

## Knowledge of Emergency Contraception among College Students in Zanjan, Iran

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ARTICLE INFO	ABSTRACT
<i>Article type:</i> Original article	<b>Background &amp; aim:</b> Avoiding unintended pregnancy is an important issue among college students. Emergency contraception is considered as a practical method to prevent pregnancy after unprotected sex. This study was conducted to measure the knowledge of college students regarding emergency contraception in Zanjan, Iran.
<i>Article History:</i> Received: 10-May-2017 Accepted: 09-Des-2017	<b>Methods:</b> This cross-sectional study was conducted among 911 college students, who were studying humanity, engineering, and experimental sciences in Zanjan, Iran, during 2011 to 2012. The subjects were selected using stratified random sampling method, and the data were collected by a questionnaire developed by the researcher. The level of knowledge was considered as low, moderate, and high. Data analysis was performed using Chi-square test in SPSS software, version 16.
<i>Key words:</i> Emergency contraception Knowledge College Students	<b>Results:</b> According to the results, 78 (8.6%), 279 (30.9%), and 545 (60.4%) of the students had high, moderate, and low levels of knowledge about emergency contraception, respectively. Additionally, 524 individuals (58.28%) had heard about emergency contraception so far. Furthermore, 256 (28.6%) students knew about combined oral contraceptive pills, and 64 (7.2%) of them knew about intrauterine device with copper as an emergency contraception. There was a significant relationship between marital status and the level of knowledge ( $P=0.01$ ). <b>Conclusion:</b> The results showed that the students had inadequate knowledge about the methods of emergency contraception. Conducting educational programs and making students aware through the media may be helpful for increasing their level of knowledge.

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### Introduction

Unintended pregnancy is an important issue among young adults in some countries and is one of the leading causes of morbidity and mortality in women (1). Abortion might be carried out in unsafe conditions, and it is too expensive or even unavailable in many countries (2). The knowledge of methods of contraception, particularly emergency contraception (EC) could affect the rate of unintended pregnancy (3).

It is reported that the common use of EC could potentially prevent annually 1.7 million of unintended pregnancies and 0.8 million of abortions in the USA in addition to about 51 million abortions worldwide (4). Therefore, EC is considered as a practical method for the prevention of pregnancy after unprotected sexual intercourse, contraceptive method failure, and incorrect use of other methods (5).

Currently, several methods of EC are

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available including combined oral contraceptive pills, progestin-only pills (levonorgestrel 0.75 mg), and danazol that are effective within 72 hours after unprotected sex, while intrauterine device with copper (Cu-IUDs) and mifepristone (RU486) could be used up to 5 days after unprotected sex (6). The current failure rate of a single dose of levonorgestrel is between 0.2% and 3.0%, while it is about 0.3% and 8% for combined oral contraceptives in the first year of perfect and typical use, respectively.

As for intrauterine devices, pregnancy rates were reported to be between 0.1% and 2.2% for up to 12 years of exposure (5, 7). Fortunately, access to EC is cheap, easy to use, and the majority of women accept it well (8). In spite of its effectiveness and safety, its usage remains very low (96-8%) even in the USA and England, where EC is easily available (9, 10). This may be due to the lack of adequate knowledge in healthcare providers and a low level of knowledge in women (4, 11).

In a study conducted in Iran, increasing the level of knowledge about using an IUD as an EC led to 57% reduction in unintended pregnancy rate (12). Studies regarding the knowledge of EC in different cultures and societies, especially university students are useful and necessary. The awareness of university students about EC was investigated in a few studies in Muslim countries (13). In Iran, premarital sex is not common due to religious values, and the marriage rate is high among young adults. Therefore, they are high risk for unintended pregnancy. Studies about EC were mostly conducted among health staff or in women who were referred to healthcare centers in Iran (14, 15). There is a lack of data concerning students' knowledge of EC in Iran. The aim of this study was to determine the level of knowledge about EC among college students.

## Materials and Methods

This cross-sectional study was conducted in Islamic Azad University, Branch of Zanjan, Iran, during 2011 to 2012. Sample size was calculated to be 896 individuals considering the results of a similar study conducted by Puri et al. in India ( $P=0.7$ ,  $q=0.3$ , and  $Z_{1-\alpha}= 1.96$ ) (16). Ultimately, 911 students were enrolled using stratified

random sampling method considering 10% sample attrition.

To estimate the ratio of the samples of each study courses, potential participants were listed based on inclusion criteria in each group. We multiplied the proportion of total students in each study course by the total sample size and divided the results by the total number of students in all courses. The students aged between 18 and 40 years old, who studied humanity, engineering, and experimental sciences were included in this study after obtaining an informed consent.

The study was approved by the Ethical Committee of Zanjan University of Medical Sciences, Zanjan, Iran, under the approval No. 1389-510-07. Data were collected using a questionnaire developed by the researcher including demographic characteristics (6 questions) and the level of knowledge about EC (14 questions). The questionnaire was constructed to evaluate the level of knowledge about EC among the students based on the review of literature and similar previous studies (3, 11, 13-15). The validity of the questionnaire was tested on 50 students and its reliability was  $\alpha=0.76$  measured by Cronbach's alpha. According to the literature,  $\alpha=0.7$  was considered as acceptable correlation coefficient.

The content validity was approved using expert panel opinions. The goals of the study were explained to the students, and they were ensured of confidentiality regarding their personal information. The questionnaire was provided to the students in their classrooms, and the students completed it in 10 to 15 minutes. The study instrument was comprised of multiple choice or "yes/no" questions.

Two, three, one, two, three, one, and two items were related to awareness and access to information about EC (hormonal and non-hormonal), to the level of knowledge about EC indications and contraindications, timeframe of use, availability and willingness to use, side effects, effectiveness of EC, and mechanism of protection, respectively. Each correct answer was given a "1" mark. The total scores of less than 3, 4 to 6, and more than 7 were considered as low, moderate, and high level of knowledge about EC. Data analysis was performed using

descriptive statistics and Chi-squared test in 95% coefficient level by SPSS software, version 16. In all the measurements, P-value less than 0.05 was considered statistically significant.

## Results

The mean age of the participants was 23.04±2.29 years old. Regarding the information provided in Table 1, most of the participants were female, single, living in a dormitory, and studying humanity. There was a significant relationship between marital status and the level of knowledge about EC (P=0.01). However, no significant association was found between the knowledge of EC and age, educational level, gender, residence, and field of study (P>0/05; Table 1).

Considering the results, 78 (8.6%) students had high level of knowledge, while 279 (30.9%) and 545 (60.4%) of them had moderate and low levels of knowledge about EC. Furthermore, 524 (58.28%) participants had heard about EC. On

the other hand, 256 (28.6%) and 64 (7.2%) students knew that combined oral contraceptive pills and Cu-IUDs could be used as a method of EC, respectively.

Among students who had heard of EC, 235 (26.3%) subjects knew that combined oral contraceptive pills should be taken within 72 hours after unprotected sexual intercourse, and 32 (3.6%) of them were aware that Cu-IUDs could be used up to 5 days after unprotected sex. Moreover, 337 individuals (37.6%) knew that this method was used after unprotected sexual intercourse, and 284 (31.7%) were aware of its use in situations such as contraceptive method failures or incorrect use of other contraception techniques. The number of students that were aware of the adverse effects and contraindications of these methods was 167 (18.7%) and 92 (10.3%), respectively. In addition, 238 (26.7%) of them answered that EC is very effective, while 170 (19.0%) students thought that it may cause an abortion.

**Table 1.** Demographic characteristics of Zanjan Islamic Azad University students and their relationship with the level of knowledge about emergency contraception (n=911)

Characteristics	N (%)	Knowledge N (%)			P-value *
		High	moderate	Low	
<b>Educational level</b>					
Associate degree	98 (10.9)	9 (9.2)	28 (28.6)	61 (62.2)	0.92
Bachelor	787 (87.5)	67 (8.6)	224 (31.4)	467 (60.0)	
Master	14 (1.6)	2 (14.3)	4 (28.6)	8 (57.1)	
<b>Age (year)</b>					
18-25	796 (90.6)	71 (9.0)	244 (31.0)	473 (60.0)	0.62
26-40	83 (9.4)	5 (6.0)	28 (33.7)	50 (60.2)	
<b>Gender</b>					
Male	316 (34.9)	21(6.6)	103 (32.6)	192 (60.8)	0.24
Female	589 (65.1)	57 (9.8)	175 (30.2)	348 (60.0)	
<b>Marital status</b>					
Divorced	18 (2.1)	3 (16.7)	7 (38.9)	8 (44.4)	0.01
Single	745 (84.9)	56 (7.6)	217 (29.5)	468 (62.9)	
Married	132 (15.1)	16 (14.0)	43 (37.7)	55 (48.2)	
<b>Residence</b>					
With parents	159 (17.9)	14 (8.9)	51 (32.5)	92 (58.6)	0.56
Student dormitory	598 (67.3)	53 (9.0)	187 (31.6)	352 (59.5)	
Personal home	131 (14.8)	9 (6.9)	34 (26.0)	88 (67.2)	
<b>Study Field</b>					
Humanity	445 (50.7)	39 (8.8)	128 (28.8)	277 (62.4)	0.41
Engineering	296 (33.7)	22 (7.6)	91 (31.5)	176 (60.9)	
Experimental sciences	137 (15.6)	13 (9.6)	50 (36.8)	73 (53.7)	

\* Chi-squared test

The main sources of information on EC among participants were friends (64.5%). The

majority of subjects (79.3%) were interested to increase their information about EC, and 40.8%

of them were willing to use these methods in the future.

## Discussion

According to the results of the present study, most of the students had low levels of knowledge about EC. Although more than half of the students had heard about EC, only 8.6% had a high level of knowledge. This result was in agreement with the results of the studies performed among Indian college students (7.3%) (16). However, the studies conducted in other Muslim countries such as Nigerian showed contrary results (49.6%) (17).

In our study, out of the students who had heard of EC, 28.6% and 7.2% knew that combined oral contraceptive pills and Cu-IUDs could be used as an EC method, respectively. Furthermore, 26.3% of the students knew that combined oral contraceptive pills should be taken within 72 hours and 3.6% knew that Cu-IUDs could be used up to 5 days after unprotected sexual intercourse.

Inconsistent with our results, female undergraduate students' awareness levels were 86.4% and 84% in University of Nairobi, Kenya and among Jamaican students, respectively (19). In our study, many students were unaware of the details surrounding the proper use of EC methods such as the timeframe. This result was inconsistent with those of other studies conducted in several countries such as the USA and Western Europe (10).

The results of the studies conducted in developing countries vary according to the population and national availability of EC. In Iran, combined oral contraceptive pills and levonorgestrel with the dose of 0.75 mg are sold as over the counter medicines; however, it seems that there is some restriction to the availability of them in public health facilities due to policies to encourage childbearing.

In several countries, EC methods are available only after getting a prescription, which can be problematic and time-consuming, especially on holidays or weekends when most of the clinics are closed. Thousands of young adults unintentionally become pregnant each year and a number of these pregnancies could be prevented with the correct use of EC methods. The shortage of information and access to EC methods are main barriers to using them.

Originally, postcoital contraception is effective up to 72 hours of sexual intercourse. However, recent studies reported that EC methods effectively reduced the risk of pregnancy even when used up to 120 hours after unprotected sex (20, 7). Regardless, the sooner EC is used, the more effective it is in the prevention of pregnancy.

In our study, a majority of the participants (79.3%) was interested to increase their level of knowledge about EC and 40.8% of them were willing to use these methods. This result was inconsistent with the results of the studies carried out in Ghana, in which nearly all participants (97.4%) wanted to learn more about EC (21). The main sources of information about EC among the participants were their friends (64.5%). In a similar study, 34% of students who were registered full-time at the University of Michigan stated that they would obtain EC in advance, while 44% stated that they would purchase it only after unprotected intercourse or contraceptive method failure (22).

In this study, one third of the students said that these methods could be used after unprotected intercourse, contraceptive method failures, or incorrect use of contraceptive techniques and 170 (19%) subjects thought that it might cause an abortion. Another study showed that 42% of female students did not know the correct timeframe for using EC and 37% of them believed that it might lead to abortion (23).

Our results showed that the awareness and level of knowledge about EC pills were more than Cu-IUDs. The adverse effects of EC pills include nausea and vomiting, and many people think that it may be harmful to the health of mother of fetus and decide not to use it. Therefore, knowledge of Cu-IUDs as an alternative method could be useful because they have a longer timeframe of use (up to 120 hours) in comparison to EC pills. The use of Cu-IUDs as an EC method is not very common in Iran. There are some restrictions on access to this device due to the policy of encouraging childbearing.

Almost 19% of students stated that the most common side effects of these methods are nausea, vomiting, and irregular menstrual periods and 10.3% of them responded

correctly about the contraindications of EC. In addition, 47.6% of the participants were not certain about it. One quarter of them believed that these methods were very effective, while 36.4% did not agree with them and the rest were not certain. These results were in contrast with the results of a study conducted among Indian female students (89%) (16). Nevertheless, these results were in congruence with those obtained in Latino Population (15%) (24). Furthermore, this proportion was 65% in Cameron University (25).

Low levels of knowledge about adverse effects, contraindications, and efficacy are the main barriers to the use of EC. Therefore, there is an urgent need to provide more training facilities about EC for students and adolescents, who have a tendency to contribute in sexual activities at an early age with no protection. With the enhancement of their knowledge, they will understand more about the various aspects of EC and can easily manage its side effects and be more willing to use it.

Those who had a high level of knowledge were mostly older than 24 years old, female, single, and studying humanity. The influence of demographic status on the level of knowledge of EC should be noted because it could be useful in educational programming for university students. Women should be given information about easy access to EC because they could decrease the risk of unintended pregnancy (26).

## Conclusion

Regarding the results of the present study, the level of knowledge of students about EC was inadequate, which would be an important factor in future. Conducting training programs and informing through the media might be effective in increasing their level of knowledge.

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## Conflicts of interest

The authors declare no conflicts of interest.

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