EMERGENCY CONTRACEPTION SOURCES OF INFORMATION AMONG COLLEGE WOMEN: IMPLICATIONS FOR HEALTH COMMUNICATION

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ABSTRACT

Kyla Pyne Garrett: Emergency contraception sources of information among college women: Implications for Health Communication
(Under the direction of Seth M. Noar)

The purpose of this study was to identify college women’s current knowledge, perceptions of access and use of emergency contraception (EC), as well as to determine what, if any, relationships exist between these factors and the sources of information from which these women have heard of EC. A self-report survey was administered to 339 college women to assess these characteristics. Our study observed positive relationships between EC information sources and accurate EC knowledge, intentions to use EC and perceptions of EC access. Moreover, EC knowledge was found to mediate the relationship between EC information sources and 1) intentions to use EC and 2) perceptions of EC access. Implications for future EC awareness efforts suggest utilizing identifiably credible information sources to positively influence EC knowledge, intentions of use and perceptions of access. Future research should examine the specific EC information sources and the content, quality, and frequency of their EC messages.
To Linda and Lucy for saving and protecting the lives of young Ugandan women.
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CHAPTER 1: INTRODUCTION

Despite the availability of multiple contraceptive methods, unintended pregnancy continues to be a public health problem in the United States. Among teens and young adults, the problem of unintended pregnancy persists at a rate more than double the rate for all U.S. women (Finer, 2010). One of the leading causes of unintended pregnancy is failure of contraceptive use, such as inconsistent or failed condom use or failure to refill and take contraceptives in a timely manner (Singh, Darroch, Vlassoff, & Nadeau, 2003). However, it is estimated that the correct use of emergency contraception (EC), a post-coital contraceptive, could reduce the rate of unintended pregnancies and abortions in teens and young adults by half (American Academy of Pediatrics, 2005).

Commonly referred to as the “morning after pill,” EC is an oral contraceptive taken by women that can prevent pregnancy up to 5 days after unprotected sex (Croxatto et al., 2006). The contraception works by preventing/delaying the release of a woman’s egg from her ovary to avoid fertilization (Planned Parenthood Foundation, 2014; Trussel, Raymond, & Cleland, 2014). There is also evidence that EC can interfere with the receptors in the endometrial layer of the uterus (Trussel et al., 2014). Currently the idea that the vaginal mucus thickens to trap the sperm or prevent implantation is only a theory, there has yet to be clinical proof (Trussel et al., 2014). Based on this evidence, the contraception is not an abortion pill – it is simply a contraceptive.

Prior to 2006, EC was only accessible in the United States with a written prescription, but in the last decade accessibility has greatly improved (Trussel et al., 2014). In the fall of 2006, the
contraceptive “Plan B” was made available for over-the-counter purchase without a prescription for adults 18-years and older, with subsequent policy changes in 2009 making the contraceptive available to 17-year-olds (Trussel et al., 2014). Most recently, in June 2013, the EC “Plan B One-Step” and other one-pill generics were moved from behind pharmacy counters to pharmacy family planning aisles for purchase without a prescription and with no age restriction (Trussel et al., 2014).

Although EC is now readily available for purchase to all populations at risk for unintended pregnancy, research into knowledge, intentions of use and perceptions of access of EC is limited. Particularly among college women, a population in which 80% of females are identified as being currently sexually active (Greydanus, Rimsza, & Matytsina 2005), research into EC has been sporadic. Intermittently studied before, during and after the series of policy changes regarding EC’s availability, research is needed to identify current college women’s knowledge, perceptions of access and use of EC after the 2013 policy changes. Additionally, specific research into the sources of information from which college women have heard of and learned about EC is needed to determine what, if any, relationship exists between EC sources of information and EC knowledge, intentions of use, perceptions of access.

Therefore, this exploratory study sought to accomplish two objectives: first, to identify college women’s current knowledge, intentions of use and perceptions of access of EC, and second, to determine the relationship between EC sources of information and these factors, with an emphasis on identifying which information sources seem to be most credible in the relay of accurate EC information. In completing this study, this research not only fills identifiable gaps in EC literature, but it also provides larger health communication implications regarding source credibility and the proliferation of EC information to sexually at-risk populations.
CHAPTER 2: LITERATURE REVIEW

2.1 EC Knowledge

Previous research indicates that college students’ general awareness of EC is high; students frequently report having at least heard of EC, both prior to and after the 2006 policy changes. A 1995 survey of college students’ knowledge and attitudes on EC found that 95% of students reported having heard of EC, with later studies indicating that this high level of awareness has sustained for the last two decades (Harper & Ellertson, 1995). However, even though general awareness is up, having accurate knowledge about the mechanisms of EC is relatively low in college students. Confusion and misunderstandings have been presented most frequently when students are asked about the efficiency of EC, the time-frame in which EC is effective, the difference between EC and RU-486 (commonly known as “the abortion pill”), and the overall availability of EC (Corbett, Mitchell, Taylor, & Kemppainen, 2006; Hickey, 2009; Sawyer & Thompson 2003).

In general, students overestimate the efficacy (perfect use) of EC, with many thinking it has an effectiveness (typical use) similar to that of traditional contraception (90-98% effectiveness) (Harper & Ellerton, 1995; Tolani & Yen, 2010) when in fact, EC is only 80-85% effective (Trussell et al., 2014). Accurate knowledge about the efficacy of EC has remained relatively low over the last twenty years, with an average of only 20% of samples identifying the accurate effectiveness rate (Harper & Ellerton, 1995; Tolani & Yen, 2010; Miller, 2011). Additionally, students report that they do not know how long a person has to use EC. Previous
research has found as little as 5% of the students know the accurate timeframe in which EC can be taken (Vahratian, Patel, Wolff, & Xu, 2008). Finally, college students frequently misidentify EC as RU-486, also known as “the abortion pill.” Prior to the 2006 policy change, studies showed an average of 50% of students could not distinguish EC from RU-486, with a 2006 study showing that 38.1% of students thought EC was the same as RU-486 (Harper & Ellerton, 1995; Corbett et al., 2006). Since the change in EC availability, there is some evidence of a decrease in the confusion between the two drugs with a 2009 study showing that only 8% of students thought EC was the same as RU-486 (Hickey, 2009), but this remains inconsistent as made evident by a more recent 2010 study that reported 71% of college women thinking EC use was the same as getting an abortion (Lehan Mackin, Clark, McCarthy, & Farris, 2014).

2.2 EC Perceptions of access

In regards to EC perceptions of access, a lack of EC knowledge is seen among college students when they are asked to identify the prescription status of EC, and when they are asked if they know where EC can be purchased. For example, 58% of students in a 2003 study and 73.1% of students in a 2011 study did not know the current prescription requirements of EC (Sawyer & Thompson 2003; Miller, 2011). In addition, college students frequently express a lack of awareness about where they can obtain EC. In the same two studies conducted in 2003 and 2011, over 50% of the students reported that they were unaware that EC was available in their student health center, 60% of the students did not know where to obtain EC off-campus, and 70-80% of students were unaware as to where to obtain EC if they were out of town (Sawyer & Thompson 2003; Miller, 2011).
Altogether, a majority of college students report having heard of EC but they lack crucial information about its mechanisms and availability. Even with the policy changes to make EC more accessible, college students continue to show low levels of knowledge and there is little evidence that students better understand or have more knowledge about EC than before.

2.3 EC Use

Previous research shows, in general, that a minority of women use EC but use is on the rise. Recent studies show an increase in EC use among college students since the 2006 prescription-status change, with reports of use jumping from 13.7% in 2003 (Sawyer & Thompson 2003) to 39% in 2008 (Tolani & Yen 2010) 37% in 2010 (Lehan Mackin et al., 2014). This trend is also reflected in the individual sexes, as there has been a gradual increase of women reporting use of EC and men reporting partner use of EC since the 2006 change (Corbett, et al., 2006, Miller 2011).

Some of the studies inquire about a student’s intent to use EC if the situation arose. For example, the 2006 study reported that 67.1% of its female students and 46% of its male students would be likely to use EC (or recommend it to a partner) if contraception failed, and the 2008 study reported that 44% of students would purchase EC after unprotected sex (Tolani & Yen, 2010; Vahratian et al., 2008). Additionally, a 2010 survey of college women found that nearly 75% of participants would consider using EC in the future (Lehan Mackin et al., 2014). Intent is also measured by asking students why they would not purchase EC. For instance, the 2007 study showed 60% of students said they would not purchase EC because they were unfamiliar with how to obtain it (Hickey, 2009). Survey responses to questions of intent are hard to relate to one another because of the varying ways in which intent is measured. Nonetheless, when asked to
assess a possible situation in which EC use would be needed, both males and females report strong intentions to use EC.

2.4 EC Information sources

Previous studies infer that the reason college students have generally high awareness of EC but low information accuracy is due to information source. Of the few studies that previously asked their participants to report their primary source of EC information, the most common primary source identified were friends or peers, school curricula and the media (Henry Kaiser Family Foundation [KFF], 2004; Corbett et al., 2006; Vahratian et al., 2008; Hickey, 2009; Garrett, Widman, Francis, & Noar, in press). Only 4% and 8% of students reported that their healthcare provider was their primary source of EC information (Corbett et al., 2006; Hickey, 2009). Additionally, some students who reported having heard of EC from friends and peers said they would use Internet sources to access more information, however information obtained from the internet might not be adequate information to positively influence EC use (Hickey, 2009). In sum, findings suggest that perhaps the reason college students’ knowledge of EC is so low is because they are receiving inaccurate information or no information at all.

2.5 Use of theory

Previous research on emergency contraception among college students has been largely atheoretical. However, much of the existing research utilized constructs of the theory of planned behavior (TPB) (Ajzen, 1991). The TPB examines an individual’s intentions to perform certain behaviors by predicting intention based upon an individual’s attitudes toward the given behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). The previously discussed
studies examined the extent of college students’ knowledge, attitudes and previous use of EC, all of which are components of TPB. Yet many of these same studies failed to draw conclusions about intent to use EC, or any larger theoretical conclusions.

Therefore, as another contribution to the literature on EC and college students, this study will utilize both health behavior theory (TPB) and communication theory in its development and assessment. Communication theory, specifically source credibility theory (Lowry, 2014), will be utilized to develop the study’s measures, guide data analysis, and frame the discussion on health communication implications and future research endeavors.

2.6 Source credibility theory

Given that the larger objective of this study was to determine the relationship between college women’s EC information source exposure and their knowledge, perceptions of access, and intentions to use EC, this study relied on source credibility theory (SCT). In its simplest form, SCT states that the credibility and persuasiveness of any communication, whether it be written or spoken, is partially dependent on the perceived credibility of the communication source (Lowry, 2014). A review of SCT research since 1950 determined that high-credibility sources are more persuasive in changing attitudes and gaining behavioral compliance than low-credibility sources (Pornpitakpan, 2004, p. 266).

The focus of source credibility research has been to determine the main characteristics of credibility. Various attributes have emerged in the literature, but the most important dimensions that continue to emerge are expertise, trustworthiness, and, more recently, goodwill (McCroskey & Teven, 1999). Expertise refers to the knowledge and skill of the communicator; the communicator is believed to have special abilities and great know-how that makes them an
expert (Perloff, 2010). Trustworthiness refers to the perceived honesty and character of the communicator; the communicator does not necessarily need to be an expert, but so long as he or she exudes integrity the communicator is recognized as trustworthy (Perloff, 2010). Goodwill refers to perceived caring; the communicator conveys a sense of having the listeners’ best interest at heart and is empathetic (Perloff, 2010).

Applied in the EC domain, communications about EC from high credibility sources should have more impact than communications from low credibility sources. Recognizing what is known about the dimensions of source credibility, this study predicted that health education sources (doctors, sex education programs, etc.) will be the “more credible sources,” and therefore linked to more accurate EC knowledge, higher intentions to use EC and higher perceptions of EC access, due to the higher expertise and trustworthiness of health education sources. As a result, arguably less skilled/expert sources, such as friends and family or the media, could also have a positive association to accurate EC knowledge, intentions to use and perceptions of access because these sources are perceived to care more about the person than a medically credible source. Nonetheless, this study predicted that the association between accurate EC knowledge, intentions to use and perceptions of access will be higher in students who report having heard of EC from health sources due to their higher levels of skill and expertise.

However, in this study the participants were not asked to report perceptions of their EC sources’ credibility. Rather, this study assessed source credibility through the sources young women report having heard of EC from and college women’s accurate knowledge, which was measured using an EC fact assessment (true or false questions). The study then examined correlations between accurate EC information and the different EC information sources.
of EC from and tested the participants’ knowledge about EC to ultimately determine which sources were most “credible” in the relay of accurate EC information.

Ultimately this study not only used SCT to guide its exploration into EC information sources but it also contributes to the larger discussion on SCT.
CHAPTER 3: RATIONALE, RESEARCH QUESTIONS & HYPOTHESES

3.1 Rationale

EC has the capability to drastically reduce the rate of unintended pregnancy among sexually at-risk populations, like college women, but lack of knowledge about its usability and availability are major barriers in the success of this contraception method. Due to sporadic EC research coupled with a series of policy changes in the last decade, little research exists to explain why college students, specifically college women, have insufficient knowledge about EC. A possible cause of low accurate EC knowledge may be the information sources from which these students have learned about EC. Previous research into college students’ primary sources of EC found the most common sources to be peers or friends, school curricula, and the media, with less than 10% reporting healthcare providers as their primary information source (Corbett et al., 2006; Hickey, 2009; Garrett et al., in press). However, research into EC information sources is limited and has yet to be thoroughly studied after the 2013 policy change that made EC available for purchase without a prescription or age restriction. Specifically, research is needed to better understand how specific information sources are related to college women’s EC knowledge, intentions of use, and perceptions of access. Therefore, the purpose of this study was to identify college women’s current knowledge, perceptions of access and use of EC, as well as to determine what, if any, relationships exist between these factors and the sources of information from which these women have heard of EC.
3.2 Research questions & hypotheses

**RQ1**: What percentage of college women have heard of EC from media, interpersonal, and/or health education sources?

**RQ 2**: What is the relationship between EC information sources and EC knowledge?

**H 1**: There will be a positive association between EC information sources and more accurate knowledge. Students who report having heard of EC from credible sources, such as the health information/education sources, will have more accurate knowledge about EC, compared to women who have heard from a less credible source (i.e., interpersonal source or media), or from no source.

**RQ 3**: What is the relationship between EC information sources and intentions to use EC and perceptions of EC access?

**H 2**: There will be a significant positive association between EC information sources and intentions to use EC and perceptions of access to EC. Students who report having heard of EC from credible sources will have higher intentions to use EC and higher perceptions of access to EC, compared to women who have heard from a less credible source (i.e., interpersonal source or media), or from no source.

**RQ 4**: What is the relationship between EC knowledge and intentions to use EC and perceptions of EC access?

**H 3**: There will be a positive association between EC knowledge and intentions to use EC and perceptions of access. Students who have more accurate EC knowledge will have higher intentions to use EC and higher perceptions of access to EC.

**RQ 5**: Does EC knowledge mediate the relationship between EC information sources and intentions to use EC and perceptions of EC access?
**H 4:** EC Knowledge will mediate the relationship between EC information sources and intentions to use EC and perceptions of access to EC.
CHAPTER 4: METHODS

4.1 Participants

Much of the current literature has explored EC knowledge, perceptions of access and use among both male and female college students, with only three previous studies utilizing female-only samples (Hickey, 2009; Lehan Mackin et al., 2014; Waltemaurer et al., 2013). Given that EC can only be utilized by females, this study aimed to contribute to the overall body of EC literature by specifically exploring college women’s knowledge, perceptions of access and use of EC. Additionally, this study contributes a unique perspective of the “young” college female, as this study was limited to only 18 and 19 year-old college women. Previous research samples consisted of wide age ranges, such as 18 to 24-years old (Vahratian et al., 2008; Hickey, 2009). In utilizing a younger population, this study identified the EC knowledge, perceptions of access and use patterns of a more homogenous audience - younger college females that are relatively new to campus. Given the 2013 EC availability policy change that eliminated age restrictions, it was especially important to assess this younger population’s knowledge about EC.

Participants (n = 339 college women) were recruited through the UNC Psychology Department participant pool as a part of a larger study on women’s health. The study was a two-part research project investigating young women’s communication and health. Part 1 consisted of a 1-hour session at the research office in Davie Hall at UNC, while Part 2 was an optional follow-up; Part 1 included the EC survey while Part 2 did not consist of any components related to EC and therefore was not relevant to this study. If individuals were interested in participating
in the women’s health study, they were asked to sign up for a time slot via the Psychology Participant Pool system at UNC.

Participants received 1 hour of course credit for participation in Part 1, even if they choose not to complete the entirety of the electronic questionnaire or sexual communication assessment. The schedule for providing course credit as an incentive is standard practice for UNC psychology participant pool studies. Students have the option of signing up for the studies they find interesting and are not required to participate in specific studies.

4.2 Procedure

The goal of this research was to identify college women’s current knowledge, perceptions of access and use of EC, as well as determine the relationship between these factors and the sources of information from which these women have heard of EC. Much previous research in this area has successfully relied on the use of survey-based methodology (Harper, 1995; Sawyer, 2003; Corbett, 2006; Vahratian, 2008; Hickey, 2009; Tolani, 2010; Miller, 2011; Waltermaurer, Doleyres, Bednarczyk, & McNutt, 2013). As a result, the current study utilized an electronic, quantitative survey that was administered in a closed, laboratory setting.

When participants first arrived for their lab session, the researcher obtained informed written consent. Then, participants were asked to complete a series of confidential survey measures on a laptop computer, including on EC knowledge, perceptions of access and use, self-reported communication styles, attitudes, and health-related beliefs and behaviors. Spacing equivalent to two seats between the participants was used to help ensure confidentiality in the small group sessions. Expected time of completion for the surveys was 1 hour. The Institutional Review Board at UNC Chapel Hill reviewed and approved all procedures of this study.
4.3 Measures

Demographics. We asked a series of demographic questions including: age, current year in school, race/ethnicity, and religion.

Sexual history. We asked a series of sexual history questions including: sexual orientation, ever having engaged in sexual activity, age at first vaginal sex, frequency of condom use, and pregnancy history.

Ever heard of emergency contraception (EC). Prior to answering EC-related questions, the following description of EC was provided: “Emergency contraception is a birth control method that can be used to prevent pregnancy up to 5 days after unprotected sex takes place. The next few questions ask about emergency contraception, also known as the ‘morning-after pill’ (e.g., Plan B).” The descriptors “morning after pill” and “Plan B” were included in the description to optimize student recognition of emergency contraception. We asked one item asking whether students had ever heard about EC; response options were “yes” or “no” (Harper & Ellertson, 1995; Corbett et al., 2006; Miller, 2011; Garrett et al., in press).

Emergency contraception (EC) information sources. We developed three items asking the number of times a participants had heard of EC from the following information sources: media (e.g., advertisements, news, entertainment TV, social media); health information or education source (e.g., doctor, pharmacist, health class, sex education class, campus health services); interpersonal (e.g. friend, classmate, dating partner, or family member). Response options were “never,” “once,” “a few times,” or “many times.” We then recoded respondents’ frequency of exposure to EC from these specific information sources to a 0/1 coding system: 0 = “have not heard of EC or 1= “heard of EC from.” Finally, the information sources were recoded into 4 categories of EC information source credibility: “none” (for report never having heard of
Knowledge of emergency contraception (EC). We asked six items to measure accurate knowledge participants have about EC (Corbett et al., 2006). Three of the items asked about EC drug mechanism information (“EC is an abortion pill”; “EC can harm a woman’s fertilized egg”; “EC can be taken up to 5 days after unprotected sex”) and three items asked EC accessibility regulations (“a prescription is needed to purchase EC”; “must be 18 or older to purchase EC”; “EC cannot be sold on college campuses”). Response options were “True,” “False,” or “I Don’t Know.” These six individual knowledge items were summed to reflect the total number of EC knowledge questions participants answered correctly; “I Don’t Know” responses were recoded as an incorrect response because not having an answer meant not knowing the correct answer. Coefficient alpha of the scale in the current study was 0.51 ($M = 3.61$, $SD = 1.34$).

Perceptions of emergency contraception (EC) access. We asked three items to measure perceived accessibility of EC (Harper & Ellerton, 1995; Sawyer, 2003; Garrett et al., in press). One item asked respondents to rate how sure they were that they know where to get EC; one item asked respondents to rate how sure they were that they would be able to get EC; and one item asked respondents to rate how easy it would be to get EC. All three items used a 5-point Likert scale ranging from “extremely unsure” to “extremely sure.” Coefficient alpha of the scale in the current study was 0.93 ($M = 3.95$, $SD = 1.16$).

Intentions to use emergency contraception (EC). We asked one item to measure the likelihood of participants using EC if they were in a situation in which EC use was appropriate.
(Corbett et al., 2006; Hickey, 2009); the item asked respondents to rate on a 7-point Likert scale ranging from “extremely unlikely” to “extremely likely” how likely they were to use EC if they were in a situation where EC use would reduce their risk of unintended pregnancy, such as having had unprotected sex.

Previous emergency contraception (EC) use. We created one item to measure the number of times participants had ever used EC; response options were “0 (Never),” “1 time,” “2 times,” “3 or more times”.


CHAPTER 5: DATA ANALYSIS & RESULTS

5.1 Sample characteristics

Descriptive statistics are presented in Table 1. Participant mean age was 18.35 years, with 76% coming from the freshmen class. More than half of participants were white (67%), with 11% Black, 10% Asian, 5% Hispanic, and 5% mixed race. Most of the participants (83%) identified with a particular religion: 52% Protestant (Baptist, Methodist, Non-denomination, etc.), 19% Catholic, 2.5% Jewish, 1.2% Muslim, and 9% other.

Regarding sexual history (see Table 2), nearly all of the participants (94%) identified as heterosexuals, with only 0.5% identifying as homosexuals, 3% as bisexuals, 1% as questioning/queer, and 2% “other”. Most of the sample (80%) reported previous engagement in sexual activity, of which 80% had sexual intercourse. Of those who had engaged in sexual intercourse, the average age at first vaginal sex experience was 16.78. Additionally, 1% had ever been pregnant and 2% were unsure if they had ever been pregnant. Frequency of condom use was reported on a 5-point scale ranging from “never” to “always,” with an average score of 3.90 (SD = 1.15).

With regard to EC use, 24.8% of the participants reported having previously used EC, of which 57% used EC one time, 21.5% used it twice, and 21.5% used it three or more times. Overall, the students had relatively high perceptions of access of EC (M = 3.95, SD = 1.16 on a 5-point scale). Students who reported previous use of EC had higher perceptions of access of EC (M = 4.80, SD = 0.44), compared to students who had not used EC (M = 3.69, SD = 1.20).
<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>222</td>
<td>65.5</td>
<td>18.35</td>
<td>0.476</td>
</tr>
<tr>
<td>19</td>
<td>117</td>
<td>34.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year in School</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman – 1st year</td>
<td>258</td>
<td>76.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore – 2nd year</td>
<td>76</td>
<td>22.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior – 3rd year</td>
<td>2</td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior – 4th year</td>
<td>3</td>
<td>0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White or Caucasian</td>
<td>228</td>
<td>67.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black or African-American</td>
<td>37</td>
<td>10.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino(a)</td>
<td>16</td>
<td>4.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>34</td>
<td>10.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed Race</td>
<td>18</td>
<td>5.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>1.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protestant (Baptist, Methodist, Non-denominational)</td>
<td>175</td>
<td>51.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>64</td>
<td>18.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jewish</td>
<td>8</td>
<td>2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>4</td>
<td>1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No religious affiliation</td>
<td>57</td>
<td>16.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>30</td>
<td>8.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Sexual history (n = 339)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sexual Orientation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual/Straight</td>
<td>319</td>
<td>94.1</td>
</tr>
<tr>
<td>Homosexual/Gay/Lesbian</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Bisexual</td>
<td>9</td>
<td>2.7</td>
</tr>
<tr>
<td>Questioning/Unsure</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Ever engaged in sexual activity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>67</td>
<td>19.8</td>
</tr>
<tr>
<td>Yes</td>
<td>272</td>
<td>80.2</td>
</tr>
<tr>
<td><strong>Age at first vaginal sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
<td>2.1</td>
</tr>
<tr>
<td>15</td>
<td>23</td>
<td>6.8</td>
</tr>
<tr>
<td>16</td>
<td>47</td>
<td>13.9</td>
</tr>
<tr>
<td>17</td>
<td>54</td>
<td>15.9</td>
</tr>
<tr>
<td>18</td>
<td>62</td>
<td>18.3</td>
</tr>
<tr>
<td>19</td>
<td>8</td>
<td>2.4</td>
</tr>
<tr>
<td>Never had sex</td>
<td>69</td>
<td>20.4</td>
</tr>
<tr>
<td>Missing</td>
<td>67</td>
<td>19.8</td>
</tr>
<tr>
<td><strong>Frequency of condom use during sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>9</td>
<td>2.7</td>
</tr>
<tr>
<td>Rarely</td>
<td>18</td>
<td>5.3</td>
</tr>
<tr>
<td>Sometimes</td>
<td>37</td>
<td>10.9</td>
</tr>
<tr>
<td>Often</td>
<td>61</td>
<td>18.0</td>
</tr>
<tr>
<td>Always</td>
<td>79</td>
<td>23.3</td>
</tr>
<tr>
<td>Never had sex</td>
<td>68</td>
<td>20.1</td>
</tr>
<tr>
<td>Missing</td>
<td>67</td>
<td>19.8</td>
</tr>
<tr>
<td><strong>Ever been pregnant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>265</td>
<td>78.2</td>
</tr>
<tr>
<td>I don’t know</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Missing</td>
<td>67</td>
<td>19.8</td>
</tr>
</tbody>
</table>
5.2 EC Information sources

Basic descriptive analyses were used to report the frequency of EC information sources (See Table 3). Descriptive analyses show that 3% of respondents (10 students) had never heard of EC, 26.5% had heard of EC from only media and/or interpersonal sources (“low credibility”), 70% of respondents had heard of EC from health sources and media and/or interpersonal sources (“moderate credibility”), and only two participants (0.6%) reported having heard of EC from only health sources (“high credibility”). For the sake of statistical analyses required for subsequent research questions the “high credibility” EC information source credibility category was removed from subsequent analyses; therefore, in what follows are analyses that utilized these three EC information source credibility categories: “none,” “low credibility,” and “moderate credibility.”
Table 3. Emergency contraception information sources \((n = 339)\)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ever heard of EC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>329</td>
<td>97.1</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Heard of EC from media source</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>23</td>
<td>6.8</td>
</tr>
<tr>
<td>Once</td>
<td>21</td>
<td>6.2</td>
</tr>
<tr>
<td>A few times</td>
<td>130</td>
<td>38.3</td>
</tr>
<tr>
<td>Many times</td>
<td>155</td>
<td>45.7</td>
</tr>
<tr>
<td>Missing</td>
<td>10</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Heard of EC from health source</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>90</td>
<td>26.5</td>
</tr>
<tr>
<td>Once</td>
<td>66</td>
<td>19.5</td>
</tr>
<tr>
<td>A few times</td>
<td>143</td>
<td>42.2</td>
</tr>
<tr>
<td>Many times</td>
<td>30</td>
<td>8.8</td>
</tr>
<tr>
<td>Missing</td>
<td>10</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Heard of EC from interpersonal source</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>36</td>
<td>10.6</td>
</tr>
<tr>
<td>Once</td>
<td>35</td>
<td>10.3</td>
</tr>
<tr>
<td>A few times</td>
<td>174</td>
<td>51.3</td>
</tr>
<tr>
<td>Many times</td>
<td>84</td>
<td>24.8</td>
</tr>
<tr>
<td>Missing</td>
<td>10</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Information Source Categories (credibility)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Sources/None</td>
<td>10</td>
<td>2.9</td>
</tr>
<tr>
<td>Low Credibility (only media and/or interpersonal)</td>
<td>90</td>
<td>26.5</td>
</tr>
<tr>
<td>Moderate Credibility (health &amp; media and/or interpersonal)</td>
<td>237</td>
<td>69.9</td>
</tr>
<tr>
<td>High Credibility (only health)</td>
<td>2</td>
<td>0.6</td>
</tr>
</tbody>
</table>
5.3 EC Information source credibility and EC knowledge

Table 4 shows descriptives of the six individual knowledge items that were later recoded into the single, collective index, “EC knowledge,” which reflects the total number of knowledge questions participants answered correctly. The mean scores of EC knowledge across each category of EC information source credibility (none/low/moderate) are shown in Table 5.

Use of a one-way ANOVA to examine differences in EC knowledge between the categories of EC information source credibility determined the main effect was significant, $F(2,336) = 7.90, p < .001$. According to Bonferroni post-hoc tests, respondents who heard of EC from “moderate credibility” information sources had significantly ($p < 0.05$) higher knowledge scores ($M = 3.77, SD = 1.20$) than respondents who had heard of EC “low credibility” information sources ($M = 3.33, SD = 1.54$) and respondents who had never heard of EC ($M = 2.40, SD = 1.78$). Additionally, Bonferroni post-hoc tests indicated that respondents who had heard of EC from “low credibility” information sources only had marginally-significant ($p < 0.1$) higher knowledge scores than respondents who had never heard of EC. Note, however, that Levene’s test for equality of variances determined a significant level of homogeneity, indicating a possible limitation with this present analysis.
Table 4. Emergency contraception knowledge (n = 339)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need a prescription to buy EC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect</td>
<td>22</td>
<td>6.5</td>
</tr>
<tr>
<td>Correct</td>
<td>317</td>
<td>93.5</td>
</tr>
<tr>
<td>Must be over 18-years-old to purchase EC (False)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect</td>
<td>217</td>
<td>64.0</td>
</tr>
<tr>
<td>Correct</td>
<td>122</td>
<td>36.0</td>
</tr>
<tr>
<td>EC is an “abortion pill” (False)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect</td>
<td>77</td>
<td>22.7</td>
</tr>
<tr>
<td>Correct</td>
<td>262</td>
<td>77.3</td>
</tr>
<tr>
<td>EC could harm a pregnant woman’s fertilized egg (False)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect</td>
<td>274</td>
<td>80.8</td>
</tr>
<tr>
<td>Correct</td>
<td>65</td>
<td>19.2</td>
</tr>
<tr>
<td>EC cannot be sold on college campuses (False)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect</td>
<td>150</td>
<td>44.2</td>
</tr>
<tr>
<td>Correct</td>
<td>189</td>
<td>55.8</td>
</tr>
<tr>
<td>EC can be taken up to 5 days after unprotected sex (True)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect</td>
<td>70</td>
<td>20.6</td>
</tr>
<tr>
<td>Correct</td>
<td>269</td>
<td>79.4</td>
</tr>
<tr>
<td>EC Knowledge Sum Score (total number of questions answered correctly)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None (0.00)</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>1.00</td>
<td>21</td>
<td>6.2</td>
</tr>
<tr>
<td>2.00</td>
<td>48</td>
<td>14.2</td>
</tr>
<tr>
<td>3.00</td>
<td>75</td>
<td>22.1</td>
</tr>
<tr>
<td>4.00</td>
<td>99</td>
<td>29.2</td>
</tr>
<tr>
<td>5.00</td>
<td>72</td>
<td>21.2</td>
</tr>
<tr>
<td>All (6.00)</td>
<td>21</td>
<td>6.2</td>
</tr>
</tbody>
</table>
5.4 EC Information source credibility and intentions to use EC & perceptions of EC access

The mean scores of “intentions to use EC” and “perceptions of EC access” across each category of EC information source credibility (none/low/moderate) are shown in Table 5.

Use of a one-way ANOVA to examine the difference in intentions to use EC between the categories of EC information source credibility determined the main effect was significant, $F(2,336) = 10.43, p < .001$. According to Bonferroni post-hoc tests, respondents who heard of EC from “moderate credibility” information sources had significantly ($p < 0.001$) higher intentions to use EC ($M = 6.13, SD = 1.30$) than respondents who had heard of EC from “low credibility” information sources ($M = 5.26, SD = 2.04$). However, respondents who had heard of EC from “moderate credibility” information sources did not have significantly higher intentions to use EC than those who had never heard of EC ($M = 5.80, SD = 1.87$). Additionally, Bonferroni post-hoc tests indicate that there was no significant difference in intentions to use EC between respondents who had heard of EC from “low credibility” information sources and respondents who had never heard of EC. Note, however, that Levene’s test for equality of variances determined a significant level of homogeneity, indicating a possible limitation with this present analysis.

Use of a one-way ANOVA to examine differences in perceptions of EC access between the categories of EC information source credibility determined the main effect was significant, $F(2,336) = 6.44, p < .005$. According to Bonferroni post-hoc tests, respondents who heard of EC from “moderate credibility” information sources had significantly ($p < 0.05$) higher perceptions of EC access ($M = 4.08, SD = 1.12$) than respondents who had heard of EC from “low credibility” information sources ($M = 3.71, SD = 1.18$) and respondents who had never heard of EC ($M = 3.07, SD = 1.43$). Additionally, Bonferroni post-hoc tests indicated that there was no
significant difference in perceptions of EC access between respondents who had heard of EC from “low credibility” information sources and respondents who had never heard of EC. Levene’s test for equality of variances was not violated for the present analysis.
Table 5. Knowledge, access & intentions by information source credibility category (n = 339)

<table>
<thead>
<tr>
<th></th>
<th>No/None Sources</th>
<th>Low Credibility</th>
<th>Moderate Credibility</th>
<th>One-Way ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Knowledge</td>
<td>2.40</td>
<td>1.78</td>
<td>3.33</td>
<td>1.54</td>
</tr>
<tr>
<td>Access</td>
<td>3.07</td>
<td>1.43</td>
<td>3.71</td>
<td>1.18</td>
</tr>
<tr>
<td>Intention</td>
<td>5.80</td>
<td>1.87</td>
<td>5.26</td>
<td>2.04</td>
</tr>
</tbody>
</table>
5.5 Relationship between EC knowledge and intentions to use EC and perceptions of EC access

Bivariate correlations between EC knowledge and intentions to use EC demonstrated a significant association, \( r = .30, p < 0.01 \). Bivariate correlations between EC knowledge and perceptions of EC access also demonstrated a significant association, \( r = .39, p < 0.01 \).

5.6 EC knowledge as a mediator between EC information source credibility and intentions to use EC & perceptions of EC access

In mediation analyses different effects (direct and indirect effects) are assessed; the total effect of an independent variable (IV) on a dependent variable (DV) is composed of the direct effect of the IV on the DV and the indirect effect through a proposed mediator variable (M) (Thimm, 2010). Therefore, to determine the mediation effect EC knowledge (M) has in the relationship between EC information source credibility (IV) and intentions to use EC (DV) and in the relationship between EC information source credibility (IV) and perceptions of EC access (DV) a series of mediation analyses were conducted.

First, we ran a series of linear regressions using the four steps to establish mediation as outlined by Barron and Kenny (1986) to determine whether or not EC knowledge significantly affected the relationship between EC information source credibility and intentions to use EC, and the relationship between EC information source credibility and perceptions of EC access. Following these linear regressions, we applied a bootstrapping procedure for assessing indirect effects; bootstrapping is a nonparametric resampling procedure where a large number of samples (5000 for this study) are drawn with replacement from the full data set (Thimm, 2010). According to Preacher and Hayes (2008), the bootstrapping procedure is superior to the Sobel test and the Baron and Kenny (1986) causal steps approach in terms of statistical power while
maintaining reasonable control over Type I error. Therefore, the bootstrap procedure was conducted using the SPSS macro PROCESS provided by Hayes (2009). An indirect effect was considered significant if zero was not included in the 95% bias-corrected confidence interval Hayes (2009). The outcomes of Hayes’ mediation tests are shown in Figures 1 & 2.

The first EC knowledge mediation analysis tested the relationship between EC information source credibility and intentions to use EC. First, EC information source credibility was entered as the independent factor and intentions to use EC was entered as the dependent factor; the resulting model significantly predicted intentions to use EC \( (B = 0.45, SE_B = 0.16, p < .005) \). Next, EC information source credibility was entered as the independent factor and EC knowledge was entered as the dependent factor; the resulting model significantly predicted EC knowledge \( (B = 0.52, SE_B = 0.14, p < .001) \). Finally, EC information source credibility and EC knowledge were entered as the independent factors while intentions to use EC was entered as the dependent factor. The resulting model did not have zero between the lower and upper bounds of the 95% bias-corrected confidence interval, indicating that the indirect effect was significant. Therefore, we accepted the hypothesis that EC knowledge is a mediator in the relationship between EC information sources and intentions to use EC.

The final EC knowledge mediation analysis tested the relationship between EC information source credibility and perceptions of EC access. First, EC information source credibility was entered as the independent factor and perceptions of EC access was entered as the dependent factor; the resulting model significantly predicted intentions to use EC \( (B = 0.25, SE_B = 0.11, p < .01) \). Next, EC information source credibility was entered as the independent factor and EC knowledge was entered as the dependent factor; the resulting model significantly predicted EC knowledge \( (B = 0.52, SE_B = 0.14, p < .001) \). Finally, EC information source
credibility and EC knowledge were entered as the independent factors while perceptions of EC access was entered as the dependent factor. The resulting model did not have zero between the lower and upper bounds of the 95% bias-corrected confidence interval, indicating that the indirect effect was significant. Therefore, we accepted the hypothesis that EC knowledge is a mediator in the relationship between EC information sources and perceptions of EC access.

In sum, mediation analysis indicated that EC knowledge was a mediator in both the relationship between EC information source credibility and intentions to use EC, and EC information source credibility and perceptions of EC access.
Figure 1: Knowledge mediation model of EC information source & intentions to use EC

- **Information Sources**
  - $B = 0.52$
  - SE = 0.14
  - $p < .001$

- **EC Knowledge**
  - **b**: $B = 0.32$
  - SE = 0.06
  - $p < .001$
  - $B = 0.45$
  - SE = 0.16
  - $p < .005$
  - $*B = 0.17$
  - *SE = 0.06
  - *LL CI = 0.08
  - *UL CI = 0.34

- **Intentions to Use EC**

Figure 2: Knowledge mediation model EC information source & perceptions of EC access

- **Information Sources**
  - $B = 0.52$
  - SE = 0.14
  - $p < .001$

- **EC Knowledge**
  - **b**: $B = 0.32$
  - SE = 0.04
  - $p < .001$
  - $B = 0.25$
  - SE = 0.11
  - $p < .01$
  - $*B = 0.17$
  - *SE = 0.06
  - *LL CI = 0.07
  - *UL CI = 0.30
CHAPTER 6: DISCUSSION

6.1 Findings

With nearly all (97%) of our sample reporting having heard of EC prior to this study and a quarter of the sexually active participants having previously used EC, our findings are consistent with previous research on EC awareness and use among college students (Lehan Mackin et al., 2014). In addition, our findings are parallel with previous research demonstrating that many students are misinformed regarding EC’s accessibility and its drug-based mechanisms (Sawyer & Thompson 2003; Miller, 2011; Lehan Mackin et al., 2014); for example, 64% incorrectly reported that a person to be 18-years or older to purchase EC, and 81% incorrectly determined that EC would harm a pregnant woman’s fertilized egg. In contrast to the literature, however, our data shows an increase in EC knowledge. Specifically, over three quarters of our sample accurately reported the timeframe for EC use, compared to as little as 5% of students knowing the accurate timeframe in a study just seven years ago (Vahratian, Patel, Wolff, & Xu, 2008); and 77% of our sample correctly identified that EC is not the abortion pill, compared to 50% of students being unable to distinguish EC from the abortion pill in prior work (Harper & Ellerton, 1995; Corbett, Mitchell, Taylor, & Kemppainen, 2006).

Regarding EC information sources, our findings parallel the current literature (KFF, 2004; Corbett et al., 2006; Vahratian et al., 2008; Hickey, 2009) with most of our sample reporting having heard of EC from a media source (73%) and/or interpersonal source (89%). Unlike previous research (KFF, 2004; Corbett et al., 2006; Hickey, 2009), however, our study found that nearly three quarters of respondents had heard of EC from a health information
source. Granted, our study expanded the category of “health information source” to include more than just healthcare providers, which was generally the only health source asked about in previous research (KFF, 2004; Corbett et al., 2006; Hickey, 2009). Nonetheless, our study may reveal an increase in students having heard about EC from more credible health information sources.

Concerning source credibility, our study observed positive relationships between EC information sources and college women’s accurate EC knowledge, intentions to use EC and perceptions of EC access. Specifically, women who heard of EC from “moderate credibility” information sources, when compared to women who had heard of EC from “low credibility” information sources, had significantly higher EC knowledge scores, higher intentions to use EC and higher perceptions of EC access. Additionally, when compared to women who had never heard of EC, women who heard from “moderate credibility” information sources had significantly higher EC knowledge scores and higher perceptions of EC access. Interestingly, however, both groups (“moderate credibility” and “none”) reported similarly high intentions to use EC if needed. Given this, we infer that the high intentions to use EC from the women who have never heard of EC is due to perceived need and applicability of EC by these women; however, our data cannot confirm this speculation.

For those women who reported having heard of EC from “low credibility” information sources we discovered that they had only marginally higher EC knowledge scores than the women who had never heard of EC. Additionally, there were no significant differences in intentions to use EC or perceptions of EC access among “low credibility” information sources compared to women who had never heard of EC. Overall, these findings demonstrate a critical source credibility problem; over a quarter of the sample reported having heard of EC from “low
credibility” information sources, and, collectively, these women report EC knowledge, intentions to use EC and perceptions of EC access that are no better than the women who had never even heard of EC. These findings demonstrate not only the need to increase the dissemination of EC information from credible sources, such as health information sources, but also, to identify possible misinformation that is being disseminated by these “low credibility” sources and reverse this where possible.

Finally, as we anticipated, EC knowledge was found to be a full mediator in the relationship between EC information sources and 1) intentions to use EC and 2) perceptions of EC access. Therefore, not only was our overarching theoretical prediction that, among college women, having heard of EC from more credible sources would be positively associated with accurate EC knowledge correct, but also, we determined that having more accurate EC knowledge was associated with college women’s intentions to use EC and perceptions of EC access. Based on these findings, future EC awareness efforts targeted for college women should emphasize accurate EC information, as well as utilize identifiably credible information sources, such as healthcare professionals, as our study demonstrates that having heard of EC from credible sources is associated with higher scores of accurate EC knowledge, higher intentions to use EC and higher perceptions of EC access.

6.2 Implications for Health Communication

Implications for future EC awareness efforts targeted to young adults, like college women, should utilize identifiably credible information sources. Specifically, our findings suggest that intervention efforts should focus on reversing misinformation and disseminating accurate EC information in an effort to improve EC knowledge. Additionally, intervention
efforts should target healthcare providers and other credible health information sources to promote greater discussion of EC and its availability for young, sexually at-risk populations.

Future research should move beyond an examination of the specific sources of information and focus on the content, quality, and frequency of EC messages. Furthermore, health communication research needs to identify the (mis)information being disseminated and determine what information members of the targeted population (in)accurately retain to ultimately reverse misinformation and positively influence EC knowledge, intentions of use and perceptions of access.

6.3 Limitations

Limitations of this study were inevitable, as this was a self-report study in which participants may have over or under reported their EC source exposure or incorrectly recalled EC information. Also, the sample was one of convenience, and therefore the sample may not necessarily represent the population from which it was drawn or all college women. Furthermore, this is a cross-sectional study and although we may at times infer causality (i.e., information source led to more or less accurate EC information), we must use caution in interpretation of such associations, which at times may be spurious.

Regarding data analysis, the “none” information source group (those who reported never having heard of EC prior to this study) consisted of a small number of students ($n = 10$), making it a much less stable group for comparison and a likely cause to the data heterogeneity problems identified in the data analysis. Additionally, the reliability for the EC knowledge measure was poor and may have added extra noise into the data.
Finally, we were unable to assess health information sources individually; in utilizing an all-encompassing “health information and education” EC source category, we were unable to measure the effectiveness of specific health information sources. Furthermore, we were unable to determine which messages are being conveyed by specific information sources. Future research could correct for these limitations by asking participants to report on specific information sources, as well as ask participants to identify the messages they received from a particular source. Future studies should place a greater emphasis on online media to understand where young women are exposed to EC messages through channels such as the Internet and social media. Moreover, future longitudinal studies should follow adolescents and young adults over time and examine their exposure to messages about EC as well as how those messages impact their knowledge, perceptions, and behavior.
CHAPTER 7: CONCLUSIONS

Serving as a back-up contraceptive from unsuccessful or no birth control use, EC has the potential to greatly reduce the rate of unintended pregnancies and abortions in teens and young adults (American Academy of Pediatrics, 2005). Particularly for college women, a population in which 80% of females are identified as being currently sexually active (Greydanus, Rimsza, & Matytsina 2005), EC is now readily available for purchase and use. Our study indicates that having heard of EC from credible information sources is positively associated with accurate EC knowledge, intentions to use EC, and perceptions of EC access. However, much of this population reports never having heard of EC from a credible information source, which we found to be associated with lower levels of EC knowledge, intentions to use EC and perceptions of EC access. Moving forward, future EC awareness efforts not only need to continue, but also they should focus on identifying credible information sources to positively influence EC knowledge, intentions of use and perceptions of access.
APPENDIX A: EMERGENCY CONTRACEPTION SURVEY QUESTIONS

Emergency Contraception

The next items are about emergency contraception. Emergency contraception is a birth control method that can be used to prevent pregnancy after unprotected sex. Emergency contraception is also known as the ‘morning-after pill’ or ‘Plan B’.

1. Prior to this survey, had you ever heard of emergency contraception?
   a. Yes (IF NO, SKIP TO #8)
   b. No

2. How many times have you heard about emergency contraception from a media source (e.g., advertisements, news, entertainment TV, social media)?
   a. never (IF NEVER, SKIP TO #4)
   b. once
   c. a few times
   d. many times

3. In general, after seeing or hearing about emergency contraception from a media source, how did you feel about emergency contraception?
   1= MUCH MORE NEGATIVE
   2= SOMEWHAT MORE NEGATIVE
   3= NO DIFFERENT
   4= SOMEWHAT MORE POSITIVE
   5= MUCH MORE POSITIVE

4. How many times have you heard about emergency contraception from a health information or education source (e.g., doctor, pharmacist, health class, sex education class, campus health services)?
   a. never (IF NEVER, SKIP TO #6)
   b. once
   c. a few times
   d. many times

5. In general, after seeing or hearing about emergency contraception from a health information/education source, how did you feel about emergency contraception?
   1= MUCH MORE NEGATIVE
   2= SOMEWHAT MORE NEGATIVE
   3= NO DIFFERENT
   4= SOMEWHAT MORE POSITIVE
   5= MUCH MORE POSITIVE

6. How many times have you heard about emergency contraception from a friend, classmate, dating partner, or family member (e.g., parent)?
   a. never (IF NEVER, SKIP TO #8)
   b. once
   c. a few times
   d. many times

7. In general, after seeing or hearing about emergency contraception from an interpersonal source, how did you feel about emergency contraception?
   1= MUCH MORE NEGATIVE
   2= SOMEWHAT MORE NEGATIVE
   3= NO DIFFERENT
   4= SOMEWHAT MORE POSITIVE
The next items test your knowledge about emergency contraception.

8. You need a prescription to purchase emergency contraception.  
   T  F  DK

9. You must be over the age of 18 to purchase emergency contraception.  
   T  F  DK

10. Emergency contraception is an “abortion pill.”  
    T  F  DK

11. If a woman is already pregnant, taking emergency contraception could harm her fertilized egg.  
    T  F  DK

12. Emergency contraceptives cannot be sold on college campuses.  
    T  F  DK

13. Emergency contraception is most effective if taken in the first 24 hours, but can be taken up to 5 days after unprotected sex.  
    T  F  DK

If you were looking for emergency contraception today…

14. how sure are you that you would know where to get it?  
   1  2  3  4  5

15. how sure are you that you would be able to get it?  
   1  2  3  4  5

16. how easy would it be to get it?  
   1  2  3  4  5

17. If you were in a situation where EC would reduce your risk of an unintended pregnancy (e.g., you had unprotected sex), how likely would you be to use emergency contraception?
   a. Extremely Unlikely
   b. Very Unlikely
   c. Somewhat Unlikely
   d. Neutral
   e. Somewhat Likely
   f. Very Unlikely
   g. Extremely Likely

18. How many times have you ever used emergency contraception?  
   a. 0 (Never)
   b. 1 time
   c. 2 times
   d. 3 or more times
REFERENCES


