

Health education alone and health education plus advance provision of emergency contraceptive pills on knowledge and attitudes among university female students in Enugu, Nigeria

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Abstract

This was an intervention study to compare the effects of health education alone and health education plus advance provision of emergency contraception (EC) pills on the knowledge and attitudes to EC by female students of University of Nigeria in South-East Nigeria.

Materials and Methods: A structured questionnaire was used to collect data in February, 2009 from 290 female students of a tertiary educational institution (140 in the study group and 150 from the control group) who were selected by multistage sampling. Subsequently, health education was conducted among all the students. In addition, a pack containing 2 tablets of EC pills (Postinor) was given only to the students in the study group. Three months after this intervention, its effects were assessed through a survey using the same structured questionnaire employed in the baseline survey.

Results: knowledge of EC was significantly higher among the study group than the controls at post-intervention, $P < 0.05$. Attitudes to EC were also more favorable at post-intervention survey among the study group, $P < 0.05$ in most of the variables.

Conclusion/Recommendation: Health education plus advance provision of EC pills effectively improved knowledge and attitudes to EC among female students of tertiary institutions more than health education alone and this should be promoted.

Key words: Advance provision, attitudes, emergency contraception, female students, health education, knowledge, tertiary institutions

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Introduction

University undergraduates are at high risk of unplanned pregnancy. This is because being away from parental supervision, they engage in sporadic and unprotected sexual intercourse. A large percentage of students of senior secondary and post-secondary institutions engage in pre-marital sex.^[1-3] Moreover, about half of Nigerian female undergraduates are sexually active (defined as having had sexual intercourse within the past 4 weeks).^[4] This has resulted in increased rate of abortion in the country.

Each year, Nigerian women obtain approximately 760,000 abortions, usually under unsafe conditions.^[5] Hence, unsafe abortions cause about 20,000 deaths every year in Nigeria and account for about 30% of all gynecological admissions in most developing countries.^[6,7]

Added to above, unintended pregnancies are particularly seen in individuals for whom they are more likely to be most disruptive and who are less likely to have the resources

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needed to deal with the consequences of becoming pregnant unintentionally (e.g., school drop outs, higher rates of mental health problems and are more likely to be physically abused). Indeed among women who are teenaged, unmarried, or low-income, the proportion of pregnancies that are unintended exceeds 60% in some countries.^[8] In Nigeria, the crude birth rate is still high and the fertility rate is about 6 births/woman.^[9] Teenagers contribute a fair share to this high fertility rate. Results of the 2008 Demographic and Health Survey in the country showed that 23% of all teenage women had either given birth or were expecting their first child.^[10]

Most of these problems could be reduced by emergency contraception (EC), which is a method of birth control used to prevent pregnancy from occurring after an act of unprotected sexual intercourse.^[11] It consists of emergency contraceptive pills which are 70-85% effective if taken within 72 h after an unprotected intercourse,^[12] and a copper intra-uterine contraceptive device, which if inserted within 5 days after an unprotected sex is over 95% effective.^[13,14]

However, despite the great potential of EC to protect women's health, its use in Nigeria is still sub-optimal at 11.8-20%.^[15,16] Several studies have highlighted the need for a health education intervention in promoting access to, and utilization of EC by Nigerian youths.^[10,17,18] Surprisingly, no study to the researchers' knowledge has compared the effects of health education alone and health education plus advance provision of EC pills on the knowledge and attitudes to EC by female students in tertiary institutions in this part of the country and the present study achieves this. The findings will also be of assistance in designing appropriate programs to promote the reproductive health of Nigerian youths.

Materials and Methods

The study was an intervention study conducted among female students of the University of Nigeria, Enugu Campus (UNEC) between February and May 2009. UNEC is a branch of the University of Nigeria, Nsukka located in the heart of Enugu, the state capital. It houses the faculties of law, medical sciences, health sciences, management studies, and environmental studies.

The study population was selected using a multistage sampling technique. Ten departments were selected by picking 10 ballot papers from a ballot box containing 35 ballot papers representing the 35 departments (made up 5,217 female students) in the campus. From the 10 departments, 290 students (out of 3,359 eligible female students) were recruited by proportionate sampling taking into account the female population size of each department. The following students were therefore selected accordingly:

106 from law, 59 from accountancy, 30 from banking and finance, 26 each from marketing and business management, 17 from estate management, 12 from urban and regional planning, 9 from radiography, 3 from architecture and 2 from geo informatics and surveying.

In each department, a list of all the female students was made using the departmental register. Subsequently, the required number of students was selected from this list by simple random sampling. Medical students (who could have received lectures on EC), final year students (who could be very busy with their degree examinations) as well as those less than 18 years of age (who require parental permission) were excluded from the study. Inclusion criteria were absence of pregnancy (elicited from their last menstrual period) and informed consent. Subsequently, a baseline data were collected from participants using a pretested, self-administered questionnaire. The questionnaire was first transcribed to the local language "Igbo" by an independent person and later translated back to English by another person. Information was sought on their socio-demographic data, knowledge and attitudes to EC.

The 290 students were grouped into 2 by simple balloting. The first group of 140 students was the study group while the remaining 150 made up the control group. All the participants received three sessions of health education on EC held on Saturday mornings to avoid interference with regular lectures. The contents of the lectures include: Definition and explanation of the term: 'EC; Indications and Contra-indications for EC (e.g. pregnancy); types of EC including the chemical contents; trade names of common EC pills; modes of administration and abuse of EC pills; timing of administration; advantages of EC; side-effects of EC; limitations of EC; misconceptions of EC pills including its misnomer 'the morning after pill' and sources of EC. In addition, EC pills (a pack containing 2 tablets of postinor which is 1.5 mg of levonorgestrel and effective in preventing pregnancy if taken within 72 h of unprotected sex) were given to each of the respondents in the study group. Three months after intervention, the effects were assessed using the same household questionnaire employed in the baseline study.

The data was analyzed using Statistical Packages for Social Sciences, and Epi Info. version 3.4 software and tests of significance were conducted using Chi-square. The entire statistical calculations were done at 95% confidence level and significance assessed at 0.05 probability.

Scoring knowledge questions

Every correct answer is scored as one point while wrong answer is scored zero point. The average score is calculated as total correct answer divided by the total possible correct answer multiplied by 100%. Average score of less than 50% is regarded as poor knowledge; scores of between 50% and

75% is fair knowledge while scores greater than 75% is good knowledge.

Ethical considerations

Approval for the study was obtained from the Health Research Ethics Committee of University of Nigeria Teaching Hospital Enugu and Management of UNEC (Ref: UNTH/CSA.329/Vol. 5/). A written informed consent was also obtained from participants after explaining clearly the purpose and methodology of the study.

Results

The age range of the respondents was 18-26 years with a mean age group of 21.35 years, SD: 2.314 and SEM: 0.136. Majority of them were single, in their first year of study and all were Christians Table 1. Table 2 shows the knowledge of EC at the pre-intervention survey. Awareness of EC was good among the study and control groups. The difference was not statistically significant. However, only 17.1% of respondents in the study group and 16.7% of the controls could identify postinor as an EC pill. Knowledge of the correct timing of EC pills was equally low among the two groups.

Again, knowledge of the advantages of EC was similar in both groups at baseline. Seventy seven (55%) respondents of the study group knew that EC reduces unwanted pregnancies. This is not statistically different from those in the control group who had the same knowledge. Similarly, there was no significant difference between the respondents in the study group and respondents in the control group who knew that EC induces vomiting. In summary, both groups

had poor knowledge of EC at baseline. The difference was not statistically significant ($P = 0.889$).

At post-intervention survey, all the respondents in both groups were aware of EC. However, 68% of respondents in the control group identified Postinor as an EC pill while all the respondents in the study group did the same [Table 3]. The difference was statistically significant. Similarly, a significantly higher number of respondents in the study group than those in the control group knew the correct timing of EC pills ($P < 0.05$). Knowledge of the advantages as well as the side-effects of EC was significantly higher in the study group than among the controls at post-intervention. Overall knowledge score of the study group respondents was fair as against the poor knowledge scored by the controls.

Table 1: Distribution of respondents according to some demographic characteristics

Characteristic	Frequency (%)		χ^2	P value
	Study (N=140)	Control (N=150)		
Demography				
Age range (years)				
18-20	59 (42.1)	63 (42.0)	0.00	0.999
21-23	52 (37.2)	56 (37.3)		
24-26	29 (20.7)	31 (20.7)		
Marital status				
Single	133 (95.0)	143 (95.3)	0.02	0.895
Married	7 (5.0)	7 (4.7)		
Religion				
Catholic	74 (52.9)	78 (52.0)	0.04	0.981
Pentecostal	35 (25.0)	39 (26.0)		
Protestant	31 (22.1)	33 (22.0)		
Year of study				
First	87 (62.1)	94 (62.7)	0.61	0.894
Second	32 (22.9)	34 (22.7)		
Third	14 (10.0)	17 (11.3)		
Fourth	7 (5.0)	5 (3.3)		

Table 2: Knowledge of emergency contraception at the pre-intervention

Knowledge	Correct response frequency (%)		χ^2	P value
	Study (N=140)	Control (N=150)		
Awareness of EC	101 (72.1)	107 (71.3)	0.02	0.878
Definition of EC	52 (37.1)	55 (36.7)	0.01	0.933
Forms of EC known				
Postinor	24 (17.1)	25 (16.7)	0.01	0.914
Copper-T IUCD	7 (5.0)	10 (6.7)	0.36	0.546
OCP in higher doses	10 (7.1)	9 (6.0)	0.15	0.694
Indications of EC				
After unprotected sex	46 (32.9)	50 (33.3)	0.01	0.931
After coerced sex	10 (7.1)	11 (7.3)	0.00	0.950
When condom slips or bursts	7 (5.0)	7 (4.7)	0.02	0.894
When pill is forgotten	4 (2.8)	4 (2.7)	0.01	0.921
After expulsion of IUCD	3 (2.1)	3 (2.0)	0.01	0.925
Correct timing of ECPs	4 (2.8)	4 (2.7)	0.01	0.921
Correct timing of emergency copper T IUCD	0 (0.0)	0 (0.0)	-	-
Correct dosing of ECPs	7 (5.0)	7 (4.7)	0.02	0.895
Advantages of EC				
Reduces unwanted pregnancies	77 (55.0)	84 (56.0)	0.03	0.864
Reduces induced abortions	21 (15.0)	25 (16.7)	0.15	0.697
Reduces maternal deaths	7 (5.0)	9 (6.0)	0.26	0.607
Side effects of EC				
Vomiting	21 (15.0)	22 (14.7)	0.01	0.936
Nausea	14 (10.0)	16 (10.7)	0.03	0.852
Breast tenderness	11 (7.9)	12 (8.0)	0.00	0.964
Ways of increasing awareness of EC				
Seminar/workshops in schools	65 (46.4)	63 (42.0)	0.58	0.448
Use of mass media	28 (20.0)	37 (24.7)	0.91	0.341
Teaching of EC in family	14 (10.0)	11 (7.3)	0.65	0.419
Planning clinics	7 (5.0)	6 (4.0)	0.17	0.681
Inclusion of EC in secondary school curriculum				
Total knowledge score	540 (16.8)	583 (16.9)	0.02	0.889

IUCD=Intra-uterine contraceptive device; OCP=Oral contraceptive pills; ECPs=Emergency contraceptive pills; EC=Emergency contraception

Table 3: Knowledge of emergency contraception at the post-intervention

Knowledge	Correct response frequency (%)		χ^2	P value
	Study (N=140)	Control (N=150)		
Awareness of EC	140 (100.0)	150 (100.0)	NA	NA
Definition of EC	140 (100.0)	137 (91.3)	12.70	<0.001*
Forms of EC known				
Postinor	140 (100.0)	102 (68.0)	56.80	<0.001*
Copper-T IUCD	70 (50.0)	20 (13.3)	45.49	<0.001*
OCP in higher doses	98 (70.0)	21 (14.0)	46.79	<0.001*
Indications of EC				
After unprotected sex	119 (85.0)	111 (74.0)	5.34	0.021*
After coerced sex	70 (50.0)	8 (5.3)	73.48	<0.001*
When condom slips or bursts	88 (62.9)	13 (8.7)	93.69	<0.001*
When pill is forgotten	70 (50.0)	5 (3.3)	82.25	<0.001*
After expulsion of IUCD	35 (25.0)	6 (4.0)	26.31	<0.001*
Correct timing of ECPs	126 (90.0)	31 (20.7)	140.20	<0.001*
Correct timing of emergency copper T IUCD	77 (55.0)	57 (38.0)	8.42	0.004*
Correct dosing of ECPs	133 (95.0)	77 (51.7)	69.12	<0.001*
Advantages of EC				
Reduces unwanted pregnancies	126 (90.0)	97 (64.7)	26.16	<0.001*
Reduces induced abortions	116 (82.9)	35 (23.3)	102.80	<0.001*
Reduces maternal deaths	91 (65.0)	33 (22.0)	54.70	<0.001*
Side effects of EC				
Vomiting	140 (100.0)	99 (66.0)	48.03	<0.001*
Nausea	91 (65.0)	41 (27.3)	41.43	<0.001*
Breast tenderness	98 (70.0)	18 (12.0)	101.50	<0.001*
Ways of increasing awareness of EC				
Seminar/workshops in schools	56 (40.0)	47 (31.3)	2.37	0.123
Use of mass media	116 (82.9)	54 (36.0)	65.54	<0.001*
Teaching of EC in family planning clinics	35 (25.0)	34 (22.7)	0.22	0.64
Inclusion of EC in secondary school curriculum	35 (25.0)	3 (2.0)	33.64	<0.001*
Total knowledge score	1979 (61.5)	1199 (34.8)	476.20	<0.001*

*Statistically significant. NA=Not applicable; IUCD=Intra-uterine contraceptive device; OCP=Oral contraceptive pills; ECP=Emergency contraceptive pills; EC=Emergency contraception

Table 4 displays the respondents' attitudes to positive statements on EC. At baseline, the respondents in both groups were similarly disposed to EC, but at post intervention survey, attitudes of respondents in the study group were significantly better than those of the controls. For instance, at baseline, 17.1% of respondents in the study group and 11.3% of the controls were in support of selling EC pills at chemist shops without doctor's prescription. The difference was not statistically significant. At post-intervention survey; however, 92.9% of the study group and 33.3% of the controls were similarly disposed. The difference was statistically significant. In addition, at pre-intervention, there was no significant difference between the number of respondents in the study group and those in the controls who were in support of increasing awareness of EC through advertisement but at post-intervention, the number in favor of this was significantly higher among the study group ($P < 0.05$).

Furthermore, unlike findings at baseline, there was a greater reduction in the number of respondents who were in favor of negative statements on EC among the study group than in the controls at post-intervention survey [Table 5]. Twenty eight respondents (20%) in the study group and 25.3% of the control group respondents agreed that EC was an abortifacient which should be banned at baseline. The difference was not significant, $P > 0.05$. However, after intervention, only 20 (13.4%) of respondents in the control group were in support of the above statement. This number was nevertheless significantly higher than those in the study group who totally disagree with the statement.

Discussion

Awareness of EC was high in the present study. This is similar to previous reports among tertiary school students in South-West and South-South Nigeria.^[16,19] The present finding is however lower than that reported among medical doctors in Port Harcourt which showed that 98% of them were aware of EC.^[20] The disparity could easily be attributed

Table 4: Attitudes to positive statements on emergency contraception

Attitude	Pre-intervention no. (%)				Post-intervention no. (%)			
	Study (N=140)	Control (N=150)	χ^2	P value	Study (N=140)	Control (N=150)	χ^2	P value
EC offers women a second chance to prevent pregnancy	88 (62.9)	91 (60.7)	0.15	0.701	140 (100.0)	138 (90.4)	11.68	<0.001*
EC should be made widely available	94 (67.1)	84 (56.0)	3.79	0.051	137 (97.9)	119 (79.3)	24.01	<0.001*
ECPs should be sold at chemist shops without Dr's prescription	24 (17.1)	17 (11.3)	2.01	0.156	130 (92.9)	50 (33.3)	108.98	<0.001*
EC should be widely advertised to increase its awareness	77 (55.0)	84 (56.0)	0.03	0.864	140 (100.0)	93 (62.0)	66.21	<0.001*
EC is safe and has very few contraindications	49 (35.0)	43 (28.6)	1.34	0.247	140 (100.0)	115 (76.7)	37.15	<0.001*
If needed in future, I will use EC or recommend it to a friend	77 (55.0)	84 (56.0)	0.03	0.864	126 (90.0)	125 (83.3)	2.77	0.096
EC services should be offered free in government facilities	84 (60.0)	79 (52.7)	1.58	0.208	133 (95.0)	84 (56.0)	58.47	<0.001*
ECPs should be made available at youth clubs and social centres	66 (47.1)	71 (47.3)	0.00	0.974	137 (97.9)	116 (77.3)	27.40	<0.001*

*Statistically significant. ECPs=Emergency contraceptive pills; EC=Emergency contraception

Table 5: Attitudes to negative statements on emergency contraception

Attitude	Pre-intervention no. (%)				Post-intervention no. (%)			
	Study	Control	χ^2	P value	Study	Control	χ^2	P value
	(N=140)	(N=150)			(N=140)	(N=150)		
EC should be available in hospitals but administered only on Dr's prescription	95 (67.9)	102 (68.0)	0.00	0.979	35 (25.0)	99 (66.0)	48.97	<0.001*
ECPs should be made widely available but sold only on Dr's prescription	84 (60.0)	79 (52.7)	1.58	0.208	28 (20.0)	53 (35.3)	8.46	0.004*
EC is an abortifacient and should be banned	28 (20.0)	38 (25.3)	1.17	0.279	0 (0.0)	20 (13.4)	20.05	<0.001*

*Statistically significant. EC=Emergency contraception

to the study population used in the previous study, for as doctors, they did not only learn about EC in the medical school, but they also prescribe it for their clients. However, the present finding is higher than 61% reported among female undergraduates in Eastern Nigeria.^[21] This result indicates that if the efforts on sensitization was maintained for a long time in developing countries, we can hope for an increase of awareness of EC among young women in the following years.

After intervention, although awareness of EC was similarly increased in both groups, knowledge summary of EC was significantly higher in the study group than among the controls. This is not surprising as people are more likely to understand better what is seen and touched than what is only heard of. Moreover, the drug information on the drug pack could have served as reinforcement for what was learnt during the health education sessions. In addition, advance provision of EC pills could have increased interest in EC and may also have served as a motivator towards the desire to have a better understanding of the pill.

Similarly, following intervention, attitudes to EC was significantly better among the study than the controls. More respondents in the study group than in the controls were in favor of easy accessibility to EC through removal of obstacles such as 'doctor's prescription.' Previous studies have also noted that advance provision of EC can circumvent obstacles to timely use.^[22,23] This is particularly important in EC use where timely use is of the essence in determining its efficacy.

The present findings show that an intervention program which combines health education with advance provision of EC pills is more effective in improving knowledge and attitudes to EC than that which involves health education alone. This is similar to previous finding where there was significantly higher use of EC in the group who received both health education and EC pills than in the group that received only health education.^[24]

Conclusions and Recommendations

This study has shown that when health education is combined with advance provision of EC pills, it significantly improves knowledge and attitudes to EC than if health

education is delivered alone. It is therefore, recommended that reproductive health programs combining health education and advance provision of EC pills should be promoted in post-secondary school institutions in Nigeria and that EC services should be offered at subsidized cost in Government Hospitals and clinics and at youths' centers to enhance its affordability by every woman in need.

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