family planning methods in determining the fertile phase of a woman.

One study that evaluated studies done on natural family planning effectiveness revealed that most NFP studies found in the literature are flawed in design and do not calculate pregnancy rates correctly. Almost none of the NFP studies found in the literature are clinical trials that feature randomized comparison groups. (Lamprecht & Trussell, 1997).

It should also be pointed out that most efficacy studies of natural methods of family planning include only women with regular menstrual cycles (Schneider & Fehring, 2012).

The only randomized clinical trials on methods of NFP are of limited use: they showed huge recruitment problems and retention as well as having a very strong selection bias (participants had to agree to expect quite high failure rates while attracted by free medical care at study entry), their results are therefore very questionable. Randomized controlled trials are rarely used to investigate other family planning methods either because most couples have a preference for a certain method or do not wish to be randomized. In addition with most family planning methods, it is impossible to blind the couples from the allocated method unless comparing certain different hormonal contraceptives or intrauterine devices (Frank-Herrmann, Gnoth, Toledo, Baur, Pyper, Jenetzky, Strowitzki, Heil, & Freundl, 2007).

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The few randomized controlled trials of NFP methods have been limited by poor recruitment and high dropout rates. Therefore, the evidence for NFP methods is based on observational trials that are prone to selection bias (Smoley & Robinson, 2012).

4.1.3 What are the trends in development of Natural Family Planning methods?

In the late 1800s, sequential basal body temperature was first noted by physicians. Its use as a method for family planning was yet to be discovered. It wasn't until the 1930s when the first method of family planning, the calendar rhythm method, was introduced and gained popularity in the USA. Another method of NFP, the ovulation method, was introduced in the United States of America in 1952 by Australian physicians, John and Lyn Billings (Britt, 1977). By the end of the 1960s, the Billing's Ovulation Method was introduced overseas and is now taught in over one hundred countries around the world. (Norris, 2010). The first randomized, controlled, scientific clinical trial of the method was conducted in Tonga from 1970 to 1972. During this period, the three pre-ovulatory, and the fourth the post-ovulatory "peak" rule had been well established (Norris, 2010).

The symptothermal method was introduced later in 1975 and gained public interest due to the promotion of a lay group, Couple to Couple League (CCL) (Britt, 1977). A study conducted in the same year considered the rhythm method and other similar methods that rely on the physiologic rhythmic periods of infertility as unreliable. At the time of the study, the use of two recent variants of the rhythm method, the temperature method and Billings' ovulation method, were rare. (Cole, Beighton & Jones, 1975). In the late 1970s there was a widespread popularity of the use of the rhythm method but a study conducted in 1977 revealed that many rhythm users switched to ovulation method (Britt, 1977) (Owen, M., 2013)

A 1983 study discovered that vulvar humidity complemented cervical mucus penetrability and ovulation predictions in ascertaining potentially fertile days of the cycle (Etchepareborda, Rivero, & Kesseru, 1983). Further research on the cervical mucus method showed that that mucus peak is a more valid indirect measure of ovulation due to minimal interobserver variation and its close approximation of the the timing of ovulation (Kambic & Gray, 1989). Despite these advancements in the field of NFP, there was a decline in contraceptive use among catholic women during the years 1980 to 1985 (Fehring & Schlidt, 2001). Studies on basal body temperature revealed the potential birth control and fertility potential of using volumetric sampling of vaginal fluid in 1983 (Usala & Schumacher, 1983) and urine in 1984 (Samples & Abrams, 1984). A similar study in 1987 collected timed specimens of urine and performed pregnanediol analyses at home with competence. Application of these analyses to large populations of women practicing natural family planning helped increase knowledge of human reproduction in all its aspects (Brown et al., 1987).

In 1988, in Texas, an independent assessment of the CUETM Monitor (Zetek, Aurora, Colorado) as an ovulation predictor was made with emphasis on its potential role in "natural family planning". The device provided a digital measurement of the electrical resistance of saliva and vaginal secretions (Moreno, et. al, 1988).

In 1993, salivary ferning was studied as a diagnostic aid for NFP. There is a direct correlation between salivary ferning and fertile period (Barbato, Pandolfi, & Guida, 1993). In the same year, a survey of half of the Catholic hospitals in the US revealed that they provide or would like to provide NFP services (Fehring & Werner, 1993) showing the increased acceptance of NFP.

Advancements in the Lactational Amenorrhea method were also made. A trial done on the method revealed that it was 99% effective when used correctly. However, at twelve months, the effectiveness during amenorrhea dropped to 97%. This contraceptive effect of breastfeeding was not attributed to lactational or postpartum abstinence (Ramos, Kennedy, & Visness, 1996). The use of this method in the first 6 postpartum months did not appear to increase risk of pregnancy in terms of the rates of adequate ovulation (Kennedy et al., 1991). A multinational study in 1999 supported the Bellagio Consensus that LAM is a viable approach to postpartum contraception (World Health Organization Task Force on Methods for the Natural Regulation of Fertility, 1999). Later in 2002, it was published that the basis for the global acceptance of the LAM was that it can be used effectively in a wide range of cultural situations and service delivery settings (Fehring, 2002).

Single methods of self-detection of ovulation were compared with an objective ovulation-determination technique (pelvic ultrasonography). Urinary LH level determination yielded a 100% correlation with the simultaneous ultrasonographic diagnosis of ovulation. On the other hand, the salivary ferning test and measurement of beta-glucuronidase levels are not good methods for home ovulation testing (Guida et al., 1999).

Most of the studies conducted about NFP during the early years were done in the United States of America. By 1999, the symptothermal method has been widely publicized and well supported by the German government through study and training programs (Oddens, 1999). In India, however, revealed that a large proportion of women were aware that natural family planning methods were being offered through the national family welfare pro-

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gramme, but only about one-fourth of the women have used any type of spacing methods (Indian Council of Medical Research Task Force on Natural Family Planning, 1996).

Baseline data available on the excretory profiles of estrone glucuronide (E1G), pregnanediol glururonide (PdG) and luteinizing hormone (LH) on human menstrual cycles in 104 menstrual cycles were retrospectively analysed for identifying the limits of fertile period (FP) to be used as natural method of family planning in India. The following protocol was suggested: (1): asses E1G from the day 8 of the cycle; (2) fertile phase is considered to have commenced when a value of 35 ng/mL is reached; and (3) fertile phase is believed to have ended when PdG levels in samples of two consecutive days are > 2 mcg/mL. The approach was seen to have accuracy of 90% (Desai, Donde & Khatkhatay, 2001).

A new role of mucus was also discovered that proved to be more important than its use as a marker of the fertile window of the menstrual cycle. Pregnancy probabilities were found to be highest with the most fertile-type estrogenic mucus (Bigelow et al., 2004). Use of periovulatory cervico-vaginal fluid change as an accurate ovulation indicator was better than using Basal Body Temperature and is comparable to the accuracy when E1G/PdG ratio is used (Alliende, Cabezón, Figueroa, & Kottmann, 2005).

A review revealed that periodic abstinence was the most common previously used form of family planning before switching to other methods of contraception (Sinai, Lundgren, Arévalo, & Jennings, 2006). The Two Day method was shown to be a promising approach for identifying the fertile days of the menstrual cycle (Jennings & Sinai, 2001; Fehring, 2002). Later it was determined that the Standard Days Method and TwoDay Method are effective, as they meet the needs of women seeking a nonhormonal, nondevice approach to family planning, and are feasible to offer in the context of routine visits (Germano & Jennings, 2006).

Correct use of an electronic hormonal fertility monitor with cervical mucus observations can be as effective as other fertility awareness-based methods of natural family planning (Fehring, et. al. 2007). Thus, the Standard Days Method and the ClearPlan/ClearBlue East Fertility Monitor in conjunction with the Marquette fertility algorithm were established to be user friendly and to be simple to teach making it appropriate for clinic-based practices (Fehring, 2005).

The most common self-detected natural indicators for estimating the fertile phase of the menstrual cycle in use are calendar-based formulas, daily measurement of BBT, self observation of cervical-vaginal mucus, and self-testing of LH in the urine (Fehring, Schneider, Raviele, & Barron, 2007). A number of home testing devices such as basal body temperature thermometers, home urinary LH kits, home urinary LH–E3G monitors, home saliva microscopy, and home saliva monitors can also help in accurately predicting ovulation (Scolaro, Lloyd & Helms, 2008).

German Symptothermal Method which uses two indicators of fertility – cervical secretions plus a calculation to identify the onset of the fertile time and basal body temperature and cervical secretions observation to determine the end of the fertile time – was an effective and acceptable method of family planning, compared to other FAB methods, e.g. the Billings method, the Creighton model or other cervical secretion methods (Frank-Herrmann et al., 2007).

The available evidence suggested that FABMs, based largely on assessing cervical mucous, can provide effective contraception (Pallone & Bergus, 2009). Natural family planning method also became part of a national strategy of increasing access to family planning to reduce abortion and maternal mortality (Arevalo, 2008). Despite these, fertility awareness based methods were among the most likely, together with male condom and withdrawal, to be discontinued due to method-related reasons (Vaughan, Trussell, Kost, Singh, & Jones, 2008).

Besides simplifying the use and provision of NFP methods, there have been efforts to integrate information technology into the use and provision of NFP services, particularly the use of the internet. In the United States, there are a number of Web-based programs that provide information on how to use NFP methods. These include the Northwest Family Services which teaches a multiple fertility-indicator method (i.e., cervical mucus and basal body temperature), the Franciscan-system cervical-mucus method being developed by a physician and nurse practitioner team in California, and the Ovusoft system developed by Toni Weschler, the author of the book "Taking Charge of Your Fertility." The Ovusoft system is the most widely used software system for tracking fertility. It is also used as an online charting system (Fehring, 2009). The Marquette online NFP services are in development. In 2007, they had a Web portal site, http://nfp.marquette.edu, and had begun to pilot the online program with fifty couples. The website had free information on NFP, downloadable charting systems, access to protocols for special circumstances (e.g., using NFP while breastfeeding), and instructions for achieving and avoiding pregnancy. A unique aspect of the information section of the website wass a one-page, simple Quick Start Instructions that can be read in five minutes and allows the user to begin charting and using NFP (Fehring, 2009). Couples who register on the Web site are able to access their electronic charting system, the discussion forums, and have consultation from professional nurse NFP teachers, an NFP-only physician, and a Catholic moral theologian. The charting system also notified the user of possible health problems, including unusual bleeding, infertility, and cycle dynamics that are out of the norm. However, none of these systems has been studied for its efficacy and ease of use; further-

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more, the efficacy of these systems will only be as good as the NFP method that they provide (Fehring, 2009).

A quick-start approach (providing the method at any time in the cycle) to TwoDay method was tested which revealed that there is no need to limit delivery of the method to the first seven days of the menstrual cycle (Jennings, Sinai, Sacieta, & Lundgren, 2011).

There is potential to improve family planning method choice and method mix by expanding use of the Standard Days Method (Beckle and Fantahun, 2012). In line with this, Bridge was formulated as a family planning method transition to the Standard Days Method for postpartum women whose cycle regularity have not yet returned. A card was used starting with the first postpartum menses, and until either they are eligible to use the Standard Days Method or it is established that they are not good candidates to use that method and should choose an alternative family planning method (Sinai & Cachan, 2012).

In a study done on physiological signs of ovulation and fertility readily observable by women in 2013, it was seen that home urinary LH monitors are becoming more widely available and less expensive, giving women the potential to assess the ovulatory status of their cycle in real time. Both the ovulation and the symptothermal methods are considered to still have a method effectiveness of at least 98% (Klaus, 2012). Cervical mucus observation is an effective and cost-efficient method, but requires some teaching to increase the confidence of users (Owen, M., 2013).

The ancient custom of a period of abstinence after childbirth has now fallen into disuse (Fehring, Schneider, Raviele, Rodriguez, & Pruszynski, 2013).

Rhythm method was used in the early and mid 20th century, but is essentially no longer in use today. The Rhythm Method uses a woman's previous menstrual cycles to predict the days of fertility, whereas methods like the Creighton Model use current signs and symptoms of a woman's body to determine the days of fertility (McVeigh, 2013).

The Marquette method (MM) is a flexible system whereby patients can use cervical mucus and temperature observations in conjunction with the ClearBlue Fertility Monitor (CBFM), an algorithm to clarify the beginning, peak, and end of the fertile window (Peck, 2013). A variation of this, the Marquette Lite method, can easily fit into a 15–20-minute office visit. The web-based charting, online instruction and user's forum greatly assist teaching efforts. The monitor is easy to use and provides fertility assessment information which is objective and reliable (Peck, 2013). A Marquette postpartum protocol was also developed to assist women in identifying their return of fertility postpartum to avoid pregnancy. The website and protocol was said to be an improvement over other methods of naturally regulating fertility(Bouchard, Fehring, & Schneider, 2013).

Despite advances, given the variation in, and lack of knowledge of the menstrual cycle, it is still unclear whether apps are helping women to identify their actual fertile window. A study also reinforced the importance of including reproductive literacy in health classes in middle and high schools.(Guzman, Caal, Peterson, Ramos, & Hickman, 2013)

LH and progesterone surges allow reliable detection and confirmation of ovulation. Hormonal endocrine monitoring is a good measure for family planning, for achieving pregnancy, and for detecting menstrual cycle irregularities (Roos, et. al. 2015). LH kits may offer an adjunct for women who may wish to have an additional double-check. However, there are still clinical circumstances when even an LH kit does not provide confirmation (Leiva, et. al, 2014).

No difference was found in levels of stress between women using digital ovulation tests (Clearblue Digital Home Ovulation Tests) to time intercourse compared with women who were trying to conceive without any additional aids. In addition, their use did not negatively impact time to conception in users but may provide additional benefits, including an increased understanding of the menstrual cycle, reassurance and confidence in focusing conception attempts to the correct time in the cycle (Tipadly, S. et. al. 2013).

Standard Days Method scale up is continuing in Rwanda, as it is in other countries, and the Maternal and Child Health Task Force and other family planning actors are organized to ensure sustainability of method integration (Igras, et. al, 2014).

In one survey, almost as many use natural methods as modern medical methods. The most popular natural method among most age groups is periodic abstinence/SDM, followed by LAM, with withdrawal very rarely practiced in one country in South Africa. Nonuse of modern medical methods or condoms among women wanting to avoid pregnancy may not automatically translate to unmet need, but instead may show that these women feel that their needs are better met through the use of natural forms of fertility regulation (Rossier, Senderowicz, & Soura, 2014).

The Peak Day method is a novel and simple method for timing assessments for exposures relevant to fertility,

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pregnancy, and perinatal outcomes that would be difficult or impossible to assess retrospectively with precision (Porucznik et al., 2014).

LAM was defined during the 1988 Bellagio Consensus Conference in Italy as the informed use of breastfeeding as a contraceptive method by a woman who is still amenorrheic and does not feed her baby with supplements for up to six months after delivery. According to the in one review in 2015, amenorrhoea should be redefined as no vaginal blood loss for at least 10 days after postpartum bleeding (Van der Wijden & Manion, 2015).

The LAM was introduced as a safe contraceptive method and a method to delay menstruation. Much effort and money was put into its promotion. However, in the review conducted by Van der Wijden & Manion, they found no differences in pregnancy rates between motivated and supported LAM users and women 'just' fully breastfeeding and staying amenorrheic. The suggestion that LAM delays the recurrence of menstruation more than does exclusive breastfeeding could not be supported (Van der Wijden & Manion, 2015).

In a study by Ecochard, Duterque, Leiva, Bouchard and Vigil, it showed that the self-identification of the biological fertile window by the observation of any type of cervical mucus provides 100% sensitivity but poor specificity, yielding a clinical fertile window of 11 days. However, the identification of the biological fertile window by peak mucus (defined as clear, slippery, or stretchy mucus related to estrogen) yielded 96% sensitivity and improved specificity. The appearance of the peak mucus preceded the biological fertile window in less than 10% of the cycles. Likewise, this type of mucus identified the ovulation window with 88% sensitivity. They concluded that the results suggest that, when perceived accurately, more accurate clinical self-detection of the fertile window can be obtained by identification of peak mucus. This may improve efforts to focus intercourse in the fertile phase for couples with fertility concerns (Ecochard, Duterque, Leiva, Bouchard and Vigil, 2015).

In 2015, there was an app called "Natural Cycles" developed to determine a woman's ovulation day and fertile window, to be used as a method of natural birth control (Scherwitzl, et. al., 2015). A pilot study that evaluated the Natural Cycles web and mobile app concluded that it was effective at identifying a user's ovulation day and fertile window and can therefore be used as a natural method of birth control (Berglund Scherwitzl, Lindén Hirschberg, & Scherwitzl, 2015).

A review in 2016 designed an objective criteria with which to evaluate the primary literature available for FABMs and OCPs. Strength of Recommendation Taxonomy (SORT) criteria were established first for the FABM review and then adapted for the OCP review (Adapted SORT). The review concluded that it is possible to make objective comparisons of effectiveness rates between FABMs and OCPs based on SORT and Adapted SORT criteria (Dumitru & Duane, 2016).

The Toolkit for Training Community Health Workers in SDM from Georgetown University's Institute for Reproductive Health may be effective at increasing core concepts related to fertility and SDM in Haitian health care providers. Haitian providers expressed great interest in learning and teaching SDM (Quigley & Wofford, 2016).

A literature review later scrutinised a claim made by the Institute of Reproductive Health (IRH) at Georgetown University, USA, that the Standard Days Method is 95% effective, rivalling that of pills and condoms; it concluded that the claim did not stand up to scrutiny. Perfect effectiveness figures may be misleading and 'typical effectiveness' figures, cited as 88%, are based on an unrepresentative sample of women using SDM in atypical ways, and are very likely overestimates (Marston & Church, 2016).

A new method, the Couple Bead Method integrated the strengths of existing methods and at the same time addresses their limitations. Couple Beads use day-specific pregnancy probabilities as does the Standard Days Method and, like the Billings Ovulation Method and TwoDay Method, use cervical mucus observations. With Couple Beads, these two fertility indicators are integrated so that background pregnancy probabilities based on cycle day can be made more specific based upon the absence, presence, and characteristics of cervical mucus observations. As a relatively simple method, it can be used by women and couples of all educational levels. By combining two fertility indicators, it can be used in women at all phases of their reproductive life including regular cycles, breastfeeding/LAM, transition, and irregular cycles (Mulcaire-Jones et al., 2016).

Nearly 100 apps are marketed to allow women to track fertility and menstrual cycles. Majority were not based on evidence-based FABMs or include a disclaimer discouraging use for avoiding pregnancy. Relying solely on an app to use an FABM, without appropriate training in the method, may not be sufficient to prevent pregnancy (Duane, Contreras, Jensen, & White, 2016).

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A study explained that FABM has diagnostic and therapeutic advantages. Patient's continued observations and charting can then allow her and the physician to monitor the effect of the treatment (Danis, Kurz, & Covert, 2017).

According to a review done by Su, Yi, Wei, Chang, & Cheng (2017), there is a new developed cotton-based cervicovaginal fluid collecting device which has been found to be effective and inexpensive.

4.2.1. What factors influence the adoption of Natural Family Planning
4.2.1.1 Factors related to the healthcare provider

RELIGIOUS AFFILIATION
According to Kippley in 2001, the Catholic physician should be Catholic in his approach, who should be well acquainted with all the components of contemporary Natural Family Planning. He should let his patients know about all the signs and how they can work together in a cross-checking way or separately. He should leave the choice of a multi-component or single-sign system up to them on the basis of their knowledge and experience, not ignorance of what is available. He should not criticize or denigrate those who choose a system different from that used by him and his spouse. Every Catholic physician needs to accept his or her responsibility to be part of that "broader, more decisive and more systematic effort to make the natural methods of regulating fertility known, respected and applied" called for by Pope John Paul II. Understanding all the common components of Natural Family Planning and their relationships with each other will enable the physician to give that wise counsel called for by Humanae Vitae (Kippley, 2001).

Physicians with no religious affiliation were more likely to tell their patients that NFP does not work; those with a religious affiliation were more likely to give written information about NFP regardless of the type of religious affiliation.

EXTENT OF KNOWLEDGE
In a study conducted by Fehring in 1995, results among the respondents showed that greater than 50% of the physicians and almost 50% of the nurses who responded to the survey did not learn about NFP in their generic program. These percentages do not change according to the year of education. The majority who did learn about NFP received the information in a lecture and textbook format. The average time spent on the information in the lecture was an hour or less and what was read in the textbook was a few paragraphs or less. The predominant methods learned in the generic programs were rhythm or basal body temperature (BBT). A majority (greater than 80%) of both physicians and nurses learned about NFP outside of their basic program. The majority did so through on-the-job training and self-education.

In the study by Beerman (2010), there is incomplete knowledge of NFP among health-care professionals as well as a paucity of information regarding inclusion of NFP in health-care providers' professional curricula.

In 2011, a study of 1154 Obstetrics-Gynecologists in the US, majority of physicians consider natural family planning to be a poor option for most women portraying a lack of confidence among physicians with the use of Natural Family Planning. A third believe it is the best option for some women, whereas few believe it is the best option for most women (Lawrence,Rasinski, Yoon, Curlin, 2011).

Currently, most physicians are not aware of the availability and effectiveness of Fertility-Awareness Based Method, but they should educate themselves and seek out trained providers of FABM in their area, so that they can offer these options and support couples who choose the FABM approach to planning their family (Manhart, Duane, Lind, Sinai, & Golden-Tevald, 2013).

Research suggests that when clinicians or health educators teaching FAM are skillful, women tend to be successful at using FAM (Guzman, Caal, Peterson, Ramos, & Hickman, 2013).

A study entitled "Survey of New York State Family Physicians Regarding Natural Family Planning Beliefs and Practices" showed that about half of participants in the study indicated that they did not counsel patients about NFP because they did not have adequate training (Morelli, Callaghan, & Duane, 2016).

One of the limitations stated in literature is the inability of the instructor or a program to effectively teach the concept, many reports on NFP effectiveness do not adequately describe the teaching rules or methodology used. Some providers state that clients do not want these methods, but provider bias is evident. Providers overestimate the difficulty of learning and using fertility awareness-based methods, and they underestimate their effectiveness in providing adequate information. Many providers lack gender sensitivity, worsening the unequal relationships the

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costs and time associated with the implementation of a learning phase that, according to experts, could take two to three cycles of training in a small group or individualized (Zinaman, 2006; Lamprecht & Trussell, 1997).

Older physicians were much more likely than younger physicians to describe Standard Days, cervical mucus, and basal body temperature methods to patients (Choi, Chan, & Wiebe, 2010).

TIME AND AVAILABLE RESOURCES

Natural Family Planning methods require a considerable amount of teaching time for their effective use by women and couples, as well as follow-up and the development or use of a teaching and charting system (Fehring, R., Hanson, L. & Stanford, J., 2001). It is much more dependent on adequate and conscientious instruction for effective use than are other methods of family planning (Stanford & Smith, 2000) (Matis, 1983).

Fehring, Schneider, & Barron (2008) noted that the Marquette method was time consuming for the health professional to teach and for the women and for the couples to learn how to use with confidence.

Among the women's health care providers who participated in a study by Kelly, et. al in 2011, they had considerable variety in understanding what constitutes NFP and how the method was used in clinical practice. They perceived that there were limited community resources appropriate for their patients and few NFP consumer educational materials available. This lack of resources contributed to difficulty or a total inability to provide NFP education to patients. Results of this study showed that there is a need for increased NFP training for providers and efficient NFP patient teaching strategies to meet the needs of patients with limited knowledge about fertility (Kelly, et. al, 2011).

In a study by Witt, McEvers & Kelly (2008), there was a reluctance seen in the acceptance of Lactational Amenorrhea Method. The reluctance of it as an effective contraception may in part be due to traditional theoretical education of midwives. The reasons for this apparent mistrust of LAM are unclear. It could be due to a lack of good quality up-to-date evidence-based education and training or lack of information and guidelines for midwives who give advice to women on appropriate contraception. It could also be due to the historical education of midwives, which warned that breastfeeding could not be relied upon for women looking for effective contraception.

In the year 2011, Kelly, et. al conducted a study entitled "Clinician Perceptions of Providing Natural Family Planning Methods in Title X Funded Clinics" the providers who participated in the study saw NFP as a complex method that many or most of their patients were not able to use effectively. Findings from this study demonstrate that an opportunity exists for staff and consumer training as well as information-sharing strategies about NFP among providers. However, the women's health care providers who participated in this study were frustrated about their desire to encourage the use of NFP as a contraceptive method because in their experience, NFP is quite time consuming.

In the study by Morelli et al (2016) a third of respondents indicated that they did not have sufficient time to counsel patients about NFP.

DEMOGRAPHIC CHARACTERISTICS INFLUENCE PHYSICIANS' COUNSELING PATTERN

Many complex factors influence physicians' counseling patterns, and it is possible that patients' demographic characteristics (such as single or married, or religious affiliation) determine whether physicians mention NFP as an option (Choi, Chan, & Wiebe, 2010).

Correct use of the SDM depends to a great extent on the ability of providers to screen clients effectively and teach them how to use the method successfully. SDM counseling requires working with clients to determine whether the method is appropriate for them and will suit their lifestyle (Gribble, Lundgren, Velasquez, & Anastasi, 2008).

PROVIDERS' INFLUENCE ON HEALTH-SEEKING BEHAVIOR

Many reacted favorably to NFP because of the attitude of the teacher, which never contained any element of coercion (Owen, 2013; Fehring, Schneider, Raviele, Rodriguez, & Pruszynski, 2013; Su, Yi, Wei, Chang, & Cheng, 2017).

Other reasons for STM use were advices by medical personnel and reading the respective literature. Only 5% of the surveyed persons received informations on NFP/STM within a "preparation-course for marriage" (Rhomberg, Rhomberg, & Weissenbach, 2013).

Women's reasons for not choosing NFP have been better studied than their reasons for choosing it. This includes lack of access to NFP instruction (Beeman, 2010; Manhart, Duane, Lind, Sinai, & Golden-Tevald, 2013; Burkhart, De Mazariegos, Salazar, & Hess, 1999; Freundl, Sivin, & Batár, 2010; Fehring, 2009; Fehring, Hanson, & Stanford,

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2001). Couples interested in Fertility Awareness Based Methods are less likely to adopt these methods if their physician provides no information or inaccurate information about effectiveness and use (Manhart, Duane, Lind, Sinai, & Golden-Tevald, 2013).

A study indicated that lack of credibility of the methods among health professionals and the general public is one of the reasons for low NFP usage (Fehring, Hanson, & Stanford, 2001, Fehring, 2009). It should be noted that If a woman perceives her provider to be discouraging of NFP, it is only natural for her to follow her doctor's or midwife's lead and choose an alternative method of family planning (Beeman, 2010).

4.2.1.2 Factors related to the type of NFP Method

EASE OF TEACHING AND LEARNING THE NFP METHOD

In 1997, it was seen that providers state that clients do not want Fertility-Based Awareness methods, but provider bias is evident. Providers overestimate the difficulty of learning and using fertility awareness-based methods, and they underestimate their ability to teach it effectively. Many providers lack gender sensitivity, worsening the unequal relationships between clients (Diaz, 1997).

Difficulty with the interpretation of mucus symptom was found to be a factor in unwanted pregnancies with symptothermal method and ovulation method. The most common errors were: failure to allow for variation in the menstrual cycle; calculating the safe period by counting from the beginning of the last menstruation instead of backwards from the expected date of the next period, and failure to allow at least a five-day sperm survival time. The need to calculate ovulation from an event which had not yet occurred seemed to cause great confusion. Ovulation method is effective during perfect (correct and consistent) use, with a first-year probability of failure of 3.4%. However, it is extremely unforgiving of imperfect use, with a first-year probability of failure of 84.2% if the method is not used correctly (Wade et al., 1979; Cole et al., 1975; Trussell & Grummer-Strawn, 1991).

A strength of the Two Day method is that it does not require users to differentiate between different types of mucus, and it does not require the woman to identify the peak day. But this lack of specificity may also be its weakness because women who notice secretions that are not of fertile type will interpret them as fertile and avoid unprotected intercourse even though they are not in their fertile window (Jennings & Sinai, 2001).

According to a study by Alliende et al. (2004), the use of BBT requires strict compliance with instructions. Also occasionally there is only a minimal increase in BBT which causes monophasic and unreliable charting. They recommend that BBT be used only when there are other fertile period indicators. Fertility awareness methods will be less reliable in premenopausal women with irregular menstrual cycles. The principal impediment to the application of the BBT method is that a number of factors other than hormonal changes affect a woman's BBT. BBT was less accurate than the other methods to detect ovulation (Alliende, Cabezón, Figueroa, & Kottmann, 2005; Baird et al., 2009; Dunlop, Allen, & Frank, 2001)

The Standard Days method which according to Arevalo, et. al is a natural family planning method that is simple and easy for providers to learn and teach and would necessitate less provider follow-up of clients than other natural methods which may make it more feasible for programs to provide (Arévalo, Sinai, & Jennings, 1999). This was proven by a study in 2007 wherein it showed that providers find Standard Days Method easy to teach, and health and family planning programs find it is relatively simple to add to the method mix they offer (Blair, Sinai, Mukabatsinda, & Muramutsa, 2007).

Kalaca et. al (2001), studied the use of the Standard Days Method in addition to the contraceptive method mix among Turkish women. The results of the study showed that 41% of the women who met the study eligibility criteria (not having oral contraceptives in the last 3 months; not receiving an injectable contraceptive in the last 6 months; having four or more periods since the last child was born; having the last three periods approximately at the time that they were expected; and having a cycle regularity between 26 and 32 days), could not use the SDM because of cycle irregularity. A major practical limitation of the Standard Days Method is that the method is not flexible enough to be effective with irregular menstrual cycles. The Standard Days Method appealed to women with different characteristics, which suggests that the method need not be targeted to any specific segment of the population The main reasons for discontinuation of Standard Days Method were distrust of the method and the long periods of abstinence/protected intercourse required (Kalaca et al., 2005; Gribble, Lundgren, Velasquez, & Anastasi, 2008; Schneider & Fehring, 2012)

The Marquette method was found to be time consuming for the health professional to teach and for the women and for the couples to learn how to use with confidence (Fehring, Schneider & Barron, 2008).

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A variety of possible explanations exist for why so many women who report using LAM violate one or more of the criteria for correct practice of the method, including lack of knowledge concerning the criteria, conflation of LAM as a contraceptive method with the act of breastfeeding, and reporting errors in survey questions that were used to assess the accuracy of LAM practice self-reporting. The major problem reported with LAM was night-feeding and fear of efficacy. A study cited that pregnancy during breastfeeding is common in Egypt and is often unintended. There is great potential for using LAM, but it must be properly taught, and women should be encouraged to start using effective contraception as soon as any of the prerequisites of LAM expires. Many of these pregnancies occur, while breastfeeding is being relied upon as a method of contraception, and they have consequences for the health of the mother (including for some the consequences of unsafe abortion), existing children and of the baby conceived .The most central concern was that LAM users reported having infants older than 6 months of age, after which time LAM is substantially less effective as a contraceptive method (Fabic & Choi, 2013; O'Connor 1998; Shaaban & Glashier, 2008; Sipsma, Bradley & Chen, 2012).

PERCEIVED EFFECTIVENESS OF NFP METHOD

In a study conducted by Choi, Chan and Wiebe in 2010, it was seen that the majority of physicians who participated in the study they conducted significantly underestimated the effectiveness of NFP methods, and only a small proportion of physicians provide information about NFP during contraceptive counseling. In addition, when patients seek contraceptive advice, 50% of the doctors who participated in their study did not mention NFP as an option, 24% mentioned NFP with reservations, 22% mentioned it as viable option to selected patients, and only 3% mentioned it as a viable option to most of their patients.

In 2012, it was seen that the spread and popularity of fertility awareness based methods is low and their knowledge among physicians, including gynecologists, is also quite scarce. The publications mention high effectiveness with their proper use, but not with typical use, what indicates the need for increased awareness among medical practitioners and trainers, obtaining a better use and understanding of methods and reducing these discrepancies (Haghenbeck-Altamirano, Ayala-Yáñez, & Herrera-Meillón, 2012).

TECHNOLOGY SUPPORTING THE NFP DRIVE

Another method, the Marquette Lite Method, makes use of web-based charting, online instruction and user's forum greatly assist teaching efforts. This can be used by a variety of different patients, and can be taught in many different settings. This method can easily fit into a 15– 20-minute office visit (Peck, 2013).

COST AS DRIVER FOR ADOPTION

Continuation rates with natural family planning generally are higher especially in developing countries than with reversible technological methods (Klaus, 1982). Poverty may be a significant motivator for successful fertility awareness based method use because the cost of raising a child is high and access to conventional contraceptives is limited (Pallone & Bergus, 2009). The high continuation rates of modern family planning users balance the initial cost of instruction so that ultimately the method is more economical that any technological method (Klaus, 1982).

Low cost and immediate reversibility make NFP/FAM ideal for couples planning a pregnancy (Witt, McEvers, & Kelly, 2013). The cost of modern contraceptive methods, although often subsidized, presents a barrier for many consumers. Provider bias, legal restrictions, lack of youth-friendly services, and other factors further contribute to supply-side difficulties in family planning. Conversely, natural methods are perceived as free, discrete, always available, and typically not requiring a visit to a health center (Rossier, Senderowicz, & Soura, 2014).

Economic reasons and low cost were commonly cited reasons for use of cervical mucus, basal body temperature, LAM and SDM (Meng & Cho, 1989; Mcsweeney, 2011; Gribble, Lundgren, Velasquez, & Anastasi, 2008; Kursun, Cali, & Sakarya, 2014; Kalaca et al., 2005; Su, Yi, Wei, Chang, & Cheng, 2017; Hight-Laukaran et al., 1997; Sipsma, Bradley & Chen, 2012; Blair, Sinai, Mukabatsinda, & Muramutsa, 2007). Among these, cervical mucus was the least expensive (Owen, 2013; Fehring, Schneider, Raviele, Rodriguez, & Pruszynski, 2013).

4.2.1.3. Factors related to the end-user

RELIGIOUS AFFILIATION

A contraceptive method should be compatible with the religious beliefs of the couple (Petro-Nustas & Al-Qutob, 2002;). This compatibility drives couple's attraction to NFP (Witt, McEvers, & Kelly, 2013). Women who reported attending religious services (never vs. less than weekly or weekly or greater) were more likely to indicate an interest in using NFP, but specific religious preference had no apparent effect (Leonard, Chavira, Coonrod, Hart, & Bay, 2006). Subjects for whom NFP was their first family planning method, who were Catholic or who gave religion as their reason for choosing NFP were more likely to continue long-term use (France, France, & Townend,

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1997).

Sanctioning of some natural family planning methods by church officials have led to the association of religious organization. However, several religious groups, such as orthodox Jews, Roman Catholics and Black Muslims oppose the use of artificial contraceptives. The age-old questions "When does life begin?" and "What is appropriate sexual behavior?" strike deep cords in many people (Britt, 1977).

There are different opinions about family planning use in the Islamic religion. In general it is not looked upon favorably, and methods of birth control are considered by some to be contrary to the basic principles of Islam (Türk, Terzioğlu, & Eroğlu, 2010).

In the Philippine portion of the multicenter trials of the mucus method conducted by the World Health Organization, 27.22 percent of the acceptors said their primary reason for using the Cervical Mucus Method was religious/ moral (Meng & Cho, 1989; Mcsweeney, 2011).

In a survey conducted in four countries (Germany, Austria, Switzerland and Italy), most chose symptothermal method for conception regulation because it was a natural method, tips from friends, ethical/religious reasons and fear of side effects (Rhomberg, Rhomberg, & Weissenbach, 2013). LAM use also cited religious reason (Türk, Terzioğlu, & Eroğlu, 2010).

In a 2012 study by Rodriguez and Fehring, it was said that it is troubling (from a Catholic faith perspective) that the sexually active Catholic Hispanic women have more current use of female sterilization and the hormonal pill than non-Catholic Hispanics. It is also troubling that 21% of sexually active Catholic Hispanic women are sterilized. Another result showed that Hispanic women have a greater likelihood to have ever used Depo Provera, which is a hormonal method of birth control, while they have lower likelihood of using the most popular hormonal methods of birth control, the Pill. These findings show that contraceptive and faith knowledge does not impact birth control and disease-preventive practices in the study population.

The Creighton Method System has been developed and, to date, predominantly delivered in Catholic medical schools, Catholic hospitals, and other Catholic institutions in the United States, which is consistent with users at who are educated, white, engaged or married, and Catholic as seen in a prospective study on Creighton Model where it was stated that reasons for starting or resuming the use of the methods. All Creightyyon Method centers serve women and couples of any faith (or no faith), but the association with Catholic institutions means that the exposure and accessibility to the Creighton Method is greater for Catholic couples. In addition, the majority of women and men cited moral/ethical/religious reasons as a motivator for learning the Creighton Method, and many women and men indicated that they were motivated by the method being suggested by a religious leader (Stanford & Smith, 2000; Stanford & Porucznik, 2017;Stanford & Smith, 2000; Stanford & Porucznik, 2017).

CONTROL OF PREGNANCY AS GOAL OF NFP

NFP is the only method of family planning that can be used to achieve as well as to prevent pregnancy. Historically demographers have only concerned themselves with pregnancy avoidance. According to Fehring et al. in 2007, participants used NFP to avoid pregnancy within a 12 month period. In the same year, avoiding pregnancy was also seen as the reason in the study conducted by Frank-Herrmann, et. al. and was also the same as the objective of the subjects of Kursun, Cali, Sakarya & Sibel in 2007.

NFP is used by most respondents in studies for control of pregnancy or pregnancy rate which included either achieving or preventing pregnancy. It was also used to limit the family size (Guida, Tommaselli, Pellicano, Palomba, Nappi, 1997; Fehring, Schneider, Raviel, 2011; Guzman, Caal, Peterson, Ramos & Hickman, 2013; Schneider & Fehring, 2013; Lamprecht & Trussell, 1997; Klaus, 1982; Meng & Cho, 1989).

Natural Family Planning provides couples with a choice of whether and when to have children, can aid in the diagnosis and treatment of infertility and other gynecologic conditions, and can help couples embrace the emotional and relational aspects of their sexuality. NFP also need the husband's participation in the learning process which leads to a decreased unplanned pregnancy rate (Meng & Cho, 1989). It can also provide couples with security in their postpartum infertility, minimize the abstinence that might otherwise be necessary as a result of confusing mucus or basal body temperature observations, and allow couples to enjoy their new infant and renew their relationship. NFP can also be used also with the goal of getting pregnant coitus during peak estrogenic cervical mucus characteristics has also been shown to yield the highest pregnancy rates (Gross, 1991; Manhart, Duane, Lind, Sinai, & Golden-Tevald, 2013; Zinaman, 2006).

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PERSONAL GROWTH THROUGH SELF-CONTROL

In a study on teen prevention program conducted by Klaus, et. al in 2007, it concluded that the choices depend on the girl's life goals, the depth of her commitment to her partner, her ethics and her ego strength. High motivation to preselect the gender successfully for legal, social. cultural and economic reasons were seen as a reason for using Cervical Mucus Method (Meng & Cho, 1989; Klaus, et. al, 1987).

The NFP couple learn self control through a modicum of abstinence. They are able to think in terms of toning down their needs and respecting the difference of the other. They learn to distinguish between their emotions and thinking capabilities, a skill acquired through making objective observations and a thought-out decision regarding their joint fertility as a couple. Each is able to understand and integrate into their "solid-self' who they are as sexual beings. This give and take required of life-giving love calls for cooperation and communication. These skills in turn allow the couple to be goal-directed, seeking as their goal the good of each other within the context ultimately of their union with God. In addition, it enables couples to have the number of children they choose, and at the aggregate level it moderates population growth so that the community, the common good, will benefit (Kambic, 1991;Shivanandan & Geremia, 1992)

NFP AS A SHARED ENDEAVOR LEADING TO IMPROVED MARITAL DYNAMICS

Good intracouple communication is reflected as a factor for use of different NFP methods (Barker, Klaus, & Labbok, 1988).

Abstinence attitudes are critical to the understanding of NFP use. Continuers of natural family planning methods were more likely to perceive abstinence as helping their marital communication, as facilitating the expression of affection in other ways, and in fact, improving their sexual relationship (Daly & Herold, 1983). Continuers of NFP attached less importance to intercourse than did the discontinuers of NFP and were more likely than the latter to express affection in other ways during the time of abstinence (Daly & Herold, 1983).

Natural family planning requires the participation, cooperation, and responsibility of both partners (Matis, 1983). Both partners have to agree to the family planning method chosen and have to cooperate in its application (Klaus, 1982; De Leizaola-Cordonnier, 1995). Both men and women recognized the involvement and commitment of their partner is important for use of NFP; 94% of women and 96% of men felt their partner's interest is either "very important" or "important" (Unseld, Weigl, Masel, Manhart, Michael, 2017). In one study, more than half of women in the study said that their partners were involved in their choice of birth control, while providers influenced almost half. Friends and media were less important (Witt, McEvers, & Kelly, 2013). In a study by Kursun, Cali, & Sakarya in 2014, it was said that there is benefit in counseling both the woman and her spouse in SDM, as less than a quarter of women in one study who selected this method did not start using it because their husbands disapproved or distrusted it.

A study conducted by VandeVusse, et. al. (2003) showed that 74 percent of their respondents had positive comments on the effects of natural family planning on marital dynamics while 13% had negative comments. There were four themes under positive comments given by the respondents, while three themes under the negative comments. Enhanced relationship, Improved knowledge, enriched spirituality and method successes were amongst the themes of positive comments given by the respondents. On the other hand, strained sexual interactions, worsened relationships and method problems are among the negative themes of comments. Although NFP does require periodic abstinence if postponing pregnancy, in the study done by Unseld,et. al (2017), ninety-five percent of women and 55% of men said using NFP has helped them to know their body better. Large majorities of men (74%) and women (64%) felt NFP helped to improve their relationship while <10% felt use of NFP had harmed their relationship. Most women (53%) and men (63%) felt using NFP improved their sex life while 32% of women and 24% of men felt it was unchanged from before they used NFP. Seventy-five percent of women and 73% of men said they are either "satisfied" or "very satisfied" with their frequency of sexual intercourse three-quarters of men and women are satisfied or very satisfied with their frequency of sexual intercourse. On another study by Igras, et. al (2014) it was said that standard days method is a long-acting method since clients can and do continue to use the method for years. it helps to involve male partners, and it increases women's empowerment through basic understanding of their fertility . In general, a large majority of couples feel using NFP has helped them speak about their sexuality with their partner, improved their sex life, and improved the knowledge and understanding of their sexuality (Unseld, Rötzer, Weigl, Masel, & Manhart, 2017; Igras, et.al., 2014).

One study discovered that the percentage of ever married US women of reproductive age who ever used NFP had a relatively lower divorce rate of compared with the US women of reproductive age who never used NFP methods (Fehring, 2015).

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HEALTH BENEFITS AND RELATED CONCERNS OF END-USERS

For clients who desire family planning and oppose use of artificial measures such as chemicals and foreign bodies, the natural methods are the only alternatives to total abstinence. In a study by France, France, & Townend in 1997, it was seen that the majority of subjects were highly satisfied with NFP use, with the most common reasons for satisfaction being self-awareness, freedom from drugs, naturalness and effectiveness. According to a study of Kalaca et al. (2005), reasons for satisfaction in Standard Days Method were having unprotected intercourse during the infertile days and not having any side effects. Among the subjects some 47% of the participants were satisfied with the Standard Days Method and intended to continue using it.(Britt, 1977; France, France, & Townend, 1997)

Health and medical safety (absence of side effects, pain, or health dangers) are primary reasons for NFP acceptance (Barker, Klaus, & Labbok, 1988; Laing, 1984). The appealing aspects of NFP most frequently chosen were its naturalness, the absence of side effects and the opportunity to learn more about their own body and fertility (Leonard, Chavira, Coonrod, Hart, & Bay, 2006; Petro-Nustas & Al-Qutob, 2002). The most common reasons for satisfaction are freedom from drugs and naturalness (France, France, & Townend, 1997).

Natural family planning has not been known to cause any adverse pregnancy outcomes (spontaneous abortions, low birth weight, preterm birth), even among women who experienced an unplanned pregnancy during NFP use. It does not require pharmaceutical or procedural intervention which decreases the risk of side effect (Tolor, Rice & Lanctot, 1975; Bitto, Gray, & Simpson, 1997; Smoley & Robinson, 2012; Dumitru & Duane, 2016).

Many individuals oppose the introduction of artificial devices and/or drugs into their bodies (Britt, 1977). Women or couples interested in NFP wants to avert from hormones or "chemicals" and prefers methods that are "natural" (Beeman, 2010). Just like in a study by Witt, McEvers, & Kelly in 2013, almost 40% of respondents strongly agreed/agreed that no chemicals or hormones were important considerations in their contraception decision-making. Users also consider the lack of side effects and complications of the method, its cost-effectiveness, relationship-enhancing effects, education and the psychological reasons which particularly arise from the desire for a better understanding of the physiology of the body (Beeman, 2010; Audu, Yahya, & Bassi, 2006; Breslin 1997; Guida, Tommaselli, Pellicano, Palomba, & Nappi, 1997).

Among cited reasons for selecting the symptothermal, SDM, and Creighton was that they were natural and had no side effects (Kursun, Cali, & Sakarya, 2014; Gribble, Lundgren, Velasquez, & Anastasi, 2008; Kursun, Cali, & Sakarya, 2014; Kalaca et al., 2005; Stanford & Smith, 2000; Stanford & Porucznik, 2017; Rhomberg, Rhomberg, & Weissenbach, 2013; Blair, Sinai, Mukabatsinda, & Muramutsa, 2007).

Promotional program on SDM will enable the women to plan their pregnancies naturally and reduce the side effects of using oral contraceptives (Menachery, Noronha & Fernanades, 2017).

Major impediments to the use of modern methods of contraception among the respondents in a study by Inyangetoh & Abah in 2017 were the perception that they were not natural, they could fail, fear of side effects, and the feeling that they could cause infertility.

Fear of modern contraceptives (although they were available) and avoidance of abortion appeared to motivate the use of the calendar method. Fear of side effects of modern contraceptives among respondents in Peru and the Philippines was the motivating factor for the use of Natural Family planning (D'Arcangues, 2001).

CONVENIENCE AND SIMPLICITY

Respondents cited convenience (no need to get supplies, have an insertion, or interrupt the sex act) as a reason why they preferred NFP (Laing, 1984). The majority indicated that a contraceptive method should be practical (Petro-Nustas & Al-Qutob, 2002).

Women in industrialized country sites were more likely to mention convenience as reason for LAM use (Hight-Laukaran et al., 1997).

A contraceptive method should be easy to use (Petro-Nustas & Al-Qutob, 2002). Most women found the mucus symptom immediately recognisable. Cervical mucus observation is uncomplicated, but requires some teaching to increase the confidence of users (Owen, 2013; Fehring, Schneider, Raviele, Rodriguez, & Pruszynski, 2013; Su, Yi, Wei, Chang, & Cheng, 2017). The advantage of the Standard Days method and Two-day method over the Billings Ovulation Method and Symptothermal method is their simplicity (Arevalo, Jennings & Sinaim, 2003).

According to Kambic (1991), it is not that people cannot use the standard NFP methods, but the simplified methods are less technical, easier to learn.

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Uncertain reliability of NFP, was commonly cited as the most unappealing quality by less than 25% of respondents (Leonard, Chavira, Coonrod, Hart, & Bay, 2006). Lack of interest or dissatisfaction of method was described as one of the factors of dropouts from the use of natural family planning method (Wade et al., 1979). Periodic abstinence requirements and anxiety over unintended pregnancy could explain some of lack of use and acceptance of NFP methods (Fehring & Schneider, 2014).

In a study on expanding family planning options in Rwanda by introducing the Standard Days Method, four women left because they and their partner found the 12-day fertile window hard to observe (Blair, Sinai, Mukabatsinda, & Muramutsa, 2007). LAM may be the optimal form of contraception when all criteria can be met (Sipsma, Bradley & Chen, 2012).

SOCIOECONOMIC AND CULTURAL FACTORS

Current NFP users were much less likely to be Black and more likely to be Hispanic or other race, married, Catholic or other religion, have a bachelor degree compared to former NFP users and and never NFP users (Bertotti and Christensen, 2012). Social status was of no great importance in teaching a woman to recognize and chart the cervical mucus. Indeed, those of lower social status seemed relatively more observant and more easily taught (Flynn, and Lynch, 1976).

It was seen that women who were working or in training outside the home, women who were unmarried, and women with no children were more likely to be consistent users of NFP in a study of 506 women in Germany (Frank-Herrmann et al., 1991).

The use of Lactational Amenorrhea Method was high in women with a low educational level which may have been a result of the women's lack of economic independence; and social value judgments, such as being dependent on their husbands for decision-making (Türk, Terzioğlu, & Eroğlu, 2010).

LACK OF SUPPORTIVE PROVIDER

Couples seeking NFP instruction are many times at a loss to find a supportive health-care professional to teach them or help them find someone who can. The role of the instructor does not end with correct identification of the signs of cyclic physiology. The woman/couple must also be supported in working through the feelings engendered in altering one's self-concept, and subsequent sexual behavior (Klaus, 1982).

ENGAGING THE MEN IN NFP EDUCATION

In a study entitled "Engaging Men in Family Planning Services Delivery: Experiences Introducing the Standard Days Method® in Four Countries", SDM providers that were part of the study were particularly well positioned to address men and relationship dynamics because they have been trained to: (1) Assess whether the method will work well for the woman and her partner (including discussion of gender-based violence, sexual satisfaction, alcohol use and STIs, woman's autonomy to decide when to have sex); (2) Teach clients to use the method correctly, and consider the man's role in doing so; and (3) Help clients identify possible challenges they may face using family planning, and brainstorm to identify solutions (Lundgren, Cachan & Jennings, 2012).

PEER-MEDIATION AMONG WOMEN

It is advocated in the Billing's Method to teach it from woman to woman (Britt, 2006). The monitoring of cervical mucus, after a teaching phase, is highly cost-effective, as it requires no further monetary expenditures (Zinaman, 2006). As a woman uses the method and gains experience with the method, she can offer useful suggestions to others. Also, women usually feel more comfortable asking questions from another woman rather than from a male health professional (Britt, 1977). The method requires providers to invest substantial time in method instruction, more than what providers are willing or able to invest in the provision of a family planning method. Although intensive provider training as well as client–provider contact can result in a highly effective family planning method, for some women it may also limit access to the method (Sinai, Jennings, & Arévalo, 1999).

NON-HEALTH PROVIDERS AS SOURCES OF INFORMATION

Men in Sri Lanka, Philippines, and Hungary primarily learned about their method from their wives or partners. Men also reported informal means of obtaining information about their method. Older men in Peru (aged 31–45 years) stated that they learned about their method "on their own," and in Hungary some men stated that they learned about their method "by chance." Friends were also an important source for men in Peru. Women in the Philippines tend to learn about their method from elders in the family, including older male relatives (e.g., grandfather). In Peru, older relatives were a main source of information for the younger women and men. In Sri Lanka, Hungary, and Peru, friends were mentioned as a main source of information for women. Women in Hungary also mentioned books as a primary source of information. In Sri Lanka, newspapers were reportedly as important as

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friends as a source of information. Health workers were a source of information for men and women in Sri Lanka and older women in Peru. Some information was also picked up in school among younger persons in Peru (D'Arcangues, 2001).

MEDIA AS SOURCE OF INFORMATION

Among university students, sources of sexual information were mainly friends, books, school and mass media, with 0% for health professionals. The mass media are known to shape attitudes and beliefs in young people, and it is becoming more accessible to youth. In addition to printed media, there is high access to material on the Internet and television. Furthermore, friends play a critical role in the sexual behaviours of adolescents. This source of information is expected to be of low quality (Barbour & Salameh, 2009).

OVERCOMING PUBLIC PERCEPTION

While virtually every sexually active young man and young woman is aware of oral contraception and barriers, such as condoms, very few are even aware of NFP as an option. Given the strong evidence presented for why NFP is as good as, if not better than the common artificial forms of birth control, the reasons for the lack of awareness and utilization of these natural methods are numerous. Low use of NFP methods include their perceived low efficacy; the complexity of learning, using, and teaching these methods; and the prolonged (and often unnecessary) required abstinence. It should also be considered that there is no guarantee that a successful pilot program introducing a reproductive health innovation can also be expanded successfully to the national or regional level, because the scaling-up process is complex and multilayered (McVeigh, 2013; Fehring, 2009; Igras, et. al, 2014).

MASTERY OF THE METHOD

Several journals also stated the importance of the willingness of those enrolled in the program to practice and improve what they have learned. Awareness about contraception does not translate into willingness to practice the same; besides, general awareness about contraception could embellish inadequate knowledge that might be laced with misinformation and misconceptions.In a study by Sokkary, et. al, it said that of all contraceptive methods, participants were least likely to have heard of etonogestrel implants (18%), rhythm method/natural family planning (28%), and IUDs (32%). Adolescents and young adults performed poorly overall in this study demonstrating both the lack of overall knowledge regarding methods of contraception and misinformation about side effects (Inyang-etoh & Abah, 2017; Sokkary, et. al, 2013).

Mastery of natural family planning involves not only identification of the fertile phase, but integrating that knowledge into the couple's sexual decision-making and behaviors. Mastery of both aspects is achieved through accurate factual learning, as evidence by adequate feedback, verbalized satisfaction of the couple, and by their continued adherence to the method. Practical NFP results largely hinge on the user's mastery (Klaus, 1982; De Leizaola-Cordonnier, 1995).

MEDICATION AND ALCOHOL CONSUMPTION AS MEDIATING FACTORS

Other factors that limit the Natural Family Planning Method are the consumption of alcohol and caffeine, medication, smoking, or contact with potentially toxic products which creates detrimental environmental conditions for conception. Additionally, illness, disrupted sleep, and the use of medications can alter or interfere with the observation and interpretation of some biologic markers. The lack of diversity of birth control methods makes the presentation of hormonal birth control pills to women simply seem like 'The' form of birth control everyone must accept. In the past many have used calendar rhythm, but no organized programs promote it today in North America (Kippley, 2001; Brosens et al., 2006; Smoley & Robinson, 2012; McVeigh, 2013).

CONCLUSION

Our research shows that there is an increasing and evolving trend of research activity across all natural family planning methods. An interplay of factors among users and providers influence the use of natural family planning. Religious affiliation, effort and skill, education, advocacy, and demographic characteristics of providers have influenced NFP adaptation. Underestimated NFP activity, perceived complexity & time-consuming characteristic, and non-medical information sources were some identified issues that burden NFP acceptance and effectiveness. Evidence has revealed that among users, factors that influenced their use included socioeconomic factors, religious affiliations, health concerns, convenience and simplicity of the method, method mastery, provider influence and method -related factors. NFP as a shared endeavor has yielded improved marital relations.

Goals of respondents on using Natural Family Planning was mainly to control pregnancy. Research gathered show satisfaction of respondents depend on the desire for a natural approach and its positive effect on marital dynamics. On the other hand, the attitudes and perspectives of respondents depended on personal factors, exploration of sexuality, relationship dynamics and religious affiliation.

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Natural Family Planning has not been shown to cause any adverse pregnancy outcomes. It has been proven that it is a cost effective way to control pregnancy when done correctly. Research has shown that it even affects the dynamics of a relationship in a positive way. Natural Family Planning gives couples an opportunity to choose of whether and when to have children. It also give the chance to women to know more about their bodies which helps in embracing the emotional and relational aspects of their sexuality.

There are several factors that serve as limitations for NFP. The method on how NFP is thought needs improvement to increase its effectivity. An effective dissemination among healthcare professionals and a uniform curriculum for teaching NFP can improve the transfer of information to users. The attitude and discipline of the users also has an important role in making the program effective or ineffective. Couples who lack discipline or are new to the use of NFP are more prone to make errors. Constant follow up to couples practicing the use of NFP may help if they are new users. Lastly depending on the culture of the area and the socio economic standing of the users is also an important limiting factor of NFP.

RECOMMENDATIONS

The researchers would like recommend the following for future researchers: to include more search engines related to the gray literature, to include studies in other languages to reduce selection bias, and to conduct a systematic review on natural family planning methods. It is also recommended to do a national survey regarding the Knowledge, Attitudes and Practices of physicians in the Philippines as no local study of this nature was done before.

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