

WHO TOLD YOU WHAT? SOURCES OF INFORMATION ABOUT
CONTRACEPTION UTILIZED BY COLLEGE WOMEN

by

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HONORS THESIS

Submitted to Texas State University
in partial fulfillment
of the requirements for
graduation in the Honors College
May 2021

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ABSTRACT

The two primary aims of the present study were to determine if college women rely on certain sources of information about contraception more than other sources, and to examine if there is a relationship between the type of information being sought and the type of source utilized. Women may learn information about contraception from various sources, such as doctors, family members, friends, the internet, media, and other sources. Previous research suggests that many factors influence a woman's choices about contraception, and various factors impact access to sources of information about contraception, but, to my knowledge, little research has examined to what extent women rely on various sources of information about contraception, specifically among college women. 176 college women from Texas State University completed an online survey that asked them questions about the kinds of sources they rely on for information about contraception. I expect to find that some sources of information are more popular than others and may find an association between type of information sought and type of source used. We conclude that doctors or other medical professionals, the internet, friends and family members are important sources of information about contraception for college women. These findings could impact our understanding of how women's health information is spread and help improve efforts to share such information in an effective way.

Who Told You What? Sources of Information About Contraception Among College Women

Decisions regarding contraception can have major consequences for women. Contraceptive choices affect not only pregnancy, but they also affect a woman's health more broadly, and her relationships. According to the National Center for Health Statistics, 65.3% of women in the U.S. ages 15-49 use contraception (Daniels & Abma, 2020). Because this is the majority of women in the United States, it is safe to conclude that the effects of choices about contraception can be wide-reaching not only on an individual level, but also on a societal level. Thus, it is paramount that women have access to accurate information so they can make informed decisions about contraception.

Previous research provides evidence that many women are either underinformed or misinformed about contraception (Carrera et al., 2000; de Irala et al., 2011; Kang & Moneyham, 2008; Lopez-del Burgo et al., 2012), suggesting that there is a need for improved efforts to educate women about contraception. Further research is needed to explore ways to improve these efforts. Many aspects of this issue would be worthwhile topics to explore, but the present study focuses on what sources of information college women use to gain information about contraception.

Understanding the sources of information that women rely on can help us understand how information – whether accurate or inaccurate – about contraception is spread. The specific source of information acts as a mediator or contact point between the wealth of possible information available and the information that women rely on to make decisions about contraception. For example, if women seek information from a doctor, that doctor serves as a mediator or conduit of information, and that conduit affects what

information women ultimately use. Therefore, exploring what specific sources women use to access information about contraception can help us better understand what types of information are impacting their decisions about contraception and inform efforts to effectively disseminate accurate information about contraception. Before we can improve the knowledge that is disseminated about contraceptive methods, it is important to understand how women access information about contraception.

The present study addresses the following question: what are different sources that women use to gain knowledge about contraception? The present study seeks to answer this question with a particular demographic group, college-aged women in the U.S. The present study examines the role of several potential sources of information about contraception, such as doctors or medical personnel, university health facilities, personal relationships (e.g., family members, friends, and romantic partners), and other sources of information including the internet and other forms of media. Additionally, other factors, such as culture, religion, and socioeconomic status, are discussed.

Literature Review

The purpose of this study is to examine if women use or trust some sources of information about contraception more than others. That is, do women trust certain sources more than others and does this depend on the type of information women are hoping to gain? If certain sources are used more than others (e.g., if women are more likely to seek information from the internet than from a doctor), then this has implications for those who are seeking to educate women about contraception. Perhaps this knowledge of which sources women rely on most could help educators focus their efforts on disseminating information through sources that women are more likely to use.

Additionally, understanding the sources of information that women use could explain how inaccurate information is spread. For instance, if a woman often relies on her friends for information, then she might not be relying on the most accurate information (assuming that her friends are not medical experts). Below, I review the potential sources of information about contraception that women may rely on and explore the factors that impact how women make decisions regarding contraception.

Defining contraception

Contraception can be defined as any artificial means of intentionally preventing conception during intercourse, such as drugs, chemicals, devices, external hormones, or surgical processes (see Jain & Muralidhar (2011) for further discussion on defining contraception). All types of contraception, such as condoms, hormonal contraceptives (e.g., the pill, implants, injections) and Long-Acting-Reversible Contraceptives (LARCs) and intra-uterine devices (IUDs) are included in this definition. The term contraception may be used interchangeably with the term birth control, but contraception will be the term primarily used in this literature review.

A Focus on Contraception Use Among U.S. Women

This literature review discusses the topic of contraception among women for two reasons. First, the most common forms of contraception are used by women. According to the National Center for Health Statistics, the most common forms of contraception used among women between the ages of 15- and 49-years-old are female sterilization (18.1%), oral contraceptive pills (14.0%), long-acting reversible contraceptives (LARC's) (10.4%), and the male condom (8.4%) (Daniels & Abma, 2020). Thus, three out of the four most common forms of contraception are designed for women. Therefore, women

are the primary consumers and users of birth control. Second, the following literature review focuses on women because the previous literature on contraception focuses on women. For example, the literature includes several studies on women and contraception (Callegari et al., 2017; Claringbold et al., 2019; Daniels & Abma, 2020; Dehlendorf et al., 2014; Kuiper et al., 1997; Lopez-del Burgo et al., 2012). The present study adds to the body of research by continuing to explore the different kinds of information that women access that may affect how women make choices about contraception.

Potential Sources of Information

There are many potential sources of information that women may rely on for information about contraception. Below, I discuss some potential sources of information based on three categories, as follows: professional sources, personal relationships as sources of information, and media sources, including the internet and other forms of media. I also discuss other factors that may influence decisions about contraception.

Professional Sources

Doctors, Medical Professionals, and Health Centers. One potential source of information about contraception that women might rely on is doctors or other medical professionals. In a review of the literature, Ghiasi (2019) found that health professionals served as the most frequent source of health information among pregnant women.

Perhaps health professionals are also an important source of information among women seeking information about contraception.

The type and amount of health information that women receive partly depends on what information the physician or medical professional actively provides. Previous research indicates women would appreciate more information regarding their options

from their healthcare provider (Geampana, 2019; Hatcher et al., 2018). For example, Hatcher et al. (2018) interviewed 21 women of various backgrounds about how and if physicians should inform patients about available abortion services which, like contraception, is a sensitive topic related to women's sexual health. The researchers illustrated two things: (1) that women would be open to information offered by the physician, and (2) that physicians face the challenge of presenting sensitive information in an appropriate way. The researchers found that most women would consider it appropriate for a primary care provider to discuss abortion services that are offered at that clinic with patients during wellness check-ups or contraceptive visits. However, starting a conversation about abortion services during an STI visit, for example, might be less appropriate because it could cause more stress or be received as judgmental by the patient, according to the participants. It was also important to participants for the provider to respect the patient's beliefs in discussing sensitive topics like abortion services. As long as the healthcare provider approached the topic with sensitive language, respect for the patient's beliefs, and placed the topic of abortion services into the broader context of reproductive health, the majority of participants thought that a physician-initiated discussion about abortion services would be appropriate (Hatcher et al., 2018). These findings may also be applicable to discussions with healthcare providers about contraception because they are both sensitive topics related to women's reproductive health.

Additionally, some women thought that an increase in open discussions would help them trust their provider more and make it easier to discuss topics like abortion without any judgment. The researchers concluded that having more open conversations

about the services provided could help inform women of their options, benefit the patient-provider relationship by increasing the ability to discuss sensitive topics, and help decrease the stigma around abortion services through non-judgmental service (Hatcher et al., 2018). Healthcare providers face a challenge in providing more information to their patients without imposing unwanted information, especially when discussing topics that are sensitive and controversial like abortion and contraception. Like the findings regarding abortion services, women may also benefit from more open conversations about contraception with healthcare providers especially as a way to gain more information about contraception.

As another example of how women depend on the information provided by their doctors, Geampana (2019) found that some women believe that their doctors need be more proactive about informing patients about the potential side-effects of contraception. Researchers interviewed 24 women in Canada who had experienced adverse side-effects from the Yaz and Yasmin contraceptive pills (Geampana, 2019). In retrospect, these women believed that they had not received adequate information from their doctors or other medical professionals about the risks of using these drugs when they were prescribed the drug. The women trusted the advice of their doctors and the recommendation from their doctor gave them more confidence that the drug was safe, and they tended to follow the doctor's recommendation without questioning. The Yaz and Yasmin drugs were presented as being similar to other contraceptive pills in risk level and side-effects, but with better benefits (Geampana, 2019). This study demonstrates that women may rely on information directly from the doctor more than written medical information, such as the informational slip that comes with the

medication. In the experiences of these women, their doctors were important sources of information, yet after they had negative experiences with the drugs, they believed that their doctors had not done enough to help them understand the risks involved and help them make the best choice for their individual health (Geampana, 2019). Doctors and medical professionals may be important sources of information, but they may not provide enough information to help women make well-informed decisions about contraception.

As the two previous studies suggest, trust in the patient-provider relationship is important for communicating and receiving health information. As illustrated by the responses of the women interviewed (Hatcher et al., 2018), developing trust through open, non-judgmental conversations about available health services can help women gain more information without having to ask. Distrust of medical professionals, on the contrary, can prevent women from seeking medical help, particularly among women of low socioeconomic status (Bell, 2014). On the other hand, Geampana's (2019) study offers examples of women who trusted the advice of their physician without question and then experienced negative side-effects from their prescribed birth control. We can conclude that though trust is vital to receiving health information from health professionals, trust alone may not be enough to assure that women receive adequate information about contraception.

One might wonder why women are not more proactive in seeking information from medical professionals. Previous research has found that feelings of shame or embarrassment can be barriers to accessing health information among pregnant women (Ghaisi, 2019). Long waiting times at clinics and a lack of adequate information resources can also prevent women from obtaining the health information they need

(Ghiasi, 2019). Similarly, women may experience shame or embarrassment when seeking information about contraception, and there may be a lack of resources for information about contraception.

Access to professional healthcare is another factor in considering how doctors or other medical professionals influence knowledge about and use of contraception. Women who do not have a doctor may be more likely to not be using any method of contraception. In a study of 1,978 women interviewed in the United States in 2004, 24.1% of women who did not have a healthcare provider were using no method of contraception whereas only 7.2% and 5.7% of women who either went to a private doctor or a clinic were not using any method of contraception (Frost et al., 2007).

Another source of health information that is unique to college students is student health centers. Students may rely on student health centers for information about contraception, especially if that information is made accessible (Long, et al., 2016). One study found that increasing the information about and accessibility to contraception does seem to increase the likelihood of female college students using contraception. The study compared five colleges in Wuhan, China. Women who reported that their college provided contraception, birth control counseling, or a health-related website were more likely to be using contraception than students who did not report that such resources were available. College students were also more likely to be using contraception if the college health services were conveniently accessible (Long et al., 2016). Evidently, the resources that college healthcare services provide play a role in the contraceptive behaviors of college students, but this study does not indicate whether these resources served as the primary source of information that women relied on in making their contraceptive

decisions. The authors of this study acknowledge that, culturally, it is not the norm in China to speak openly about topics related to sexual health, so using the Internet could be an alternative way to provide students with sex education (Long et al., 2016; Lou et al., 2006). Therefore, these studies are limited in that they may not be generalizable to college students in the United States due to the different culture, and they do not indicate whether student health centers served as a primary source of information about contraception.

We can conclude from the literature that doctors, other medical professionals, and student health centers can serve as sources of information about contraception for women, but, to my knowledge, there is no research that describes to what extent college women trust these sources. Additionally, professional medical sources may or may not be the most important source of information about contraception for college women.

Personal Relationships as a Source of Information

Family, Friends, and Romantic Partners. The web of personal relationships and social forces in a woman's life seem to play a role in her decisions about contraception. For example, one study identified several relational aspects among the various factors that influence a woman's decisions about contraception: family, friends, Internet, school education, interactions with health professionals, fear, control, and the positive side effects (Claringbold et al., 2019). In Claringbold et al. (2019) 20 young women (ages 18-24) in Australia were interviewed about contraception, and the common themes that were extrapolated from the interviews offer preliminary evidence that conversations about contraception influence choices about contraception. Some participants preferred to avoid conversations about contraception with their family

members with some even hiding it from their parents. Testimony from friends influenced contraceptive choices of the participants, as well; participants implied that they were more likely to use or not use a certain method based on what they heard from friends. This study indicated that the most important conversations that influenced decisions about contraceptives were not the conversations with health professionals, but with friends (Claringbold et al., 2019). Relationships and conversations about contraception were certainly an important influence on contraceptive choices.

Not only do personal relationships and communication about contraception affect choices about contraception, but they also may serve as a source of information about contraception. As the previous study (Claringbold et al., 2019) discusses, the testimony from friends affected young women's choices about contraception, indicating that they were relying on friends as a source of information about contraception. Additionally, the young women in this study must have received information from sources other than their doctor because some women had already chosen their preferred method of contraception before speaking with a doctor. However, Claringbold et al. (2019) only represented a small sample of young women, so further research is needed to confirm if friends and other personal relationships serve as trusted sources of information about contraception for college women.

Bell (2014) provides further evidence that personal relationships are an important source of information about reproductive health information among women. Bell (2014) interviewed 58 women of various socioeconomic backgrounds who had experienced infertility and explored how social capital, meaning the ability to gain benefits from one's social network, affected communication about health information. Women who had more

social capital (i.e., women, often of high socioeconomic status, who had access to a broad social network) were able to gain more information resources and support through personal relationships than women with less social capital (often women of low socioeconomic status) (Bell, 2014). This study indicates the importance of personal relationships as a source of information about reproductive health and it demonstrates how disparities exist between high and low socioeconomic groups of women even when accessing health information through informal sources. Evidently, friends and family can serve as an important source of information for women who are seeking reproductive health information regarding infertility, so friends and family may also serve as important sources of information about contraception among women. Further research is needed to explore whether friends and family are important sources of information about contraception for college students.

Social networks and word-of-mouth can also play a role in the spread of misinformation among contraception among female adolescents (Kuiper et al., 1997). Kuiper and colleagues (1997) used both interviews and questionnaires to explore views on the implant, which is a type of long-acting-reversible contraception, among a sample of adolescent women of low socioeconomic background from a teen family planning clinic in San Francisco. The researchers identified three sources of information that impacted decision-making about the implant: clinical, direct media, and oral networks. Negative information in particular about the implant seemed to spread through oral networks. For instance, a participant reported hearing from her grandmother that the implant was harmful. Rumors and personal experience would become mixed together, forming an urban lore that would spread via word-of-mouth and influence perceptions of

the implant. Peer perceptions and sexual stigmas also impacted choices about the implant. The researchers concluded that the social experiences of adolescents greatly impact their choices about contraception (Kuiper et al., 1997). This study provides evidence not only that personal relationships can serve as a source of information about contraception, albeit sometimes inaccurate information, but also that social context and personal relationships may have a greater impact on decisions about contraception than formal clinical sources or media sources.

Partners may also play a role in choices about contraception (de Irala et al., 2011; Kuiper et al., 1997). In a study of European women from several countries, most of whom had used contraception, the researchers found that 63.3% of the women had discussed the use of the method with their partner, and 45.2% made a joint decision about choice of contraception method with their partner (de Irala et al., 2011). Women were more likely to involve their partners in the decision about contraception method when the method required cooperation from the partner (i.e., calendar method, condoms, withdrawal, male sterilization, or fertility awareness-based methods) (de Irala et al., 2011). Additionally, interactions with males may also influence choices about contraception for adolescent females (Kuiper et al., 1997). In some cases, male partners would discourage contraceptive use, and their negative attitudes and lack of education were barriers to contraception use for the young women (Kuiper et al., 1997). Even though partners and interactions with males can affect women's choices about contraception, these studies (de Irala et al., 2011; Kuiper et al., 1997) do not necessarily indicate that partners serve as a source of information about contraception. Further research is needed to explore the role of partners as a potential source of information

about contraception among college women.

Media Sources

Internet and Media Sources. The internet and other media sources may also serve as sources of information about reproductive health information for women. In a review of the literature, Ghiasi (2019) found that the internet was one of the most frequent sources of information among pregnant women. In general, the internet is an increasingly popular source of health information including sexual health information (Gerressu & French, 2005). Previous research has found that young women may use the internet to gain information about contraception options and potential side-effects, and that they may utilize either reliable sources or sources such as forums and blogs (Claringbold et al., 2019).

There is a plethora of health information sources available online, ranging from medical websites to online forums (Courtenay & Baraitser, 2020; Geampana, 2019), to commercial websites (Gerrussu & French, 2005), to advertisements (Watkins, 2012), all of which have varying levels of reliability. Online information may or may not be accurate. Previous research has explored the accuracy of online resources about emergency contraception, finding that many online sources are accurate (Adrian et al., 2013). However, this finding can vary based on the criteria used for defining accuracy. Researchers have also compared the views of doctors with those of patients' views about a particular website for information on contraception and found a discrepancy between consumer perceptions and doctor-perceptions (Gressel et al., 2014). Patients found the website trustworthy while the doctors were skeptical about the legitimacy of the website (Gressel et al., 2014). Regardless of the accuracy of online information, the internet may

serve as a trusted source of information about contraception for college women.

Other forms of media may serve as sources of information about contraception and other sexual health information, including TV (Bell, 2014), advertisements, magazines, newspapers (Watkins, 2012), and other news media (Geampana, 2019; Kuiper et al., 1997; Watkins, 2012). Advertisements could serve as a skewed or incomplete source of information about contraception because advertisements may focus on positive side-effects other than pregnancy prevention, such as clear skin (Watkins, 2012). Media sources such as TV may be especially influential for those of low socioeconomic status (Bell, 2014; Kuiper et al., 1997). News media may serve as a source of negative information about contraception as well, perhaps representing extremes situations more prominently (Geampana, 2019; Kuiper et al., 1997). Although the previous research provides evidence that women may rely on various types of media as a source of information, further research is needed to explore to what extent college women specifically rely on media sources for information about contraception.

Other Factors Influencing Choices About Contraception Among Women

In addition to the sources of information that women use to make their decisions about contraception, many other factors impact women's decisions regarding contraception. Below, I briefly discuss some of these factors which can include, but are not limited to: culture, religion, race and ethnicity, socioeconomic status, perceptions and attitudes about contraception, and attitudes towards pregnancy. Although most of these topics are beyond the scope of the present study, this literature review would not be complete without acknowledging that many factors other than sources of information about contraception can affect choices about contraception.

Culture may predict contraceptive practices (Geist & Cole, 2020). In a global study on the use of modern methods of contraception, Geist and Cole (2020) found that cultural zones were a better predictor of modern-method contraception use than geography alone. This could explain other findings which indicate that the prevalence of certain types of contraception varies between countries in Europe (Lopez-del Burgo et al., 2012).

Closely related to culture is religion. Religion may be tied to decisions about contraception (Addai, 1999). Even within religions that prohibit the use of contraception (e.g., Catholicism), women may be more likely to use hidden yet effective methods of contraception as a way to prevent an unplanned pregnancy and avoid the stigma that may be associated with an unplanned pregnancy (Hill et al., 2013). Similarly, a review of the literature found that actual contraceptive practices of women may not match religious teachings about contraception, and that culture is an equally important factor affecting decisions about contraception (Strikanthan & Reid, 2008).

Like culture and religion, race and ethnicity can also be a factor impacting decisions about contraception among women. One study found that Hispanic women had lower knowledge about contraceptive methods than White women (Craig et al., 2014). Hodgson et al. (2013) found that many economically disadvantaged, African American women did not learn about contraception until after they were already sexually active. Another study found that blacks and Hispanics were less likely to be using an effective form of contraception compared to whites with an odds ratio of 0.49 and 0.57, respectively (Dehlendorf et al., 2014). Callegari et al. (2017) found that, among a sample of women veterans, there were differences in contraceptive preferences, beliefs, and self-

efficacy based on race/ethnicity. For example, black and Hispanic women were more likely to select the categories of “does not contain any hormones” and “prevents sexually transmitted infections” as extremely important compared to whites (Callegari et al., 2017). Gomez & Wapman (2017) found that young Black and Latina women (71% of women in the study) experienced an implicit pressure from their provider to choose a certain form of contraception with little regard for the woman’s preferences. Heller et al. (2019) found that friends and family may influence the attitudes about contraception of Hispanic women more than Black women or non-Hispanic White women, while Hodgson et al. (2013) found that Black women were also strongly influenced by family and friends when making decisions about contraception.

Like the disparities that exist based on race/ethnicity, there are also disparities based on socioeconomic status, and some of these disparities may overlap in some cases (Hodgson et al., 2013). Bell (2014) demonstrated how women of lower socioeconomic status might not have access to as much social support or a social network that could help them learn more about reproductive health information. Women of lower socioeconomic status were more likely to learn about information related to infertility third hand through media sources like TV rather than through medical resources or personal relationships (Bell, 2014). Women with no insurance or with Medicaid were more likely to have a gap in contraception use or not use contraception at all, leaving them at risk of pregnancy, than women who had private insurance (Frost et al., 2007). Similarly, cost may be a barrier to using certain types of contraception (Eisenberg et al., 2013).

Perceptions, attitudes, and beliefs about contraception also affect choices about contraception. For example, women may choose not to use certain a type of contraception

based on their attitudes towards post-fertilization effects (de Irala et al., 2007). The possibility of being perceived as sexually promiscuous made adolescents less likely to use an implant (Kuiper et al., 1997). Women who believed in the effectiveness and safety of emergency contraception were more likely to use it (Heller, et. al., 2019). Perceptions of coercion or mistrust of doctors can also influence choices about contraception (Gomez & Wapman, 2017; Kuiper et al., 1997). Perceptions of risk also influence choices about contraception (Geampana, 2019). Personal testimonies of negative experiences with contraception could also discourage young women from using certain types of contraception (Kuiper et al., 1997; Okpo et al., 2014). Finally, perceptions of being uninformed about certain types of contraception could be a barrier to using those methods among college women (Hall et al., 2016).

Attitudes and beliefs about pregnancy can also impact contraceptive behavior. For example, positive or negative attitudes towards pregnancy may affect the use of emergency contraception (Heller et al., 2019). Women who think they are unable to become pregnant might be less likely to use contraception (Mosher et al., 2015). College students especially may want to avoid pregnancy, yet one study showed that many college students had low awareness of contraception and little understanding of pregnancy risk (Cabral et al., 2018).

While previous research has explored the effects of various factors on choices about contraception as discussed above, no research to my knowledge has explored what the main sources of information that women, specifically college women, utilize when making those decisions are. Previous research suggests that college students lack information about contraception (Cabral et al., 2018; Hall et al., 2016), but there is a gap

in the knowledge regarding what sources of information college women currently rely on for information about contraception.

The Present Study

The research questions for the present study were: What sources of information do college women rely on for information about contraception? Is there a relationship between the type of source selected by college women and the type of information being sought? I hypothesized that certain sources would be trusted more than other sources, predicting that personal relationships (i.e., friends, family, and romantic partners) would be a frequently cited source among the primary sources of information about contraception for college women. I hypothesized that there would be a relationship between the source of information chosen and the type of information being sought, predicting that the internet would be a trusted source when seeking information about the safety or side-effects of contraception and how to use certain types of contraception. I also predicted that doctors would be a trusted source of information about contraception options and that personal relationships would be a trusted source of information about the effectiveness of a certain type of contraception.

Method

Participants

Participants were 176 undergraduate students who identified as female. Participants were recruited from undergraduate psychology courses at Texas State University through the online participant recruitment system. Ages of the participants ranged from 18 to 59, and the most frequent ages were 18 and 19 years old. 59% of participants were freshman, and 41% were sophomores, juniors, or seniors. Only

participants who identified as female were included in the present study. Most participants were from suburban or urban areas (52% and 31% respectively) and 17% were from rural areas. The racial composition of the sample was 77% white, 14% Black or African American, 5% Asian, and 4% other. 44% of participants identified as Hispanic/Latinx and 56% identified as not Hispanic/Latinx. Most participants were Christian (63%), 22% were agnostic or atheist, and 15% identified as other. Participants received course credit in exchange for participation through the Psychology Department Participation Pool. Participation corresponded to 1 point of course credit for 0-30 minutes of time spent on the study.

Measures and Materials

A questionnaire was used to collect data on what types of sources of information college women utilize to learn about contraception. The online survey was administered through Qualtrics. The researchers created an original measure for identifying the primary sources of information that women use to learn about contraception. Questions about contraception were presented in two groups. First, participants were asked to select their top, second, and third source of information from a list of potential sources: doctor or other medical professional, family members, friends, student health center, internet, romantic partners, other media source (TV, newspaper, magazines), religious leader, other. Next, the participants were asked which of the sources (from the same list as before) they used to gain information about four different topics: contraception options, effectiveness of a certain type of contraception, safety or side-effects of a certain type of contraception, and how to use a certain type of contraception.

Procedure

Upon receiving approval from the Institutional Review Board at Texas State University, the study was made available online to participants for two weeks. Participants signed up for the study through the online recruitment system and completed the online survey. Participants were given basic information about the study and informed of potential risks and benefits of participation. Participants were required to consent to participate before beginning the survey by selecting a button. Participants could choose not to finish the survey at any time. During the survey, participants answered demographic questions and answered questions about their sources of information about contraception.

Results

Top Sources of Information

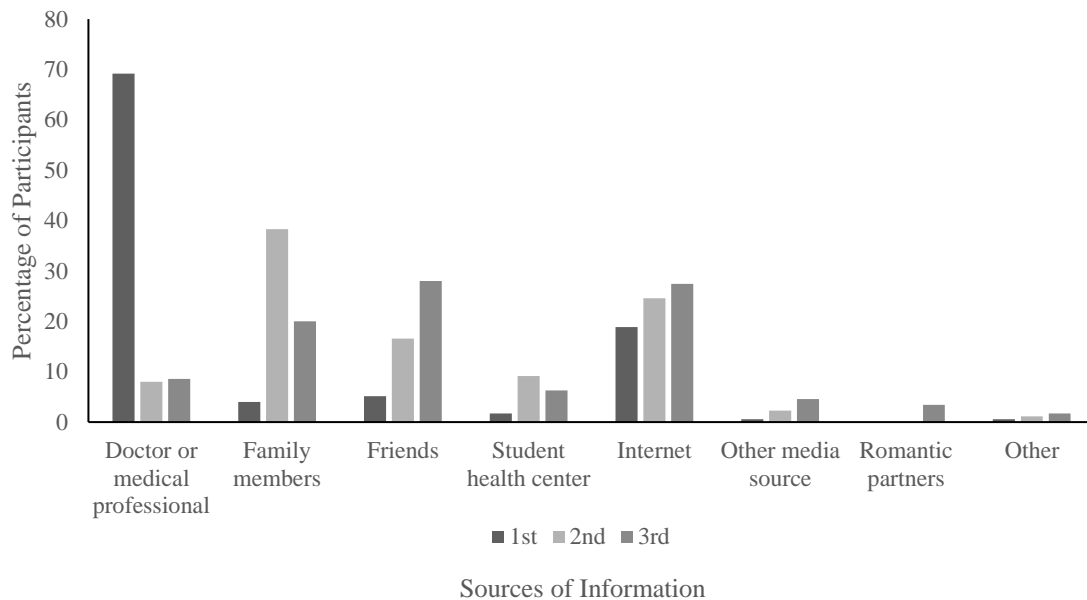
What do college women consider to be their top source of information? A chi-square goodness-of-fit test indicated that there was an unequal distribution between the sources cited as primary sources of information, $X^2(6, N=175) = 459.84, p < .001$. Most college women (69.14%) selected doctors or medical professionals as their primary source of information about contraception, followed by the internet (18.86%). (See Figure 1.)

What do college women consider to be their second main source of information? A chi-square goodness-of-fit test showed that there was an unequal distribution between the preferred sources of information that women selected as their second source of information, $X^2(6, N=175) = 131.04, p < .001$. Participants were more likely to select family members (38.29%) as their second source of information, followed by the internet (24.57%) and friends (16.57%).

What do college women consider to be their third main source of information? A chi-square goodness-of-fit test showed that there was an unequal distribution between preferred sources of information that women selected as their third source of information, $X^2 (7, N=175) = 116.89, p < .001$. Participants were likely to select either friends (28.0%) or the internet (27.43%) as their third source of information, followed by family members (20.0%).

Figure 1

1st, 2nd, and 3rd Sources of Information About Contraception Among College Women



Note. Figure 1 shows that doctors or medical professionals were the most frequently cited 1st source of information (69.14%), family members were the most frequently cited 2nd source of information (38.29%), and friends (28.0%) and the internet (27.43%) were most frequently cited 3rd sources of information.

Impact of Information Type on Source Choice

What is the distribution of categories of information for each kind of

information? For information about contraceptive options, a chi-square goodness-of-fit showed that there was an unequal distribution between the types of sources cited, $X^2 (7, N = 175) = 332.84, p < .001$. Doctors (47.43%) and the internet (36.0%) were the most frequently cited sources of information. For information about the effectiveness of certain types of contraception, there was also an unequal distribution between the sources nominated, $X^2 (6, N = 175) = 340.14, p < .001$. Similarly, doctors (45.14%) and the internet (46.29%) were the most frequently nominated sources for information about the effectiveness of certain types of contraception. For information about the safety or side-effects of certain types of contraception, there was an unequal distribution between the types of sources nominated, $X^2 (5, N = 175) = 252.42, p < .001$. Again, doctors (45.71%) and the internet (44.0%) were the most frequently cited sources of information about safety or side-effects of contraception. For information about how to use certain types of contraception, there was an unequal distribution between the sources of information as well, $X^2 (6, N = 174) = 337.78, p < .001$. Doctors (57.47%) and the internet (28.74%) were again the most frequently nominated sources for information about how to use certain types of contraception.

Are the top sources of information trusted equally for different types of information?

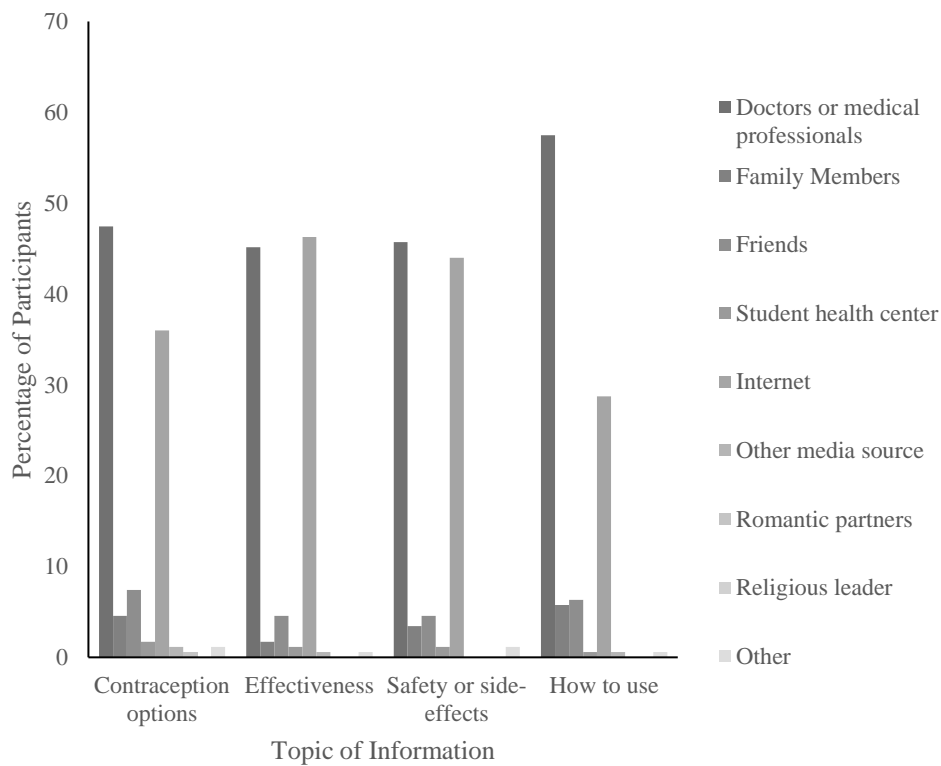
Doctors. A chi-square goodness-of-fit showed that participants were equally likely to choose doctors as a source of information across the types of information being sought, $X^2 (3, N = 342) = 3.38, p = .34$ (see Figure 2).

Internet. A chi-square goodness-of-fit indicated that participants were not equally likely to choose the internet as a source of information across the various types of

information, $X^2(3, N = 271) = 8.84, p < .05$. Women were more likely to use the internet as a source for information about the effectiveness of a certain type of contraception (46.29%) and for information about the side-effects of a certain type of contraception (44.0%) than for information about contraception options (36.0%) or how to use a certain type of contraception (28.74%).

Figure 2

Sources of Information by Topic of Information



Note. Figure 2 demonstrates that across the four types of information about contraception, doctors or medical professionals and the internet were frequently cited sources of information. However, participants were significantly less likely to cite the internet as a source of information on how to use certain types of contraception ($p < .01$).

Does the type of information being sought impact how much certain

categories of sources are trusted? A chi-square test of independence was performed in which the potential sources of information were collapsed into three categories as follows: professional sources, which included the options of doctors or other medical professional and student health centers; personal relationships, which included friends, family members, and romantic partners; and media sources, which included the internet and other media sources. The chi-square test of independence showed that there was a significant relationship between the type of information being sought and the category of source cited $X^2 (6, N = 693) = 17.31, p < .01$. Participants were less likely to trust media sources (the internet and other media sources) for information about how to use a certain type of contraception.

Discussion

Conclusions

The hypothesis that certain sources are trusted more than others was supported. The present study found that some sources of information were nominated more than others. From this data, the main sources of information that college women rely on are as follows: doctors or other medical professional, the internet, friends, and family. The prediction that personal relationships would be a frequently cited source of information was supported, but personal relationships were not the most frequently cited primary source of information. Women tended to rate doctors or medical professionals as their primary source of information and less formal sources of information (the internet, friends, and family) as their second and third sources of information about contraception. These findings are consistent with previous research findings about sources of information among pregnant women (Ghiasi, 2019). We can conclude from this data that

college women consider doctors or medical professionals to be an important source of information about contraception, but they also rely on less formal sources for information as well.

The present study found that religious leaders, romantic partners, and other sources were not frequently nominated sources of information about contraception for college women. Religious leaders were never nominated as a source of information in this survey. Similarly, romantic partners were never nominated as a primary or secondary source of information, and they were only nominated by 3.43% of participants as a third source of information. Other media sources were not frequently nominated, either. We conclude that these are not important sources for information about the options, efficacy, side effects, or use of contraception for college women.

I hypothesized that there would be a relationship between the source of information chosen and the type of information being sought, predicting that the internet would be a trusted source when seeking information about the safety or side-effects of contraception and how to use certain types of contraception. I also predicted that doctors would be a trusted source of information about contraception options and that personal relationships would be a trusted source of information about effectiveness of a certain type of contraception. The hypothesis that there is a relationship between the type of source utilized and the type of information being sought was supported. The prediction that the internet would be a trusted source for information about how to use a certain type of contraception was not supported.

From the data, we conclude that when searching for information about contraception options, efficacy, side-effects, or how to use a certain type of

contraception, college women are likely to turn to either doctors or other medical professionals or the internet. College women may trust media sources less when searching for information about how to use certain types of contraception.

Limitations and Directions for Future Research

A limitation of this study is that it is based on self-report and not observed behavior; individuals may have a bias to select the sources on the survey that they think they *ought* to use instead of relying on an accurate awareness of what sources influence them. For example, participants may have been more likely to select doctor as their top source of information because that is the source that they perceive to be most reliable instead of reflecting on what sources they most frequently use. As Ghiasi (2019) notes, barriers such as long waiting times may prevent women from seeing a medical professional to gain information, so it seems unlikely that college women seeking information about contraception would have easy access to doctors or other medical professionals any more than pregnant women would. Future research could use different measures to more directly observe what sources of information college women utilize in order to eliminate this bias.

Additionally, the high frequency of nominating doctors or other medical professionals as a source of information could have been affected by the fact that doctors or other medical professionals was the first option listed in the survey choices. Similarly, the wording of the survey questions could have impacted the responses as well. For example, asking where someone gets information is different from asking someone who they talk to about contraception. Even if certain sources do not serve as a main source of information among college students, those sources may be influential in shaping

perceptions and influencing decisions about contraception. For example, male partners might not be a source of information, but they still may influence the contraceptive choices of women (de Irala et al., 2011). Future studies could try to make the distinction between sources of information and sources of influence.

Using closed-ended questions may not capture the many factors that can affect what sources of information women have access to and choose to utilize; it might also be good to distinguish between actively gaining information about contraception, like asking questions, and passively learning information about contraception, like listening to a friend talk about her personal experience. Future studies could use a different approach to get a more in-depth understanding of how women gain information about contraception.

Because the present study did not collect any data on personal health information (e.g., if the participant uses contraception or has health insurance), we cannot conclude whether there is a correlation between which sources of information college women utilize to gain information about contraception and contraceptive behavior among college women. Future studies could collect more information to understand this relationship and explore how sources of information impact contraceptive behavior.

This study only examined how women receive information about contraception because some of the most common forms of birth control today are used by women, such as oral contraceptives, but one study suggests that the way men learned about contraceptive methods in the past was different from the experience of women (Fisher, 2000). Additionally, other common methods of contraception are used by males (i.e., male condoms), which begs the question, how do males gain information regarding contraception? Future studies could compare how men and women gain information

about contraception.

Contraception is a topic relevant to both men and women. Fisher (2000) demonstrates that, perhaps counterintuitively, during the 20th, men were considered more knowledgeable about contraception than their wives. Future research could expand on this question by researching how men receive information about birth control. Future studies could also examine if the level or type of knowledge about birth control varies between the sexes and compare modern day experiences and gender roles with historical findings.

The present study sought to better understand what sources of information college women use to gain information about contraception and found that doctors or other medical professionals, the internet, friends, and family members all may serve as sources of information about contraception among college women. These findings have implications for future efforts to spread information about contraception, namely, that these sources may be effective conduits for disseminating information about contraception.

References

- Addai, I. (1999). "Does religion matter in contraceptive use among Ghanaian women?"
Review of *Religious Research*, 40(3), 259-277. DOI:
<https://doi.org/10.2307/3512371>
- Bell, A. V. (2014). "I think about Oprah": Social class differences in sources of health information. *Qualitative Health Research*, 24(4), 506-516. DOI:
10.1177/1049732314524637
- Cabral, M. A., Schroeder, R., Armstrong, E. M., Ayadi, A. M. E., Gurel, A. L., Chang, J., & Harper, C. C. (2018). Pregnancy intentions, contraceptive knowledge and educational aspirations among community college students. *Perspectives on Sexual and Reproductive Health*, 50(4), 181-188. DOI: 10.1363/psrh.12081
- Callegari, L. S., Zhao, X., Schwarz, E. B., Rosenfeld, E., Mor, M. K., & Borrero, S. (2017). Racial/ethnic differences in contraceptive preferences, beliefs, and self-efficacy among women veterans. *American Journal of Obstetrics & Gynecology*, 216(5), 504.e1-504.e10. <https://doi.org/10.1016/j.ajog.2016.12.178>
- Carrera, M., Kaye, J. W., Philliber, S., & West, E. (2000). Knowledge about reproduction, contraception, and sexually transmitted infections among young adolescents in American cities. *Social Policy*, 30(3), 41-50.
<https://bit.ly/31UcxLR>
- Claringbold, L., Sanci, L., & Temple-Smith, M. (2019). Factors influencing young women's contraceptive choices. *Australian Journal of General Practice*, 48(6), 389-394. DOI: 10.31128/AJGP-09-18-4710

- Courtenay, T., & Baraitser, P. (2020). Online contraceptive discussion forums: A qualitative study to explore information provision. *BMJ Sexual & Reproductive Health, 0*, 1-7. DOI:10.1136/bmjshr-2020-200719
- Craig, A. D., Dehlendorf, C., Borrero, S., Harper, C. C., & Rocca, C. H. (2014). Exploring young adults' contraceptive knowledge and attitudes: Disparities by race/ethnicity and age. *Womens Health Issues, 24*(3), e281-e289. DOI: 10.1016/j.whi.2014.02.003
- Daniels, K., & Abma, J. C. (2020). Current contraceptive status among women aged 15-49: United States, 2017-2019. *NCHS Data Brief, no. 388, National Center for Health Statistics*. <https://www.cdc.gov/nchs/data/databriefs/db388-H.pdf>
- Dehlendorf, C., Park, S. Y., Emeremni, C. A., Comer, D., Vincett, K., & Borrero, S. (2014). Racial/ethnic disparities in contraceptive use: variation by age and women's reproductive experiences. *American Journal of Obstetrics & Gynecology, 210*(6), 526.e1-526.e9. <https://doi.org/10.1016/j.ajog.2014.01.037>
- Eisenberg, D., McNicholas, C., & Peipert, J. F., (2013). Cost as barrier to long-acting reversible contraceptive (LARC) use in adolescents. *Journal of Adolescent Health, 52*, S59-S63. <https://doi.org/10.1016/j.jadohealth.2013.01.012>
- Fisher, K. (2000). "She was quite satisfied with the arrangements I made": Gender and birth control in Britain 1920-1950. *Past & Present, 169*, 161-193. <https://doi-org.libproxy.txstate.edu/10.1093/past/169.1.161>
- Frost, J. J., Singh, S., & Finer, L. B. (2007). Factors associated with contraceptive use and nonuse, United States, 2004. *Perspectives on Sexual and Reproductive Health, 39*(2), 90-99. <https://doi.org/10.1363/3909007>

- Geampana, A. (2019). "One blood clot is one too many": Affected vocal users' negative perspectives on controversial oral contraceptives. *Qualitative Health Research*, 29(10), 1519-1530.
<http://dx.doi.org.libproxy.txstate.edu/10.1177/1049732319839027>
- Geist, C. & Cole, W. M. (2020). Beyond geography: Cultural zones and global patterns of modern-method contraceptive use. *Health Care for Women International*, 41(4), 382-396. DOI: 10.1080/07399332.2019.1672170
- Gerressu, M., & French, R. (2005). Using the internet to promote sexual health awareness among young people. *Journal of Family Planning and Reproductive Health Care*, 31(4), 267-270. DOI: 10.1783/jfp.31.2.267
- Ghiasi, A. (2019). Health information needs, sources of information, and barriers to accessing health information among pregnant women: A systematic review of research. *The Journal of Maternal-Fetal & Neonatal Medicine*, 34(5), 1320-1330. DOI: 10.1080/14767058.2019.1634685
- Gomez, A. M., & Wapman, M. (2017). Under (implicit) pressure: Young Black and Latina women's perceptions of contraceptive care. *Contraception* 96(4), 221-226.
<https://doi.org/10.1016/j.contraception.2017.07.007>
- Gressel, G. M., Lundsberg, L. S., Illuzzi, J. L., Danton, C. M., Sheth, S. S., Xu, X., & Gariepy, A. (2014). Patient and provider perspectives on Bedsider.org, an online contraceptive information tool, in a low income, racially diverse clinic population. *Contraception*, 90(6), 588-593.
<https://doi.org/10.1016/j.contraception.2014.07.010>

- Hall, K. S., Ela, E., Zochowski, M. K., Caldwell, A., Moniz, M., McAndrew, L., Steel, M., Challa, S., Dalton, V. K., & Ernst, S. (2016). "I don't know enough to feel comfortable using them:" Women's knowledge of and perceived barriers to long-acting reversible contraceptives on a college campus. *Contraception* 93(6). 556-564. <https://doi.org/10.1016/j.contraception.2016.02.007>
- Hatcher, M., Cox, C. M., & Shih, G. (2018). If, when, and how to discuss available abortion services in the primary care setting. *Women & Health*, 58(8), 930-941. <https://doi-org.libproxy.txstate.edu/10.1080/03630242.2017.1363125>
- Heller, C., Perreira, K. M., Shartz, A., Johnston, E. M., & Courtot, B. (2019). Emergency contraception use: The influence of awareness, attitudes, and beliefs among non-Hispanic White, non-Hispanic Black, and Hispanic women in the United States. *Women's Health Issues*, 29(2), 161–169. <https://doi-org.libproxy.txstate.edu/10.1016/j.whi.2019.01.003>
- Hill, N. J., Siwatu, M., & Robinson, A. K. (2013). "My religion picked my birth control": The influence of religion on contraceptive use. *Journal of Religion and Health* 53(3), 825-833. DOI: 10.1007/s10943-013-9678-1
- Hodgson, E. J., Collier, C., Hayes, L., Curry, L. A., Fraenkel, L. (2013). Family planning and contraceptive decision-making by economically disadvantaged, African-American women. *Contraception*, 88(2), 289-296. <https://doi.org/10.1016/j.contraception.2012.10.011>
- de Irala, J., Osorio, A., Carlos, S., & Lopez-del Burgo, C. (2011). Choice of birth control methods among European women and the role of partners and providers.

Contraception, 84(6), 558-564.

<https://doi.org/10.1016/j.contraception.2011.04.004>

Jain, R., & Muralidhar, S. (2011). Contraceptive methods: Needs, options and utilization, *Journal of Obstetrics and Gynaecology of India*, 61(6), 626-634.

DOI: 10.1007/s13224-011-0107-7

Kang, H. S., & Moneyham, L. (2008). Use of emergency contraceptive pills and condoms by college students: A survey. *International Journal of Nursing Studies*, 45(5),

775-783. <https://doi.org/10.1016/j.ijnurstu.2007.01.008>

Kuiper, H., Miller, S., Martinez, E., Loeb, L., & Darney, P. (1997). Urban adolescent females' views on the implant and contraceptive decision-making: A double paradox. *Family Planning Perspectives*, 29(4), 167-172.

<https://doi.org/10.2307/2953380>

Long, L., Chen, Z., Shi, Y., Wei, S., Nie, S., & Liu, Y. (2016). Association between college health services and contraceptive use among female students at five colleges in Wuhan, China: A cross-sectional study. *BMC Public Health*, 16(1),

929. DOI 10.1186/s12889-016-3612-x

Lopez-del Burgo, C., Mikolajczyk, R. T., Osorio, A., Carlos, S., Errasti, T., & de Irala, J. (2012). Knowledge and beliefs about mechanism of action of birth control methods among European women. *Contraception*, 85(1), 69-77.

<https://doi.org/10.1016/j.contraception.2011.04.007>

Lou, C., Zhao, Q., Gao, E. S., & Shah, I. H. (2006). Can the Internet be using effectively to provide sex education to young people in china? *Journal of Adolescent Health*,

39(5), 720-728. DOI: <https://doi.org/10.1016/j.jadohealth.2006.04.003>

- Mosher, W., Jones, J., & Abma, J. (2015). Nonuse of contraception among women at risk of unintended pregnancy in the United States. *Contraception*, 92(2), 170-176.
<https://doi.org/10.1016/j.contraception.2015.05.004>
- Okpo, E., Allerton, L., & Brechin, S., (2014). ‘But you can’t reverse a hysterectomy!’ Perceptions of long acting reversible contraception (LARC) among young women aged 16-24 years: A qualitative study. *Public Health*, 128(10), 934-939.
<https://doi.org/10.1016/j.puhe.2014.08.012>
- Strikanthan, A., & Reid, R. L. (2008). Religious and cultural influences on contraception. *Journal of Obstetrics & Gynecology Canada*, 30(2), 129-137.
[https://doi.org/10.1016/S1701-2163\(16\)32736-0](https://doi.org/10.1016/S1701-2163(16)32736-0)
- Watkins, E. S. (2012). How the pill became a lifestyle drug: The pharmaceutical industry and birth control in the United States since 1960. *American Journal of Public Health*, 102(8), 1462-1472. DOI: 10.2105/AJPH.2012.300706

Appendix

Questionnaire: Sources of Information About Birth Control

What is your year in school?

- Freshman
 - Sophomore
 - Junior
 - Senior
 - Other: _____
-

What is your gender identity?

- Male
 - Female
 - Non-binary
 - Other: _____
-

What is your age?

What is your race (as you identify it)?

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Other (please specify):

What is your ethnicity?

- Latinx or Hispanic
- Not Latinx or Hispanic

How would you describe the area where you are from?

- Rural
- Urban
- Suburban

What is your religion?

Christian

Muslim

Judaism

Buddhism

Hinduism

Agnostic or Atheist

Other: _____

Page Break _____

In the next few pages you will be asked to answer questions about the kinds of sources you rely on for information about contraception and why. You may rely on multiple sources for information about birth control and we are curious about which sources you turn to for information.

For purposes of this survey, we define contraception as any means used for “the intentional prevention of conception” (Jain & Muralidhar, 2011). In other words, contraception is any type of birth control.

Examples of common contraceptive methods include: oral contraceptives (the pill), other hormonal methods such as an implant, shots, patch, hormonal vaginal contraceptive ring, reversible contraception such as intrauterine devices (IUDs), barrier methods (including condoms), emergency contraception (such as the morning after pill), and permanent types of birth control (sterilization).

If you are uncomfortable with any questions, please feel free to skip those questions.

When you are ready, press the arrow to continue.

Page Break

What sources do you use to get information about contraception?

Why do you use these sources?

Page Break

Below are some sources that you may rely on for different types of information about contraception:

- Doctor or other medical professional
- Family members
- Friends
- Student health center
- Internet
- Other media source (TV, newspaper, magazines)
- Romantic partners
- Religious leader

Please think about your top three sources of information and select them below.

I rely on _____ as my **top** source of information.

▼ Doctor or other medical professional ... Other

I rely on _____ as my **second** source of information.

▼ Doctor or other medical professional ... Other

I rely on _____ as my **third** source of information.

▼ Doctor or other medical professional ... Other

Page Break _____

What source of information do you use the most when looking for information about *contraception options*?

▼ Doctor or other medical professional ... Other

What source of information do you use the most when looking for information about the *effectiveness of a certain type of contraception*?

▼ Doctor or other medical professional ... Other

What source of information do you use the most when looking for information about *the safety or side-effects of a certain type of contraception*?

▼ Doctor or other medical professional ... Other

What source of information do you use the most when looking for information about *how to use a certain type of contraception*?

▼ Doctor or other medical professional ... Other
