

RESEARCH

Emergency contraception: Knowledge and perceptions in a university population

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Abstract

Purpose: The purpose of this study was to examine knowledge, attitudes, and behaviors regarding emergency contraception (EC) in university men and women aged 18–21.

Data sources: Data sources included responses to a 25-item questionnaire and an 8-item demographic survey completed anonymously at a public site on campus. Ninety-seven university students participated in the study. Participants were asked to respond to questions relating to knowledge, attitudes, and behaviors regarding EC, perceived worthiness, objections, sources of information about EC, preferred birth-control method and usage, and perceptions of their personal risk of unintended pregnancy.

Conclusions: Many respondents considered unintended pregnancy to be a major problem and considered EC a worthy option in the event of method failure or unprotected intercourse. While most participants were aware that there was a postcoital method of contraception, confusion existed between EC and RU-486 (the abortion pill). Almost half (49.5%) believed that EC was the same as RU-486. There was an association between advanced prescription for EC and its likelihood of use. Most women would be significantly more likely to use EC if they had a prescription on hand. Of the women who were less likely to choose EC, 100% indicated they would feel embarrassed or judged when asking for it. Only 34% of those women who have had a gynecological exam in the past 12 months had discussed EC with their provider.

Implications for practice: Advanced practice nurses need to incorporate EC into preventive health counseling for both men and women. Providing women with an advanced prescription increases the likelihood that women will use EC.

Almost half of all pregnancies in the United States are unintended (Henshaw, 1998). While an unplanned or unintended pregnancy has far reaching psychological, physical, social, and financial ramifications for any woman, younger women are particularly vulnerable to the difficulties it creates. Emergency contraception (EC) is an effective means of preventing unintended pregnancies after unprotected intercourse or following contraceptive failure for all women. Prior research indicates that young adults at greatest risk of unplanned pregnancy underuti-

lize EC, and many women do not use EC because of confusion with the “abortion pill,” and embarrassment, guilt, or shame (Bell & Millward, 1999). The purpose of this study was to learn what men and women in a college population know and feel about EC.

Literature review

Emergency contraception, often referred to as “the morning after pill,” is a general term used to describe drugs

and devices that are utilized to prevent pregnancy following unprotected intercourse or in the event of contraceptive failure. This postcoital birth-control option is available by means of hormonal pills or copper-bearing intrauterine device (IUD). The IUD requires insertion into the uterus by a skilled provider, and not all women are candidates for this option due to history of infection, uterine anomaly, risk to fertility, and aversion to self-monitoring for the presence of the IUD string each month (Youngkin & Davis, 2004). While the copper IUD is an effective emergency contraceptive method (failure rate <1%), which provides a means of contraception for up to 10 years, Plan B[®] is much more widely used in the United States (Wertheimer, 2000).

Plan B[®], approved by the Food and Drug Administration in 1999, contains a high-dose progestin-only pill (levonorgestrel 0.75 mg). Plan B[®] is administered within 72 h of unprotected intercourse followed by a repeat dose in 12 h. EC acts to delay or inhibit ovulation and will not disrupt an implanted pregnancy (Wertheimer, 2000). Emergency contraceptive pills reduce the chance of pregnancy by 75%–89% (Task Force on Postovulatory Methods of Fertility Regulation, 1998).

Despite the availability and proven effectiveness of EC, it remains underutilized by the population at greatest risk of unintended pregnancy. Prior research indicates that knowledge regarding EC, availability of EC, and personal perceived risk of pregnancy are strongly associated with emergency contraceptive pill use. Researchers in Finland found that university students did not seek EC due to lack of awareness, misconceptions regarding timing of effectiveness, confusion with the “abortion pill,” and feelings of embarrassment, guilt, or shame (Bell & Millward, 1999). During their 1-year study, only 1.6% of female students requested EC. Eight hundred and eighty Nigerian college-age women were asked to participate in a study to evaluate knowledge of EC (Aziken, Okonta, & Adedapo, 2003). The majority (79%) of the women in this study were between the ages of 15 and 24. Of the 880 women surveyed, only 58% (510) had knowledge regarding a product that could be used after intercourse to prevent pregnancy, and only 18% of that group could correctly identify the time frame for effective use. The researchers concluded that this lack of information could potentially prevent women from seeking EC within the appropriate window of effectiveness.

In a qualitative study of 16- to 25-year old women in England, Free, Lee, and Ogden (2002) found that women who had a lower sense of vulnerability to pregnancy were less likely to use EC when they either used birth control incorrectly or failed to use a reliable birth-control method. Moreover, negative experiences with EC further contributed to limited use. For example, women perceived that providers were judgmental making them feel embarrassed

or ashamed when requesting EC, especially for a second time. The women in their study stated that their anxiety and fear of being stigmatized outweighed their perceived risk of pregnancy.

Most studies regarding knowledge and use of EC in the United States have been conducted in California where EC has been made available over the counter. Telephone interviews with 1151 males and females aged 15–44 revealed that there was much confusion regarding EC. While 81% of respondents had heard of EC, only 46% of that group understood that it was a postcoital method of birth control. Moreover, almost half of the women respondents confused EC with the “abortion pill or RU-486,” and 39% were unaware that EC was available in the United States (Kaiser Family Foundation [KFF], 2004). Most women in this study cited television as their primary source of information regarding EC, with only 1 in 10 women reporting that their physician had discussed EC with them.

Prescribing practices and provider attitudes regarding EC have a significant impact on availability and use. In a study of 595 gynecologists' and 195 general practitioners' prescribing practices over a 5-year period, only 25% of gynecologists and 14% of general practitioners included EC in their contraceptive counseling “always” or “most of the time” (KFF, 2003). Among the physicians in this study, 55% of gynecologists and 39% of general practitioners supported over-the-counter availability of EC.

Wallace, Wu, Weinstein, Gorenflo, and Fetters (2004) attempted to determine how knowledge and attitudes of healthcare providers regarding EC affect utilization of EC by surveying the practice patterns of 78 faculty, residents, and nurses in a university family medicine department. Overall, providers demonstrated positive attitudes, with only 16% reporting ethical or religious concerns. However, knowledge deficits were identified regarding accurate timing (63% correct), rate of efficacy (75% correct), and mode of action (i.e., not an abortifacient; 56% correct). Fifty-nine percent of participants stated that they would restrict the number of times they prescribed EC to a patient, due to fears of increased promiscuity or decreased routine use of other birth-control methods. Seventy-six percent responded that routine discussion of EC does not occur to them during preventive health exams, citing competing demands of primary care as a barrier. These findings further support the need for enhanced prescription patterns, routine discussion with patients, and correction of knowledge deficits among healthcare providers.

Other studies have sought to identify whether EC use would contribute to promiscuity or reduction in routine use of contraception. A randomized controlled trial studied EC use and routine birth-control methods among 370 postpartum women, comparing those who received

advanced prescription of EC with those who received usual care. Researchers found that advanced prescription of EC increases its use without an adverse effect on routine use of birth-control methods (Jackson, Schwarz, Freedman, & Darney, 2003). Likewise, in a controlled trial of 213 women aged 16–24 attending a publicly funded family planning clinic, Raine, Harper, Leon, and Darney (2000) evaluated knowledge and use of EC, frequency of unprotected intercourse, and pattern of routine contraceptive use. One group received an advanced prescription and education about EC, while the control group received solely EC education. In the control group (education only), participants who sought EC had to follow the routine channels of calling the appointment desk, seeing the provider, and obtaining a prescription to be filled at a pharmacy. The advanced prescription group was three times more likely to use EC than the education-only group, with no differences between groups in frequency of unprotected intercourse or consistency of condom use at the 4-month follow-up. However, the researchers could not explain why more women in the advanced prescription group had switched to less effective contraceptive methods during that same time period. Gold, Wolford, Smith, and Parker (2004) conducted a similar study in a randomized trial of women 15–20 years of age. The advanced prescription group was twice as likely to use EC and reported higher rates of condom use than the education-only group. There were no differences in unprotected intercourse rates or hormonal contraception use in either group at 1 and 6 months. Researchers speculated that having a prescription on hand made participants mindful of their risks and in “prevention mode.”

Unintended pregnancy can result from contraceptive method failure, inconsistent use of contraception, or lack of contraceptive method use. In a study of women having abortions in 2000–2001, only 46% reported that they had not used any form of contraception during the month in which they conceived (Jones, Dorrach, & Henshaw, 2002). Further, inconsistent use of contraception (49% of condom users and 76% of birth-control pill users) was the most commonly cited reason for method failure. Many women reported not using contraception because they did not feel that they were at high risk of pregnancy, and 32% failed to use contraception because they were concerned about potential side effects. Of the women who reported condom use as their primary method of birth control, condom breakage or slippage was cited as the reason for unintended pregnancy (Jones et al., 2002; Virgo & Virtala, 2003).

EC is an effective method of reducing the number of unintended pregnancies. However, without reliable sources of information about and easy access to EC, many women will not have the benefit of EC. Many gaps continue to exist in the current literature regarding knowledge,

attitudes, and behaviors regarding EC in reproductive-age men and women. Following the premises of the Health Belief Model (Eisen, Zellman, & McAllister, 1992), this study sought to identify knowledge and perceptions regarding EC by addressing (a) perceived risk of creating pregnancy, (b) perceived benefit of EC, (c) self-efficacy (as established by easy access and advance prescription), and (d) potential barriers to EC use (i.e., knowledge deficit, embarrassment, and moral objections). The authors assumed that reduction in these barriers would motivate young men and women to use EC, thereby reducing unintended pregnancy.

Methods

Study design

The purpose of this study was to explore what university men and women aged 18–21 know and feel about EC. The study used a descriptive, cross-sectional design utilizing a convenience sample of university students who were asked to complete the Emergency Contraception Survey and a Demographic Data Survey Instrument. Students were recruited as they entered the lobby area of the university library. The study was explained, and students could complete both questionnaires in about 15 min. Data collection tools contained no identifying information and therefore kept the individual responses anonymous.

Sample and setting

Following institutional review board approval, the study was conducted on a state university campus in a southern coastal city with a community population of approximately 75,000 and a student population of approximately 11,000. Of the 97 college students of ages between 18 and 21 who participated in the study, the majority (75.3%) were women, Caucasian (84.5%), and single (83.5%) (see Table 1). This percentage reflects the gender and the ethnic make-up of the university in which the study was conducted. While 4.1% of women reported previous pregnancies and 8.3% of men reported previous paternity, none of the respondents reported having any children. Twelve percent of the women had reported prior use of EC, while only 8.3% of men reported that their partner had previously taken EC. Similarly, 50.7% of women knew someone who had used EC, and 33.3% of men knew of someone who had previously used EC.

Measures

Demographic data survey instrument

The Demographic Data Survey Instrument (8 item) was used to collect information about age, sex, race, gender,

Table 1 Demographic information ($n = 97$)

Topic	<i>n</i>	%
Age		
18	21	21.6
19	18	18.6
20	24	24.7
21	34	35.1
Gender		
Male	24	24.7
Female	73	75.3
Race		
White	82	84.5
African American	4	4.1
Latino	2	2.1
Asian	2	2.1
Other	6	6.2
Don't know	1	1.0
Marital status		
Married	3	3.1
Living with partner	12	12.4
Never been married	81	83.5
Practicing religion		
Protestant	25	25.8
Catholic	16	16.5
Jewish	1	1.0
Christian	30	30.9
Other	3	3.1
No religious affiliation	12	12.4
No response	10	10.3

marital status, parity, residence, religion, and last gynecological exam. Demographics were used to ensure that a representative sample was obtained and to correlate findings from the results of the study.

Emergency contraception survey

The Emergency Contraception Survey is a 25-item, modified version of an instrument used by the KFF (2004). The original 23-item survey was previously used to examine knowledge about EC in 910 men and women aged 18–44 and 250 adolescents aged 15–17. Specific items examine awareness, knowledge, and perceptions of EC; sources of information; perceived ideas and personal risk of unintended pregnancy; objections to EC; preferred method of birth control and usage; and perceived worthiness of EC. Two additional items (preferred method of contraception and perceived risk of pregnancy) were added to the modified survey as prior literature indicates that these may be contributing factors to nonuse of EC.

Data analysis

Descriptive statistics were used to analyze the data received from the instruments. Frequency and summary statistics were calculated for all items. Some comparisons

were made between males and females about their knowledge, attitudes, and behaviors regarding EC. These differences used chi-square test of independence where appropriate with differences considered statistically significant when $p < .05$. Statistical Package for the Social Sciences (SPSS) software was used for all data analysis.

Results

Knowledge regarding EC

Most respondents (75.3%) believed that there was something a woman could do in the days following unprotected sex to prevent pregnancy (see Table 2). While 96% of participants had previously heard of EC or “morning after” pills and 71% could correctly identify that EC prevented pregnancy, 87.6% of the respondents did not

Table 2 Knowledge of EC ($n = 97$)

Topic	<i>n</i>	%
Aware of postcoital method to prevent pregnancy		
Yes	73	75.3
No	12	12.4
Not sure	7	7.2
Don't know	5	5.2
Heard of EC		
Yes	93	95.9
No	3	3.1
Don't know	1	1.0
Sources of information about EC		
Friends/relatives	32	33.8
Media	25	25.4
Class	16	16.2
Health department/planned parenthood	8	8.2
Other	5	5
Doctor/gynecologist	4	4
Preferred sources to obtain information about EC		
Doctor	40	40.8
Community/campus clinic	33	33.4
Internet	25	26.7
Planned parenthood	7	7
Library	3	3
Friend or relative	2	2
Availability in the United States		
Yes	80	82.5
No	2	2.1
Don't know	15	15.5
EC prevents pregnancy		
True	69	71.1
False	15	15.5
Don't know	13	13.4
EC same as RU-486		
True	37	38.1
False	12	12.4
Don't know	48	49.5

differentiate between EC and RU-486. Many (37.1%) reported first hearing about EC 2–3 years prior to the study. The primary source of information regarding EC was reported to be friends and relatives by almost 35% of participants, with only 4% listing their physician as their primary source of information. Interestingly, when asked where they would go to seek accurate information about EC, most indicated that they would seek care from their doctor (40.8%) or community health clinic (33.4%). The majority (82.5%) of respondents were aware that EC is available in the United States.

Attitudes and beliefs regarding EC

More than half of respondents (67%) considered unintended pregnancy to be a major problem (see Table 3). While 78% of respondents reported active religious affiliation, the majority of the total respondents (68%) stated that they did not have religious or moral objections to EC. When asked about their perceived personal risk of pregnancy, 66% felt that they were at moderate to high risk of pregnancy if engaging in sexual intercourse without contraception. Seventy-three percent of participants who reported a moderate to high risk of pregnancy believed it worthy to obtain EC to prevent pregnancy. Of those

respondents who reported that they would be willing to use EC, 44% reported that they would not be embarrassed to obtain EC, 29.9% stated that they would feel embarrassed, and 13.4% did not know. However, all of those women who reported that they would “not likely” choose EC indicated that they would feel embarrassed or judged when asking for it ($\chi^2 = 55.21$, $df = 15$, $p = .000$).

Behaviors related to EC

Only 17.5% of respondents have previously discussed EC with their healthcare provider, and 12.2% of respondents had previously taken EC (see Table 4). About half (45%) of respondents knew someone who has used EC in the past. Three fourths (78.4%) of our sample reported prior sexual intercourse, with 56.7% using a birth-control method all of the time. Primary methods of birth control were the pill (40.2%), male condom (19.6%), abstinence (15.5%), withdrawal (7.2%), the patch (4.1%), injection (3.1%), and other (2.1%). Over half (67.1%) of the women surveyed indicated that they would be likely to use EC in the event of contraceptive failure. Of those women who were “very likely” to use EC, the majority (92.1%) reported an increased likelihood of use if they already had a prescription at home ($\chi^2 = 62.15$, $df = 15$, $p = .000$). Interestingly, of the women who were “very unlikely” to use EC, 20% reported an increased likelihood if they had an advanced prescription. Fewer than half (46%) of the men surveyed reported that they would be “very likely” or “somewhat likely” to recommend EC to their partner in the event of contraceptive failure.

Table 3 Attitudes and beliefs regarding EC ($n = 97$)

Topic	<i>n</i>	%
Religious or moral objections to EC		
Yes	25	25.8
No	66	68
Don't know	4	4.1
No response	2	2.1
Chance of pregnancy with unprotected sex		
High chance	31	32
Moderate chance	33	34
Low chance	12	12.4
Don't know	4	4.1
Skip	3	3.1
No response	14	14.4
Risk of pregnancy is low enough that it is not worth it to obtain EC		
Agree	7	7.2
Disagree	71	73.2
Don't know	9	9.3
Skip	3	3.1
No response	7	7.2
Would feel embarrassed or judged when obtaining EC		
Yes	29	29.9
No	43	44.3
Don't know	13	13.4
Skip	4	4.1
No response	8	8.2

Table 4 Behaviors regarding EC ($n = 97$)

Topic	<i>n</i>	%
Discussed EC with a doctor or other healthcare professional		
Yes	17	17.5
No	80	82.5
Used EC pills in the past		
Yes	12	12.4
No	83	85.6
Don't know	2	2.1
Know anyone who has ever used EC		
Yes	45	46.4
No	46	47.4
Don't know	6	6.2
Frequency of contraceptive usage		
Never	7	7.2
Sometimes	3	3.1
Most of the time	9	9.3
All of the time	55	56.7
Have not had sex	16	16.5
Skip	5	5.2
No response	2	2.1

Gender differences in response

While there were some differences in response between the male and female participants, most were not significant at the $p < .05$ level (see Table 5). The majority of both men (78.3%) and women (79.5%) reported having previous sexual intercourse. Sixty-three percent of women and 41.7% of men reported using contraception “all of the time” with sexual intercourse. Almost half (49.3%) of women preferred oral contraceptive pills as their primary method of contraception, with 45.8% of men citing condoms as their preferred method of contraception. More than half of the women knew someone who had previously taken EC, while 33.3% of men reported knowing someone who had previously taken EC. When asked about personal history with EC use, 13.7% of women and 8.3% of men stated that either they or their partner had previously taken EC. Although all 24 men in the study had heard of EC, none of them reported that they had ever discussed EC with a healthcare provider. When asked about the likelihood of EC use in the event of having sex without contraception, or if they thought their regular birth control may have failed, 46.1% of men and 67.2% of women reported that they would be either “very likely” or “somewhat likely” to seek emergency contraceptive pills. Male respondents were less likely to perceive embarrassment in asking for EC than female respondents.

Discussion

The researchers initially anticipated that university students would not be familiar with EC. Surprisingly, most participants in the study had heard of EC and were aware that it is available in the United States. Moreover, the majority could accurately identify that EC could be used in the days following unprotected intercourse or contraceptive failure to prevent pregnancy. However, 38.1% believed that EC was the same as RU-486, and another 49.5% did not know if EC was the same as “the abortion

pill.” This apparent confusion as to mechanism of action of EC is consistent with findings from prior studies (Bell & Millward, 1999; KFF, 2004).

Similar to the findings of KFF (2004), most students cited friends, relatives, and the media as their primary sources of information regarding EC, but most of the respondents would actually seek information from their healthcare provider or clinic in the event of actual contraceptive failure. Many students knew of someone who had previously used EC, and approximately 12% had a personal history of EC use. Although the majority of the women in this study reported having a gynecologic examination within the previous year, less than one third of them had discussed EC with their healthcare provider. None of the male respondents had ever discussed EC with a healthcare provider. Previous studies have demonstrated this same lack of education regarding EC in preventive health visits and contraceptive counseling (KFF, 2003, 2004; Wallace et al., 2004). While students in this study were somewhat knowledgeable about EC, inaccuracies regarding EC may present a barrier to use for some patients. Similarly, negative media messages about EC and RU-486 may contribute to decreased use among the population at greatest risk of unplanned pregnancy.

While overall participants stated no religious or moral objections to EC, 90% of those women who were “very unlikely” to use EC stated that they had moral or religious objections to its use. Fifty-eight percent of those students ($n = 11$) who denied previous sexual intercourse reported that they had religious objections to emergency contraceptive use. From this study, we cannot determine if respondents objected solely to EC or if their religious beliefs extended to overall sexual behavior and responsibility. With a proportion of our sample confusing EC with RU-486, we were unable to determine if moral or religious objections were attributed specifically to EC.

Further, all of the women who reported that they were unlikely to use EC stated that they would feel embarrassed

Table 5 Gender differences in response

Topic	Male ($n = 24$)	Female ($n = 73$)	χ^2 (df)	p
History of sexual intercourse	78.3%	79.5%	3.26 (2)	.195
Consider unplanned pregnancy major problem	58.3%	69.9%	1.48 (2)	.475
Knew that EC is available in the United States	75.0%	84.9%	2.74 (2)	.253
Knowledge of someone who used EC	33.3%	50.7%	3.53 (2)	.171
Discussed EC with healthcare provider	0%	23.3%	6.77 (1)	.009*
Taken or partner taken EC	8.3%	13.7%	6.52 (2)	.038*
Heard of EC	100%	94.5%	1.37 (2)	.504
Embarrassed asking for EC				
Yes	16.7%	38.5%	14.65(3)	.002*
No	41.7%	50.8%		

or judged when asking for it. This finding is consistent with that of other authors (Bell & Millward, 1999; Free et al., 2002) who have previously reported that women felt providers could be judgmental when they sought EC especially for the second time and that their fear of stigmatization outweighed their perceived risk of pregnancy. Fear of being judged or stigmatized may prevent women from seeking EC.

Similar to the findings of previous research (Jackson et al., 2003; Raine et al., 2000), the researchers determined that having advanced prescriptions would increase the likelihood of use. Of the women very likely to use EC, the majority (92.1%) reported an increased likelihood of use if they had an advanced prescription. This is a significant finding for advanced practice nurses in the primary care setting.

While a majority (78.4%) of the respondents reported previous sexual activity, more than half (56.7%) reported using contraception all of the time. However, there was no strong association between gender and consistency of contraceptive use. Interestingly, women favored oral contraceptive pills and men favored condoms as their primary method of contraception. It appears that both men and women in this study had a preference for a contraceptive method that they could control. For males, these findings are consistent with a cohort study conducted between 1988 and 1995 examining condom-use patterns. The analysis showed that consistent condom use among young sexually active males increased between these years. This finding indicates that young men are increasingly taking precautions to avoid unintended pregnancy and sexually transmitted infections (Murphy & Boggess, 1998). Concern for contraceptive responsibility seemed to be high in this sample, which is not surprising since 67% thought that unintended pregnancy was a major problem in the United States. More than two thirds of the sample (73.2%) believed that it would be worth obtaining EC in the event of unprotected intercourse or contraceptive failure. However, while all of the male respondents had heard of EC, less than half stated that they would recommend it to their partners.

Limitations

Limitations of the study include compromised generalizability due to convenience sampling, as the knowledge and perceptions of the university population surveyed may not be representative of the general community. Due to the sensitive nature of this topic, participant honesty and disclosure may be limiting factors in the information obtained. Given the opportunity for future studies, the authors would ask about knowledge of timing of effectiveness, as this reflects the accuracy of use and the misperceptions that may be implied by the term *morning*

after pill. Finally, the Emergency Contraception Survey may not be sensitive enough to capture the full array of reasons that one might choose not to seek EC.

Implications for practice

Implications for advance practice nurses include EC information and adequate contraceptive counseling for young adults. Findings indicate areas of embarrassment in regard to obtaining EC, and confusion with the abortion pill, RU-486. These present significant barriers to the use of EC. Other findings include lack of discussion of EC with healthcare providers. Research has shown that advanced prescription, along with education, provides better outcomes in reducing unprotected intercourse and unintended pregnancy than either advanced prescription or education alone (Gold et al., 2004; Jackson et al., 2003; Raine et al., 2000). Nurse practitioners should routinely screen for risk of pregnancy and integrate comprehensive contraceptive counseling utilizing a nonjudgmental attitude into health encounters for all males and females. Findings from this study could provide the foundation for development of a brief teaching program about EC to be used in clinical settings.

Conclusions

Women who were more likely to use EC (a) perceived themselves to be at risk of unplanned pregnancy, (b) felt that EC was a worthy alternative to unplanned pregnancy, (c) did not anticipate embarrassment when asking for EC, and (d) had an advanced prescription. Overall, the participants in this study had a favorable impression of EC; however, reported practice patterns of primary healthcare providers demonstrated inadequate contraceptive counseling to sexually active adults, limiting the access to comprehensive methods of preventing unplanned pregnancy.

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