Natural Family Planning
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In this issue

Natural Family Planning

Extended Use Efficacy of Standard Days Method Is Comparable to Hormonal Contraception

There are few extended use efficacy studies of fertility awareness based methods (FABM) of family planning, i.e., studies to determine the efficacy of these methods in helping couples avoid unintended pregnancies beyond twelve months of use. Besides the obvious difficulty of sustaining a research study for more than a year, the reason for few extended use efficacy studies of FABM are that most unintended pregnancies occur during the beginning and learning phase of FABM. Furthermore, couples remaining in extended use studies of FABM might be less fertile than those that use the method and get pregnant early. Nevertheless, extended use studies of FABM and any type of family planning are important to undertake. To that end, researchers at the Institute of Reproductive Health (IRH) at Georgetown University conducted a study for the purpose of determining the long-term effectiveness and continuation rates of the Standard Days Method (SDM) of family planning.[1]

The SDM, developed and validated by researchers at the IRH, is a fixed day calendar-based method in which days 8-19 of the menstrual cycle are always considered fertile. The method is intended for those women who generally have regular menstrual cycles between 26 and 32 days in length. The participants for this extended use efficacy study were taken from two previous studies. The first study was the original efficacy trial of the SDM and the second was what the authors called the "Introduction studies," i.e., when the SDM was first introduced into various family planning systems in developing countries. The efficacy trial took place in Bolivia, Peru, and the Philippines and the Introduction studies took place in Benin, Ecuador, Honduras, and two cities in India. The efficacy trial study originally had 218 participants of which 197 went on to year two of use. Of these 197 participants, 147 completed year two and went onto year three. There were 132 couples that completed three years of use. For the Introductory studies, 1,181 couples were enrolled of which 468 continued onto year two of use. Of these women, 316 completed year two and continued into year three, of which 91 completed the study. The women participants in the efficacy trial tended to be more educated and younger than the Introduction study participants. In both studies, pregnancies were confirmed with pregnancy tests.

The unintended pregnancy rate for year one of the efficacy trial women participants was 12.0, for year two 5.2, and year three 3.4, per 100 users over 12 months of use. For the Introductory study participants, the unintended pregnancy rates were 14.1 for the first year, 3.7 for the second, and 5.9 for the third year of use. The authors concluded that the SDM was appropriate for women who wish to space their children and that use beyond one year was an effective option.

Comments

An earlier study of oral hormonal contraceptive users indicated that the estimated unintended pregnancy rate for the second year of use was approximately 4.8 unintended pregnancies per 100 users over 12 months of use.[2] This rate compares well with the second year rate of 5.1 unintended pregnancies per 100 for those participants in the efficacy trial study of the SDM and the 2.8 unintended pregnancies per 100 of the women in the Introductory studies of the SDM. A limitation of these studies is that the participants were taught and given the option of using condoms and/or abstinence during the estimated fertile phase. The good news is that the rate of women who had two cycles lengths out of the range for use of SDM dropped to 2.89% in the second year from 28% in the first year for the efficacy trial participants and from 12.8% to 1.9% for participants in the Introductory studies.

1. I. Sinai, R. I. Lundgren, and J. N. Gribble, "Continued use of the Standard Days Method," *Journal of Family Planning and Reproductive Health Care* (2011): e-published ahead of print.

2. N. Ranjit, A. Bankole, and J. E. Darroch, et al., "Contraceptive failure in the first two years of use: differences across socioeconomic subgroups," *Family Planning Perspective* 33 (2001): 19-27.

Lack of Time, Misinformation, and Inconsistent Teaching Strategies Found as Barriers to the Provision of NFP in Title X Funded Clinics

Federally funded Title X clinics provide a large percentage of family planning services throughout the United States especially among minority and low income women and couples. Although Title X clinics are required to provide all methods of family planning, including Natural Family Planning (NFP), only about 1% of the women who attend Title X clinics report the ever use of NFP. To determine the reasons for the low use of NFP among Title X clients, researchers from the University of Missouri-Kansas City conducted a qualitative study to identify barriers to the use of NFP in Title X clinics by interviewing professional health care providers.

The researchers recruited experienced providers of family planning services from Title X clinics throughout the United States and asked them to participate in phone interviews that lasted from 45 to 90 minutes. They were able to recruit 29 providers and conducted 6 focus group interviews with 5-6 individuals in each group. One of the focus groups was conducted in the Spanish language. The interviewers used an open ended question interview guide with suggested probes that addressed advantages and disadvantages of the use of NFP and what were the barriers and facilitators to the use of NFP. The providers received a $50 gift certificate for

participating in the interviews. All interviews were recorded and transcribed. The transcriptions were analyzed for themes by a hermeneutic approach and with the use of a qualitative analysis software program called *HyperResearch.*

The researchers found that Title X family planning providers felt that the time that it takes to teach women NFP (during a short clinic visit) was too long and the content too complex, i.e., typical clinic visits last around 10 minutes. They also felt that many of the women they care for would not be appropriate for use of NFP, i.e., single sexually active adolescents, women with irregular menstrual cycles, and breastfeeding women. Many of their women clients also have minimal or incorrect knowledge of fertility and basic reproduction. On the provider side, there was confusion as to what is a natural method of family planning. For example, is use of withdrawal a natural method? The researchers also found among the providers that there was inconsistency in the information provided on NFP, the methods taught and the materials used to teach NFP methods. The providers also felt that they could not refer to Church providers of NFP because their clientele would not fit the sex only in marriage model. The researchers concluded that there is a need for increased and consistent training in the provision of NFP methods for Title X providers and more efficient teaching strategies to meet the needs of Title X clients.

Comments

The researchers noted that the participants in their study did not mention the use of the Internet or smart phone type devices for the provision and access to NFP services. They speculated that this might be because Title X providers are on average older (i.e., around 49 years of age) and because the poorer clients might not have access to these types of technology. They also mentioned that their Title X clients often do not have the educational level to understand NFP materials. They (the providers) did not seem to be aware of or educated in the newer more efficient and simpler NFP methods, such as the Standard Days method developed by researchers at Georgetown University, and the use of simpler NFP teaching tools, such as CycleBeads and a simplified mucus only method developed in India that was taught by Mother Theresa's nuns to illiterate women in poverty. Furthermore, there is nothing immoral about teaching NFP to a woman regardless of her situation (e.g., a sexually active unmarried woman) so referring to a Church-based NFP class should not be ruled out.

1. P. J. Kelly, J. Witt, K. McEvers, M. Enriquez, P. Abshier, M. Vasquez, and E. McGee, "Clinician perceptions of providing natural family planning methods in Title X funded clinics," *Journal of Midwifery and Women's Health* 57 (2012): 35-42.

Breastfeeding Bridge Method Developed for Users of the Standard Days Method of NFP

The Standard Days Method (SDM) of Natural Family Planning (also known as a fertility awareness based method or FABM) was developed by researchers at the Institute of Reproductive Health, Georgetown University, School of Medicine. It is a simple and effective fixed day method based upon the study of hundreds of NFP charts from women around the world. The SDM is only for women who generally have menstrual cycles between 26-32 days in length. The days of fertility with this method are always between days 8-19 of the menstrual cycle. When couples have cycles within the prescribed length, the probability is that the fertile window will fall within days 8-19. Despite its simplicity and effectiveness, difficulties arise with the application of the SDM when in special circumstances such as breastfeeding when women are in the amenorrhea period, or within the first three menstrual cycles postpartum. The first three cycles postpartum are usually irregular. They are known to be long with a delay in the day of ovulation and with a shorter than usual luteal phase. For example, the first cycle post-partum could last as long as 100 days. Due to these challenges, IRH researchers and program designers developed what they called a Bridge Method of the SDM for use postpartum. They tested the efficacy of the Bridge Method among a population of SDM users.[1,2]

The Bridge Method was developed by assessing an existing data set of 73 postpartum breastfeeding women in which the estimated day of ovulation was determined by daily blood samples of estrogen and progesterone through the first three postpartum menstrual cycles.[1] IRH researchers then estimated the day specific probabilities of pregnancy with an act of intercourse for various algorithms and came up with the following for determining days of fertility:

1) The Bridge method begins with the first menses postpartum.

2) Fertility begins on day 11 of the first postpartum cycle and lasts until the first day of the next menstrual (i.e., fertility begins on day 11 and lasts for the remainder of the menstrual cycle).

3) In the second postpartum cycle, fertility begins on day 8 and ends on day 24.

4) Subsequent cycles also have the fertile phase begin on cycle day 8 and end on day 24 until the menstrual cycles reduce in length to between 26 and 32 days.

The IRH researchers then applied the new post-partum breastfeeding protocol (which they now called the Bridge Method) to a population of new SDM users to test the efficacy of the method to help avoid unintended pregnancies until they can use the traditional SDM.[2] The researchers were able to obtain participants from two clinical sites in Guatemala and Honduras. They enrolled 202 women who were postpartum breastfeeding, taught them the Bridge Method, and had follow-up interviews every 10 days. The participants ranged in age between 18-39 years and had a child at least two months old and were in either the postpartum amenorrhea phase or within the first 10 days of their first menses postpartum. At the time of analysis, 157 of the 217 women contributed menstrual cycles of data, with the remainder still in the amenorrhea phase postpartum.

The researchers found with correct use, the 6 month unintended pregnancy rate was 3.72 per 100 woman users (i.e., there were 4 unintended correct use pregnancies). The typical use pregnancy rate (which included correct and incorrect use unintended pregnancies) was 11.8 per 100 women over 6 cycles of use (i.e., 16 unintended pregnancies). The researchers mentioned that these pregnancy rates demonstrate adequate efficacy for use as a bridge method before resuming or beginning the regular SDM. They also mentioned that the correct use pregnancy rate was close to the correct use unintended pregnancy rates of SDM with regular cycles, but that the typical use rate was somewhat lower than use of the SDM during regular cycles but acceptable.

Comments

Based on these results, the IRH researchers suggested some modifications to the Bridge Method protocol. They recommended that the regular fixed day SDM protocol of days 8-19 of the menstrual cycle (as the estimated fertile phase) begin in postpartum cycle 3. They mentioned that deficits of the protocol are the potential long periods of abstinence in postpartum cycle one (i.e., from day 8 until the end of the cycle). They also note that they need to develop a protocol for women who do not meet the lactational amenrorrhea criteria for cycle 0 (i.e., those women who stop or diminish breastfeeding during the first 6 months postpartum).

1. I. Sinai and J. Cachan, "A bridge for postpartum women to Standard Days Method, I. Developing the bridge," *Contraception* (2012): e-published ahead of print.

2. I. Sinai, and J. Cachan, "A bridge for postpartum women to Standard Days Method, II. Efficacy study," *Contraception* (2012): e-published ahead of print.

Menstrual Cycle

Home Use of Ovarian Monitor Found to be Reliable

Dr. James Brown from Australia developed an ovarian monitor for the purpose of having a home use device that measured hormonal profiles of estrogen and progesterone throughout the menstrual cycle. The monitor utilizes a timed three hour urine collection that is diluted to 150 ml. Samples of the urine are placed in pre-coated assay tubes and then read by the monitor. The monitor is based on homogenous enzyme immunoassay principles and is designed to measure estrone glucuronide (E1G) and pregnanediol glucuronide (PdG) levels. The monitor was tested previously in comparison to laboratory values and found to be accurate and reliable. Researchers now wished to determine the reliability of the monitor with home use by comparing home use results with those results obtained by experts in established reproductive centers.[1]

Researchers were able to obtain 62 women volunteers (from three reproductive study centers, i.e., Santiago, Chile, Sydney, Australia, and Palmerston North, New Zealand) who had normal length menstrual cycles and were experienced in monitoring and charting their menstrual

cycles with natural indicators of fertility. The women volunteers utilized the ovarian monitor to measure their E1G and PdG levels on a daily basis for two menstrual cycles. They produced 113 complete menstrual cycles of data. The volunteer women also froze each daily urine sample and submitted them to one of the three centers to be tested by experts with the ovarian monitor. The researchers essentially looked at three markers for comparison: 1) the E1G rise, 2) the E1G peak; and 3) the PdG threshold. They also graphed the daily profiles of E1G and PdG and made comparisons of the hormonal profiles produced by the home users and the experts.

The researchers found that the three markers of fertility between home use of the monitor and experts compared well. The E1G rise day agreed between the home use and center use 90.3% of the time (i.e., in 102 of 113 cycles), the E1G peak day agreed 92% of the time (i.e., 104 of 113 cycles) and the PdG threshold day agreed 88.3% of the time (98 of 113 cycles). All samples of all three markers of home use and center use agreed within 1-3 days. Of interest is that the researchers determined the mean length of the fertile window, i.e., from the E1G rise to the E1G peak, to be 8 days.

The researchers concluded that accurate and reliable home use of the ovarian monitor to track fertility was possible. The hormonal menstrual profiles produced by both home and center use compared to classic published profiles found in many publications and textbooks. They suggested that the ovarian monitor could be used as a natural method of family planning. They recommended future research to compare the home use of the ovarian monitor with daily ultrasound measure of the follicles and with other natural markers of fertility, cervical mucus and basal body temperature.

Comments

A limitation of this study is that the researchers eliminated spikes and troughs in readings of the hormones from both the home and center use when they were out of place with the profile curves. They said that it was easy to visualize these aberrant readings, similar to basal body temperature spikes when plotting out daily body temperature. I would also suggest that future research investigate the ease of use and satisfaction of use of the monitor in comparison with current methods of NFP. Daily three hour urine collections and dilutions might not fit well with the lifestyle of many modern women.

1. L. F. Blackwell1, P. Vigil, B. Gross, C. d'Arcangues, D. G. Cooke, and J. B. Brown, "Monitoring of ovarian activity by measurement of urinary excretion rates of estrone glucuronide and pregnanediol glucuronide using the Ovarian Monitor, Part II: reliability of home testing," *Human Reproduction* (November 29, 2011): advance access published.

Abortion and Contraception

Induced Abortion Linked to Breast Cancer among Armenian Women

Since breast cancer is one of the most prevalent cancers among women, researchers set out to determine the association of breast cancer with estrogen exposure (both endogenous and exogenous), type two diabetes mellitus (T2DM), and other potential risk factors among Armenian women.[1] The reason for including T2DM is because it is theorized that hyperinsulinemia stimulates growth of breast cancer cells. Both T2DM and breast cancer are on the rise in Armenian women. Besides T2DM the researchers (from American University in Armenia, Johns Hopkins University, and the University of Pennsylvania) also wished to determine the association between breast cancer and estrogen exposure as reflected in age at menarche, late age at menopause, late age at first full-term pregnancy, nulliparity, obesity, breastfeeding practices, induced abortions, and intake of exogenous estrogens, i.e., the birth control pill and hormone replacement therapy.

To determine these relationships, the researchers conducted a case control study among Armenian women between the ages of 35 to 70 years. They studied 150 women with breast cancer from a national oncology registry and matched them with 152 women with no history of breast cancer. They obtained the controls by random digit dialing. A telephone survey was conducted of all women participants. The 33 item questionnaire addressed demographics, reproductive history, and exposure to exogenous estrogen. Multiple logistic regression analysis was used to determine the associations of multiple variables with breast cancer. They found that the odds of developing breast cancer was 5.53 times more likely among those who had T2DM (95% CI = 1.34-22.81) and less likely with any full term birth (OR = 0.36, 95% CI = 0.20-0.66). They also found that delaying the first pregnancy increased the risk of developing breast cancer (OR = 1.13, 95% CI = 1.01-1.27) and having an induced abortion increased the likelihood 2.86 times (95% CI = 1.02-8.04). They concluded that these relationships need further investigation among Armenian women as well as women who have similar characteristics.

Comments

There were other associations that resulted in an increased risk for breast cancer in this study (such as use of hormone replacement therapy and hormonal contraception) but they did not reach statistical significance. Part of the reason for lack of statistical significance was because of the low use of hormonal contraception and hormone replacement among these women. As a post Soviet state, there was significant use of induced abortion as a method of family planning instead of hormonal contraception, i.e., the participants had experienced from 1-10 abortions. A limitation of this study is that there might be recall bias to sensitive issues like abortion and contraceptive use resulting in lower positive response rates.

1. L. Khacgatryan, R. Scharpf, and S. Kagan, "Influence of diabetes mellitus type 2 and prolonged estrogen exposure on risk of breast cancer among women in Armenia," *Health Care for Women International* 32 (2011): 953-971.

Hormonal Contraceptive Use by Women Associated with Prostate Cancer in Men

Prostate cancer is one of the most frequent cancers among men worldwide. In the United States it is the most frequent (non-skin) cancer among men and the second leading cause of cancer deaths (with only lung cancer causing more deaths). There is no known cause for prostate cancer but it is positively correlated with age and family history. There is some speculation and evidence that environmental factors (i.e., chemicals in the environment that mimic natural hormones, such as pesticides and plastics) might contribute to hormonally linked cancers in men and women. One of the most frequent and potent synthetic hormones that are deposited in our water systems are the synthetic estrogens and progestins found in the birth control pill. These synthetic hormones do not disintegrate well and are deposited into the water system by urination and/or tossing unused pills down the toilet. To test the hypothesis that the frequency of use of the oral contraceptive pill (OC) among women is associated with prostate cancer, urological researchers from the University of Toronto conducted an ecological epidemiology study.[1]

To test the association between OC use and prostate cancer the researchers utilized three existing data sources. The International Agency for Research on cancer was used to access data on prostate cancer incidence and mortality in 2008. The United Nations World Contraceptive Use 2007 report was used to obtain data on contraceptive use and The World Factbook was used to determine the gross domestic product (GDP) per capita of each country used in the analysis. The GDP was added as a variable to control for the notion that richer countries would have greater use of screening procedures for detecting prostate cancer, such as use of the prostate specific antigen blood test. The researchers sought data from at least 50% of the countries from each of the continents. This resulted in 87 countries that were included in the final data set.

They found a moderately significant correlation between OC use and the incidence of prostate cancer ($r=0.522$, $p < 0.05$) and mortality ($r=0.53$, $P < 0.05$) due to prostate cancer among the 87 nations world-wide. These significant associations remained even after controlling for the country's GDP, i.e., a nation's wealth. They did not find a significant association between other types of non-hormonal contraceptives and prostate cancer incidence or mortality. The researchers speculated that the association between OC use in a country and the incidence and mortality of prostate cancer might be mediated through a synthetic estrogenic effect. They believed that this association was worth further investigation.

Comments

The authors also pointed out that there are limitations in retrospective epidemiology correlational studies which preclude a cause and effect interpretation. One of the confounding factors that might explain the positive association is sexual activity and not OC use, i.e., OC use is related to more frequent sexual activity which in turn might be related to prostate cancer. This association however, was not found with the non-hormonal forms of contraception. Since there is such a high incidence of prostate cancer (incidence and death) in the United States, and since there are no known causes, such an association warrants further investigation.

1. D. Margel, and N. E. Fleshner, "Oral contraceptive use is associated with prostate cancer: an ecological study," *British Medical Journal* (BMJ) Open Access 1(2011) e000311.

Tubal Sterilization Used More Often than Vasectomy among Married Couples

In the United States (US) female sterilization is the second most frequent method of family planning among women between the ages of 15-44 years. When the male partner of the female is included, sterilization becomes the number one method of contraception in the US (greater than the frequency of oral hormonal contraception use). Furthermore, the frequency of sterilization use increases with age and number of children (i.e., two or more children). Despite the fact that female tubal sterilization has more risks than male vasectomy, female sterilization continues to be the most frequent type of sterilization in the United States. These rates of sterilization, however, are based on all US women of reproductive age, whether they are married or not. How or if there are differences in use of male or female sterilization among married women and men is of interest, since they both have a stake in the mutual decision of sterilization and have a choice as to which partner is to be sterilized. An assumption is that the easier and lower risk sterilization technique would be used among married couples (i.e., male sterilization).

Researchers sought to determine factors that determine use of vasectomy and tubal sterilization among married couples in the United States.[1] They used the 2006-2008 data set of the National Survey of Family Growth (NSFG) that is available through the National Institute of Health Statistics. The 2006-2008 NSFG data set involved a nationally representative sample of men and women between the ages of 15-44. There were 7,356 women in the data set and 6,139 men. There are over 3,000 variables in the data set that focus on reproductive issues, family planning, and sexuality. The researchers used the question in the NSFG directed to the married men as to whether they had a vasectomy that makes it impossible to father a child. The question in the NSFG data set used for married women was whether they had both of their tubes tied, cut, or removed. The researchers also looked at key demographics and measures of socioeconomic status in relation to sterilization method. There were 1,750 men who were currently married in the data set, and 2,479 married women.

The researchers found that 13.1% of the married men had vasectomies and 21.1% of the married women had tubal sterilizations. As with the entire population of reproductive age women and men, there were more of each type of sterilization among men and women of older age and with more children. The highest percentage of vasectomies was among non-Hispanic whites, and the most frequent tubal sterilizations were among non-Hispanic black and Hispanic women. Education had a strong association with both types of sterilization. Among college educated married men, the sterilization percentage was 16.7%, and only 3% among those with less than a high school education. The highest percentage of tubal sterilization (36.4%) was among women with the lowest education (i.e., less than high school) and the lowest percentage of tubal sterilization (13.0%) was among the college educated women. The researchers indicated that there is a need to better understand these differences among health practitioners who provide or refer for sterilization services. They recommended more education about the ease, low risk, and efficacy of vasectomy for health professionals and for married couples.

Comments

It is of interest that women continue to take on the risks of surgical sterilization even among married couples. The findings of this study show that there is a bias towards having the woman take on the family planning risks. The findings also show that many married couples are unable to live with and share their complementary fertility. Instead of the risks of both vasectomy and tubal sterilization (and their inherent immoral use and abuse), there should be an effort to promote the use of NFP among couples who have completed their family size.

1. J. E. Anderson, D. J. Jamieson, L. Warner, D. M. Kissin, A. J. Nangia, and M. Macaluso, "Contraceptive sterilization among married adults: national data on who chooses vasectomy and tubal sterilization," *Contraception* (October 17, 2011): advanced access published.

Use of Hormonal Contraceptives May Increase Risk of HIV Transmission in Male or Female Sexual Partner

Previous studies are mixed as to whether there is an association between hormonal contraception and HIV-1 transmission. The concern about the potential association between hormonal contraception and HIV-1 transmission is of global interest and, in particular, in developing countries within the continent of Africa where the rates of HIV are very high. Researchers from the University of Washington were interested in determining if there was an association between use of hormonal contraception and the risk of HIV-1 acquisition by women and the transmission of HIV-1 by infected women to their male partner.[1]

The University of Washington researchers obtained participants from two ongoing prospective studies on the efficacy of antiretroviral medications on the transmission of herpes

simplex virus. They were able to access a total of 3,790 heterosexual HIV-1 serodiscordant couples in seven African countries (i.e., only one partner of the couple had HIV). The HIV free partner was followed and tested every 6 months to determine possible transmission of HIV. Most of the couples were married with children, with the median age being the mid-30s. The researchers statistically controlled for use of condoms, frequency of sexual intercourse, sexual intercourse by somebody other than their partner, CD4 count, genital ulcers, and circumcision status of the male.

The researchers discovered that there was a two-fold increase in HIV-1 acquisition among women who used hormonal contraception (i.e., a hazard ratio of 1.98; 95% CI = 1.06-3.68) compared to those who did not. They also found a two-fold increase of HIV-1 transmission to the male partner of HIV infected women who were using hormonal contraception (1.97; 95% CI = 1.12-3.45). Of interest is that they also measured the endocervical canal concentrations of HIV-1 and found that those women who were using injectable hormonal contraception had significantly higher concentrations than those not using hormonal contraception. They recommended that women at risk for HIV transmission from sexual partners receive counseling about this association between HIV-1 acquisition and hormonal contraception (particularly if they are on injectable forms) and that they be instructed to use condoms for dual protection. They also recommended that at risk women consider use of non-hormonal contraception and low dose hormonal contraception.

Comments

The researchers did point out that this study did not establish a cause and effect relationship, which could only be ascertained through a randomized control trial (i.e., one group would use hormonal contraception and the other a non-hormonal method). They also pointed out that a retrospective study such as this has limitations due to recall of the use of hormonal contraception and to the actual type and level of hormonal contraception. There could be other factors that the non-acquisition couples had that might have biased the results. They did not mention the possibility of using Natural Family Planning methods and abstinence among these couples.

1. R. Heffron, D. Donnell, H. Rees, and J. M. Beaten, “Use of hormonal contraceptives and risk of HIV-1 transmission: a prospective cohort study,” *Lancet* (October 4, 2011): published online.

Under the Microscope: The Facts about Faithful Catholics and Contraception

In a press conference on February 10th, 2012, President Obama made the statement that "nearly 99 percent of all Catholic women have relied on contraception at some point in their lives."[1] The purpose of his statement was to undercut the U.S. bishops' opposition to the Department of Health and Human Services preventive services mandate that requires virtually all private health plans in the U.S. to cover the full range of contraceptive drugs and devices and sterilization procedures. Even the great majority of religious organizations must comply, or stop providing health coverage. The mandate contains an extremely narrow exemption for "religious employers," but almost no Catholic hospitals, charities or educational institutions would qualify. Among other conditions, the purpose of the institution must be the inculcation of the faith, and it must both hire and serve predominantly adherents of that faith.

The President's remarks were meant to move the public focus from the topic of religious liberty to that of women's "reproductive rights" as defined by most pro-contraceptive, pro-abortion organizations. In reality, the issue is about religious liberty and all Americans should be deeply concerned about this fact. If the HHS contraceptive mandate proceeds, it would negatively affect many Catholic sponsored institutions, including Catholic hospitals, Catholic universities, and Catholic social service organizations. Despite the serious subject of the American Constitutional right of religious liberty, the national media focused on the President's remarks and added to the public confusion. The fallout of this public struggle has generated much discussion on whether the statistics used by the media and, in particular, the President, are correct. This article is concerned with finding out the facts about Catholics and contraceptive use, more particularly, "faithful Catholics" and contraceptive use.

The data that President Obama used came from the National Center for Health Statistics (NCHS) and the Center for Disease Control and Prevention (CDC). Through a contract with the University of Michigan, the CDC conducts the National Survey of Family Growth (NSFG) approximately every 5-7 years (since 1973).[2] The NSFG includes factors that help explain trends in contraceptive use, infertility, sexual activity, parenting, and pregnancy outcomes. The NSFG is conducted by demographic researchers who use a nationally representative, randomly selected and weighted sample of women (N=12,279) and men (N=10,403) 15-44 years of age in the US. Interviews are conducted in person and take approximately 80 minutes to complete. Sensitive questions (such as the use of abortion) are asked through a self-paced computer assisted interview program. The response rates of these surveys range from 75-80%. In October of 2011, data sets were released from Cycle 7 of the NSFG which was conducted from June of 2006 through June 1st of 2010. There are 3,741 variables in the data set directed to women.

When the President said that nearly 99% of women used contraception "some time in their lives" he essentially based those results on the variables in the NSFG that asked participants their "ever use" of the various methods of family planning, including ever use of the pill, condom, vasectomy, IUD, Rhythm Method, modern methods of NFP, morning after pill, and so forth. It should be noted that the NSFG does not make a distinction between contraceptive methods and the non-contraceptive methods of family planning like Calendar Rhythm and the modern methods of NFP. The data the President used included only women who were sexually active (i.e., they responded in the NSFG that they had sex in the previous three months before the interview). The President's statement did not mention the percentage of Catholic women who were currently sexually active and using methods of contraception. More importantly, the question was not raised as to whether the Catholic respondents were practicing their faith. In other words, do the Catholics who use contraception actually believe in the precepts of their faith? Another way to ask this question is, "What is the contraceptive use rate among practicing Catholics?" One way to answer this question would be to investigate the rate of contraceptive use among Catholic women of reproductive age who attend Church services on a weekly basis or more frequently. The assumption is that these women would be more serious about their faith and therefore, have lower rates of contraceptive behavior than the general public. In order to find out if this assumption is true, specific variables in the 2006-2010 NSFG data file must be analyzed based on the following questions:

1. What is the percentage of Catholic women of reproductive age (15-44 years of age) who are currently using methods of contraception?

2. What is the percentage of Catholic women of reproductive age who ever used methods of contraception?

3. Are Catholic women of reproductive age who attend church services at least once a week less likely to use contraceptive methods than those Catholic women who attend church service less often?

Methods

In order to answer these questions, a data file on Catholics was developed from the 2006-2010 NSFG on women between the ages of 15-44. The NSFG data file has 12,279 women participants, and of these women, 3,315 responded that they were Catholic. Of the Catholic respondents 3,213 (or 96%) had been or are sexually active. To evaluate how seriously these Catholic women regard their faith, the survey question from the NSFG that asked frequency of Church attendance was used. Again, it was assumed that Catholic women who attend church at least once a week took their faith more seriously than those that don't attend church services that frequently.

To determine if Catholic women used contraception in the past, the variable "ever use" of various methods of family planning was extracted from the NSFG data file. For current use the variable "method used in the month of interview" was extracted. The specific variables analyzed from this data were the "current use" of the hormonal contraceptive pill, vasectomy, female sterilization, male condom, intrauterine device (IUD), withdrawal, and NFP. Also analyzed was "ever use" of the pill, vasectomy, female sterilization, male condom, withdrawal, IUD, and NFP. NFP included the use of temperature or cervical mucus monitoring. Use of the IUD was only in the past twelve months. Again, it needs to be noted that the NSFG does not make a distinction between contraceptive methods of family planning and the natural methods. For frequency of Church attendance, the categories of the variable "church attendance" in the NSFG data file were collapsed into those Catholic women who attend services "once a week or more" in comparison to those women with less frequent church attendance.

Descriptive statistics were used to determine the demographic makeup of the sample, including age, marital status, race, and religion. Chi square and relative risk odds ratios (OR), i.e., likelihood to have used a method of contraception (with 95% confident intervals) were calculated (See Appendix for definitions of these statistical terms, p. 23). Statistical significance was set at the 0.05 probability level to control for increased error rates with multiple testing, the Bonferroni average of .006 was determined. Statistical analysis was performed by use of the Statistical Package for Social Sciences (SPSS version 17). Only those women who indicated that they were hetero-sexually active were included in the data analysis.

Results

Description of Catholic Participants in Data Set

There are 3,135 Catholic women (or 25.5%) of the total 12,279 US women in the 2006-2010 NSFG data file. The mean age of these women was 28.8 (range 15–45), 37% of whom were married, 13% cohabitating, and 41% never married. Forty-nine percent have cohabitated sometime in their lives. The majority (72%) were of the Caucasian race, 7.2% were listed as Black and 20% other races. Fifty percent were of Hispanic origin.

Percentages of Current Use of Contraceptive Methods

Of these Catholic women, there were 2,657 who were sexually active (who answered that they "ever had sex") and 2,180 (or 69.5%) who had a current sexual partner (that included husband or cohabitating partner). About 85% of the Catholics in the data set were sexually active at one time in their lives and approximately 70% are currently sexually active.

Of the "ever sexually active" Catholic women, 783 listed no method of family planning in the month of interview and 36 listed either the Rhythm Method or NFP in the month of interview. Therefore, there were 1,938 Catholic women in the month of interview using some form of contraception rather than NFP or the Rhythm Method. This means that 62% of the total reproductive age women were using some form of contraception and 73% of the "ever" sexually active Catholic women of reproductive age were using a method of contraception rather than NFP or the Rhythm Method in the month of interview. Of the Catholic women who have a current sexual partner (including their husband), 1,605 (or 74.6%) are currently using a method of contraception rather than NFP or the Rhythm Method.

There were 744 of the "ever" sexually active Catholic women who attended church services at least once a week. Of these sexually active Catholic women who attended church services at least once a week, 483 or 65% were currently using some method of contraception rather than NFP. Of the Catholic women who have a current sexual partner, 618 attend church at least once a week, of these 70.4% are currently using a method of contraception rather than NFP and the Rhythm Method.

Table 1 shows the frequency and percentages of current use by Catholic women of common forms of contraception, Rhythm and NFP. The three most frequent currently used methods of contraception are the hormonal pill, sterilization (i.e., male partner and female added together), and the condom. The frequency of combined male and female sterilization is close to the frequency of use of the pill. Current use of NFP is a disappointing 0.2%.

Percentages of Ever Use of Contraceptive Methods

According to the NSFG data file 2,680 (or 85.5%) of the Catholic women in the data set "ever used" some form of contraception (NSFG includes NFP in this category). Of the currently sexually active Catholic women, 2,180 (or 68.6%) of the total "ever used" a method of contraception or family planning – including NFP; however, if only the Catholic women who have a current sexual partner is analyzed, then 98.6% (or 2,151 of 2,180) "ever used" a method of contraception, Rhythm, or NFP.

Table 1 also shows the frequency and percentages of "ever use" of common methods of family planning among the sexually active Catholic women of reproductive age. The most frequent ever use of contraceptive methods by Catholic women are (in the following order of frequency) the condom, the pill, and withdrawal. Sterilization is next in frequency if you include male and female sterilization together. Large numbers of Catholic women also used hormonal contraception through the contraceptive patch and hormonal injection. The 11% ever use of emergency contraception is not minimal. The 24% ever use of NFP and Rhythm is encouraging.

Table 1: Frequency (and percentage) of Current and Ever Use of common Family Planning Methods among the sexually active Catholic Women (N= 2657) in the 2006-2010 NSFG Data Set.

	Current Use		Ever Use	
Method	Frequency/(Percentage)		Frequency/(Percentage)	
Pill (OC)	504	19.0%	1944	73.2%
Sterilization (Female)	376	14.2%	444	16.7%
Condom (Male)	381	14.3%	2327	87.6%
Sterilization (Male)	112	4.2%	222	11.0%
IUD	118	4.4%	236	4.2%*
Withdrawal	125	4.7%	1473	55.4%
Depo-Provera	83	3.1%	636	23.9%
Vaginal ring	33	1.2%	136	5.1%
Contraceptive patch	20	0.8%	301	11.3%
Rhythm	30	1.1%	494	18.6%
NFP	11	0.2%	130	4.9%
Emergency Contraception	2	0.1%	304	11.4%

* This figure is based on projections from the 2006-2008 NSFG data set.

Table 2: Odds Ratio (OR) of Ever Use of a common method of contraception and NFP among Sexually Active Catholic US Women in the 2008-2010 NSFG data set who attend Church services at least once a week – compared to those Catholic women who attend church less frequently.

Method	Odds Ratio	95% CI	Significance
Condom (Male)	.505	.398 – .640	< .001
Withdrawal	.684	.577 – .811	< .001
EC	.560	.414 – .756	< .001
Pill (OC)	.748	.621 – .901	< .002
Vasectomy	.879	.642 – 1.20	NS*
Depo-Provera	1.084	.890 – 1.32	NS*
Surgically Sterile	1.350	1.07 – 1.70	< .01
NFP	3.104	2.18 – 4.43	< .001

* Not Significant

Practicing Catholics and Contraception

Table 2 shows the likelihood of ever use of select contraceptive methods by Catholic women who attend church services at least once a week or more compared with those who attend less often. It is assumed that the frequent church attenders are "practicing" Catholics who are serious about their faith. As expected, the practicing Catholic women are less likely to ever have used the pill, condom, withdrawal, and emergency contraception. Also as expected, practicing Catholics are more likely to use NFP (i.e., about 2 times as likely); however, they are also more likely (about 35%) to have been sterilized compared to Catholic women who attend church services less frequently.

Discussion

Based on the population based data of the most recent NSFG (i.e., 2006-2010), the President's statement on Catholics and contraception use (from the perspective of current use) is not accurate. Ninety-nine percent of Catholic women do not currently use contraceptive methods.

According to the data set 63% of all Catholic women of reproductive age are currently using a method of contraception (rather than NFP) and 72% of "potentially" sexually active Catholic women. The word "potentially" is used since the variable only measured "ever sex" not current sexual activity. We also know from this data set that Catholic women who frequent church services at least once a week have less "ever use" of many of the common contraceptive methods (and are more likely to ever have used NFP) than Catholic women who attend church less frequently. It is assumed that the frequent church goers are more serious about their faith and are what is commonly called, "practicing" Catholics.

In the President's remarks, he noted that he was referring to "sexually active" Catholics who have "ever used" a contraceptive method. Based on those defined variables or limits, then the President may be correct that approximately 99% of Catholic women who have a current sexual partner have ever used a method of contraception – even when use of NFP is removed from the equation. Parsing the "ever use" contraceptive data further, we can see that: 73% of sexually active Catholic women have used the pill; 87% have used the condom; 35% have used other hormonal forms of contraception; and 17% have been sterilized. Therefore, it is possible that 99% of sexually active Catholic women have used some form of contraception in the past.

In any case, although the President might be wrong about the total percentage of Catholic women "currently" using contraceptive methods, the actual numbers of 63-74% is not encouraging. Most Catholic women of reproductive age have used and are using methods of contraception. This frequency of use is not much different than the frequency of use among all US women of reproductive age. For this reason, the CDC no longer breaks out percentages of use by religion in their reports. Furthermore, although Catholics who attend church services weekly are less likely to use the common methods of contraception, they do have a higher likelihood of using sterilization. There has been some speculation that the reason for this phenomenon is that if the woman (or man) is sterilized they only have to go to confession once whereas the continuous use of the pill precludes confession and an undisturbed conscience.[3]

Limitations of data

One limitation of the NSFG data set that has been reported in the literature is the potential under reporting of methods of contraception.[4] It could be that the lower frequency use of contraception among frequent church attending Catholics might be due to a felt embarrassment in admitting use of contraception, which is a serious matter in the Catholic faith. There is also some question as to whether the population sampling technique truly represents the US population especially among the Hispanic population. According to the US Census about 68% of Hispanics in the US consider themselves Catholic, while the NSFG only indicates 57%.[5] There are relatively few couples who list NFP as their method of family planning. This limits the statistical power and the ability to make definite comments on NFP. We do not know how the 20% or so who refused to be surveyed would respond.

Implications

According to John Paul II in *Evangelium vitae*, there is a trivialization of sexuality in society and the separation of sex from fertility and from marriage.[6] He felt that is was a duty to offer adolescents and young adults an authentic education in sexuality and in love. That is, education that involves training in chastity. Pope Benedict XVI recently reiterated these thoughts about marriage preparation and the need for chastity to visiting US Catholic bishops in Rome.[7] Pope John Paul II also mentioned that centers for natural methods of regulating fertility should be promoted as a valuable help to responsible parenthood.[8] He felt that all married and engaged couples should learn NFP. I would also include the defense of marriage as the union of a man and a woman, the promotion of marriage, and means that help to build strong marriages – which again Pope Benedict stressed in his recent message to US bishops.

In order to help build a Culture of Life among health professionals, it would be recommended that health care providers (especially physicians and professional nurses) become familiar with natural methods of family planning and offer them as viable options for their patients. Perhaps health care professionals could learn to teach several methods of NFP, have trained NFP teachers in their offices, or refer their patients to institutions that provide NFP methods. Natural Family Planning should be included in the curriculum of both medical schools and nurse midwifery programs in order for the care providers to be able to offer a natural and effective option.[11] Health professionals (especially those in primary care and pediatrics) could be involved with developing, providing and researching chastity-based programs of human sexuality. A recent randomized comparison study of a chastity-based program in comparison to a contraceptive promotion sexual health program among African-American teens showed that the chastity-based program was more effective in decreasing sexual activity and unwanted pregnancy.[12]

Conclusion

The Department of Health and Human Services developed the mandate on contraceptive coverage based on the National Institute of Medicine's report that stated more use, promotion, and availability of contraceptive methods are needed in order to decrease unwanted pregnancy and improve the health of women.[13] Furthermore, the consensus among health care professionals is that there is a great need to provide unmarried sexually active adolescents with the pill, the condom, and more recently the Depo-Provera injection and EC and when women and men have "completed" their families, sterilization.[14] Although supported by the President of the United States and insisted on by the Institute of Medicine, these approaches are not solving the problem of unwanted pregnancy and improving the health of women. In fact, just the opposite is the reality. Only a true understanding of human sexuality, marriage, and the conjugal act incorporated into the provision of reproductive health care will truly promote the health of the entire woman. The only moral and effective way to decrease unintended pregnancies and abortion is through chastity-based human sexuality programs for teens and their parents, marriage preparation that includes the use of NFP, understanding women's roles and careers that are not dependent on eliminating their human fertility, and promoting and defending marriage as

the union of a man and a woman. Catholic health care providers and Catholic health care institutions need to embrace these methods.

End Notes

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Appendix

Glossary of Terms

Chi square A statistical test to determine if there are greater proportions of some characteristic or behavior in one group versus another – for example, a greater proportion of non-Catholic women using the birth control pill compared to Catholic women.

Odd Ratio A statistical test that is used to determine the likelihood of some characteristic or behavior existing in one group versus another. The likelihood ratio is reported in segments below or above 1.00. If less than 1.00, this means there is a less likely probability of this characteristic or behavior happening in one group versus another, if greater than 1.00, there is a greater likelihood of the behavior happening. For example if there is an odds ratio (OR) of 1.50 between use of the pill among Catholic women who frequent church service compared to Catholic women who do not, this would mean there is a 50% greater likelihood of the pill being used among non-church going Catholic women.

Confident Intervals A statistical test that provides a range of probability that a characteristic or behavior exists among a population versus another population. A 95% confident interval means that there is a probability that this characteristic or behavior will exist in 95% of the population between the range of results presented.

Probability or Statistical Significance Means that there is less than a certain level of probability that a characteristic or behavior exists in a population by chance. Usually, the lowest level of probability that is accepted as being significant is less than 5 chances in 100 (i.e., a significance of < .05). A more rigorous level of statistical significance is a probability of 1 chance in 100 that a characteristic or behavior exists by chance (i.e., a significance that is less < .01), and the most strict criteria, 1 chance in 1,000 (i.e., a significance < .001). A statistical test is not significant until it reaches a significance level of .05 or less. The significance level should be provided before conducting the statistical test.

Addendum

Sexual Activity among Male and Female Adolescents (15-19 years of age) as Found in the 2006-2010 NSFG

One of the first reports released by the CDC on the most recent (2006-2010) National Survey of Family Growth (NSFG) SFG was an analysis of the sexual activity of adolescents in the United States (US) between the ages of 15-19 years.[1] The report indicated that approximately 43% of never married US female teenagers (4.4 million) and about 42% of never married male teenagers (4.5 million) had had sexual intercourse at least once. These levels of sexual activity did not change significantly from the 2002 data set. The survey results showed that the condom was the most frequently used and most popular form of birth control among both sexes.

The most commonly used contraceptive methods used by US teenagers in 2006–2010 remained the condom (reported by 96% of sexually active females), followed by withdrawal (57%) and then the hormonal birth control pill (56%). There was a significant increase (since the 2002 report) in the percentage of female teenagers who used hormonal methods other than a birth-control pill, such as injectables and the contraceptive patch, at first sex.

Of interest was that for both male and female teenagers, a significantly smaller percentage were not sexually experienced if:

- they lived with both parents when they were aged 14
- their mothers had their first birth at age 20 or over
- the teenager's mother was a college graduate
- the teenager lived with both of her/his parents.

The most frequent reason given for not having had sex by the teen participants was that it is ''against religion or morals.'' Among the teenagers who never had sex, 41% of females and 31% of males chose this as their main reason for not having had sex. In 2006–2010, the second most common reason chosen by males was ''haven't found the right person yet.'' For females in 2006–2010, ''don't want to get pregnant'' (18%) and ''haven't found the right person yet'' (19%) were the second and third most common reasons chosen. The percentage of males choosing ''don't want to get (a female) pregnant'' as their main reason for not having had sex declined by one-half between 2002 and 2006–2010, from 25% to 13%. Teenagers were least likely to choose ''don't want to get a sexually transmitted disease'' as the reason for not having had sex. In 2006–2010 non-Hispanic white females (48%) were more likely to choose ''against religion or morals'' as their most important reason for not having had sex compared with Hispanic (28%) and non-Hispanic black females (29%). Non-Hispanic white males (33%) were more likely than non-Hispanic black males (21%) to report ''against religion or morals'' as the most important reason for not having had sex.

Comments

Supporting and encouraging legislation that build stable family structures and supporting sexual education programs that encourage chastity would seem to be of importance for many of these US adolescents.

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