

Physician Dispositions Toward Noninvasive Non-Hormonal Contraception

Alexandra V. Davidson, B.S.¹, Faith M. Butler, M.D.²

¹University of Kansas School of Medicine–Salina, Salina, KS

²University of Kansas School of Medicine–Kansas City, KS

Department of Family Medicine and Community Health

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ABSTRACT

Introduction. Evidence-based, nonbiased, counseling on contraceptive options, followed by shared decision-making, is key in facilitating reproductive justice in a diverse population. An estimated 3% of contraceptive users in the United States use fertility awareness-based methods (FABMs) for contraception, and demand for these methods is increasing. FABMs can be a highly effective form of family planning when used in accordance with evidence-based protocols. They are preferred by some patients due to medical contraindications to hormonal contraceptives, lack of side effects, religious convictions, preference to avoid hormones or contraceptive devices, improved body literacy, or a combination of the above. FABMs are infrequently covered in medical school curricula and are often perceived by physicians to be of low efficacy. There is an opportunity for improvement of physicians' evidence-based knowledge of FABMs, which has the potential to improve patient understanding of and access to the full menu of family planning options.

Methods. A self-administered, cross-sectional survey was distributed to assess physician knowledge and opinions of FABMs by key university contacts. Univariate and bivariate statistics were calculated for close-ended questions and responses to open-ended questions were analyzed for common themes.

Results. A total of 79 participants completed the entire survey. Another 11 submitted partially completed surveys. For completed surveys, questions assessing knowledge of key concepts underlying FABMs, performance by specialty was 55% correct for OB/GYN (n = 16), 55% (n = 47) correct for family medicine, 36% (n = 10) correct for internal medicine, and 35% (n = 6) correct for pediatrics. Negative, neutral, mixed, and positive opinions related to FABMs were represented.

Conclusions. There are opportunities to improve physicians' evidence-based knowledge of FABMs; this may improve patient-centered contraceptive care. *Kans J Med* 2023;16:94–104

INTRODUCTION

Family planning is highly dependent on patient goals and values. Patient-centered care incorporates a provider's expertise and knowledge of evidence-based practices alongside a patient's intimate knowledge of their own life, experiences, and preferences. Together, they inform shared decision-making in building treatment plans that maximize patient health and quality of life, while respecting patient values, autonomy, and diversity. Noninvasive, nonhormonal methods of family planning are an important, yet often overlooked, component of patient-centered counseling.^{1–7}

Methodically tracking cervical mucus characteristics, basal body temperature, or urine concentration of estrogen and luteinizing hormone in accordance with an evidence-based algorithm allows

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someone who ovulates to identify the probability of conception on a given day throughout their menstrual cycle. This information can be used to facilitate a goal of achieving pregnancy through timed intercourse or insemination, or avoid pregnancy through abstinence and/or use of short-acting methods of contraception during times of probable fertility.^{8,9} These methods are generally referred to as fertility awareness-based methods (FABMs), fertility awareness methods (FAMs), or natural family planning (NFP). The terminology FABM and FAM can be used interchangeably. When used with the intention to avoid pregnancy, FABM protocols may include use of a barrier method as an alternative to abstinence. NFP protocols assume abstinence during the fertile window when the method is being used to avoid pregnancy, and have a religious association.^{10,11} Individuals of any background can use NFP, but should be counseled that the efficacy cited for these methods does not account for use of short-acting contraceptive methods during the fertile window. For conciseness, "FABMs" will be used throughout the remainder of this paper.

An estimated 3% of contraceptive users in the United States use FABMs.¹² A study from the journal Contraception showed over 50% of Latinx women surveyed had interest in FABMs for contraception.¹³ Recent research suggested this interest may not be confined to any one patient population.^{14,15} Multiple studies have identified a need for improved coverage of FABMs in medical education.^{1,4,5,7,15–17} According to the Guttmacher Institute, "relative to other methods of pregnancy prevention, substantial misinformation exists around fertility awareness based methods of contraception, particularly about the effectiveness of specific methods and how to use them."^{18,19} This is likely multifactorial and due to (1) varying FABM efficacy rates, which are often reported in aggregate, (2) incomplete knowledge of how efficacy compares to combined hormonal contraception, (3) conflation of all FABMs with the low efficacy "rhythm method," (4) the additional time FABMs require in patient counseling, (5) no centralized databases of certified FABM instructors until 2021, and (6) physician concerns about patient adherence.^{12,17,20–22}

Reasons for patient interest in FABMs include contraindications to hormonal contraceptives,^{23,24} preference to avoid exogenous hormones,²⁵ preference to avoid contraceptive devices/implants,^{26–28} concern for preventing embryo implantation,^{29,30} desire for improved body literacy,^{31,32} or in appropriate cases, achieving pregnancy without the use of assisted reproductive technology due to patient preference and/or financial constraints.^{33–36} Information available to the public about family planning options, including FABMs, varies in quality and accuracy.³⁷ Evidence-based physician education on FABMs could help physicians better counsel patients who have chosen to use or are considering using FABMs for family planning.^{15,18} FABMs are an important part of a diverse and inclusive physician's family planning toolbox.^{7,38} The purpose of this study is to better understand how physicians think about nonhormonal versus hormonal contraception, especially noninvasive, nonhormonal methods.

METHODS

We distributed a self-administered, cross-sectional survey to assess physician knowledge and opinions of FABMs.

Potential respondents that met the following inclusion criteria were contacted via email: currently practicing MD/DO attending or resident physician specializing in family medicine, internal medicine, obstetrics and gynecology, or pediatrics; and an association with the University of Kansas School of Medicine (KUSOM) through either paid or volunteer faculty appointment or current resident physician at a KUSOM sponsored program. Participation was voluntary and anonymous, informed consent was obtained prior to beginning the survey, and participants could stop taking the survey at any time. The survey consisted of 64 questions and was estimated to take 15 minutes to complete. Question formats were multiple choice, free-text fields, Likert-like questions that included “unsure” as an additional option, and true/false. Respondents also supplied demographic information (see Appendix for survey instrument). Participants were able to provide open-ended responses explaining their reasoning for including or excluding FABMs in their practices. Likert-style questions were used to gauge physician opinions regarding FABM efficacy for family planning, confidence in their FABM counseling ability, potential biases related to FABMs, and confidence in the efficacy of various contraceptive options. Data were collected via the secure survey administration tool, REDCap®, hosted at the University of Kansas Medical Center and analyzed using Stata and Microsoft Excel. Univariate and bivariate statistics were calculated for close-ended questions and responses to open-ended questions were analyzed for common themes. This study was approved by the Institutional Review Board at KUSOM.

RESULTS

Of the 96 individuals who started the survey, 79 completed the entire survey and an additional 11 partially completed the survey. All submitted data were included in these results. A breakdown of participant characteristics is shown in Table 1. Sixty percent ($n = 51/85$) of respondents recalled being taught about FABMs or NFP in medical school. In addition, 96% ($n = 82/85$) were “familiar with the changes in cervical mucus that occur throughout the menstrual cycle”. Ninety-nine percent ($n = 84/85$) were “familiar with the changes in basal body temperature that occur throughout the menstrual cycle”. Forty-six percent ($n = 39/85$) of respondents reported that they had patients that use FABMs for contraception, 33% ($n = 28/85$) were unsure, and 21% ($n = 18/85$) reported that they did not have patients that used FABMs for contraception.

Table 1. Participant characteristics.

	Average (range)	Median	n (%)
Age (years)	36.7 (25-71)	32.0	88
Graduated medical school	2011 (1975-2021)	2017	88
Training			
MD			79 (89.8)
DO			9 (10.2)
Specialty			
Family Medicine			54 (61.4)
Obstetrics & Gynecology			16 (18.2)
Internal Medicine			11 (12.5)
Pediatrics			7 (8.0)
Additional training or specialization in women's health, maternity care, fertility, or family planning			
No			74 (84.1)
Yes			14 (15.9)
Associated KU School of Medicine Campus			
Wichita			53 (60.2)
Kansas City			26 (29.5)
Salina			9 (10.2)

Next, participants were asked if they included FABMs in contraceptive counseling. Of the 84 who responded to this question, 42% ($n = 35/84$) responded “yes”, 24% ($n = 20/84$) “sometimes”, and 34% ($n = 29/84$) “no”. Breakdown by specialty is shown in Figure 1. Participants also were asked to identify the correct typical-use efficacy range of FABMs. According to the U.S. Centers for Disease Control and Prevention, the correct answer is 77-98%.³⁹ Participants’ responses to both questions are compared in Figure 2.

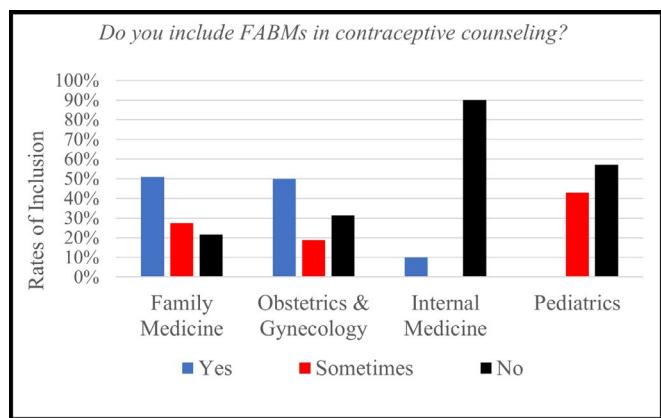


Figure 1. Inclusion of fertility awareness-based methods (FABM) in contraceptive counseling by specialty.

Those who reported only sometimes or never including FABMs in contraceptive counseling could provide an explanation. Reasons provided were categorized by theme and are listed in Table 2. Some respondents provided multiple reasons. Reasons were counted individually, thus the total number of reasons listed in Table 2 is greater than the number of respondents.

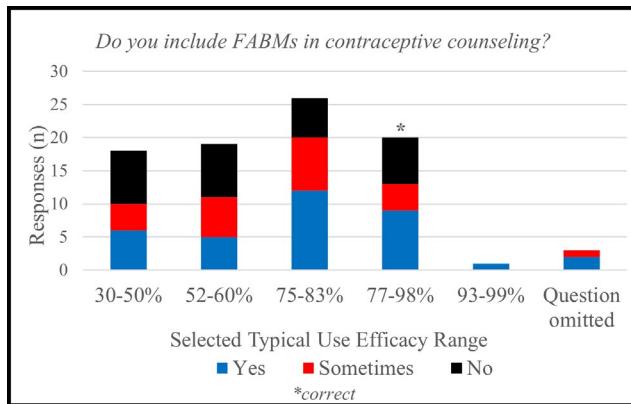


Figure 2. Inclusion of fertility awareness-based methods (FABM) in contraceptive counseling vs. selected typical-use efficacy range for FABMs.

Table 2. Frequency of reasons participants gave for sometimes or never including FABMs in contraceptive counseling.

	Number of Participants who Reported Each Reason and Include FABMs in Contraceptive Counseling...		
	Sometimes	Never	Total
Reasons			
Ineffective	3	12	15
Unsure of efficacy	0	2	2
Less applicable to pediatrics	3	2	5
Patient preference	3	2	5
Poor adherence	0	2	2
Patient values	3	0	3
Unaware of FABMs	0	2	2
Need for motivated patients	2	1	3
Partner involvement	2	0	2
Unscientific	0	2	2
Cover all options	1	0	1
Not appropriate for all patients	1	0	1
Lower typical-use efficacy	0	1	1
Body-awareness	1	0	1
For conception	1	0	1
Need for regular cycles	1	1	2
Limited time	0	1	1
Too complex	1	0	1
Lack of educational support for patients	1	1	2

Note: There was no limit on the number of reasons any given participant could provide; some participants provided more than one reason.

The next section of the survey assessed participants' confidence in the efficacy of an alphabetical list of various contraceptive methods. Participants were asked to rate each method on a Likert-style scale as being an effective option for avoiding pregnancy from "strongly disagree" to "strongly agree". "Unsure" also was included as a response option. A selection of these results highlighting responses for some of the more common contraceptive methods and FABMs are shown in Figure 3. Each method's typical-use and perfect-use efficacies (some of which are reported as ranges) overlay their respective bars.^{18,19,40-43}

Participants answered a series of questions about fundamental principles underlying the scientific basis of FABMs. These data are reported for participants who completed their survey in its entirety. Most (97%; n = 77/79) participants correctly believed that cervical mucus can be a reliable marker of fertility. Figure 4 compares performance on these questions to respondent self-assessment of ability to counsel patients on biomarkers of fertility. For questions in this portion of the survey, performance by specialty was 55% (n = 16) correct for OB/GYN, 55% (n = 47) correct for family medicine, 36% (n = 10) correct for internal medicine, and 35% (n = 6) correct for pediatrics (Appendix). Respondents also shared their agreement or disagreement with several opinion statements. These data are displayed in Figure 5.

Of the 35 respondents that stated they always include FABMs in contraceptive counseling, less than 25% correctly identified the correct typical-use efficacy of FABMs later in the survey (Figure 2). These data suggested that physicians who report always covering FABMs in contraceptive counseling sessions may be doing so based upon inaccurate efficacy data.

In response to open-ended questions, survey respondents demonstrated a variety of opinions (Table 3). Some reported encouraging use of FABMs as a method of empowerment through improved body literacy (Free response 1). One respondent recommended FABMs based on their own personal beliefs (Free response 1A). Other respondents commented on their perceived efficacy of FABMs (Free responses 2-3). Complexity of FABMs was a concern for 18% of respondents, who agreed or strongly agreed that "FABMs/NFP are too complex for patients to manage effectively" (Figure 4, Free response 2B).

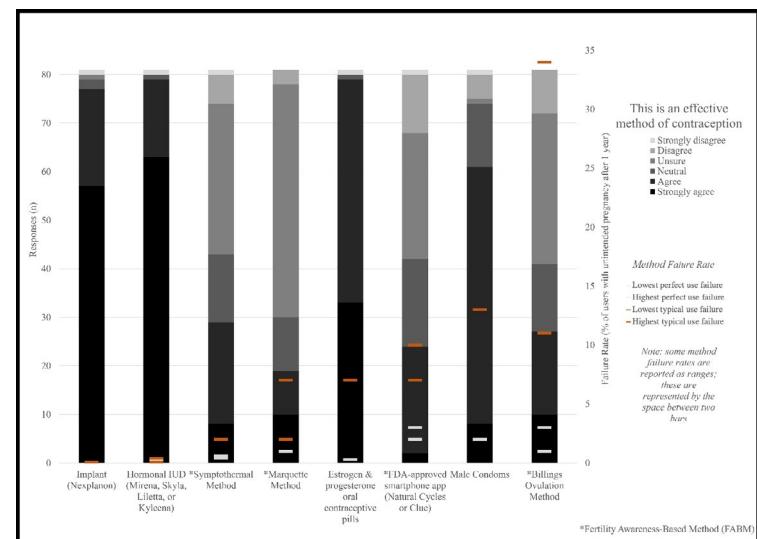


Figure 3. Physician confidence in contraceptive efficacy vs. contraceptive efficacy.

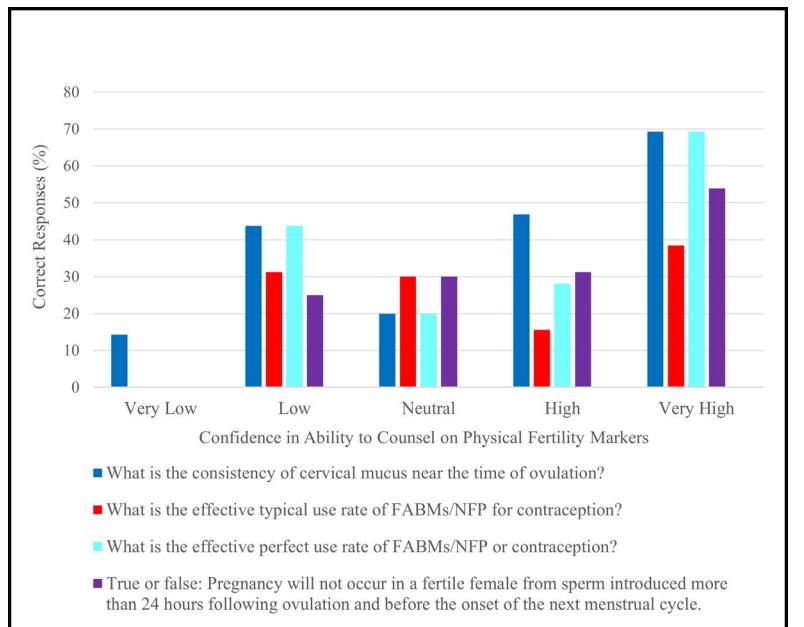


Figure 4. Confidence in counseling ability for use of physical markers to assess fertility vs. performance on FABM foundational concepts multiple choice questions.

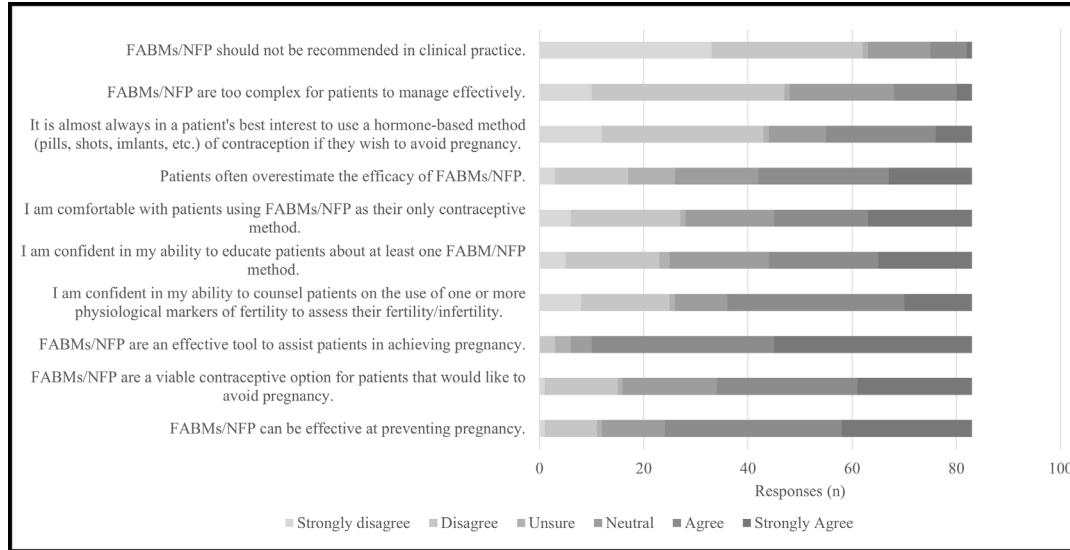


Figure 5. Responses to opinion questions.

Note: FABM/NFP: Fertility Awareness-Based Methods/Natural Family Planning.

Table 3. A selection of responses to open-ended survey questions.**Free response 1**

Prompt: Have you ever encouraged patients to use NFP/FABMs? If yes, why?

Selected responses:

A) *"I feel that it is the best option for women because it is the safest, highly effective, and empowers the woman to know her own body and communicate with her partner about that and their sexual activity. Though I may not discuss this with patients, I also feel that it is the best for the community as a whole and the only moral option for family planning."*

B) *"I think FABMs are an effective option for motivated women! A lot of women find the knowledge of their own fertility and the practical applications of this empowering. It is also great tool to increase communication and cooperation between partners. In my contraception lecture in med school, the lecturer made the point that the less daily control a women had in the family planning method, the more effective it was. (For example; IUD is highly effective because it does not require that a women remember it.) I think many providers shy away from NFP/FABMs because these methods necessarily place the control on the women. However, for many women, this increased control is increased empowerment."*

Free response 2

Prompt: Do you include FABMs/NFP as an option when you counsel patients on their options for contraception? If sometimes, why?

Selected responses:

A) *"I offer better more effective forms of contraception first - if they decline or show an interest in NFP then we discuss."*

B) *"Sometimes it does not seem like certain patients have the mental capacity to handle tracking their cycles."*

Free response 3

Prompt: Do you include FABMs/NFP as an option when you counsel patients on their options for contraception? If no, why not?

Selected responses:

A) *"Because people who use NFP are called parents."*

B) *"Some bias against these practitioners. Some in the community view some parts of natural family planning as 'voodoo medicine,' or at least I do sometimes."*

Note: FABM/NFP: Fertility Awareness-Based Methods/Natural Family Planning.

DISCUSSION

Medicine continually places greater emphasis on patient-centered care.⁴⁴ The literature on FABMs, as well as the results of this study, suggest an opportunity for improvement of physician knowledge of evidence-based information about FABMs. This content is not consistently covered in medical school curricula, but has the potential to be included and yield measurable results.^{5,45} The data presented above are likely reflective of recent medical education and current attitudes, due to the median participant medical school graduation year of 2017.

Medical school curricula are already bursting at the seams, and students cannot be expected to have in-depth knowledge of every topic upon graduation.⁴⁶ Clarifying the efficacy of and key physiologic concepts underlying FABMs, as well as providing supplemental evidence-based resources, may improve knowledge of FABMs without imposing a large burden to medical school curricula.^{16,45,47} Many physicians and patient resources present options for family planning with an emphasis on method efficacy, as this is an important factor in method selection.⁴⁸ The data presented in this paper showed only 23% of participants correctly identified the typical-use efficacy range of FABMs is 77-98%.³⁹ The physician knowledge gap in FABM efficacy can and does result in physicians inappropriately discouraging use of FABMs, or even communicating with patients in a disrespectful manner about this choice.⁴⁹⁻⁵³ This is further supported by "ineffective" being the most-cited reason for omitting FABMs from contraceptive counseling (Table 2). Education on efficacy, physiologic underpinnings, and historic knowledge gaps of FABMs could address most of the concerns listed in Table 2.^{2,8,9,54}

Some respondents noted that discussion and use of FABMs is not appropriate in some patient encounters. In particular, the pediatric population has unique characteristics and risk factors that make discussion and use of FABMs less applicable and potentially inappropri-

ate.⁵⁵⁻⁵⁸ Some patients clearly express goals, values, or circumstances that are incongruent with FABM use. For example, patients who already are feeling overextended may have higher success and satisfaction with a method of contraception that is less dependent on daily user action. The factors that influence FABM efficacy are an important counseling point for patients who are interested in using a FABM as their primary means of contraception. For FABMs to be effective, patients using them must have a supportive partner(s) and be willing to follow method protocols daily.¹² FABMs can be highly effective in motivated patients, especially when they have sought training from a licensed instructor of an evidence-based method.^{12,59,60} This can be a barrier to achieving perfect-use of a method, due to limited availability of instructors in some areas, as well as time and cost associated with this training, which is variable. It is also important to communicate to patients who desire to use FABMs for family planning that they should not choose a method solely on efficacy data.⁶¹ For example, the Syntothermal Method has the highest typical-use efficacy of FABMs, but is less effective in patients with irregular daily schedules, as it is difficult to take basal body temperature readings in a consistent manner.⁶² In an individual patient with an irregular schedule, a cervical mucus-based method, such as the Creighton Method, may be more efficacious because its perfect-use does not rely on a consistent daily schedule. Efficacy of a FABM is maximized when patients choose the method that best aligns with their own life circumstances and preferences, which may change throughout their reproductive life.^{21,41,41,63}

Some survey participants acknowledged their own individual biases regarding FABMs. While many disagreed with isolated FABM use for contraception, there were others who strongly encouraged FABMs. Eighteen percent of survey respondents demonstrated concern that FABMs were too complex for patients. However, there was evidence that patients of all educational levels can effectively use

FABMs.^{34,64-68} Additionally, because physicians often practice data-driven decision-making, presenting contraceptives in a tiered-efficacy format is a logical choice that may inadvertently discourage use of FABMs, as their efficacy often is reported in aggregate.⁴⁸

The Guttmacher Institute has emphasized the importance of reproductive justice and shared, holistic, decision-making in contraceptive selection, especially as long-acting reversible contraception continues to increase in popularity due to their high efficacy and minimal patient effort.^{26,48,69} The Guttmacher Institute also has underscored the need to guard against conscious and unconscious biases that may lead to contraceptive coercion, which undermines informed consent and patient autonomy.^{26,69,70} Patients who use or are interested in using FABMs for family planning may be especially vulnerable to physician interactions that do not meet these high expectations for contraceptive equity due to physician knowledge gaps surrounding FABMs demonstrated in this and other studies.^{4,7,17,19,51}

Limitations. As a survey of willing participants at a single institution, these data are subject to selection bias and results may not be broadly generalizable. In addition, participants may have experienced social desirability bias and hesitated to share their complete, honest opinions.

Future directions for research on this topic include exploring medical student opinions and knowledge of FABMs before and after graduation from medical school. Medical education research would be relevant if some course content directed at covering FABMs were incorporated into the curriculum and data were compared across classes before and after the curricular change. Researchers could also investigate whether coverage of this topic was most effective in a didactic setting, clinical setting, or both, and could qualitatively explore the FABM-related opinions students are exposed to during their clinical rotations.

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Keywords: *contraception, fertility, reproduction, reproductive health, health equity*

Survey Instrument

[Correct Responses are highlighted red]

Participant Criteria

- MD or DO
- Resident or attending associated with KUMC at the KC, Wichita, or Salina campuses
- Specialty in Family Medicine, Internal Medicine, OB/GYN, or Pediatrics

Participant Characteristics

- Age
 - Dropdown options 24-80
- Year Completed Medical School
 - Dropdown options 1965-2021
- Type of medical training
 - Osteopathic
 - Allopathic
- Specialty
 - Family Medicine
 - Internal Medicine
 - OB/GYN
 - Pediatrics
- Additional Training/Specialization in Women's Health, Maternity Care, Fertility, or Family Planning? (yes/no)
 - Optional: If yes, please briefly list the areas in which you have additional training/specialization
- Associated KUMC Campus
 - Kansas City
 - Salina
 - Wichita

Background Questions

- Do you recall being taught about Fertility Awareness-Based Methods (FABMs) or Natural Family Planning (NFP) in medical school? (yes/no)
- Are you familiar with the changes in cervical mucus that occur throughout the menstrual cycle? (yes/no)
- Are you familiar with the changes in basal body temperature that occur throughout the menstrual cycle? (yes/no)
- Do you have patients that use these FABMs or NFP for contraception? (yes/no)
- Do you include FABMs/NFP as an option when you counsel patients on their options for contraception? (yes/no)
 - If no, why not? (open-ended)
- Have you ever encouraged patients to use NFP/FABMs? (yes/no)
 - If yes, why? (open-ended)
- Have you ever discouraged patients from using NFP/FABMs? (yes/no)
 - If yes, why? (open-ended)

Physician Opinions

- Please rate the following statements (from strongly disagree to strongly agree or unsure)
 - Fertility Awareness-Based Methods (FABMs)/Natural Family Planning (NFP) can be effective at preventing pregnancy
 - FABMs/NFP are a viable contraceptive option for patients that would like to avoid pregnancy
 - FABMs/NFP are an effective tool to assist patients in achieving pregnancy
 - I am confident in my ability to counsel patients on the use of one or more physiological markers of fertility to assess their fertility/infertility
 - I am confident in my ability to educate patients about at least one FABM/NFP method
 - I am comfortable with patients using FABMs/NFP as their only contraceptive method
 - Patients often overestimate the efficacy of FABMs/NFP
 - It is almost always in a patient's best interest to use a hormone-based method (pills, shots, implants, etc.) of contraception if they wish to avoid pregnancy
 - FABMs/NFP are too complex for patients to manage effectively
 - FABMs/NFP leave patients at risk for sexually transmitted illnesses
 - Any contraceptive method that does not include use of a barrier method leaves patients at risk for sexually transmitted illnesses

- o FABMs/NFP should not be recommended in clinical practice

The following contraceptive methods are effective options for individuals who would like to avoid pregnancy; please rate each from strongly disagree to strongly agree or unsure.

FABM methods

- o Abstinence
- o Billings Ovulation Method
- o Cervical cap (FemCap)
- o Complete hysterectomy
- o Creighton Model FertilityCare System (NaPro Technology)
- o Diaphragms
- o Estrogen & Progestin oral contraceptive pills
- o FDA-approved contraceptive smartphone app (Natural Cycles or Clue)
- o Hormonal IUD (Mirena, Skyla, LILETTA, or Kyleena)
- o Hormone patch (Xulane)
- o Implant (Nexplanon)
- o Internal/female condoms
- o Lactational Amenorrhea Method
- o Male condoms
- o Marquette Model
- o Non-hormonal (copper) IUD (Paragard)
- o OTC emergency contraceptive pill (Plan B One-Step, Next Choice One Dose, Next Choice, EContra One-Step, My Way, After Pill, or Levonorgestrel)
- o Prescription emergency contraceptive pill (Ella)
- o Progestin only oral contraceptive pills
- o Rhythm Method
- o Shots (Depo-Provera)
- o Spermicide
- o Standard Days (CycleBeads) Method
- o SymptoThermal Method
- o Tubal ligation
- o Two Day Method
- o Vaginal ring (Annovera or NuvaRing)
- o Vaginal spermicide sponge
- o Vasectomy of male partner
- o Withdrawal method
- o Yuzpe Method for emergency contraception

The following section will assess your knowledge of statistics and key ideas related to FABMs/NFP. While many of the answers can be readily found online, please refrain from searching for answers until you have submitted the survey.

Test of Knowledge

- What is the effective **typical** use rate of FABMs/NFP for contraception?
 - o 30-50%
 - o 52-60%
 - o 75-83%
 - o **77-98%³⁹**
 - o 93-99%

- What is the effective **perfect** use rate of FABMs/NFP for contraception?
 - o 75-83%
 - o 80-88%
 - o 85-93%
 - o 93-96%
 - o **95-99.6%⁹⁷¹**

- Which of these is not a FAM/NFP method?^{40,72,73}

- o Creighton Model
- o **Yuzpe Method^{40,72,73}**
- o Natural Cycles smartphone app
- o Lactational Amenorrhea Method
- o SymptoThermal Method

- What is the consistency of cervical mucus near the time of ovulation?

- o Milky
- o Watery
- o **Egg-white^{74,75}**
- o Yellow and creamy
- o Sticky/gummy
- o Unpredictable

- **True** or false: For most people who menstruate regularly, cervical mucus consistency changes predictably throughout the menstrual cycle?⁹⁷⁵

- Ovulation is predictably marked by changes in⁹⁷⁶

1. Basal body temperature
2. Back Pain
3. Cervical mucus consistency
4. Increased libido
5. Urinary hormone levels

- o 1 & 3
- o 2 & 4
- o **1, 3, & 5**
- o 5 only
- o None of the above

- **True** or false: Pregnancy will not occur in a fertile female from sperm introduced more than 24 hours following ovulation and before the onset of the next menstrual cycle.^{10,77}

- What is the longest sperm can survive in the female reproductive tract?^{10,78}

- o 12 hours
- o 2 days
- o **5 days**
- o 8 days
- o 14 days

Thank you for your participation in this survey.