Emergency Contraception and Abortion among University Students

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Abstract

Purpose: Women under age 25 have the highest rates of unintended pregnancies, emergency contraception (EC), and abortion. EC has not shown to prevent unintended pregnancies; yet some advocate for more availability. This study examined EC use and abortion among university students.

Methods: This was a descriptive, international study. Demographic and reproductive data were collected on university students; (1) those that had an abortion and (2) those who did not. Chi-Squared and Fisher Exact Testing were used.

Results: The sample included 151 students, including 89 who had an abortion. Significant differences were found between the abortion group and the no abortion group in: contraceptive use (88% vs. 69%, p < 0.020), emergency contraceptive use (73% vs. 29% p < 0.001), and frequency of emergency contraceptive use (62% vs. 27%, p < 0.001). Over 10% of the abortion group used EC from 4-6 times as opposed to 1.6% of those who were never pregnant.

Discussion: The abortion group used EC more than the no abortion group, suggesting EC did not prevent pregnancy. We recommend to evaluate for: (1) for EC use, side effects, (2) high risk sexual behavior, (3) self-destructive tendencies, and promote healthy, self-protection and positive self-image measures.

Introduction

In the United States, young women between the ages of 18-24 are at the highest risk for unintended pregnancies [1], with a reported incidence of 60-80% of unintended pregnancies [2].

To reduce this incidence in the United States, in 1999, the FDA approved the availability of “Plan B,” a type of Emergency Contraception (EC). Plan B is a progestin-based EC drug, as opposed to a combination of progestin and estrogen, and the only FDA-approved method. In 2006, Plan B became available as an over-the-counter drug for persons at least 18 years of age.

In order to disrupt an unplanned pregnancy, Plan B must be administered within 72 hours after unprotected sex (UPS), and a repeat dose administered within the following 12 hours. When used correctly, Plan B’s mechanism of action inhibits the ovulation of a fertilized ovum, thus preventing implantation, and is 75% to 89% effective [3,4].

However, Plan B is frequently used incorrectly and is abused, especially among adolescent populations, who have been found to be the highest repeat users of all types of EC.

The American Academy of Paediatrics (AAP) reports that there is no evidence that greater access to EC reduces the rate of unplanned pregnancies [5,6]. Further, the American College of Paediatricians [7] issued a statement warning against making Plan B available without a prescription or filling a prescription for an EC, citing an increase in medical risks. Instead, they promote delayed sexual activity and improving communication between parents and their adolescents.

Background

Few data were found on this highly controversial and popular topic. Three review articles and six descriptive studies were found. Of these, most identified that EC use has been associated with a high potential for misuse, abuse, and high-risk sexual behaviour, resulting in adverse health outcomes, especially among younger populations. Yet surprisingly and despite these results, many authors recommended that EC be made more accessible, be made available OTC, and education be increased for providers and consumers. Sakar reviewed the literature to examine the safety and effectiveness of EC and included evidence from randomized controlled trials conducted from 2000-2006 [8]. The authors found that adolescents were most likely to use EC and that increased access to EC would result in an increase in abuse and misuse of EC. Despite these concerns, they recommended EC be provided OTC, along with sufficient educational interventions regarding its use. Similarly, Gavin et al. reviewed surveillance studies of reproductive health for a population of 10-24 year olds and found younger persons engaged in high-risk sexual behaviour, with adverse health outcomes as a result [9].

Several descriptive studies on women from the United States explored younger women’s and men’s knowledge, perceptions, and attitudes of EC. In a study of 133 females attending college in the United States, Hickey found that 28% reported using EC, and of these, 15% reported a prior unintended pregnancy [10]. Hickey found a significant incidence of misunderstanding in the availability, correct use, and side effects of EC. Moreover, 40% of participants were unable to differentiate EC from the RU-486 abortion pill. Similarly, Calabretti surveyed 609 female university students and concluded that they had
limited knowledge on the use [11], side effects, and accessibility of EC, yet 89% reported that providers inform women about EC [12].

Surprisingly, Hickey’s findings on the misunderstanding of EC were similar to results of earlier studies on international samples, which suggest that little progress in education has been made despite increased effort and access to EC. For example, Sundby et al. studied 100 women in Norway and found that most lacked knowledge of the use and side effects of EC [13]. Similarly, Tyden studied 762 women in Sweden who requested EC and found that 83% were younger women, 13% had had a previous abortion, and 20% had used EC multiple times [14]. The author noted a need for healthcare providers to provide information on EC. Schriebe interviewed 34 young women in the United Kingdom and found that some were not well-informed on EC [15], and that women of a higher socio-economic status cited more favorable outcomes with EC than those of a lower socio-economic status.

Examining routine contraceptive use, Oringanje et al. analyzed 41 randomized controlled trials on persons 10-19 years of age and found that combined interventions of education and contraception showed a decrease in unplanned pregnancies within this age group [16]. However, the authors noted that secondary outcomes of associated with contraceptive use such as sexually transmitted diseases, abortions, and high risk sexual behavior were a potential problem and not determined in the study.

The purpose of this study was to examine the use of contraception and emergency contraception among an international group of university students, including those who had experienced a previous abortion and those who had never been pregnant.

Methods

This current study was descriptive and used a cross-sectional design. Students were recruited into two groups: 1) students who reported a previous unintended pregnancy and abortion and 2) Students who reported no previous pregnancy or abortion.

Sample

Students were recruited from two university student health centers within the United States and Canada. Inclusion criteria were: 1) enrollment in a participating university, 2) single status, 3) no reported live births, 4) English speaking, 5) willing to complete data on health and reproductive health, 6) no active suicidal or self-injurious behavior, substance use, psychosis, other condition which would prohibit full participation in the study, and 7) had either (a) experienced a previous abortion, or (b) had never been pregnant, nor suspected ever being pregnant. Participants were recruited via posted bulletins on campus, the campus newspaper, e-classified advertisements, and Student Health Services provider referrals.

The Principal Investigator (PI) was a psychiatric nurse practitioner and primary author (Curley).

Interested participants contacted the PI directly via phone or email in order to ensure confidentiality. The PI then screened for eligibility and set up appointments for individual interviews to enroll in the study.

Instruments

Demographic, general health, and reproductive data were obtained from paper and pencil surveys. The PI conducted individual, face-to-face interviews in order to screen for eligibility, review study protocol, obtain informed consent, and administer instruments. Brief interviews were conducted in confidential, private offices in either of the two university Student Health Services Clinics. The PI reviewed completed surveys for any missing data, and screened for the need for additional referrals. The PI corroborated data from the survey with data from the interview for reliability.

Research questions included: 1) what is the incidence of contraceptive use among university students? 2) what is the incidence of EC use among university students? 3) what is the frequency of EC use among university? 4) is there a difference in EC use among those who have had a previous abortion as compared to those who have never been pregnant? 5) among those who have had an abortion, is there a reduced use of EC? 6) among those who have never been pregnant, is there an increased use of EC? 7) among those who have had an abortion, is there a difference in EC use among those who have had a single abortion compared to those who have had more than one abortion?

Statistical analysis

Chi-squared or Fisher exact testing were used to examine the relationship between two categorical variables. The level of significance was set at 0.05. The Statistical Packages for the Social Sciences Version 17.0 was used to conduct analyses.

Results

Contraceptive use

Incidence of contraceptive use: This sample found that the majority of university students (n=121; 80%) used contraceptives on a regular or sometime basis while approximately 20% (n=30) used no contraceptives. However, significant differences were found in contraceptive use among students who had experienced an abortion as compared to students who had never been pregnant (p < 0.020), with a surprising higher use of contraceptive among those who had experienced an abortion. For example, among those who had experienced an abortion, 88% (n=78) reported using contraceptives, while 12% (n=11) reported no use of contraceptives. In contrast, among those who had never been pregnant, 69% (n=43) reported using contraceptives, while 30% (n=19) reported no use of contraceptives (Table 1).

<table>
<thead>
<tr>
<th>Contraceptive Use</th>
<th>Experienced Abortion % (n)</th>
<th>Did Not Experience Abortion % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>12.4% (11)</td>
<td>30.6% (19)</td>
</tr>
<tr>
<td>Sometimes</td>
<td>7.9% (7)</td>
<td>4.8% (3)</td>
</tr>
<tr>
<td>Yes</td>
<td>79.8% (71)</td>
<td>64.5% (40)</td>
</tr>
</tbody>
</table>

Table 1: Incidence of contraceptive use among university students.
Emergency contraceptive use (EC)

Incidence of EC use: In addition to contraceptive use, we also found that of the 151 students, 55% (n=83) reported EC use. Compared to the rates of contraceptive use, there were even further significant differences in EC use among students who had had an abortion and those who had never been pregnant (Fisher's Exact Test p < 0.001). For example, 73% (n=65) of students who had experienced an abortion had used EC. In contrast, only 29% of those who had never been pregnant had used EC, indicating a more than two-fold increase of EC use among those who had experienced an abortion as compared to those who had not (Table 2) and (Table 3).

<table>
<thead>
<tr>
<th>Emergency Contraception</th>
<th>Experienced Abortion % (n)</th>
<th>Did Not Experience Abortion % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>27.0% (24)</td>
<td>71.0% (44)</td>
</tr>
<tr>
<td>Yes</td>
<td>73.0% (65)</td>
<td>29.0% (18)</td>
</tr>
<tr>
<td>Total</td>
<td>100.0% (89)</td>
<td>100.0% (62)</td>
</tr>
</tbody>
</table>

Table 2: Incidence of emergency contraceptive use among university students.

<table>
<thead>
<tr>
<th>Frequency of EC Use</th>
<th>Experienced Abortion % (n)</th>
<th>Did Not Experience Abortion % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>27.0% (24)</td>
<td>71.0% (44)</td>
</tr>
<tr>
<td>1-3 times</td>
<td>61.8% (55)</td>
<td>27.4% (17)</td>
</tr>
<tr>
<td>times</td>
<td>7.9% (7)</td>
<td>0.0% (0)</td>
</tr>
<tr>
<td>&gt;6 times</td>
<td>3.4% (3)</td>
<td>1.6% (1)</td>
</tr>
</tbody>
</table>

Table 3: Frequency of emergency contraceptive use among university students.

Discussion

- Surprisingly, this study showed that students who had had an abortion had a significantly higher use of both contraceptives and EC as compared to students who had never been pregnant. These results are paradoxical, as one would expect the opposite findings: those students who had experienced an abortion would have reported a lower incidence of contraceptive use and EC use when compared to never pregnant controls, suggesting that the pregnancy was the result of a lack of contraceptive protection, either routine or emergency. Rather, these findings indicate that for a university population, more contraception use and EC use did not appear to protect against pregnancy.
- This trend was supported among those who had never been pregnant, as well. We found that the incidence of contraceptive use was lower among those who had never been pregnant, not higher, than those who became pregnant and had an abortion.
- Remarkably, and in contrast to conventional understanding, our results show that less contraception does not appear to be associated with a higher incidence of abortion. Similarly, more contraception did not appear to be protective against incurring a pregnancy.
- Since this study did not obtain data on the sequence of EC use either prior to or after abortion, the precise impact of EC use in preventing the target pregnancy and abortion cannot be determined. However, several potential pathways are conceivable and help explain these results.

First, among those who had had an abortion, EC may have been used prior to the target pregnancy and abortion. In such cases, EC would be used in circumstances of unprotected sexual intercourse, contraceptive failure, or for some form of pregnancy prevention. EC may have been used too late after conception, incorrectly used, or was ineffective. Nevertheless, for those who had had an abortion, 80% used EC either once or multiple times prior to the pregnancy, which did not appear to prevent the incidence of a subsequent unwanted pregnancy or abortion.

Alternatively, EC may have been used after the target pregnancy and abortion as a means to prevent future pregnancies. In this case, and ideally, the experience of an unwanted pregnancy has the potential to act as a deterrent against future high-risk sexual behaviours by promoting more responsible sexual behaviour. Indeed, 27% of those who had experienced an abortion had never used EC and may have fallen into this category. However, among most that had experienced an abortion, almost 80% used EC, even if after the target pregnancy, suggesting that the target pregnancy and abortion had little impact on changing behaviour.

Additionally, engaging in high-risk sexual behaviours after abortion has been associated with adverse psychological responses to abortion. This type of sexual behaviour contributes to a high incidence of repetitive pregnancies and abortions (up to 40%), especially within this population.

A third possible pathway is that EC was used both before and after the target pregnancy and abortion, and that the use of EC had little to no effect on the target pregnancy.

A fourth pathway would suggest that the use of EC may have prevented further potential unwanted pregnancies and abortions that did not come to term. However, for those who had an abortion, the higher rate of EC use, the increased frequency of EC use, and increased
abuse of EC of up to 4-6 times as compared to those who were never pregnant does not lend support to this explanation.

A fifth possible pathway would suggest that there were differences in the level of sexual activity between groups. In this case, participants who did not experience an abortion may have been disproportionately less sexually active as compared to those who had an abortion. While use of contraception was essentially equivalent in both groups (88% v. 70%) the degree of sexual activity may be unequal. Participants who had an abortion may have been more sexually active than participants who did not have an abortion, and subsequently at an increased risk for unintended pregnancy and abortion.

**Limitations**

The study had several limitations which may have influenced the results. Self-report of survey data may have over-estimated or underestimated the frequency of contraceptive use, and emergency contraceptive use. There may have been selection bias resulting in unaccounted for differences in groups.

**Conclusion**

Our results add to a growing body of evidence that the high incidence of contraceptive use, EC use, and EC abuse within a university population presents a troublesome cycle involving multiple risks. These include: 1) irresponsible sexual behaviour leading to STDs, unwanted and repetitive pregnancies, and abortions, 2) unnecessary medical risks associated with the abuse of EC, resulting in hormonal and endocrine dysregulation, and 3) psychological risks for adverse mental health outcomes. This is especially the case when students in this study sought real solutions to prevent further unwanted pregnancies after an abortion and reported dissatisfaction with the treatment. In contrast to the current standard of promoting and prescribing more emergency contraception after pregnancy and abortion, which the evidence has shown to be ineffective, women students need genuine health promotion as an alternative [17].

Moreover, this study showed significant differences in EC use between those who had an abortion and those who did not. Those who had an abortion reflected a higher use and abuse of EC as compared to those who were never pregnant. These findings suggest that the availability of EC among a university population may not contribute to preventing or lowering the incidence of unintended pregnancies as much as was previously thought, but in fact may inadvertently be adding to it.

**Implications for practice**

Health promotion both prior to and after an unintended pregnancy would include providers changing current practices to include the following: 1) identify current and actual contraceptive and EC use, 2) assess for and educate on the consequences, side effects, and contraindications of EC use and abuse based on evidence, 3) assess for and counsel against high-risk behaviours, which tend to be symptomatic of deeper unmet psychological needs, as opposed to normative behaviour, and tend to leave young women feeling confused and unfulfilled, 4) evaluate for adverse mental health outcomes which may both precede and result from indiscriminate sexual behaviour, 5) investigate and treat other risk factors associated with unwanted pregnancy, abortion, and high-risk sex such as alcohol abuse, drug abuse, intimate partner violence, etc., 6) counsel to enhance protective factors by promoting self-worth, self-protection, optimal physical and emotional health, and meaningful relationships, and 7) educate toward abstinence from early and irresponsible sexual intercourse, alternatives to abortion, and fertility awareness as an investment in future wanted pregnancies.

**References**