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ORIGINAL ARTICLE

Awareness and Attitudes Toward Emergency Contraceptives Among College Students in South India

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Abstract

Background In India every year, a large number of pregnancies are unplanned resulting in unsafe abortion. This has tremendous implications both on health and survival of women. Usage of emergency contraceptive pills (ECPs) could be a solution provided the usage is as per guidelines and social issues do not cause objections.

Aim This study was done to assess the awareness and attitudes regarding ECPs.

Methods Data were collected using self-administered questionnaire from the university students.

Results Out of 449 students, 384(85.5 %) had heard about ECPs. The commonest source of information was television 299(77.9 %). Only 128(33.3 %) students knew that ECPs do not help in prevention of STDs. 209(54.4 %) participants knew the correct time frame for taking ECPs. 109(28.4 %) were unaware of its side effects. Only 149(33.2 %) had received reproductive health education (RHE) in the past. The awareness level of students about ECPs was moderate among 231(60.2 %) participants. Awareness was significantly more among males ($p = 0.013$), students with science background ($p = 0.001$) and those who had RHE previously ($p = 0.043$). 219(57 %) had average level of perception toward ECPs. 254(66.2 %) participants favored prescription before procuring ECPs from drug stores. 261(68 %) participants favored information about ECPs to be given in educational institutions, and a majority, 186(48.4 %), said they would recommend ECPs to their friends. Average-to-good perception about

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ECPs was seen in significantly greater proportion of females ($p = 0.034$).

Conclusion RHE is must at educational institutions so as to promote awareness and to remove misconceptions about ECPs among youth. This would help users in preventing unintended pregnancies and unsafe abortions.

Keywords Emergency contraceptive pills · Awareness · Perception · University students

Introduction

Emergency contraceptives (ECs) are higher doses of common birth control pills or can be intrauterine devices (IUDs) administered after unprotected exposure. The risk of becoming pregnant following its usage reduces between 75 and 99 percent based on the type of method used [1].

In India, about 25 % of pregnancies are reported to be unwanted, and at least half of the 11 million abortions occurring every year are unsafe, which has tremendous implications both on health and survival of women [2, 3].

Such huge numbers of unintended pregnancies are due to poor contraceptive usage rate or due to ignorance of correct time (until recently 72 h but now extended to 120 h) or schedule of usage or fear of its side effects [4–6]. However, seeking of counseling in reproductive health issues among youth has been meager due to the sociocultural norms of Indian society [7].

Therefore, this study was done to assess the awareness and attitudes of young adults regarding emergency contraception. This was done to plan educational strategies in colleges to provide correct information and right perspective about ECPs to students.

Materials and Methods

This cross-sectional study was done among university college students of Mangalore city in January 2014. The study protocol was approved by the ethics committee of the institution.

The sample size of 451 was obtained at 95 % confidence level, 10 % relative precision, and reported proportion of college students who had heard about ECPs to be 47 % from a previous study [8].

To make up the anticipated loss due to incompletely filled forms, an extra 10 % were added to this number, and the final sample size was rounded off to 500. These students were selected from five major university colleges in Mangalore. The permission was obtained from the principals of these colleges after assuring them complete anonymity of the names of these colleges. The questionnaire was pretested in a group of 10 students before its usage in the study. Content validation of the questionnaire was done by experts from Medical Education Unit of the institution.

The participants were chosen by convenience sampling method. They were informed of the objectives and procedures of the survey and assured that the information collected would be kept confidential. Students giving written informed consent were given a self-administered anonymous questionnaire.

The semistructured questionnaire consisted of three parts. The first part covered sociodemographic information. The second part assessed knowledge and contained MCQs or questions with responses in "yes," "no," or "don't know" format. Each correct answer was awarded "1" mark. Cumulative scores below 3 was considered poor, 4–6 as moderate, and 7–9 as good awareness about ECPs.

The third part evaluated attitude of participants toward ECs. It was framed in three-point Likert's scale: "Agree," "Neutral," and "Disagree" with scores allotted as "3," "2," and "1," respectively. Cumulative scores ranging from 13 to 21 were considered as "poor," 22–30 as "moderate," and 31–39 as "good" perception toward ECPs.

Data were entered and analyzed using SPSS Inc., Chicago, IL, ver 11.0. χ^2 test was used to test association. p value <0.05 was considered as significant association.

Results

A total of 449 completed, filled questionnaires were obtained. Mean age of participants was 19.8 ± 1.2 years. Majority were females 239(53.2 %), unmarried 423(94.2 %), and were students of Commerce 130(29 %). (Table 1).

Out of the total students, 384(85.5 %) had heard about ECPs. Among them 195(92.9 %) were males and 189(79.1 %) were females ($p < 0.001$). Various sources of information about ECPs among participants were television 299(77.9 %), magazines 139(36.2 %), friends 103(26.8 %), internet 95(24.7 %), movies 87(22.7 %), posters 42(10.9 %), text books 36(9.3 %), and relatives 14(3.6 %). Only few participants received information from healthcare personnel like doctors 21(5.5 %), pharmacists 16(4.2 %), and 9(2.3 %) each from nurses and healthcare workers.

Out the total 449 participants, 149(33.2 %) had received reproductive health education (RHE) in the past. A majority of the 149 students received RHE in their high schools 72(48.3 %) followed by 27(18.1 %) in their pre-universities. One student each stated that they received RHE at health center and at home (from parents).

Only 209(54.4 %) participants knew that ECPs can be taken within 120 h of the unprotected sexual activity. Misconceptions such as ECPs are always effective and they

Table 1 Sociodemographic distribution of study population

Characteristics	Number	Percentages
Age (years)		
≤18	61	13.6
19	102	22.7
20	163	36.3
21	101	22.5
≥22	22	4.9
Gender		
Males	210	46.8
Females	239	53.2
Marital status		
Married	26	5.8
Unmarried	423	94.2
Place of matriculation		
Urban school	368	82
Rural school	81	18
Nationality		
Indian	445	99.1
Foreigner	4	0.9
Course studying		
Bachelor in commerce	130	29
Bachelor in computer application	84	18.7
Master of business administration	95	21.2
Bachelor of science	50	11.1
Bachelor of business management	90	20.0
Year of study		
First year	177	39.4
Second year	114	25.4
Third year	158	35.2
Total	449	100.0

prevent STDs were seen in 53 (13.8 %) and 91(23.7 %) participants, respectively (Table 2).

109(28.4 %) participants were not aware of side effects of ECPs. The various side effects associated to ECP as stated by participants were vomiting 46(12 %), prolonged infertility in future 42(10.9 %), irregular menstruation cycles 35(9.1 %), headache 33(8.6 %), abdominal pain 31(8.1 %), dizziness 23(6 %), vaginal bleeding and weight gain stated by 21(5.5 %) each. 71(18.5 %) stated that there were no side effects of ECPs.

Only 69(18 %) participants knew that IUCDs can be used as ECPs. Among them only 14(20.3 %) knew that it can be inserted within 5 days of unprotected sexual activity (Table 2).

Common places preferred by college students to procure ECPs as perceived by participants were medical stores 332(86.5 %), hospitals 84(21.9 %), health centers 65(16.9 %), friends 14(3.6 %), and a few were not sure 4(1.1 %). Probable reasons why these places were

Table 2 Knowledge regarding ECPs among participants ($n = 384$)

	Number	Percentage
Trade names*		
I pill	313	81.5
Unwanted	78	20.3
Mala-D	59	15.4
Don't know	40	10.4
Effectiveness of ECPs in preventing pregnancy		
Always effective	53	13.8
Failures can happen	151	39.3
Don't know	180	46.9
ECPs prevents STDs		
No	129	33.6
Yes	91	23.7
Don't know	164	42.7
ECPs same as abortion pills		
Yes	118	30.7
No	99	25.8
Don't know	167	43.5
Time at which ECP is to be taken		
Within 5 days of sexual activity	209	54.4
Before sexual activity	29	7.6
To be taken daily	3	0.8
To be taken when menstrual cycle is missed	2	0.5
Within 3 months of sexual activity	4	1.0
Don't know	137	35.7
Can IUCD be used for EC		
Yes	69	18.0
No	42	10.9
Don't know	273	71.1
Timing of insertion of IUCDs ($n = 69$)		
Within 5 days of sexual activity	14	20.3
Within 7 days	15	21.7
Within 1 month	10	14.5
At the time of sexual intercourse	1	1.5
Don't know	29	42.0

* Multiple response question

preferred as perceived by the participants were due to confidentiality 101(26.3 %), source with opportunity for appropriate counseling 82(21.4 %), and easy accessibility 107(27.9 %).

Reasons perceived by participants as to why students do not use ECPs were not knowing where to buy 42(10.9 %), not knowing the schedule and when to take 72(18.8 %), concern about its side effects 154(40.1 %), concern about its effectiveness 34(8.9 %), concern about price 10(2.6 %), concern about disclosure 31(8.1 %), and unethical to use 1(0.3 %).

69(18 %) students were aware that IUCDs can be used as ECs and 14(20.3 %) knew the correct time frame within which it has to be used (Table 2).

The awareness level of students about ECPs were poor among 130(33.9 %), moderate 231(60.2 %), and good among 23(6 %).

In this study, awareness about ECPs was more among males ($p = 0.013$), students of Science ($p = 0.001$), and those who had prior exposure to RHE ($p = 0.043$). However, variables like age ($p = 0.737$), nationality ($p = 0.785$), place of matriculation ($p = 0.096$), year of study ($p = 0.112$), and marital status ($p = 0.22$) were not associated with awareness level about ECs among participants (Table 3).

301(78.4 %) participants felt that consultation is a must before purchasing ECPs. 195(50.8 %) felt that usage of ECPs would encourage high-risk behavior among youths. 186(48.4 %) agreed that they would recommend ECPs to friends if needed. 261(68 %) were in favor of introducing information about ECPs at educational institutions (Table 4).

The perception level toward ECP was poor among 161(42 %), average among 219(57 %), and good among 4(1 %) participants.

Average to good perception about ECPs was seen in significantly greater proportion of females 120(63.5 %) compared to males 103(52.8 %). ($\chi^2 = 4.49$, $p = 0.034$).

However, no association of perception level was seen with age ($p = 0.972$), nationality ($p = 0.742$), place of matriculation ($p = 0.102$), course ($p = 0.431$), year of study ($p = 0.568$), marital status ($p = 0.112$), and prior exposure to RHE ($p = 0.991$).

When asked whether usage of ECPs was unethical, 25(12.8 %) males agreed, while 82(42.1 %) disagreed. Among females, 30(15.9 %) agreed, while 51(27 %) disagreed. Others remained neutral ($\chi^2 = 9.63$, $p = 0.008$).

Discussion

In this study, 85.5 % university students had heard about ECPs compared to 14.3–94 % reported in other studies [1, 8–16]. Significantly greater proportion of males had heard about ECPs which was similar to findings of a study done in Nepal [11]. The reason could be that males are more open to discuss issues on reproductive health with friends than females and hence are better informed by the peer group [11]. However, a study done in the US found that significantly greater proportion of females had heard about ECPs [17]. Commonest source of information in more than three fourth of participants in this study was television which supports the extent of publicity given currently through advertisements. Commercial interests have led to marketing of these product on a large scale through mass media. In other studies [10, 13, 14], informal sources like friends were the major source which are unreliable means of information. The role of healthcare providers as source of information ranged from 8.9 to 19.9 % in other studies in comparison to just 14.3 % in this study which hence needs to be further intensified [9, 13, 15].

Only 39.3 % participants knew that failures can happen even after correct usage of ECPs. This information needs to be made clear to users along with the need to seek follow-up if no menses occurs within 3 weeks of taking emergency contraception or if symptoms such as lower abdominal pain occur [18].

Table 3 Association between sociodemographic variables and knowledge level of participants regarding ECPs

Characteristics	Poor awareness(%)	Moderate awareness(%)	Good awareness(%)	Total
Gender				
Male	53(27.2)	127(65.1)	15(7.7)	195
Female	77(40.7)	104(55)	8(4.2)	189
				$\chi^2 = 8.8$, $p = 0.013$
Course				
Commerce	32(30.5)	71(67.6)	2(1.9)	105
Computer application	18(24.7)	48(65.8)	7(9.6)	73
Business administration	26(29.2)	57(64)	6(6.7)	89
Science	11(35.5)	15(48.4)	5(16.1)	31
Business management	43(50)	40(46.5)	3(3.5)	86
				$\chi^2 = 25.2$, $p = 0.001$
Prior exposure to reproductive health education				
Yes	39(26.4)	98(66.2)	11(7.4)	148
No	91(38.6)	133(56.4)	12(5.1)	236
				$\chi^2 = 6.31$, $p = 0.043$
Total	130	231	23	384

Table 4 Perception of college students toward ECPs (n = 384)

Issues	Agree (%)	Neutral (%)	Disagree (%)
Prescription is needed to obtain ECPs.	254(66.2)	83(21.6)	47(12.2)
Consultation is required before prescribing ECPs	301(78.4)	54(14.1)	29(7.5)
Usage of ECPs is unethical	55(14.3)	196(51.1)	133(34.6)
Right place to obtain ECPs is			
a. Medical stores	300(78.1)	76(19.8)	8(2.1)
b. Hospitals	216(56.3)	159(41.4)	9(2.3)
c. Health centers	171(44.5)	202(52.6)	11(2.9)
d. Friends	57(14.8)	221(57.6)	106(27.6)
Information about ECPs should be given in educational institutions	261(68)	97(25.2)	26(6.8)
Usage of ECPs would discourage use of barrier methods	88(22.9)	237(61.7)	59(15.4)
ECPs must be made more expensive	68(17.7)	149(38.8)	167(43.5)
ECPs must be made more cheaper	126(32.8)	184(47.9)	74(19.3)
Usage of ECPs would encourage high risk behavior among youths	195(50.8)	151(39.3)	38(9.9)
I would recommend ECP to a friend	186(48.4)	137(35.7)	61(15.9)

Only one third of the participants knew that ECPs does not prevent STDs which was more than that reported (25 %) in a Nepal study [8]. However, it was lesser than that reported by 95.5 % participants in a Laos study [8, 10] 1 % in USA [17], and 82.2 % in a Cameroon study [13]. These are issues which need to be educated to users in order to encourage condom usage as much as possible.

In this study, 30.7 % had a misconception that ECPs were the same as abortion pills in comparison to 35–87.6 % participants as reported in other studies [8, 10, 13, 15, 17, 19].

The correct time frame for contraceptive use was known to 54.4 % participants in comparison to 5.7–83.9 % reported by previous studies [9, 10, 12–14, 17]. This information which would determine effectiveness of ECPs needs to be made very clear to all users. In this study, only 18 % participants knew that IUDs can be used as ECPs in comparison to nil to 45.8 % reported in other studies [8, 12, 15]. The correct time frame for its use was known to 9.6 % participants in the Nepal-based study compared to 20.3 % in this study [8]. The overall awareness level of students about ECPs was poor among 33.9 % participants compared to 44.7 % [8] and 92.8 % [13] as reported in previous studies. In another study done in Nepal [11], students of younger age groups were significantly better aware than older age groups, while the contrary finding was reported in the study done in Laos [10] and in Turkey [9]. No association of age with awareness level among participants was reported in this study.

In this study, males had significantly better awareness which in contrast to other studies where females were better informed about ECPs [8, 9, 13]. The study done in Laos reported no association of gender with awareness level [10].

In a study done among university students in Turkey, ECP awareness was positively associated with studying health sciences as also observed in this study [9].

A study done in Nepal reported that over 90 % of participants received RHE from their respective schools/colleges in the past, and awareness level about ECPs was found to be significantly more among them which was similar to our findings [11]. This emphasizes the importance of RHE right from high school level onward.

Attitude toward ECPs was found to be average among 57 % students in this study in comparison to 85.1 % reported in the study done in Nepal [8]. Other studies also reported favorable attitude despite poor awareness about ECPs among students [13, 14].

In this study, 48.4 % participants said that they would recommend ECP to a friend. In a study done in Laos [10], 66.8 % and in Cameroon [13] 69.9 % participants agreed that they would use ECPs in the future if need arose. Moreover 34.6 % participants in this study felt that there was nothing unethical in usage of ECPs and this opinion was significantly more among men. In the study done in Laos, on the other hand, women were significantly more likely to support the availability of ECP [10].

A Nigerian study reported that 63.4 % respondents supported procurement of ECPs only in health facilities. In that study, only 19.2 % approved of over-the-counter (OTC) sale of ECPs [14]. In this study too, making ECPs available OTC without prescription was not favored by 66.2 % students. This could be because making prescription compulsory will lead to users approaching health care providers thus would also receive counseling in matters of sexual behavior, contraception and prevention of STDs [20]. However, easy availability of ECs without prescriptions was favored by 58.9–83.8 % students in other studies

in comparison to 12.2 % in this study [14–16, 21]. Also a randomized clinical trial [22] and a Cochrane review [23] conducted to evaluate the effect of direct access to EC through pharmacies found no negative impact on reproductive health behaviors or outcomes.

In this study, 22.9 % participants felt that usage of ECPs would discourage usage of regular contraceptives like barrier methods compared to 38.4 % in the study done in Cameroon [13] and 53.4 % in a study done in Ghana [24]. The solution lies in making users understand that ECPs do not prevent HIV infection, and hence usage of condoms are essential which would not cause discouragement in usage of condoms.

Studies done in Nigeria [14] and in Trinidad [15] reported that 55.4 and 62.3 % participants, respectively, felt that ECPs promotes high-risk behavior as also reported by 50.8 % participants in this study. This may be because promotion of awareness about ECs may encourage premarital sexual behavior. However, on the contrary, a number of studies have found that improving availability of ECPs does not increase any form of sexually risk-taking behavior [25, 26] or leads to abuse of ECPs [27–29] or has adverse impact on the risk of STDs [28].

However, concern about possible side effects among most participants led to non-usage of ECPs as reported in a previous study [30] was also expressed by 40.1 % students in this study. Similarly, several studies observed that 17.8–75.8 % students felt ECPs were harmful to the body [12, 13, 15].

A study done in Nigeria identified factors like side effects, cost, unavailability of ECs as hindrances in usage which was similar to our findings. Other reasons stated in the former study was misuse, religion, and culture factors preventing effective use of ECs [14]. Most of these issues can be addressed to by providing adequate information and counseling to users.

A greater proportion of participants (69.1 %) wanted ECs to be made cheaper compared to 30.9 % who wanted it to be more expensive in a study done in Trinidad which was similar to our observations [15]. This supports the issue raised by a few participants on cost as a hindrance in procuring ECPs in this study.

In this study, 68 % participants felt that information about ECPs should be given in educational institutions. This was also supported in the Laos-based study where students wanted to know more about ECPs and were prepared to express their concerns about its usage, and hence, this is an area which needs attention of health educators [10].

Conclusion

In this study, it was observes that awareness about ECPs was poor among one third and unfavorable attitude among 42 % university students. More than three-fourth participants felt that ECPs is to be offered by healthcare providers and medical personnel with proper instructions and counseling. Misinformation or misconceptions such as ECPs can prevent STDs and fear of side effects seen in few participants can also be removed through these sessions. Moreover, a majority felt the need for RHE at educational institutions to remove misconceptions about ECPs. Counselors also have a responsibility to bring about attitudinal changes so that hindrances in learning about ECPs can be removed in minds of college students. This would help users in making informed decisions to reduce unintended pregnancies and prevent unsafe abortion in future resulting in betterment of reproductive health.

Limitations

As convenience sampling was used in this study, the sample may not be representative of the target population in the settings. Also accuracy of responses provided by participants on a sensitive issue like emergency contraception cannot be guaranteed.

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Compliance with Ethical Standards

Conflict of interest Nitin Joseph, Bhavishya Shetty, Fathima Hasreen, Ishwarya R, Mukesh Baniya, Sahil Sachdeva, and Samarth Agarwal declare that they have no conflict of interest.

Informed consent Written informed consent was obtained from each participant.

Ethical approval Ethical approval for conducting this study was obtained from Kasturba Medical College Ethics Committee before commencement of this study. The permission was obtained from the principals after assuring them complete anonymity of the names of these colleges. The participants were given full information about the purpose and procedure of the survey and were assured that the information provided by them would be kept confidential. Written informed consent of all consenting participants were obtained and they were given a self-administered anonymous questionnaire.

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