

The Influence of Religiosity and Contraception on the Likelihood of Abortion among Reproductive Age Women

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ABSTRACT: The purpose of this paper is to discuss the influence of the three most frequently used methods of contraception (i.e., the hormonal pill, the male condom, and sterilization – male and female) on the likelihood of having an abortion among United States (US) reproductive age women (15-44). A second purpose is to determine the influence of Church attendance and importance of religion on the likelihood of having an abortion among US reproductive age women. Findings show the ever use of contraceptive methods increased the likelihood of abortion from 56% to more than 11 times and that frequent church attendance and those women who hold religion to be very important in their lives decreased the likelihood of abortion compared to women who were not religious and not on the three methods of contraception. Recommendations included supporting traditional religiosity that supports chastity, marriage, and family planning methods that integrate human sexuality.

THE PROMOTION OF CONTRACEPTION and sterilization continues to be the main intervention among health professionals to help women avoid unwanted pregnancy and abortion. Recently, the unintended pregnancy rates have decreased. This decline has been attributed to more effective contraceptive methods, such as Intra-Uterine Devices (IUDs) and hormonal implants (often referred to as LARCs, long-acting reversible contraceptives).¹

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¹ L. Lindberg, J. Santelli, and S. Desai, "Understanding the Decline in Adolescent

LARCs are being promoted by health professionals because they do not require behaviors that might lower their effectiveness.² Sterilization is now the number one method of family planning in the United States (US).³ Although sterilization and use of LARCs might be decreasing abortion rates, sexually transmitted diseases (STD) are rising.⁴

The thesis of this paper is that, although abortion rates might be decreasing with the increased use of LARCs, abortion rates are still influenced by contraception. The hypothesis is that women using methods of contraception will have more abortions than women not using contraceptive methods. This paper also concerns the influence of religiosity on abortion rates, and in particular, how often women attend church services and how important religion is in their lives. The hypothesis is that the women who attend church at least once a week and those who view religion as very important in their lives will have fewer abortions than the women who are less religious. Church attendance and importance of religion may be thought of as protective factors from use of abortion.

This paper first provides some theoretical and empirical reasons why the use of contraception increases the likelihood of abortion and why religiosity prevents having abortions. The next part of the paper provides new empirical evidence to test the two hypotheses by using data obtained from the National Survey of Family Growth (NSFG). The NSFG is a population-based data set of reproductive age US women that provides ongoing data on contraceptive use and related topics like pregnancy, STD rates, and abortion.

Theoretical reasons why contraception is associated with abortion

Janet Smith (Chair of Life Ethics at Sacred Heart Seminary in Detroit)

Fertility in the United States 2007-2012,” *Journal of Adolescent Health* 59/5 (2016): 577-83.

² For example, forgetting to taking the hormonal birth control pill or to use a condom during an act of intercourse.

³ Kimberly Daniels and Joyce C. Abma. “Current Contraceptive Status Among Women Aged 15-49: United States, 2015–2017,” NCHS Data Brief No. 327, December 2018.

⁴ “Center for Disease Control Fact Sheet,” National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention Centers for Disease Control and Prevention Reported STDs in the United States, 2014 National Data for Chlamydia, Gonorrhea, and Syphilis.

speculates that most abortions occur with unwanted pregnancy resulting from sexual activity outside of marriage.⁵ Sexual activity among un-married individuals has become a common expectation and even a social norm. If the contraceptive method used does not work and a pregnancy occurs, there is usually no committed reason for continuing the pregnancy. Living together without being married (i.e., cohabitation) is also facilitated by contraception. However, unlike married couples who have made a public commitment to each other, cohabiting couples live together because they do not want to make that commitment and are free to separate at will. Pregnancies from such uncommitted relationships also decrease the likelihood of making a commitment to new human life.

Richard Doerflinger (former bioethicist to the U.S. Conference of Catholic Bishops) speculated that one reason that contraception is linked to abortion is that abortion is looked upon as a needed back up to failed contraception.⁶ This statement makes sense, for we know that 50% of women who have had an abortion were currently using some method of contraception and the other approximate 50% had used contraception in the past. Many women do not like being on hormonal methods since there are bad side-effects. We also know that couples using condoms do not like their use since they do not feel natural.⁷

Saint Pope John Paul II called abortion and contraception fruits of the same tree.⁸ He said that contraception is a rejection of fertility and a separation of fertility from human sexuality. He thought that the use of contraception looks upon fertility as an enemy to be avoided. The use of contraception is thought to be a responsible form of family planning by many women and men in the United States. If a woman on contraception becomes pregnant while on contraception, it is not thought to be her fault, and so she is not regarded as responsible for the child. In this way the child too becomes an enemy to be avoided. However, the use of natural family planning is compatible with the

⁵ J. Smith, "The Connection between Contraception and Abortion," downloaded from One More Soul Web site, June 3, 2011, at: <http://onemoresoul.com/contraception/risks-consequences/the-connection-between-contraception-and-abortion.html>.

⁶ R.M. Doerflinger, "The Prevention Deception: How Not to Reduce Abortions," (Washington, D.C.: Secretariat for Pro-Life Activities, U.S. Conference of Catholic Bishops, 2007).

⁷ L.H. Keogh, "Understandings of the 'Natural' Body: Comparison of the Views of Users and Providers of Emergency Contraception," *Sexual Health* 2 (2005): 109-15.

⁸ Pope John Paul II, *Evangelium vitae* in *Origins* 24/42 (6 April 1995): 694-95.

acceptance and appreciation of one's fertility and the mutual and responsible cooperation of the husband and wife in living with their fertility. The use of NFP does not lead to having an abortion; rather, it is preventative.

Empirical evidence for associating contraception with abortion

A 2011 study from Spain shows that abortion rates doubled as the availability and use of contraception increased in that country.⁹ Some researchers tried to explain that the correlation arose from an increase of immigrants into that country and from the use of contraception among a poorer and less educated population of women. Researchers at the Allen Guttmacher Institute (AGI) investigated the relationship between contraception and abortion in thirteen countries.¹⁰ They found that in six of those countries there was a correlation between the increased use of contraception and abortion.

Since contraception has not been helpful in decreasing abortion rates, many scientists and clinicians thought that the use of emergency contraception (EC) would be a reliable way to lower the rate of unintended pregnancies and abortion. Emergency hormonal pills were developed and made readily available and were promoted for use after "unprotected" acts of intercourse. However, studies with massive promotion and distribution of EC in England and China showed no decrease in their abortion rates.¹¹ J. Trussell and others reviewed twenty-three studies on the use of EC and declared that the use and promotion of EC to reduce abortion was a failure.¹² However, EC and most contraceptive methods like the hormonal pill and condoms require behaviors

⁹ J.L. Dueñas, I. Lete, and R. Bermejo, et al., "Trends in the Use of Contraceptive Methods and Voluntary Interruption of Pregnancy in the Spanish Population during 1997-2007," *Contraception* 83 (2011): 82-87.

¹⁰ C. Marston and J. Cleland, "Relationships between Contraception and Abortion: A Review of the Evidence," *International Family Planning Perspectives* 29 (2003): 1-12.

¹¹ A. Glasier, K. Fairhurst, and S. Wyke, et al., "Advanced Provision of Emergency Contraception Does Not Reduce Abortion Rates," *Contraception* 69 (2004): 361-66.; X. Hu, L. Cheng, X. Jua, and A. Glasier, "Advanced Provision of Emergency Contraception to Postnatal Women in China Makes No Difference in Abortion Rates: A Randomized Controlled Trial," *Contraception* 72 (2005): 111-16.

¹² J. Trussell, E.B. Schwartz, K. Guthrie, and E. Raymond, "No Such Thing as an Easy (or EC) Fix," *Contraception* 78 (2008): 31-354; C.B. Polis, E.G. Raymond, and J. Trussell, "Facing the Facts on Advance Provision of Emergency Contraception," *Contraception* 82 (2010): 579-80.

that could reduce the effectiveness. That is why long-acting reversible contraceptive methods (LARCs) are now being promoted as likely to produce a drop in the rate of unintended pregnancy and abortions. These methods take the control of contraception out of the users and place them under the control of health professionals.

A study by this author (2011) found that there was a greater likelihood of ever having had an abortion (up to three times more likely) among women who used the pill, condom, and or hormonal injections compared with women not using those methods.¹³ This study was among women in the CDC 2010 National Survey of Family Growth (NSFG). This study also found that there was a greater likelihood of having had an abortion in past twelve months among women using sterilization, EC, and withdrawal as compared with women not using those methods. Furthermore, the researcher conducted a number of studies among adolescents and young adults and found that those who attended church frequently and who placed importance on religion tended to have a later sexual debut, fewer sexual partners, fewer sexually transmitted infections, and fewer unintended pregnancies and abortions.¹⁴ Frequent church attendance and placing importance on religion were protective factors associated with a healthy human sexuality.

The present study extends the 2011 study among US women of reproductive age by examining the association of ever and current use of the three most frequently used methods of contraception, i.e., the hormonal pill, male condoms, and sterilization (e.g., tubal ligation and vasectomy) with abortion rates by using the 2013 NSFG data set. This current study also includes the association of frequency of church attendance and placing importance on religion as protective factors in lowering the likelihood of abortion.

¹³ R. Fehring, "The Influence of Contraception on Abortion among Women of Reproductive Age in the United States," *Life and Learning XXI: Proceedings of the Twenty First Conference of University Faculty for Life*, ed. J. Koterski (Bronx NY: UFL, 2018), pp. 245-61.

¹⁴ R. Fehring. "Influence of Current Contraceptive Use on the Abortion and Sexually Transmitted Disease Rates among Adolescents," *Life and Learning XXVII: Proceedings of the Twenty Seventh Conference of University Faculty for Life*, ed. J. Koterski (Bronx NY: UFL, 2017), pp. 211-31; R. Fehring, T. Bouchard, and M. Meyer, "Influence of Contraception Use on the Reproductive Health of Adolescents and Young Adults," *The Linacre Quarterly* 85/2 (2018): 167-77.

The specific research questions are:

- (1) What is the likelihood of ever having had an abortion among sexually active US women who ever used and currently use the most common forms of family planning (i.e., the pill, the condom, and sterilization – male and female) among US reproductive age women (15-44)?
- (2) What is the likelihood of ever having had an abortion among sexually active US women who consider religion as very important in their lives?
- (3) Are there significant differences in the number of abortions between those using the three most frequent methods of contraception and those not using those methods?

Research Methods

The participants in this study took part in the 2010-2013 Cycle 8 of the NSFG. This cycle of the NSFG was conducted by scientists at the University of Michigan using a nationally representative, randomly selected sample of U.S. women. Under-represented sub-populations such as Hispanics were adjusted for by over-sampling these groups. Interviews were conducted in person and took approximately eighty minutes to complete. Sensitive questions (such as the use of abortion) were asked through a self-paced computer-assisted interview program. The response rates for these surveys range from 75% to 80%. The response rate for the 2011-2013 NSFG was 73.4% for females. There are over 3,000 variables in the Cycle 8 data set. The data set contains variables on ever use of abortion, current and ever use of methods of contraception, and the variables “importance of religion,” church attendance, and marital status. This report includes the 5,506 women in the NSFG between 15 and 44.

The independent or predictor variables (and their labels) for this study were taken from the NSFG data set: “ever use” and “current use” of the hormonal pill (PILL), sterilization (TUBES TIED), vasectomy (VAS), ever use of condoms (CONDOM), and ever use of abortion (ABORT). The hormonal pill, sterilization, and condoms were used because they are the most frequently used methods of contraception in the US. The independent variable for the current method of contraception was labeled (CurrMeth), that is, the use of a contraceptive method during the month of interview

The protective variables were these: the importance of religion in the respondent’s daily life (RELDLIFE) and the frequency of attendance at religious services (ATTNDNOW). For the purposes of this analysis, the importance of religion response was divided into two categories: (1) very

important and (2) somewhat important or not important. Participants indicated their frequency of attendance at a religious service as more than once a week, once a week, one to three times per month, less than once a month, or never. For analysis, these responses were collapsed into two categories. Frequent attendance at religious services included one or more times per week and infrequent attendance included three times per month or less.

Chi square and relative risk odds ratios (OR), i.e., the likelihood of every having had an abortion or not (with 95% confident intervals) were calculated. Statistical significance was set at the 0.05 probability level. To control for increased error rates with multiple testing, the Bonferonni probability average of .008 was determined. Logistic regression analysis was used to determine the combined influence of contraceptive methods, church attendance, and the importance of religion on the likelihood of ever having had an abortion. Student *t-tests* were used to determine differences in the number of abortions between users of a method of contraception and those who were not using that method of contraception. Statistical analysis was performed by the use of the Statistical Package for Social Sciences (IBM SPSS version 24). Only variables that are in the public access of the Cycle 8 data set were used for analysis in this report. There are no personal identifiers in this data set.

Results

Demographics. The mean age of the 5,506 women participants in the Cycle 8 NSFG data set was 28.6 (range: 15 to 45), 30.5% of whom were married, 13.6% cohabitating, 6.3% divorced, and 45% never married. The majority (67%) were of the white race, 22% were listed as black and 11% other races. The majority (49.5%) listed their religion as Protestant, 23% as Catholic, 7.8% as some other religion, and 19.8% as no religion

Current and ever use of family planning methods. Most of the women participants (3,892; 69.5%) used the contraceptive pill in the past, 4,591 (82.0%) used condoms, 717 (12.9%) reported being sterilized, and 527 (9.4%) of their male partners had a vasectomy. The contraceptive pill was the most frequent current method of contraception (848 users, 15.1%). Of this set, 768 (10.9%) were currently using the condom as their main method of contraception, 689 (12.3%) reported having their tubes tied as their current method, and 196 (3.5%) reported their current method of family planning was having a partner with a vasectomy. The percentage of abortions in the past year was 13.2% and ever use of abortion was 15.3%.

Likelihood of abortion with ever use of family planning methods. Table 1 shows the likelihood odds ratios (OR) of ever having had an abortion based on ever having used the hormonal pill, male sterilization (vasectomy), female sterilization (tubal ligation), and the condom. The highest likelihood of ever having an abortion is over eleven times for those women with ever use of the condom compared with women who never used the condom. Women with ever use of the contraceptive pill were more than twice as likely to have ever had an abortion, and those who have relied on sterilization (i.e., tubal ligation or vasectomy) ranged from 52% to 86% more likely to have ever had an abortion compared with those who never used those methods.

By contrast, those who felt that religion was important in their lives and attended church at least once a week were from 54% to 76% less likely to have ever had an abortion compared to those who were less religious. These ratios were also consistent with the regression equation that showed greater likelihood of having had an abortion for those who ever used the pill, condoms, or male/female sterilization and less likely to have had an abortion with frequent church attendance but not placing importance on religion (see Table 2).

Likelihood of abortion with current use of contraceptive methods. Table 3 provides the likelihood odds ratios (OR) of ever having had an abortion based on the current use of contraceptive methods, i.e., the pill, condoms, or male/female sterilization. The highest likelihood of having had an abortion is only significant with current female sterilization and male partner vasectomy, at 38% to 75% increased likelihood to ever having had an abortion compared with women who are not sterilized or with a partner who has had a vasectomy. The regression equation as well shows only male and female sterilization having significantly more likelihood of having had an abortion compared with women who are not sterilized. Women with frequent church attendance showed 47% less likelihood of having had an abortion compared with women who do not attend Church services once a week or more (see Table 4),

Differences in the number of abortions by t-test analysis. Table 5 shows that the number of abortions was significantly greater among those women who have ever used the birth control pill, the condom, and sterilization and significantly less among those who felt that religion was very important in their lives and who attended church frequently. However, the number of abortions was less (but not in a statistically significant way) when currently on the hormonal pill but significantly more when correlated with male and female

sterilization. The current use of condoms did not meet the standard for statistical significance.

Discussion

Findings. According to the data from Cycle 8 of the NSFG, there was a 54% to eleven times greater likelihood of ever having had an abortion among women who ever used the three most common methods of birth control compared with women who never used these methods of contraception. There were also significantly more abortions among women who have ever used the pill, condom, or sterilization (male and female) compared with women who never used these methods. Frequent church attendance continues to have a protective effect with less likelihood of ever having had an abortion compared with those women with less frequent church attendance. The importance of religion also has some protective effect but not as much as church attendance.

The results for ever use of contraceptive methods with women from the Cycle 8 NSFG compares well with the findings that this author found with data from Cycle 7 of the NSFG in that there was a greater likelihood of abortion among the women using the hormonal pill, condoms, sterilization, and emergency contraception compared with women who never used those methods of family planning.¹⁵ This current study, however, also shows that there are significantly more abortions with the use of those methods. The results of this study also compares well with the recent studies that show the protective factors of church attendance and placing importance on religion among adolescent and young adult women as associated with fewer unintended pregnancies and abortions.¹⁶

The current study also adds to the evidence for associating the use of contraception and abortion by analyzing current use of the hormonal pill, the

¹⁵ R. Fehring, "The Influence of Contraception on Abortion among Women of Reproductive Age in the United States," *Life and Learning XXI: Proceedings of the Twenty-First Conference of University Faculty for Life*, ed. J. Koterski (Bronx NY: UFL, 2018), pp. 245-61.

¹⁶ R. Fehring. "Influence of Current Contraceptive Use on the Abortion and Sexually Transmitted Disease Rates among Adolescents," *Life and Learning XXVII: Proceedings of the Twenty Seventh Conference of University Faculty for Life*, ed. J. Koterski (Bronx NY: UFL, 2017), pp. 211-31; R. Fehring, R., T. Bouchard, and M. Meyer. "Influence of Contraceptive Use on the Reproductive Health of Adolescents and Young Adults," *The Linacre Quarterly* 85/2 (2018): 167-77.

male condom, and male and female sterilization. The findings regarding current use is somewhat mixed. Only sterilization (tubal ligation and vasectomy) showed an increased likelihood of ever having had an abortion from 38 to 75%. There is some evidence that current use of the pill decreases the likelihood of not having an abortion. The study found that there were significantly more abortions among women who currently are sterilized (male or female) compared with those women who are not sterilized or had a partner who is sterilized but less with current use of the pill. Frequent church attendance seems to have a protective effect, with less likelihood of ever having had an abortion than those women who do not attend church frequently when included in the regression equation with current use of the hormonal pill, condoms, and male or female sterilization. In today's world, sterilization is more frequent after a woman has one or two children, is poor, Hispanic, or African-American.¹⁷ Sterilization after having had the abortion is one way of ensuring no more pregnancies and the need for abortion as a backup measure.

According to the CDC, the abortion rate in 2013 was 12.4 and 11.8 per 1,000 women in 2015 between the age of 15 and 44.¹⁸ The rate in Cycle 8 of the NSFG was about 13 per 1,000 women. The consistency of abortion being a likelihood of the ever use of contraception is remarkable, especially with ever use of condoms and current use of sterilization. The U.S. Center for Disease Control and Prevention (CDC) reported that induced abortions usually results from unintended pregnancies, which often occur despite the use of contraception (CDC).¹⁹ Even the Allen Guttmacher Institute (AGI), considered to be the most accurate in regards to abortion rates among U.S. women, indicated that 54% of women having abortions used a contraceptive method during the month when they became pregnant. Among those women, 76% of the hormonal birth control pill users and 49% of male condom users reported

¹⁷ Kimberly Daniels and Joyce C. Abma. "Current Contraceptive Status among Women Aged 15-49: United States, 2015-2017." NCHS Data Brief No. 327, December 2018.

¹⁸ Tara C. Jatlaoui, Maegan E. Boutot, Michele G. Mandel; Maura K. Whiteman, Angeline Ti, Emily Petersen, Karen Pazol, "Abortion Surveillance: United States," *MMWR 2015 Surveillance Summaries*, 57/13 (2018):1-45.

¹⁹ L.M. Koonin and J.C. Smith, "Legal Induced Abortion: From Data to Action," *Public Health Surveillance for Women, Infants and Children* (Center for Disease Control, 1994).

using the methods inconsistently, while only 13% of pill users and 14% of condom users reported correct use. Only 8% of women having had abortions have never used a method of birth control and 9 in 10 women at risk of unintended pregnancy are using a contraceptive method (AGI).²⁰

Richard Doerflinger indicates that one of the reasons that contraception contributes to abortion rates is that abortion is often looked upon as a backup to failed contraception.²¹ One would then expect higher abortion rates among less effective methods of contraception like condoms. This is supported by the evidence in the current study that shows the greatest likelihood for having an abortion is among those women who reported ever using condoms as eleven times more than women who never used condoms. Janet Smith suggests that another reason why contraception might lead to more abortions is that it facilitates couples living together without being married.²² Women in unstable relationships tend to seek abortion when the contraception fails. Furthermore, most women who have an abortion are single and in a non-marital sexual relationship. The factor of being in a cohabitation relationship was analyzed and showed that there was a greater likelihood among women who were in some form of cohabitation by 35% compared to those not cohabitating (see Table 3). In a study that analyzed the abortion and contraceptive rates in Spain, some of the characteristics associated with greater likelihood of having had an abortion included being twenty-five or older, cohabiting, having high income, having experienced first intercourse before turning eighteen, the number of births, and having used no contraceptive method during their first sexual

²⁰ R.K. Jones, L.B. Finer, and S. Singh, "Characteristics of U.S. Abortion Patients," *Allen Guttmacher Institute* (2008); Stanley K. Henshaw and Kathryn Kost, "Trends in the Characteristics of Women Obtaining Abortions, 1974 to 2004," *Guttmacher Institute* (August 2008), on line at http://www.guttmacher.org/pubs/2008/09/18/Report_Trends_Women_Obtaining_Abortions.pdf; W.R. Johnston, "Historical Abortion Statistics: United States," *Johnston's Archive* (4 June 2008) online at: <http://www.johnstonsarchive.net/policy/abortion/ab-unitedstates.html>; "An Overview of Abortion in the United States," *Alan Guttmacher Institute* (Jan. 2008), on line at <http://www.guttmacher.org/media/presskits/2005/06/28/abortionoverview.html>.

²¹ R.M. Doerflinger, *The Prevention Deception: How Not to Reduce Abortions* (Washington, D.C.: Secretariat for Pro-Life Activities, U.S. Conference of Catholic Bishops, 2007).

²² J. Smith, *The Connection between Contraception and Abortion*, downloaded from One More Soul Web site, June 3, 2011, at: <http://onemoresoul.com/contraception/risks-consequences/the-connection-between-contraception-and-abortion.html>.

intercourse.²³

Limitations of the Study

One limitation of the NSFG data set that has been reported in the literature is the potential under-reporting of abortion. It could be that the lower reported use of abortion among Christians and Catholics could be traced to embarrassment as discouraging any admission of the use of abortion, for abortion is considered a grave matter by the Catholic faith in particular and among Christians generally. There is also some question as to whether the population sampling technique truly represents the U.S. population, especially among the Hispanic population. For example, according to the U.S. Census, about 68% of Hispanics in the U.S. consider themselves Catholic, while the NSFG only indicates 57%.²⁴ It would be interesting to track the women in the US who list their religion as “none” and compare their use of abortion with Christian women.

Implications

The strength of this study is that it is population based. As such its findings have implications for all reproductive age women in the United States. As in the Fehring 2012 study, the teachings of Saint Pope John Paul II in his encyclical *Evangelium vitae* are recommended.²⁵ The pope believed that only a true love is able to protect life. He felt that it is a duty to offer adolescents and young adults, an authentic education in sexuality and in love – education that involves training in chastity. He also mentioned that it is precisely this respect that makes legitimate, at the service of responsible procreation, the use of natural methods of regulating fertility, i.e., NFP. He urged that centers for natural methods of regulating fertility should be promoted as a valuable help to responsible parenthood in which all individuals, and in the first place their children, are recognized and respected in their own right, and where every decision is guided by sincere gift of self. With these approaches I would also

²³ J.L. Dueñas, I. Lete, and R. Bermejo, et al., “Trends in the Use of Contraceptive Methods and Voluntary Interruption of Pregnancy in the Spanish Population during 1997-2007,” *Contraception* 83 (2011): 82-87.

²⁴ J.A. McDonald, K. Suellentrop, L.J. Paulozzi, and B. Morrow, “Reproductive Health of the Rapidly Growing Hispanic Population: Data from the Pregnancy Risk Assessment Monitoring System,” *Maternal & Child Health Journal* 12 (2008): 342-56.

²⁵ John Paul II, *Evangelium vitae* (1994).

include defending the idea that marriage should be only between a man and a woman as well as promoting those means that help to build strong marriages.

Traditional religions, especially Catholicism, conservative and evangelical Protestantism, and Judaism support traditional beliefs about marriage and human sexuality. This includes the position that sexual intercourse should only be within a marriage, the immorality of abortion, and the sanctity of all human life – including the sanctity of the unborn. Since the importance of religion and frequent church attendance are associated with less abortion, supporting and encouraging religiosity and in particular encouraging regular attendance at church services is recommended. It seems that the action of attending church services is a better indicator of the importance of religion in a person's life. For example, a recent study conducted by a Harvard University epidemiologist, utilizing data from an ongoing Nurse Health Study, showed less likelihood of drug use, multiple sexual partners, and sexual debut, and more likely of having greater life satisfaction among adolescents and young adults who attend church frequently compared to those youth who do not.²⁶

Recommendations for Future Research

As with the recommendation that I reported in the 2012 study, I would again recommend trend research by comparing the findings from Cycle 6 (2008), Cycle 7 (2010), Cycle 8 (2013) and Cycle 9 (2015) of the NSFG data sets. Comparing the results will allow analysis of trends in contraception and the relationship with abortion. Another recommendation is to look at Cycle 8, as was done in this study, but to break down the analysis with special sub-populations of interest and especially different ethnicities (e.g., Hispanics) and races such as Caucasian, Asians, and African-Americans. Another point of interest would be to investigate those women who were not using contraception and to compare their rates of abortion with those who are using contraception. Finally, the influence of faith (i.e., religion) on family planning patterns and abortion (as expressed in the importance of religion and the frequency of church attendance) continue to be of interest. The trends of these religious variables among the available NSFG data sets would be of interest. Adding other variables that reflect a traditional view of marriage and sexual activity,

²⁶ Y. Chen and T. VanderWeele. "Associations of Religious Upbringing with Subsequent Health and Well-Being from Adolescence to Young Adulthood: An Outcome-Wide Analysis," *American Journal of Epidemiology* (2018): 2355-64.

like agreeing that sexual intercourse is immoral among 16- or 18-year-old adolescents or that marriage should only be between a man and woman is recommended. These traditional beliefs on sexuality and marriage are variables in the NSFG data sets.

Conclusion

The approach of modern medicine for managing unintended pregnancy and abortion is promoting the use of contraception, making contraception more available, and advocating use of contraceptive methods that do not require behaviors for their effectiveness (e.g., the IUD and hormonal Implant). These approaches are aligned to the belief that it is only through contraception that women can have control of their lives and careers. Furthermore, the corollary belief is that sexual activity needs to be separated from fertility and that intercourse and sexual activity outside of marriage is healthy as long as it is between two consenting adults. There is consensus among health professionals that there is a great need to provide unmarried sexually active adolescents with the pill, the condom, and more recently the use of the IUD and implants. These approaches are especially focused among African-Americans and the poor. Yet these approaches are not solving the problem of unwanted pregnancy and abortion and actually promote the likelihood of increasing STDs.

The reduction of the number of abortions will only happen when a true understanding of human sexuality, marriage, and the conjugal act can be effectively communicated and lived. This understanding of human sexuality usually comes through religious beliefs. Therefore, supporting and promoting religiosity among reproductive age women and men is important. The findings from the study presented in this paper does not support the use of contraception to decrease unintended pregnancy and abortions. This study does support encouraging frequent church attendance. Hopefully religious practices will also support chastity-based human sexuality programs for teens and their parents and marriage preparation that include the use of NFP. The pro-life movement needs to embrace these methods. Not seeing the link between contraception and abortion is blinding the pro-life movement and eliminates strategies for effective change in our culture to become a culture of accepting life.

Table 1: Odds Ratio (OR) of Ever Having Had an Abortion by Ever Use of Contraceptive Method and Religiosity (Importance of Religion and Church Attendance) among Sexually Active U.S. Women in Cycle 8 of the NSFG.

| Method | Odds Ratio | 95% CI | Significance |
|---------------------------|-------------------|---------------|---------------------|
| Pill | 2.65 | 2.14 – 3.28 | < .000 |
| Condom | 11.59 | 6.92 – 19.4 | < .000 |
| Tubes Tied | 1.52 | 1.22 – 1.88 | < .000 |
| Vasectomy | 1.86 | 1.47 – 2.34 | < .000 |
| Religion Important | 0.76 | 0.65 – 0.89 | < .001 |
| Church Attendance | 0.54 | 0.44 – 0.65 | < .000 |

Table 2: Beta levels from Logistic Regression Equation with Ever Abortion as Dependent Variable and Methods of Contraception and Religiosity as Predictor Variables

| Method | Beta | S.E. | Significance |
|---------------------------|-------------|-------------|---------------------|
| Pill | 1.63 | 0.12 | < .000 |
| Condom | 7.86 | 0.27 | < .000 |
| Tube Tied | 1.43 | 0.11 | < .008 |
| Vasectomy | 1.38 | 0.12 | < .009 |
| Church Attendance | 0.65 | 0.11 | < .000 |
| Religion Important | 0.70 | 0.10 | < .696 |

Table 3: Odds Ratio (OR) of Ever Having Had an Abortion by Current Contraceptive Methods among Sexually Active U.S. Women in Cycle 8 of the NSFG.

| Method | Odds Ratio | 95% CI | Significance |
|----------------------|-------------------|---------------|---------------------|
| Pill | 0.73 | 0.57 – 0.93 | < .012 |
| Condom | 1.05 | 0.81 – 1.37 | < .686 |
| Tubes Tied | 1.38 | 1.10 – 1.73 | < .006 |
| Vasectomy | 1.75 | 1.24 – 2.48 | < .001 |
| Cohabitation* | 1.36 | 1.10 – 1.68 | < .005 |

* Added variable of cohabitation based on Janet Smith's indication that contraception and abortion facilitates this type of living condition.

Table 4: Beta levels from Logistic Regression Equation with Ever Abortion as Dependent Variable and Current Methods of Contraception and Religiosity as Predictor Variables

| Method | Beta | S. E. | Significance |
|---------------------------|-------------|--------------|---------------------|
| Pill | 0.76 | 0.12 | < .038 |
| Condom | 1.05 | 0.14 | < .729 |
| Tube Tied | 1.40 | 0.12 | < .006 |
| Vasectomy | 1.73 | 0.18 | < .003 |
| Church Attendance | 0.53 | 0.12 | < .000 |
| Religion Important | 0.94 | 0.10 | < .530 |

Table 5: Means and Standard Deviation (S.D.) of the Number of Abortions between Women who ever used a Method of Contraception (N1) and Women who never used that method (N2).

| Ever Methods | N1 and N2 | Mean | t-Test | Significance |
|---------------------------|-----------|--------------|--------|--------------|
| Pill | 3892/1709 | 0.21 vs 0.09 | 7.26 | < .000 |
| Condom | 4591/1010 | 0.21 vs 0.03 | 9.03 | < .000 |
| Tubes Tied | 723/4878 | 0.23 vs 0.17 | 2.66 | < .000 |
| Vasectomy | 527/5054 | 0.32 vs 0.16 | 8.22 | < .000 |
| Religion Important | 2711/2890 | 0.16 vs 0.19 | 2.15 | < .000 |
| Church Attendance | 1707/3894 | 0.12 vs 0.20 | 4.60 | < .000 |
| Current Methods | | | | |
| Pill | 848/4753 | 0.11 vs 0.19 | 3.59 | < .000 |
| Condom | 608/4993 | 0.20 vs 0.17 | 0.94 | < .068 |
| Tubes Tied | 429/5172 | 0.27 vs 0.17 | 3.63 | < .000 |
| Vasectomy | 233/5368 | 0.34 vs 0.17 | 4.70 | < .000 |