Natural Family Planning, an option in reproductive health care: a qualitative study on clinicians' perceptions.

Journal:	*The Linacre Quarterly*
Manuscript ID	LQR-20-0071.R5
Manuscript Type:	Original Research
Keywords:	Natural family planning, Reproductive health, Fertility awareness based methods, Contraceptives, Clinicians' perceptions, Effectiveness, Medical education, Nursing education, Qualitative, South Africa
Abstract:	Natural Family Planning (NFP) empowers women to control their reproductive health and approach fertility as a normal biological process. Although substantive literature supports their comparative effectiveness with contraceptive methods, there is a paucity of this knowledge amongst clinicians and users. This study aimed to understand clinicians' perceptions regarding offering NFP to patients as part of reproductive health care. It explored clinicians' knowledge of NFP, described their perceptions of their effectiveness, and identified enabling and deterring factors to their use. Basic Interpretive qualitative research design was appropriate in obtaining an in-depth description of this phenomenon. It was conducted in 2018 in two hospitals and clinics in Ekurhuleni health district, located East of Gauteng Province, South Africa. Fifteen doctors and nurses from diverse cultural and educational backgrounds were purposefully selected and interviewed. Transcribed data were analyzed, coded, and recurrent themes identified. Training that empowers clinicians on NFP methods and their effectiveness will improve their willingness to advocate for it and promote patient autonomy by providing comprehensive counselling on family planning methods. Further, a pro-NFP policy would drive training in undergraduate and postgraduate programs and increase public awareness, including early education of male and female children.

Abstract:

Natural Family Planning (NFP) empowers women to control their reproductive health and approach fertility as a normal biological process. Although substantive literature supports their comparative effectiveness with contraceptive methods, there is a paucity of this knowledge amongst clinicians and users. This study aimed to understand clinicians' perceptions regarding offering NFP to patients as part of reproductive health care. It explored clinicians' knowledge of NFP, described their perceptions of their effectiveness, and identified enabling and deterring factors to their use. Basic Interpretive qualitative research design was appropriate in obtaining an in-depth description of this phenomenon. It was conducted in 2018 in two hospitals and clinics in Ekurhuleni health district, located East of Gauteng Province, South Africa. Fifteen doctors and nurses from diverse cultural and educational backgrounds were purposefully selected and interviewed. Transcribed data were analyzed, coded, and recurrent themes identified. Training that empowers clinicians on NFP methods and their effectiveness will improve their willingness to advocate for it and promote patient autonomy by providing comprehensive counselling on family planning methods. Further, a pro-NFP policy would drive training in undergraduate and postgraduate programs and increase public awareness, including early education of male and female children.

Keywords:

Natural family planning, Reproductive health, Fertility awareness based methods, Contraceptives, Clinicians' perceptions, Effectiveness, Medical education, Nursing education, Qualitative, South Africa

INTRODUCTION

Background of the study

"Family planning allows people to attain their desired number of children, if any, and to determine the spacing of their pregnancies. It is achieved through the use of contraceptive methods and the treatment of infertility" (World Health Organization. n.d). Family planning methods will include contraceptives, fertility awareness-based methods (FABM), and natural family planning methods (NFP). NFP, a terminology that has been in use since 1970 (Fehring and Kurz 2000, 238-9), is intrinsically not contraceptive (World Health Organization, 1988, 1; Turner 2020, 2). NFP teaches the couple to plan or delay pregnancy by observing physiological signs and symptoms such as cervical mucus, basal body temperature (BBT), and measuring urinary hormones that determine when the woman is fertile or not in her menstrual cycle. The couple who wishes to get pregnant maximizes the potentially fertile phase, while abstinence from sexual intercourse should be practiced if the couple wants to avoid or delay pregnancy (World Health Organization, 1987, 1). NFP precludes the use of chemicals, mechanical barriers, surgical procedures, or the practice of *coitus interruptus, unlike FABM*.

(Fernández-Crehuet and Gómez-Gracia 1994, 140; Lopez del-Burgo and Jokin de Irala 2011, 21). Tracking changes in cervical mucus provides the couple information on the woman's fertile window and helps monitor her reproductive health.

Family planning methods have been classified as original or modern. Following a consultative meeting by the World Health Organization Department of Reproductive Health and Research and the United States Agency for International Development in January 2015 to address issues related to classifying contraceptives, the terminology, modern family planning method, was defined. The defining criteria were having *"a sound basis in reproductive biology, a precise protocol for correct use, and existing data showing that the method has been tested in an appropriately designed study to assess efficacy under various conditions"* (Festin et al. 2016, 4). Modern NFP methods include single-check methods like Billings Ovulation Method, Creighton Model System, TwoDay and Standard Days method, and double-check signs and symptoms such as Symptothermal methods and Sympto-hormonal methods like Marquette Model (Urrutia et al. 2018, 592). Modern NFP methods are currently taught due to their substantial scientific evidence (Fehring 2004, Beeman 2010, 400; Lopez del-Burgo and Jokin de Irala 2011, 21). They are based on the intrinsic relationship between the woman's cervical mucus, hormonal balance, and fertility status (Vigil, Blackwell, Cortes 2012, 428-30). The single-check methods give the cervical mucus pattern pre-eminence to indicate fertility or infertility in the woman's menstrual cycle. The double-

check methods simultaneously observe the pattern of cervical mucus secretion in addition to physiological symptoms and signs such as the position of the cervix, interpretation of the BBT, urinary hormone metabolites test, and others (Urrutia et al. 2018, 592).

NFP, *"offers couples the opportunity to approach fertility as a normal biological process"* (Unseld 2017, 2). It offers several benefits to users over contraceptive methods. Some of these are its lack of side effects, couple communication and relationship are enhanced, and the woman's fertility is preserved (Fehring 2018). NFP preserves fertility because it does not utilize hormonal contraceptives, which interferes with the woman's fertility or devices that affect the woman's reproductive system (Leonard et al. 2006, 313; Batar and Sivin 2010; Fehring 2018; Girum and Wasie, 2018). Further, NFP allows the *"sexual act to retain its integrity because the fertile natural potential of the act remains, along with its unitive or bonding nature"* (Fehring and Kurz 2000, 240). It is a method that is compatible with religious and cultural values and the psycho-spiritual health of many potential users (Pallone 2009, 15; Beeman 2010, 410; Unseld et al. 2017, 2). Other patient empowerment benefits are increased awareness of menstrual and fertility cycles, monitoring of gynecological health, easy availability globally, and patient-controlled instead of health care provider controlled. Consequently, it can become a component of preconception care (Kelly 2012, 35).

Unlike NFP, contraceptives can have a wide range of adverse effects, from minor effects such as nausea, allergic reactions, irregular bleeding to serious side effects such as migraine headaches, increased susceptibility to sexually transmitted infections (STI), and to fatal ones such as deep venous thrombosis leading to embolic phenomena, breast cancer as well as having abortifacient effects. Todd and Black (2020, 33) outlined some non-contraceptive benefits of oral contraceptives as a treatment for heavy menstrual bleeding and dysmenorrhea, premenstrual symptoms, acne, and hirsutism. A national survey of American women by Trussell and Vanghan (1995, 68) on contraceptives discontinuation and resumption rates showed an increasing trend in coming off the method. The longer the use of the method, the higher the rate of disuse of 31%, 44%, and 61% within six, twelve, and twenty-four months respectively. Leonard et al.'s study (2006, 314) of Hispanic women showed that about 61% show interest in NFP. Their appealing aspects were their naturalness, lack of side effects, and the *'opportunity to learn about their body and fertility.'* Despite these, clinicians primarily do not advocate for NFP. This position could be due to their little knowledge, misinformation, or misconception about modern NFP and their effectiveness, attributed to their non-inclusion in medical and nursing curricula. Clinicians with little knowledge of NFP are less likely to offer it to users or refer potential users to a certified NFP teacher (Snowden et al. 1988, 224; Fehring 1995, 96; Beeman 2010, 409; Kelly 2012, 36).

Statement of the problem

While a lot is known on users' choice and satisfaction regarding family planning methods, little has been researched on clinicians' perceptions of NFP (Snowden et al. 1988, 216). South Africa revised its National Contraception Clinical Guidelines (NCCG) to include all family planning methods aligned with international standards in 2012 (Government of South Africa 2018, 4). Unfortunately, there has been a mismatch between policy and advocacy for its implementation. As a national program, all contraceptive methods are promoted except NFP. In this way, concerns of users regarding side effects, health beliefs, myths and misinformation, religious convictions, and cultural practices are not addressed, nor the provision of alternative options to ensure that their rights to health needs are met.

Aim and objectives of the study

This study aimed to understand what would influence clinicians to advocate for NFP or not as an option in child spacing, achieving or postponing pregnancy during counselling sessions on a choice of family planning method. Further, the study objectives explored what clinicians knew about NFP, their perceptions, and barriers.

Significance of the study

Studies have shown that modern NFP methods are evidence-based (Pallone, Bergus 2009, 148; Urrutia et al. 2018) and have comparative effectiveness as contraceptive methods (Table 1). The effectiveness of family planning methods is reported inappropriately in scientific journals due to several factors. These are incorrect use and application of statistical terminologies; failure to take into consideration those factors that could influence reported effectiveness such as users characteristics of age, observation of abstinence during the fertile phase of the cycle as well as variations in design, implementation, and analysis of past studies (Turner 2020). Actual effectiveness can only be determined directly because no study can ascertain a priori the proportion of women who would have become pregnant had they not used the contraceptive under investigation (Trussell 2014, 1). The terms method (perfect use) and user (typical use) pregnancy rates were introduced in the 1980s in order to standardize measures of contraceptive effectiveness (Steiner et al. 1996, 25S).

Pearl Index (PI) and Life table (LT) analysis are currently two methods used for measuring contraceptive efficacy in clinical trials. PI, is the number of unintended pregnancies per 100 woman-years of exposure. The numerator is number of pregnancies, while the denominator is total number of months or cycles of use of method, from the start of the method to its discontinuation or completion of the study. The longer a method is used, the likelihood of decrement in pregnancy rate could be

because the user becomes more proficient and experienced in the use of the method, or those clients who are likely to fail on the method would have dropped off. PI thus provides only an approximation of the method's effectiveness.

LT analysis calculates the pregnancy rate for each month of use of the method. Further, it separates a method's discontinuation for reasons other than unintended pregnancy (Fehring, Lawrence, and Philport 1994, 2; Steiner et al. 1996, 24S; Trussell 2009, 206; Trussell 2013, 606, Urrutia et al. 2018, 594). Gross LT analysis or probability rate is used as an accurate measure of effectiveness. It refers to only women who discontinue using the family planning method because of unplanned pregnancy. As a result, it expresses a pure measure of unintended pregnancies (Steiner et al. 1996; Trussell et al. 1990, 206). LT analysis is superior to PI because it measures monthly pregnancy rates, enabling a cumulative calculation of pregnancy rates over 6 or 12 months to be made. Also, PI of studies of different duration cannot be meaningfully compared (Steiner et al. 1996, 24-25S; Trussell 2009, 206; Trussell 2013. 606). Consequently, PI has fallen into disuse as a statistical measure of contraceptive failure. (Steiner et al. 1996, 24-25S; Trussell 2013. 606).

In 2018, Urrutia et al. carried out a systematic review evaluating the quality of studies estimating typical and perfect use effectiveness of individual FABM. They concluded that each method's current evidence base is tiny and of low to moderate quality, few correctly calculated perfect use estimates, and typical use pregnancy rates varied

between and among methods. Some of the limitations to existing evidence that potentially affects effectiveness rates included failure to collect pregnancy intentions, inappropriately including or excluding pregnancies in effectiveness calculations, high attrition, and heterogeneity of populations and settings among the studies. All these obscure whether differences in their effectiveness estimates are due to methods or the population studied.

Understanding the comparative effectiveness of family planning methods could provide a missing link in the information that could influence family planning options both for users and clinicians. In the researcher's context, where rates of sexually transmitted infections - STI and human immunodeficiency virus (HIV) -; unstable relationships and teenage pregnancy are high, no similar study has been carried out. Besides contributing to existing literature, it could open up discussions around strategies to safeguard women's reproductive health, including preserving fertility.

MATERIALS AND METHODS

Study Design

The basic interpretive qualitative study design was the best approach to make meaning out of certain beliefs and practices around the NFP method. This approach entails learning how individuals experience and interact with their social world and the meaning it has for them (Merriam 2002, 4). Reflecting on Merriam's criteria for basic

interpretive research - *"how people interpret their experiences, how they construct their world and what meaning they attribute to their experiences"* (Kahlke 2014, 39-40; Cavazos 2017, 38) - the researcher sought to understand the meaning and interpretation thereof of this phenomenon in the context of the participants.

The researcher explored clinicians' knowledge of NFP, perception of their effectiveness, and identified factors that enabled or deterred offering it as an option for reproductive health care. The researcher obtained a description of these factors, made sense of the meanings expressed, and what the participants deemed contributory to their effectiveness or not.

The researcher was the primary instrument for data collection and analysis (Merriam 2002, 5) and immediately adapted to participants' responses, thus expanding her understanding through verbal or nonverbal communications. The research process was inductive, which entailed gathering data with subsequent analysis to identify recurring patterns or common themes that cut across the data (Merriam 2002, 5; Kahlke 2014).

This study was carried out in Ekurhuleni Health District, Gauteng Province, South Africa. It is a geographic region in the East Rand of the province with a dense population of 3,393,561 million diverse cultures, languages, and creeds; 93 fixed clinics and one district hospital forming part of the District Health System; three regional hospitals and one tertiary hospital. The clinics are the first entry point into the public health system and provide a comprehensive healthcare package. These clinical services

are rendered by nurse clinicians, medical officers, specialist family physicians, and district clinical specialist teams comprising a family physician, pediatrician, obstetrician-gynecologist, an advanced midwife, and a pediatric nurse. Ethics approval was obtained from the relevant ethics committees of both Family Science Institute, University of Navarra (02/11/2017), and Ekurhuleni Health District (GP201711_009).

The study population included all clinicians - nurse clinicians, medical officers, and specialist family physicians based at the primary health care level and obstetrician-gynecologists based at the hospital. All these render reproductive health care services in the district. Since the researcher's goal was to include participants representing a broad range of perspectives, the purposive sampling technique was the selection strategy. To obtain an in-depth understanding of this phenomenon, the participants selected were based in different parts of the district, of diverse nationalities, and coincidentally were exposed to different training institutions. The researcher approached the doctors and a nurse in a critical position. The clinics' operational managers identified the other nurses following explanations regarding the aim and objectives of the study. Participants were recruited telephonically, and those who consented verbally were contacted later for scheduled interviews. A total number of 15 participants were interviewed because of attaining data saturation or information redundancy.

Data Collection

A semi-structured interview questionnaire guide was developed, adopted with some modifications from Kelly's (Kelly 2012, 37). A pilot study was not done due to the clarity of the questions. The first part of the questionnaire consisted of participant's demographics: age, gender, marital status, country of origin, educational institutions attended, highest educational qualifications obtained, current job position, and years of work experience. The main questions were open-ended with sub-questions where applicable. These questions served as probes for participants. Other aspects explored were leads from the interviewees.

Data collection took place over two months, from December 2017 till the end of January 2018. Individual interview schedules were at the participant's convenience of place and time. Participants were reminded a day before the interview. Informed consent and permission to voice record the interview were obtained from each participant on interview day. Each interview was conducted in English with no language barrier, lasting 30 minutes. There were two extremes of 15 and 50 minutes. The researcher made observational field notes. The researcher did not deviate from her role as a data collection instrument (Merriam 2002, 5) but guided the interview and focused on the study objectives. Further, the researcher did not determine the number of participants but continued the interview until data saturation was achieved. Saturation

was applied because additional data did not lead to emergent or further identified themes (Saunders et al. 2018, 1894-5).

Data Management and Analysis

Data analysis was preceded by transcribing each interview verbatim by an independent party. Participants were assigned codes to ascertain confidentiality. The researcher listened to the voice recordings and read through the transcripts to ensure authenticity and fill in any gaps. Then, there was a thorough and attentive study of each interview transcript. Frequently recurring words and ideas were highlighted and concepts identified in different colors. The analysis process entailed an initial inductive coding for recurrent themes guided by the research aim and objectives. The researcher divided the analyzed data into four main sections: the first one looked at clinicians' knowledge, the second on effectiveness, and the last two on enhancing and deterring factors to the use of NFP. According to Erika, *"coding is the data analysis process that breaks the text down into the smallest units and reorganizes these units into relatable stories"* (Erika 2018). Coding followed categorization, where similar codes were pulled into the same categories.

Trustworthiness, which refers to how valid and reliable the research findings, was considered in four aspects (Elo et al., 2014). *Credibility* was ensured through

triangulation by comparing information from the digital recording, transcribed participant interviews, and field notes. An independent transcriber was used, and member checking was ascertained by forwarding transcribed and analyzed data for participants' review. The possibility of power conflict between the researcher and participant was foreseen, but this did not arise during data collection. The researcher's electronic analysis record would serve as an audit trail, ensuring *conformability* was observed in this study. Besides, four columns were created during data analysis to include questions explored and responses by the participants - codes, categories, and themes. The researcher highlighted words, phrases, and sentences in different colors for easy identification and back referrals. The study's findings are *transferrable* since they are similar to some reported results in the literature (Beeman 2010; Snowden et al. 1988; 229; Fehring 1995, 96; Pallone and Bergus 2009, 148; Beeman 2010, 409-410; Kelly 2012, 36; Lopez del-Burgo and Jokin de Irala 2011, 23).

Further, the richness in the lived experience is reflected in the context-specific themes from the study. The findings are *dependable*, with the possibility that other researchers will obtain similar results. The undertaken research processes are thus open to being subjected to review.

RESULTS

Demographic profile of participants

A total of fifteen interviewees (Table 2) consented to participate in this study - four Family Physicians, two Obstetrician-Gynecologists, four medical officers, and five professional nurses. Five of the fifteen participants were males, while ten were females. The training institutions of participants have not been reflected in Table 2 to ensure anonymity. Almost all participants (eleven) were Christians, two had no religious affiliation, and the researcher did not elicit this information in two others. The youngest of the participants was thirty-two years, and the oldest, sixty-four years. Participants' number of years in clinical practice ranged from one month to thirty-four years.

Themes and sub-themes

The emergent themes and sub-themes have been described below under the four main objectives explored in this study (Table 3).

1. What clinicians know about Natural family planning

Awareness versus being informed

Participants had vague ideas about the concept of NFP and a mix-up of which method is original or modern. Abstinence, breastfeeding, and *coitus interruptus* were original methods while monitoring vaginal mucus, Calendar methods and BBT were modern.

"Natural means we do not add anything. … that is why we call it natural……" (PN 5)

They expressed their knowledge of NFP using awareness or being informed inter-changeably. There was consensus that nurses and doctors are aware of NFP but not informed.

"..I think they are aware (doctors) *but my understanding is that they are aware but cannot apply the information. If you can't apply what you have been trained or had been informed, is that you still lack information because if you knew how, you would apply…"* (PN 3)

"Doctors, …. I think most of them are aware but when now you get a client that you have to then advise I think that's where we would be caught. Because now, that client will be asking you questions that probably you may not have answers for, you know. How reliable is it? And what are the factors that you know may affect its effectiveness? You know; yeah, and stuff like that. …. "Generally, nurses would also do badly…." (OG 1)

2. Perceptions of clinicians regarding the effectiveness of natural family planning

Participants shared some factors they deemed could influence effectiveness.

Being trained or being empowered motivates

Effectiveness as a concept is familiar to the medical profession but vaguely understood as it applies to family planning methods.

"…. a good contraceptive…as long as it prevents pregnancy. That's one thing because our main aim is to prevent pregnancy. So, if it prevents pregnancy, it would be doing a good job…" (MO 3)

All participants expressed that effectiveness is the main reason a patient would like to opt for NFP or clinicians would offer it, and it will motivate the clinician to seek formal training. All participants also affirmed being ignorant about the effectiveness of both NFP and contraceptives, although they know that no contraceptive method is 100% effective.

"...as far as I am concerned... in every family planning method, it's not 100% proof. There's always that percentage risk of falling pregnant whilst using the method. So, even this one cannot be 100%. There is still that risk of getting pregnant. It means it needs someone who knows how to... who can promote it effectively, demonstrate the potential and also be able to demonstrate that as much as these others also have a risk of you know failing pregnant, how you will promote it and will communicate with the potential user." (FP 3)

Training on NFP regarding their effectiveness will empower clinicians to opt for it in clinical practice.

"If effectiveness would be much higher than what I remember or think…. - 90%... - then definitely I would. I mean, this would be the safest method then in terms of side effects and other you know. This would be the ... one of the methods of choice for me" (OG 1)

Gender imbalance

PN 4 and 5, amongst the others, brought up socioeconomic circumstances of women's dependency on their partners who expect sexual satisfaction in return and thus create gender imbalance.

"...In the environment that we are living in, you know, our women are not...eeeh. Are not what,...are not free. They are not liberated to take control of their bodies. Because, most of them are not working, so they rely on the what you call the partner to give whatever they need. So sometimes you know that you're supposed to abstain from this and then if a man comes, some women can't say they don't have the right to their body. Yeah, it is a disadvantage because it's not safe. You are not protected from HIV and STIs." (PN 4).

"...Maybe the husband can say, 'Now I want to have my rights – my conjugal rights' so and the woman maybe can say, 'because in Africa, a man is the one who is leading'..." (PN 5)

Quality of education and counseling received by the user

OG 1 and PN 1 highlight the importance of the user's quality of training and counseling as some determinants of effectiveness.

"So basically, there isn't that much variation (effectiveness). But this one (NFP), the variation in terms of effectiveness can be wide depending on how it is applied, the counseling and so effectiveness depends on many factors, unfortunately. So yeah, it would be slightly low." (OG 1)

Most participants belabored patient education because this would enhance adherence and commitment to the method. Education affects both NFP and contraceptives.

"…. someone who would understand, someone who will understand cycles, someone who would follow instructions, someone probably with a predictable menstrual cycle. Yeah, regular cycles……because I believe there might be some mathematics that might come into play when you calculate fertility so I do not think it's for everyone not intelligent, you know……." (OG 1)

"Still education is part of it but I think it's to a lesser extent than for oral contraceptives where if you don't take it every day, you forget, and then it becomes dramatically less effective. I think all of them to an extent it has education as part of it. But to a certain degree or a varying degree that it does play a role." (MO 4)

Support from partner

A number of the participants indicated that support from the male partner would enhance adherence to the method. Two participants shared these ideas:

"You know, unless we actually start teaching the method at primary school, unless we start encouraging couples to attend family planning and we start it at a very young age so that as they grow up, they know that when we talk about planning the family it's both of us who must actually go to the family planning. For now, as it is now, it is very unlikely that you can teach a person and that person may not fall pregnant because now the other partner was not involved." (PN 1)

"Cooperation from the spouse. And then, if a woman is not married it's a problem. A problem because it might not sustain the relationship because it means if this man comes whenever, you know, you can't always have excuses that no, today you see my cycle is this way and all that, you know." (FP 3)

User related

Participants brought up some user-related factors that could influence the effectiveness of NFP. NFP was alluded to as the practical option to treat infertility. Other user-related factors would favor effectiveness, such as motivation and commitment, stable relationships, frequency of intercourse, and cheap and ready availability instead of stock-outs in contraceptives. Difficulty in learning the method due to high population illiteracy, multiple sexual partners, and the irregular menstrual cycle would not.

"You have to make an effort for it to work, otherwise it may not work and then you'll be blaming other people to say they didn't give me the information properly but yet it's you yourself. Because patients do come back to us. They'll say, 'Oh no. I wore a condom but it burst and I'm pregnant' or 'I used to come for injections but I'm pregnant' but maybe they doubted it. Now they want to shift the blame on other people…" (FP 6)

3. Factors that could push clinicians to offer Natural Family Planning

Being empowered

Participants have alluded to being empowered as a broad theme. NFP does not form a stand-alone lecture topic in the medical and nursing curricula; instead, it was *"hinted as a passing-by statement*," says MO 1. Being empowered is a general affirmation from almost all participants except PN 1, who is directly involved with training. All participants expressed in different ways that NFP is glossed over as that family planning method that is old-fashioned, not effective, and therefore should not be an option for patients.

According to MO 2, training is vital because being well-informed empowers. For FP 2 and OG 1, training that would inform one on how the method works and its effectiveness would change attitudes and practices. FP 1 lists some benefits of training as dismantling negative perceptions, making informed decisions, enhancing competence, and building convictions from personal experience instead of transferred experiences. It will improve knowledge, primarily if evidence-based, and would influence practice. Training for all participants will ensure completeness in medical and nursing education and prepare clinicians to provide comprehensive and accurate information on family planning methods.

"If I have perhaps more information about it, I can tell more women and educate them about this natural family planning." (PN 4)

"If I've got enough information around the topic then that would empower me to talk more about it." (MO 3)

"It's just that we've never given them that information. One: we do not know much of it. And then, number two: we are not taught. And then, if we were empowered or capacitated with that kind of information, I think we will give it to the patients. And the patients, I think, they would choose that one." (FP 4)

User related

a. Stable relationships

Couples in stable relationships are more likely to be committed and motivated to use NFP. Also, it reduces the possibility of risky sexual practices.

"I can initiate that in a couple that is married." "...I can recommend it to a couple, perhaps, who want to have a child. I can recommend it if both of them know that they are safe, that is, they stick to each other, they are HIV negative. I think we can recommend it to that couple" (PN 4)

b. User-initiated

Some participants brought up discussing and opting for NFP when the patient initiates it due to religious or cultural beliefs and experience of side effects of contraceptives.

"I think, yeah, if it's someone that asks for it or for whatever religious or cultural reasons don't want to use hormonal contraceptives. Maybe if it's someone that has a contraindication to hormonal

contraceptives but still you need to give them something to avoid pregnancy above and beyond, condoms...." (MO 4)

"There are clients whom you cannot give these artificial methods. They have side effects - some of them very severe side effects. Those clients, you actually have to sit down and teach them the natural family planning methods. Usually, they will comply because now they know that the other methods are not actually working on them. They experience severe side effects" (PN 1)

"...."I want to continuously have my periods," and most, 99.1% of patients who are injected, periods are interrupted. Based on these two statements I would be proactive on the method (NFP)." (PN 3)

Easy availability

NFP does not incur expenses for the user nor the government.

"Economically also it will help the government as well as us and our patients…Because in South Africa obviously it's the government, people go there for free injections, you don't buy it. But in other countries where you know that it is not for free, maybe it is you yourself who should do that (buy), I think it (NFP) will be cheaper for you. And it's easily available." (FP 4)

4. Barriers preventing clinicians from opting for Natural family planning in clinical practice

Some of these barriers could be clinician or user-related.

Clinician related

Professional culture

Some participants described one of those factors that would negatively influence their choice for NFP during user counseling for family planning methods as professional culture. One participant explained that professional culture would include colleagues' expectations to provide evidence-based information, pass on the medical knowledge one received to junior colleagues, and keep up the status quo. The medical training on family planning methods emphasizes contraceptives.

"…within the profession there are certain things that maybe we are expected to say as a doctor. There is no expectation that I, as a doctor, can tell a patient to take something natural. If so, I think if maybe patient will go out to say, hey this doctor, 'where did this one train?" (FP 1)

"Obviously sometimes people don't want to be the outliers, you go with the flow. However if you are able to justify to say this is how, why I did it and what not. So I think obviously you just fit into what is on the ground the same as the culture that we are taught, now we are also telling others. It becomes an ongoing thing that obviously we are just working on a promotion from our seniors and also even these students that are graduating they are gonna tell the others. So it is still going to be an ongoing thing." (FP 1)

a. Scientific versus natural

Another aspect of professional expectation is the acceptability of evidence-based information instead of natural suggestions or practices, which becomes questionable.

"…the con (for NFP) is that somehow maybe something natural has been solely associated with…practicing traditional…like you are venturing into the Sangoma…field." (FP 1)

b. Paternalism

By paternalism, the clinician thinks he knows what is best for the patient, and this should be offered.

"…. Because of ignorance, I don't think it's important because many people will fall pregnant if we use the natural one. No, they can just teach us to have more information about it, but we must not encourage people to use the natural one because if we are going to encourage or educate the community about the natural one, we'll have a high number of teenage pregnancies…" (PN 5)

c. Curative approach to modern medical practice

One participant shared that medical training has been conditioned because it is geared towards curative care and meeting patients' demands instead of preventing or promoting healthy living.

"… Maybe the way our training is geared towards, is geared towards treating and even the obvious contraceptives we know that it's obvious its preventive proof but is more of medical, you must give something…I mean even if you are seeing a patient who is infertile, if you just give eh the advice to say…

she still wants you to give her something… because I think we have been conditioned to say …just educating someone you feel like you have not really done anything…" (FP 1)

User characteristics

Some user-related factors identified by participants, such as specific age groups, medical conditions, level of education, risky sexual lifestyle, create barriers and prevent clinicians from offering NFP. A few participants felt strongly that a teenage age group is an at-risk group due to their risky sexual lifestyle. As a result, NFP is not an option for them.

"…I'll reserve (NFP) only for couples that I know are formal couples. I'll never with the young adolescents or teenagers or young adults who, they are always having these floating relationships." (MO 1)

Participants expressed that the user's level of education will pose difficulties in grasping the complexities of information regarding NFP.

"..The mathematics of calculating the fertility period I'm sure that the health worker can do that … it is workable. But it would need someone (user) who would really understand and who will be, that's the other thing, committed..." (OG 1)

Partner cooperation

Any relationship includes two people, most participants highlighted.

"And then the other problem is you may forget, it depends on the... on your partner. They think you are just refusing to have sexual intercourse with you. Unlike when you can just swallow a tablet and like the whole month you won't, you know you won't be affected." (FP 4)

Lack of Advocacy for natural family planning

Policy precedes advocacy. All (thirteen) except two participants (FP 3 and PN 1) are unaware that modern NFP methods are included in the South African NCCG. Further, for most participants, the exclusion of NFP from medical and nursing curricula confirms a lack of supporting policy. Participants will promote NFP if there is a policy such as a national guideline.

"No, as long as I have information about it and if it is there in the guideline, I don't see any reason why I should not refer the patient (to accredited NFP teacher)*. As long as the government recognizes it."* (PN 5)

Our population remains ignorant of NFP because clinicians do not talk about them.

".... So yeah, it will be helpful (training in NFP), because I think we are denying people choices. You can only choose if you know. In fact, it should start from national because as much as they write these things, they promote everything except the natural method...." "...So, you know when you promote something, it raises awareness and also, it makes you curious to know more because it's something that you need to promote...." (FP 3)

Advocacy should go beyond the early education of females but should include males.

"It requires a knowledgeable person to give… to empower the young. And it shouldn't only be the girls. It should be both boys and girls." (PN 3)

"…. We need to pay attention to both methods, full attention; fully talk about the natural one and the unnatural one, but start talking about it at a very young age and also try and start talking about family planning to male children…. It's to start talking about it to children at a very young age... I think from grade seven at primary school." (PN 1)

Promoting NFP will empower patients to make informed choices.

"…….it gives women more options. It gives women more choices in terms of managing their own reproductive processes instead of them always getting this prescriptive sort of information…" (MO 1)

DISCUSSION

This study is the first of its kind in the researcher's context with high rates of sexually transmitted infections - STI and HIV -, unstable relationships and teenage pregnancies. Consequently, reproductive health education and promotion in public and medical media and patient encounters with clinicians emphasize dual contraceptive methods (condom and hormonal contraceptives). This study has provided insightful information influencing acceptance of the practice of NFP among clinicians. The more significant number of female participants could be explained by the generally high female: male ratio of clinicians in the district, both for doctors and nurses.

Awareness, being informed, and knowledge was used interchangeably by participants. In the study of Trevethan (2017, 3), awareness and knowledge were described as two poles of the continuum of the knowledge domain. Awareness was ascribed to the lower pole to represent *"people having no, or very little knowledge about a topic at hand"* and knowledge to the higher pole of the continuum *"based on information specificity and accuracy."* Drawing from this model of distinguishing these two terminologies, it seems clinicians may have heard of NFP, have little facts, or misrepresentation of facts, which could have created limitations in acquiring personal convictions, practice experience, and therefore unable to search further. All participants did not know which NFP method was original or modern. This finding is in keeping with Beeman's study (2010), which was attributed to its lack of inclusion in the medical curriculum. The majority of the participants stated that the NCCG does not contain any information on NFP; therefore, there has been no push for professional competence in clinical practice in this area. Lack of knowledge of NFP by clinicians has also been reported widely in other studies (Snowden et al. 1988, 229; Fehring 1995, 96; Pallone and Bergus 2009, 148; Beeman 2010, 409-410; Kelly 2012, 36;). Knowledge acquired through in-depth formal training empowers and boosts personal confidence. Participants have rightly expressed the influence of knowledge as building convictions, dismantling misconceptions, opening horizons for experiences, and changing attitudes towards NFP. The study on the impact of introducing an elective course on Sexuality and Human Reproduction as part of a

medical degree in medicine at the Faculty of Health Sciences, University of Navarra, Pamplona, Spain (Lopez del-Burgo and Jokin de Irala 2011, 23) confirms this finding. Knowledge and competency on modern NFP methods would push clinicians to promote and practice it and provide complete and accurate information to patients.

Among the participants, there was consensus that no family planning method is 100% effective. There seems, however, ignorance regarding evidence on effectiveness for both NFP and contraceptives, although participants have the assumption that contraceptives generally have higher effectiveness rates than NFP. Choi et al.'s (2010) study showed a similar result. Training that empowers clinicians on comparative effectiveness rates of NFP and contraceptives will motivate clinicians to use it in reproductive health education and promotion. Participants alluded to user characteristics of quality of education and counselling, support from partner and socioeconomic dependency of women on their male partner that creates gender imbalance in the relationship in the sense of having no control over sexual demands, as unfavorable for the effectiveness of NFP methods. Gender imbalance, a user characteristic that could influence effectiveness, has not been reported in other studies. Snowden et al. (1988, 216) have shown that the quality of patient education and counseling would determine patient adherence to the method and thus effectiveness. Other user-related factors such as the utilization of NFP as a therapeutic approach to infertility, stable relationships, the

cheap and ready availability of NFP could motivate and make users committed to NFP methods and thus could contribute to improved effectiveness. These findings are similar to studies by Snowden (1988), Choi et al. (2010), and Kelly et al. (2011). They showed that patient selection such as stable relationships (married couples), those who have expressed internal motivation and therefore committed, and those whose medical risks preclude the use of contraceptives positively influence the choice for NFP. Further, Fehring et al. (2013) showed a direct correlation between mutual couple motivation to use NFP and lower rates of unintended pregnancies.

Illiteracy will lead to difficulty understanding NFP methods' complexity, multiple sexual partners in adults, experimental sexual lifestyle in adolescents, and irregular menstrual cycle were other exclusion factors for potential NFP users in this study. According to the Fact Sheet on adult illiteracy in South Africa, *"literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, develop their knowledge and potential, and participate fully in their community and wider society. It measures adults' proficiency in key information-processing skills such as literacy, numeracy, and problem-solving in technology-rich environments"* (Department of Higher Education and Training, South Africa, 2021). South Africa's 2019 statistics showed an adult illiteracy rate of 12% (4.4 million adults primarily within the workforce age group).

This rate is high and worrisome compared to the global illiteracy rate of 14% (Department of Higher Education and Training, South Africa, 2021). In any case, illiteracy was not a barrier to the use of NFP in other studies (World Health Organization 1981, 591-7, Kabonga, Baboo and Mweemba. 2010) nor user vulnerability (World Health Organization. 1981).

Further, evidence has shown that early education of both male and female children prepares them to be responsible adults. It reduces risky sexual behaviors, resulting in a delay in onset of sexual debut, decrease in sexual activity among sexually active teens, reduction in teenage pregnancy rate, and improvement in teens' attitude towards abstinence (Cabezón et al. 2005, 68; Vigil et al. 2005, 1181). Gender imbalance, illiteracy, and education of both male and female children stand out as important factors that would influence the effectiveness of NFP and should be considered in the researcher's context.

Motivation leading to commitment in the use of NFP is a behavioral change. Behavioral changes apply to all family planning methods and lifestyle modification programs, such as quitting smoking, opting for nutritionally healthier foods, and regular exercises. (Ryan, Franzetta, Manlove 2007; Shattuck et al. 2011; Ngcobo, Maharaj, Nzima 2018); Manhart et al. 2013, 6-7). Participants have alluded to inherent factors that would motivate them to know more about NFP revolved around competency and methods'

effectiveness. Clinicians feel incompetent to give appropriate and adequate information to those patients who ask for NFP, nor are they prompted to initiate discussions on NFP as part of reproductive health care. Beeman (2010, 410) highlights in his narrative review of literature on NFP that the lack of clinicians' preparation on this topic reduces the likelihood of their offering this option to patients. Training that would offer content around scientific bases of NFP, their effectiveness compared to contraceptives would prepare professionals who can provide accurate and comprehensive information on all family planning methods rather than a reductive approach to reproductive health care. Clinicians would then offer patients options, address the diverse cultural and religious needs of health care users, and patients, in their turn, would be able to make better-informed choices (South African contraceptive guideline, 8). The Department of Health, South Africa, offers free services (consultation and family planning methods) related to reproductive health. One of its significant challenges is stocks out in the supply of contraceptive pills and injections. NFP will be cost-effective for the government, and patients who opt for it will experience the added advantage of avoiding economic and time costs in treating side effects of contraceptives (Chasan-Taber et al. 1996; Park and Kim. 2013; Ribiero et al. 2018).

Barriers to opting for NFP are clinician or user-related and lack of advocacy to increase public awareness. Participants have described clinician-related sub-themes under professional culture in a unique and illuminating manner not reported in other studies.

"Culture is defined as the social heritage of a community meaning '... the total of the possessions, ways of thinking and behavior which distinguishes one group of people from another and which tends to be passed down from generation to generation . . .' Each health care profession has a different culture, including values, beliefs, attitudes, customs, and behaviors. This culture is passed on to the neophytes in the profession, but it remains obscure to other professions" (Hall 2005, 188). Paternalism is an aspect of medical and nursing professional culture relating to customs and behaviors. Paternalism would mean that healthcare professionals exercise unilateral authority over patients in medical decision-making because of the feeling that better good will be done by the clinician's judgment (Delaney 2018). In this study, the clinicians have attributed paternalism to the high illiteracy level. The consequence will be difficulty grasping the complex information on NFP by potential users.

Further, there has been quite a change in reproductive health policies; NFP would add to the confusion. Also, patients exhibit risky sexual lifestyles - multiple sexual partners and substance abuse - with consequent unwanted pregnancies, STI, and HIV. Studies (Fehring et al. (2018), Fehring, Bouchard (2018) have shown a correlation between the use of oral contraceptives (OC) in adolescents and young adults and increased risk of

STI, pelvic inflammatory disease, pregnancy, and abortion, unlike adolescents and young adults who never use OC. In addition, those adolescents and young adults who currently use OC are exposed to higher risk sexual behavior of multiple male partners. However, no study has been done to compare STI and HIV infection rates while using NFP to contraceptives. If NFP empowers women and men to opt for responsible and mutually agreed sexual intercourse (Lopez del-Burgo and Jokin de Irala 2011, 21), the consequence would be a reduction in risky sexual behavior (Cabezón et al. 2005, 68; Vigil et al. 2005, 1181) and probably STI.

Paternalism is opposed to patient-centered care (PCC). PCC is a direct approach to health care, emphasizing the need to place patients' preferences, values, beliefs, and psycho-physiological comfort; enhance their engagement; open communication that informs patients to take decisions, supportive and coordinated care in the forefront (Delaney 2018, 119-23). In addition, this approach brings flexibility because health care is tailored to meet individualized patient/family needs. It focuses on what is meaningful to the patient/family and brings about mutual benefits to both the institution and the health care user (Delaney 2018, 121). PCC and evidence-based medicine (EBM) are not mutually exclusive but complementary.

EBM is *"conscious and reasonable use of current, best scientific evidence in making decisions in the treatment of each patient"* (Masic, Miokovic, and Muhamedagic 2008, 219). There is a push to reject anything traditional, understood as not scientific. WHO

defines traditional medicine as *"the ancient and culture-bound medical practice that existed before applying modern science to health"* (World Health Organization 2000, 4). In its report on harmonizing traditional and modern medicine, WHO points out that both systems look at health, diseases, and causes of diseases from different approaches, not exclusive but integrated (World Health Organization 2000, 16-18). Over the centuries, modern NFP has acquired a robust scientific foundation (Fernández-Crehuet and Gómez-Gracia 1994, 142-4; Lopez del-Burgo and Jokin de Irala 2011, 21), unlike the original NFP methods, which are mostly not taught due to their lack of effectiveness (National contraception clinical guidelines 2012, 53). Clinicians should be trained to recognize and give importance to what is meaningful to the patient, to provide accurate and comprehensive information regarding all family planning methods - mechanisms of action, effects on the reproductive system, effectiveness - so that patients could make informed choices.

Medical and nursing education tends towards a curative approach to modern medical practice; therefore, health promotion and prevention are given little importance. Patients' awareness of their rights has aggravated the tendency towards a curative approach. Clinicians tend to favor patients' demand for medication over preventing ill-health and promoting healthy lifestyles. Himmel et al.'s (1997, 120-2) study on drivers of high prescription rates among general practitioners showed that satisfying perceived

demand for pharmacotherapy is not associated with patient satisfaction. Instead, it could reflect *"rationalization"* (Himmel, Lippert-Urbanke, and Kochen 1997, 122) for the clinician's uncertainty and a *"short cut"* (Himmel, Lippert-Urbanke, and Kochen 1997, 122) that substitutes *"a more time consuming, but satisfying, interaction between the doctor and patient"* (Himmel, Lippert-Urbanke, and Kochen 1997, 122). Therefore, empowering clinicians with evidence-based information on NFP could ensure they provide patients with comprehensive education and counselling on reproductive health care, in addition to the practice of patient-centered care.

According to WHO, health policy refers to *"decisions, plans, and actions that are undertaken to achieve specific health care goals within a society; it outlines priorities and the expected roles of different groups, and it builds consensus and informs people"* (World Health Organization, n.d.). South African government developed and adopted a new NCCG, which included modern NFP in 2012. It aimed to align clinical practice with international evidence-based standards, but there has been no advocacy for the implementation of NFP. Advocacy for NFP from the national government would create awareness amongst the population and reflect political willingness and ownership. It would also encourage its inclusion in medical and nursing education and promote a sense of being in line with what is permitted by regulation and therefore permissible to practice and promote. From the Canadian study by Choi, Chan, and Wiebe (2010), patients do not ask for NFP because clinicians do not routinely talk about it. No studies

have linked this to an absence of a national policy. Advocacy will provide opportunities to educate, counsel, and equip patients to become responsible experts of their reproductive health instead of dependency on clinicians' prescriptions. It would impact effectiveness because the population would be driven to adhere to what is nationally promoted. Improved awareness and thus uptake in NFP may reduce the burden on health care services from complications arising from contraceptives (Chasan-Taber et al. 1996; Park and Kim 2013; Ribiero et al. 2018).

Limitations

One of the limitations of this study could be that clinicians were selected from a specific district. Although respondents of diverse nationalities and educational institutions participated in this study, it may not reflect most clinicians' points of view. However, this study did attain saturation in emerging themes. Despite the limitations, the findings provide an initial understanding of how clinicians view the clinical practice of NFP.

Conclusion

Clinicians are convinced that training on modern NFP methods will empower them to initiate discussions on this method and opt for it in reproductive health care with appropriate patient selection. Competency will change clinical practice attitude towards

a patient-centered approach and comprehensive and accurate information on all family planning methods during reproductive health education, promotion, and patient counselling. Several internationally recognized NFP training programs for clinicians could be adopted in the researcher's setting. Programs that could improve awareness of NFP in males could improve acceptance. This could be achieved by early education of both male and female children on all family planning methods and fertility awareness.

Declaration Conflict of Interest

The author with this declares that there is no conflict of interest.

Funding

The author received no financial support for this article's research, authorship, or publication.

REFERENCES

Batar, I., and Sivin I. 2010. "State-of-the-art of non-hormonal methods of contraception: I. Mechanical barrier contraception." *Eur J Contracept Reprod Health Care* 15:67-88. DOI: 10.3109/13625181003708683.

Beeman, P. 2010. "Natural family planning in education and practice: a narrative review of the literature." *The Linacre Quarterly* 77 (4): 399-414. doi:

10.1179/002436310803888592.

Cabezón, C., P. Vigil, I. Rojas, M.E. Leiva, R. Riquelme, W. Aranda, and C. García. 2005. "Adolescent pregnancy prevention: an abstinence-centered randomized controlled intervention in a Chilean public high school." *J Adolesc Health* 36: 64-69. doi: 10.1016/j.jadohealth.2003.10.011.

Cavazos, L.Y. 2017. "A basic interpretative study of educators in the childcare profession: collegiality as a base of job satisfaction." PhD diss., University of the Incarnate Word: The Athenaeum.

Chasan-Taber, L., W.C. Willett, J. E. Manson, D. Spiegelman, D. J.Hunter, G. Curhan, G. A. Colditz, and M. J. Stampfer. 1996. "Prospective Study of Oral Contraceptives and Hypertension Among Women in the United States." *Circulation* 94 (3): 483-489. https://doi.org/10.1161/01.CIR.94.3.483.

Choi, J., S. Chan, and E. Wiebe. 2010. "Natural Family Planning: Physicians' Knowledge, Attitudes, and Practice." *J Obstet and Gynaecol Can* 32 (7): 673-8. doi:10.1016/s17012163(16)34571-6.

Delaney, L.J. 2018. "Patient-centered care as an approach to improving health care in Australia." *Collegian* 25 (1): 119-23. doi: 10.1016/j.colegn.2017.02.005.

Department of Higher Education and Training, Republic of South Africa. 2021. "FACT

SHEET, adult illiteracy in South Africa." Accessed August 8 2021: https://www.dhet.gov.za/Planning%20Monitoring%20and%20Evaluation%20Coordination/Fact%20Sheet%20on%20Adult%20Illiteracy%20in%20South%20Africa%20-%20March%202021.pdf.

Elo, S., M. Kääriäinen, O. Kantse, T. Pölkki, K. Utriainen, and H. Kyngäs. 2014. "Qualitative Content Analysis: A Focus on Trustworthiness." *SAGE Open* 1-10. doi: 10.1177/2158244014522633.

Erika, Y. 2018. "Themes don't just emerge - coding the qualitative data." *Project UX*. https://medium.com/@projectux/themes-dont-just-emerge-coding-the-qualitative-data-95aff874fdce.

Fehring, R., D.M. Lawrence, and C. Philport. 1994. "Use Effectiveness of the Creighton Model Ovulation Method of Natural Family Planning." *J Obstet Gynecol Neonatal Nurs* 23 (4): 303-9. doi:10.1111/j.1552-6909.1994.tb01881. x.

Fehring, R.J. 1995. "Physician and nurses' knowledge and use of natural family planning." *The Linacre Quarterly* 62 (4): 22-28.

Fehring, R.J., and W. Kurz. 2000. "Anthropological differences between contraception and natural family planning." *Life and Learning* 10: 237-64. http://uffl.org/vol10/fehr-kurz10.pdf.

Fehring, R.J. 2004. "The future of professional education in natural family

planning." *J Obstet Gynecol Neonatal Nurs*. 33(1): 34-43. DOI: https://doi.org/10.1177/0884217503258549.

Fehring, R.J., M. Schneider, M.L. Barron, J.E. Pruszynski. 2013. "The influence of motivation on the efficacy of natural family planning." *MCN Am J Matern Child Nursi* 38(6): 352-358.

Fehring, R.J., (2018). "Contraception and Natural Family Planning: The Impact on the Sexual Lives of Couples." *Anthropotes* 35: 101-126.

Fehring, R.J., T. Bouchard, M. Meyer. 2018. "Influence of Contraception Use on the Reproductive Health of Adolescents and Young Adults." *The Linacre Quarterly* 85(2): 167-177. doi: 10.1177/0024363918770462.

Fehring, R.J., T. Bouchard. 2018. "Influence of current contraceptive use on the abortion and sexually transmitted disease rates among adolescents." *College of Nursing Faculty Research and Publications*. https://epublications.marquette.edu/nursing_fac/579.

Freundl, G., I. Sivin, I. Batár. 2010. "State-of-the-art of non-hormonal methods of contraception: IV. Natural family planning." *Eur J Contracept Reprod Health Care* 15(2):113-23. doi: 10.3109/13625180903545302. PMID: 20141492.

Fernández-Crehuet, J., and E. Gómez-Gracia. 1994. "Natural family planning." *Anuario*

Filosófico 27: 139-61.

Festin, M.P.R., J. Kiarie, J. Solo, J. Spieler, S. Malarcher, P.F.A. Van Look PFA, and Temmerman M. 2016. "Moving towards the goals of FP2020 - classifying contraceptives." *Contraception* 94(4): 289-294. doi: 10.1016/j.contraception.2016.05.015.

Frank-Herrmann, P., G. Freundl, S. Baur, M. Bremme, G.K. Döring, E.A. Godehardt, and U. Scottong. 1991. "Effectiveness and acceptability of the Symptothermal Method of Natural Family Planning in Germany." *Am J Obstet Gynecol* 165 (6 Pt 2): 2052-4. doi:10.1016/s0002-9378(11)90580-8.

Frank-Herrmann, P., J. Heil, C. Gnoth, E. Toledo, S. Baur, C. Pyper, E. Jenetzky, T. Strowitzki, and G. Freundl. 2007. "The effectiveness of a fertility awareness-based Method to avoid pregnancy in relation to a couple's sexual behavior during the fertile time: a prospective longitudinal study." *Hum Reprod* 22 (5): 1310-9. doi:10.1093/humrep/dem003.

Government of South Africa. 2018. "Family planning 2020 commitment." http://www.familyplanning2020.org/entities/64.

Girum T., and Wasie A. 2018. "Return of fertility after discontinuation of contraception: a systematic review and meta-analysis." *Contracept Reprod Med* 3(9): 1- 9 https://doi.org/10.1186/s40834-018-0064-y.

Hall, P. 2005. "Inter-professional teamwork: professional cultures as barriers." *Journal*

of Interprofessional Care Suppl 1: 188-96. doi: 10.1080/13561820500081745.

Hilgers, T.W., and J.B. Stanford. 1998. Creighton Model NaProEducation Technology for avoiding pregnancy. Use effectiveness. *J Reprod Med* 43 (6): 495-502.

Himmel, W., E. Lippert-Urbanke, and M.M. Kochen. 1997. "Are patients more satisfied when they receive a prescription? The effect of patient expectations in general practice." *Scand J Prim Health Care* 15 (3): 118-22. doi.org/10.3109/02813439709018500.

Hume K. 1991. "Fertility awareness in the 1990s - the Billings Ovulation Method of natural family planning, its scientific basis, practical application and effectiveness." *Advances in Contraception* 7 (2-3): 301-11. doi:10.1007/BF01849421.

Jolkin de Irala. 2016. "Biomedicine of natural regulation of human fertility. Study manual master in marriage and family." University of Navarra: Academic course. 1-71.

Kabonga, R.M., K.S. Baboo, and O. Mweemba. 2010. "Factors influencing utilization of Natural Family Planning among Child Bearing Women in Chilonga, Northern Province, Zambia." *Med J Zambia* 37 (4): 223-233. Available from: https://www.ajol.info/index.php/mjz/article/view/76425/66883.

Kahlke, R.M. 2014. "Generic Qualitative Approaches: Pitfalls and Benefits of Methodological Mixology." *Int J Qual Methods* 13 (1): 37-52.

https://doi.org/10.1177/160940691401300119.

Kelly, P.J. 2012. "Clinician perceptions of providing natural family planning methods in Title X funded clinics." *J Midwifery Womens Health* 57 (1): 35-42. doi:10.1111/j.1542-2011.2011.00107.x.

Leonard, C. J., W. Chavira, D.V. Coonrod, K.W. Hart, and R. Curtis Bay. 2006. "Survey of attitudes regarding natural family planning in an urban Hispanic population. *Contraception* 74: 313–317. doi: 10.1016/j.contraception.2006.05.075.

Lopez del-Burgo, C., and Jokin de Irala. 2011. "Teaching about fertility and natural Family planning in the university setting." *Sveikatos Mokslai* 21 (3): 21-23.

Manhart, M.D., M. Duane, A. Lind, I. Sinai, and J. Golden-Tevald. 2013. "Fertility awareness-based methods of family planning: A review of effectiveness for avoiding pregnancy using SORT." *Osteopathic Family Physician* 5: 2-8. doi.org/10.1016/j.osfp.2012.09.002.

Masic, I., M. Miokovic, and B. Muhamedagic. 2008. "Evidence-based medicine - new approaches and challenges." *Acta Informatica Medica* 16 (4): 219-25. doi:10.5455/aim.2008.16.219-225.

Merriam, S.B. 2002. "Introduction to qualitative research." San Francisco: Wiley imprint. http://stu.westga.edu/~bthibau1/MEDT%208484- %20Baylen/introduction_

to_qualitative_research/introduction_to_qualitative_research.pdf.

National Contraception Clinical Guidelines: "A companion to national contraception and fertility planning policy and service delivery guidelines." Department of Health South Africa [Internet]. 2012 [cited 2017 Jul 7]. Available from: http://www.gov.za/sites/www.gov.za/files/Contraception_Clinical_Guidelines_28jan2013-2.pdf.

Ngcobo, N.B., P. Maharaj, and D. Nzima. 2018. "Men's motivation for contraceptive use in Inanda township, KwaZulu-Natal, South Africa." *Culture and Sexuality* 1-11. https://doi.org/10.1080/13691058.2018.1521992.

Pallone, S.R., and G.R. Bergus. 2009. "Fertility awareness-based methods: another option for family planning." *J Am Board Fam Med* 22: 147-57. doi:10.3122/jabfm.2009.02.080038.

Park, H., and K. Kim. 2013. "Associations between oral contraceptive use and risks of hypertension and prehypertension in a cross-sectional study of Korean women." *BMC Women's Health* 13(39): 1-7. http://www.biomedcentral.com/1472-6874/13/39.

Ribeiro, C.C.M., A.K.K Shimo, M. H. Baena de Moraes Lopes, and J. L.T. Lamas. 2018. "Effects of different hormonal contraceptives in women's blood pressure values." *Rev. Bras. Enferm* 71 (3): 1453-59.

https://doi.org/10.1590/0034-7167- 2017-0317.

Rice, F.J., C.A. Lanctôt, and C. Garcia-Devesa. 1981. "Effectiveness of the Sympto-Thermal Method of Natural Family Planning: An International Study." *Int J Fertil* 26 (3): 222-30.

Ryan S., K. Franzetta, and J. Manlove. 2007. Knowledge, perceptions, and motivations for contraception: influence on teens' contraceptive consistency." *Youth & Soc* 39 (2): 182-208. https://doi.org/10.1177/0044118X06296907.

Saunders, B., J. Sim, T. Kingstone, S. Baker, J. Waterfield, B. Bartlam, H. Burroughs, and C. Jinks. 2018. "Saturation in qualitative research: exploring its conceptualization and operationalization." *Quality and Quantity* 52: 1893-907. doi: 10.1007/s11135-017-0574-8.

Shattuck D., B. Kerner, K. Gilles, M. Hartmann, and T. Ng'ombe, G. 2011. "Encouraging Contraceptive Uptake by Motivating Men to Communicate About Family Planning: The Malawi Male Motivator Project." *Am J Public* 101 (6): 1089-1095. doi: 10.2105/AJPH.2010.300091.

Snowden, R., K.I. Kennedy., F. Leon., V.C. Orense., H.W. Perera., R. Phillips., I Askew., A. Flynn., and L.J. Severy. 1988. "Physicians' views of periodic abstinence methods: a study in four countries." *Studies in Family Planning* 19 (4): 215-226. doi:10.2307/1966553.

Steiner, M., R. Dominik, J. Trussel, and I. Hertz-Piccioto. 1996. "Measuring

contraceptive effectiveness: a conceptual framework." *Obstet Gynaecol* 88 (3 Suppl): 24S-30S. doi:10.1016/0029-7844(96)00251-7.

Thapa, S., M.V. Wonga, P.G. Lampe, H. Pietojo, A. Soejoenoes. 1990. "Efficacy of Three Variations of Periodic Abstinence for Family Planning in Indonesia." *Studies in Family Planning* 21:327-34. doi: 10.2307/1966921.

Todd N., and A Black. "Contraception for adolescents." 2020. *J Clin Res Pediatr Endocrinol* 12(Suppl 1):28-40. doi: 10.4274/jcrpe.galenos.2019. 2019.S0003.

Trevethan, R. 2017. "Deconstructing and assessing knowledge and awareness in public health research." *Frontiers in Public Health* 5: 194. doi:10.3389/fpubh.2017.00194.

Trussell, J., R. Hatcher, W. Cares, F.H. Stewart, and K. Kost. 1990. "A guide to interpreting contraceptive efficacy studies." *Obstet Gynaecol* 76 (3 Pt 2): 558-67.

Trussell J., and Vanghan B. 1999. "Contraceptive Failure, Method-Related Discontinuation and Resumption of Use: Results from the 1995 National Survey of Family Growth." *Fam Plann Perspect.* 31 (2): 64 - 93. DOI: 10.2307/2991641.

Trussell, J. 2009. "Understanding contraceptive failure." *Best Pract Res Clin Obstet Gynaecol* 23 (2): 199-209. doi:*10.1016/j.bpobgyn.2008.11.008*.

Trussell, J., and D. Portman. 2013. "The Creeping Pearl: Why Has the Rate of

Contraceptive Failure increased in Clinical Trials of Combined Hormonal Contraceptive Pills?" *Contraception* 88(5): 604–610. doi: 10.1016/j.contraception.2013.04.001.

Trussell, J. 2014. "Contraceptive efficacy." *The Global Library of Women's Medicine*. doi 10.3843/GLOWM.1 0375.

Turner, J. 2020. "Misrepresentation of contraceptive effectiveness rates for fertility awareness methods of family planning." *J. Obstet. Gynaecol. Res.* :1-7. https://doi-org.uplib.idm.oclc.org/10.1111/jog.14593.

Unseld, M., E. Rötzer, R. Weigl, E.K. Masel, and M.D. Manhart. 2017. "Use of natural family planning and its effect on couple relationships and sexual satisfaction: a multi-country survey of natural family planning users from US and Europe." *Frontiers in Public Health* 5 (42): 1-6. doi: 10.3389/fpubh.2017.00042.

Urrutia, P.R., C.B Polis, E.T Jensen, M.E Greene, E Kennedy, and J.B Stanford. 2018. "Effectiveness of fertility awareness-based methods for pregnancy prevention: A systematic review." *Obstet Gynecol* 132:591-604.

Vigil, P., R. Riquelme, R. Riverdeneira, and W. Aranda. 2005. **"**Effects of TeenSTAR, An abstinence only sexual education program, on adolescent sexual behaviour." *Rev med Chil* 133: 1173-82. doi.org/10.4067/S0034-98872005001000006.

Vigil, P., L.F. Blackwell, and M.E. Cortes. 2012. "The importance of fertility awareness in the assessment of a woman's health: a review." *The Linacre quarterly*.: 79(4), 426-50.

World Health Organization. 1981. *"*A prospective multicenter trial of the ovulation method of natural family planning. II. The effectiveness phase*." Fertil Steril* 36 (5): 591-8. doi:10.1016/s0015-0282(16)45856-5.

World Health Organization. 1988. "Natural Family Planning: a guide to provision of services." Accessed 8 June 2021. https://apps.who.int/iris/bitstream/handle/10665/39322/9241542411-eng.pdf?sequence=1&isAllowed=y.

World Health Organization. n.d. "Contraception." Accessed, Feb 16 2021. https://www.who.int/health-topics/contraception#tab=tab_1]

World Health Organization. 2000. "Traditional and modern medicine: harmonizing the two approaches." https://www.evidencebased.net/files/trad&mod_med.pdf.

World Health Organization. n.d. "Health policy." Accessed Jul 15, 2018.

http://www.who.int/topics/health_policy/en/.

Table 1: Some moderate quality studies showing effectiveness rates of modern natural family planning methods (Urrutia et. al, 2018, appendix 5) compared to contraceptive methods (Pallone, Bergus 2009, 148)

Country / Family planning method	Number of women	Total number of cycles	Perfect use pregnancy rate (%)	Typical use pregnancy rate (%)
Standard Days Method				
Standard Days method (2002)	478	4,035	4.8	12.9
Mucus-only methods				
Billings Ovulation Method (1996)	2,059	21,579	1.1	10.5
TwoDay Method (2004)	450	2,928	3.5	13.7
Marquette Mucus-only (Fehring, 2013), (United States)	160	1,075	2.7	18.5
Marquette Mucus-only (Fehring, 2017), (United States)	118	481	NA	8
Symptothermal Methods				
Sensiplan (Frank-Herrmann, 2007), (Germany)	900	9,005	0.4	1.8
Sympto-hormonal methods				
Marquette Modified Mucus Method (Fehring, 2017), (United States)	333	3,086	NA	7
Urinary Hormonal methods				
Marquette Monitor only (Fehring, 2013)	197	1,546	0.0	6.8

(United States)				
Marquette Monitor-only (Fehring, 2017)	212	1,681	NA	2
Contraceptives Methods (Pallone, Bergus 2009, 148)*				
Intra-uterine device (Copper T)			0.6	0.8
Intra-uterine device (Mirena)			0.1	0.1
Norplant			0.05	0.05
Injection			0.30	3.00
Pills			0.30	8.00

Sources: Urrutia et. al, 2018, appendix 5); (Pallone, Bergus 2009, 148).

**Note: 1. No similar systematic review to determine moderate quality studies on contraceptive methods of family planning have been done.*

2. Single-decrement life table analysis was the statistical calculation for pregnancy rates in moderate studies on NFP while Pearl Index (no longer used) is the statistical calculation for studies on contraceptive methods.

Table 2: Characteristics of Participants

Participant code	Age	Gender	Years in practice	Qualifications	Position held
FP 1	39	F	10	Bachelor's degree in Medicine / Masters	Family Physician
MO 1	35	M	10	Bachelor's degree in Medicine	Medical officer
MO 2	43	F	14	Bachelor's degree in Medicine	Medical officer
FP 2	48	M	20	Bachelor's degree in Medicine / Masters	Family Physician
FP 3	64	F	32	Bachelor's degree in Medicine / Masters	Family Physician
FP 4	28	F	28	Bachelor's degree in Medicine / Masters	Family Physician
MO 3	59	F	28	Bachelor's degree in Medicine / Diploma Palliative care	Medical officer
MO 4	32	F	7	Bachelor's degree in Medicine	Medical officer
PN 1	62	F	34	Diploma / Bachelor's degree in nursing	Professional nurse with PHC
PN 2	49	F	12	Diploma in Nursing Diploma Community Nursing	Professional nurse with PHC
OG 1	42	M	19	Bachelor's degree in Medicine / Masters	Obstetrician-Gynaecologist
PN 3	49	F	5	Diploma in Nursing / Diploma in PHC	Professional nurse with PHC
PN 4	26	F	26	Bachelor's degree in nursing / Masters	Professional nurse
PN 5	36	M	1 month	Diploma in Nursing	Professional nurse
OG 2	34	M	10	Bachelor's degree in Medicine / Masters	Obstetrician-Gynaecologist

FP: Family physician

OG: Obstetrician-Gynaecologist

MO: Medical officer

PHC: Primary Health Care

PN: Professional nurse

Table 3: Themes and sub-themes

What clinicians know about Natural Family Planning 1. Awareness versus being informed
Perceptions of clinicians regarding effectiveness of Natural Family Planning 1. Being trained or being empowered motivates 2. Gender imbalance 3. Quality of education and counselling received by the user 4. Support from partner 5. User related a. Treatment of infertility b. Motivation and commitment c. Stable relationship d. Frequency of intercourse e. Cheap and ready availability f. Illiteracy g. Multiple sexual partners h. Irregular menstrual cycle
Factors that could push clinicians to offer Natural Family Planning 1. Clinician related: being empowered 2. User related a. Stable relationship b. User initiated: experience of side effects of contraceptives; religious and cultural beliefs 3. Easy availability
Barriers preventing clinicians to opt for Natural Family Planning in clinical practice 1. Clinician related: professional culture a. Scientific versus natural b. Paternalism c. Curative approach to modern medical practice 2. User characteristics Age group, level of education, medical conditions, and risky sexual life style 3. Partner cooperation 4. Lack of advocacy for Natural Family Planning

QUESTIONNAIRE FOR INDIVIDUAL INTERVIEW

A. Demographic details of Participants

1. Age
2. Sex
3. Marital status
4. Country of origin
5. Undergraduate Qualification / University obtained
6. Highest Qualification / University obtained
7. Place of employment
8. Position
9. Number of years of experience post qualification

B. Questions & Probes were adopted and modified from Kelly PJ[11]

Questions	Probes
Are you familiar with NFP OR Fertility Awareness methods OR periodic abstinence methods? Could you describe NFP?	Which methods do you know about? Do you know which of these NFP methods is modern? Did you have a formal training during your years of study at the medical or nursing school? If yes, how much time was dedicated to teaching it? Have you done any formal course on any natural family planning method?

	Do you think many doctors or nurses know about NFP? What would you think could be the cause of lack of knowledge of NFP? Do you know if NFP is part of South African National Contraception Guideline?
What do you believe are the advantages of NFP?	Do you think NFP is an effective option for achieving pregnancy? Do you think NFP is an effective option for avoiding pregnancy? Do you think NFP is an option for spacing birth?
What do you believe are the disadvantages of NFP?	Why? Partner issues?
Do you recommend NFP as an option for patients who would like to avoid pregnancy?	What could be your barriers in offering this option to your patients? What facilitates offering this option to patients?
What do you think are some pros and cons about discussing NFP with patients?	Are there similar pros and cons about discussing contraceptives? What do you think are some pros and cons about incorporating NFP in preconception counselling/pregnancy planning?
What referral sources are available in your community for patients wishing to use NFP?	Do women ask for NFP? What do you do if someone asks for more information about NFP? What is your clinic's general process for reproductive health referrals? How does the availability of resources affect your counselling?
What factors make it easy to offer NFP to patients?	How is this different from contraceptives?
What factors make it difficult to offer NFP to patients?	How is this different from contraceptives?
Do you know about effectiveness of NFP methods?	Do you think NFP is an effective method for avoiding pregnancy?

	Do you know any way of classifying effectiveness of NFP methods? Do you know any way of classifying contraceptives?
Do you teach the undergraduate students this method?	What could be the reason?
Do you teach postgraduate students this method?	What could be the reason?
Do you teach nurses this method?	What could be the reason?
Do you think your clinical experiences influences your practice of NFP	
Do you think that NFP methods should be included in the medical / nursing curriculum?	
Do you think your religious believes influences your practice of NFP	