

Effect of Health Education Intervention Programs on Emergency Contraceptives Awareness among University Undergraduate Female Students in Jigawa State, Nigeria

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Abstract

This study examined the effect of health education intervention programs on emergency contraceptives awareness among university undergraduate female students in Jigawa State, Nigeria. A quasi-experimental research design was employed, involving a pre-test and post-test with control and experimental groups. A total of 60 female undergraduate students were selected from four universities in the state using a multi-stage sampling technique. The experimental group received a six-week health education intervention on emergency contraceptives, while the control group received no such intervention. Data were collected using a validated, researcher-designed questionnaire named 'Effect Of Health Education Intervention Programme On Emergency Contraceptives Awareness Questionnaire (EHEIPECAQ)', with a reliability coefficient of 0.884 established through Cronbach's Alpha. The data were analyzed using mean, standard deviation, paired sample t-test, and independent sample t-test at a 0.05 level of significance. The results revealed that the mean awareness score significantly increased from 1.79 (pre-test) to 3.93 (post-test) among the experimental group, with a mean difference of 2.14 ($t = 13.30, p < 0.05$). Furthermore, the independent t-test analysis showed a significant difference in post-intervention awareness between the experimental ($M = 3.93$) and control groups ($M = 1.65$), with a mean difference of 2.28 and a t-value of 14.88 ($p < 0.05$). These findings indicate that the health education intervention had a statistically significant positive effect on participants' awareness of Emergency Contraceptives. The study concludes that targeted health education interventions can substantially improve awareness of emergency contraceptives among undergraduate female students. It recommends that university health educators implement regular reproductive health programs and that reproductive health education be integrated into student orientation and academic curricula to promote informed contraceptive use and reduce unintended pregnancies among young women.

Keyword: Emergency contraceptives, health education, undergraduate female students, reproductive health, Jigawa State, Nigeria.

Introduction

Contraceptives are methods or devices used to prevent pregnancy resulting from sexual intercourse. They include a wide range of options such as oral pills, intrauterine devices, injectables, condoms, implants, and emergency contraceptives. Emergency contraceptives (ECs), also referred to as post-coital contraception, are methods used to prevent pregnancy after unprotected sex, contraceptive failure, or sexual assault. They are most effective when taken within 72 hours of intercourse, with efficacy decreasing over time (World Health Organization [WHO], 2023). Awareness of emergency contraceptives entails knowledge and understanding of their use, mechanism of action, timing, side effects, and accessibility. Possessing this awareness is essential for enabling women, especially young undergraduate female students, to make informed reproductive health decisions, particularly in settings where unintended pregnancies are prevalent. Globally, contraceptive use has significantly improved over the past decades, but access and utilization remain uneven. According to Osborne et al. (2024), approximately 65% of women aged 15–49 worldwide use some form of contraception. However, an estimated 218 million women in developing countries still have an unmet need for modern contraception, leading to about 121 million unintended pregnancies annually (Pillai & Nagoshi, 2023). Emergency contraception remains underutilized, partly due to a lack of awareness and



Effect of Health Education Intervention Programs on... Bii, A. A., Et. al. (2025)

misconceptions about its safety and legality (Kwame et al., 2022). Moreover, adolescent and young adult women are at higher risk of unintended pregnancies, which can hinder educational and career advancement and contribute to unsafe abortions and maternal mortality. In sub-Saharan Africa, contraceptive prevalence remains relatively low despite improvements in family planning services. The modern contraceptive prevalence rate (mCPR) among women of reproductive age stands at around 28%, while unmet need for contraception is as high as 24% (Tsegaw et al., 2022). Emergency contraceptive use is particularly low, and many women lack the basic awareness required to access or use it effectively. Barriers such as cultural taboos, misinformation, stigma, and limited health education interventions contribute to poor contraceptive awareness and usage (Tohit & Haque, 2024). This situation is exacerbated among adolescents and young women, many of whom are sexually active but have limited awareness or autonomy regarding reproductive health services (Tohit & Haque, 2024).

Nigeria presents a microcosm of these challenges. With a population of over 220 million, more than half are under 30 years of age, and the fertility rate is approximately 5.3 births per woman (National Population Commission [NPC], 2021). Contraceptive prevalence among women aged 15–49 is about 17%, and the unmet need for family planning remains at 19% (National Demographic and Health Survey [NDHS], 2018). Emergency contraception awareness is worryingly low among Nigerian women, especially among young people and students. For instance, a study by Nwankwo et al. (2021) found that less than 30% of undergraduate female students in Nigerian universities had adequate awareness of emergency contraceptives, while only a small fraction had ever used them. This lack of awareness leads to high rates of unintended pregnancies, unsafe abortions, and associated health risks. Emergency contraceptives play a critical role in reducing unintended pregnancies and their consequences. They are especially important for young women who may experience contraceptive failure, unplanned sexual activity, or sexual assault (Jonas et al., 2022). Despite their effectiveness and availability, ECs are surrounded by numerous misconceptions, such as the belief that they are equivalent to abortion or that frequent use causes infertility. These myths, along with poor access and limited information dissemination, continue to hinder EC uptake among young women in Nigeria (Akorede et al., 2022).

Awareness of emergency contraceptives is crucial for their effective utilization. Studies show that awareness is significantly linked to education, exposure to health information, and cultural acceptance (Kumar et al., 2024; Mesfin, 2020). University students, particularly females, are at an age where sexual activity may increase, and therefore, they need access to accurate, age-appropriate reproductive health information. However, many students remain unaware or misinformed about ECs, their timing, and potential side effects. Furthermore, sociocultural norms and stigma discourage open discussions about contraception among unmarried women, leaving many in ignorance or fear of judgment (Nmadu et al., 2024). The need for health education intervention to improve awareness of emergency contraceptives cannot be overemphasized. Health education equips individuals with factual information, corrects misconceptions, and promotes positive attitudes and behaviors regarding reproductive health. It has been widely recognized as a cost-effective strategy to empower women and reduce the incidence of unintended pregnancies (WHO, 2023). In university settings, health education programs tailored to students' needs have shown promising results in increasing contraceptive awareness and encouraging safe sexual practices. Previous studies have demonstrated the positive impact of health education interventions on awareness and attitudes toward emergency contraceptives. For example, Arinze-Onyia et al. (2010) found that after a structured health education session among female students in southwestern Nigeria, awareness scores increased significantly, and misconceptions declined. Similarly, Alhassan et al. (2025) reported a notable rise in the correct use of ECs among participants of a university-based health education campaign. These findings underscore the potential of targeted interventions in improving reproductive health outcomes among young women.

In Jigawa State, northern Nigeria, several challenges impede the awareness and use of emergency contraceptives among undergraduate female students. The region is characterized by conservative cultural and religious values that discourage open discussions about sexuality and contraceptive use. Many young women in universities face social pressure, misinformation, and limited access to reproductive health services. Moreover, reproductive health education is rarely integrated into school curricula or orientation programs, resulting in poor awareness. The researchers observed that a significant proportion of undergraduate female students in the state either do not know about ECs or harbor harmful myths that discourage their use. This lack of awareness makes them vulnerable to unintended pregnancies, unsafe abortions, and disruptions in their academic pursuits. Improving the awareness of emergency contraceptives among undergraduate female students is critical for advancing their reproductive health and academic success. Despite the availability and effectiveness of ECs, awareness remains low in many parts of Nigeria, including Jigawa State. Health education intervention programs provide a viable solution to this problem



Effect of Health Education Intervention Programs on... Bii, A. A., Et. al. (2025)

by addressing awareness gaps, dispelling myths, and empowering young women with the information they need to make informed choices. This study, therefore, seeks to examine the effect of health education intervention programs on emergency contraceptives awareness among university undergraduate female students in Jigawa State, Nigeria.

Objectives of the study

1. The effect of health education intervention programs on emergency contraceptives awareness among university undergraduate female students in Jigawa State, Nigeria.
2. The mean difference on awareness of emergency contraceptives between university undergraduate female students exposed to health education intervention programs and those not exposed to the program in Jigawa State.

Research Questions

1. What is the mean response of health education intervention programs on emergency contraceptive awareness among university undergraduate female students in Jigawa State?
2. What is the mean difference on awareness of emergency contraceptives between university undergraduate female students exposed to health education intervention programs and those not exposed to the program in Jigawa State?

Hypotheses

H₀₁: There is no significant mean response of Health Education intervention programs on Emergency Contraceptive Awareness among university undergraduate female students in Jigawa State.

H₀₂: There is no significant mean difference on awareness of emergency contraceptives between and university undergraduate female students exposed to health education intervention programs and those not exposed to the program in Jigawa State.

Methodology

The study adopted a quasi-experimental research design of pre-test and post-test approach. This design was considered appropriate because participants are randomly assigned to either the treatment or control (no-treatment) group, and are measured or tested both before and after the experimental treatment is implemented. The study comprised two groups: an experimental group (Group A) and a control group (Group B). Both groups were subjected to a pre-test using the Questionnaire before the intervention. The experimental group received a six-week health education intervention program, while the control group received no such intervention. After the intervention, both groups completed a post-test using the same questionnaire. The difference in average scores between the pre-and post-tests for each group was used to determine the effect of the intervention. The population of the study consisted of all university undergraduate female students in Jigawa State, Nigeria. The four Universities are Federal University Dutse, Dutse (4,811), Sule Lamido University, Kafin Hausa (1,097), Khadija University, Majia (579), and Federal University of Technology, Babura (297), which gives a total number of 6,784 university undergraduate female students in Jigawa State, Nigeria. According to Cohen, Manion and Morrison (2007), for experimental research, a sample size of Sixty (60) is considered adequate to give the expected outcome. The sample size was drawn out using simple random, proportionate, systematic and simple random sampling techniques. The researcher used a researcher-developed questionnaire and Health education manual as instruments for the study. The researcher's developed questionnaire was divided into two sections: Section A consisted of demographic information, and Section B featured items on awareness of emergency contraceptives. Responses were scored using a four-point Likert scale: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). A mean score of 2.50 and above was interpreted as positive or accepted, while a score below 2.50 was considered negative or not accepted.

To ensure the instrument's validity, five experts in the Department of Human Kinetics and Health Education and the College of Medical Sciences at Ahmadu Bello University, Zaria, vetted the instrument. Their suggestions were incorporated into the final version used for data collection. A pilot study was also conducted at Khadija University, Majia to establish the reliability of the instrument, involving 30 female students similar to the study population. The resulting Cronbach's Alpha coefficient of 0.884 demonstrated high internal consistency and confirmed the reliability of the instrument. The researcher's Developed Health Education Manual was developed by the researcher to educate the students on emergency contraceptives during the intervention program. The study was conducted in three key phases. Phase I (pre-intervention) involved administering the baseline questionnaire. Phase II (intervention) entailed delivering the health education intervention program to the experimental group once weekly for six weeks, between 2:00 pm and 3:00 pm, in the university premises. The control group was not exposed to this intervention. Phase III (post-intervention) involved re-administering the questionnaire to all participants. The researchers, along with four instructed research assistants, visited the four universities in Jigawa State (Federal University Dutse, Sule Lamido University Kafin Hausa, Khadija University Majia and the Federal University of Technology, Babura) and submitted an introduction letter from the Department of Human Kinetics and Health Education at Ahmadu Bello University in Zaria, Nigeria, to the Dean of Student Affairs of each university to request authorization to carry out the study in the school.



Effect of Health Education Intervention Programs on... Bii, A. A., Et. al. (2025)

The data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 30. The research questions were answered using mean and standard deviation, while the postulated hypotheses were analysed using inferential statistics of the paired sample t-test and the independent sample t-test. All the hypotheses were tested at the 0.05 level of significance.

Presentation of Results

Research Question 1

What is the mean response of Health Education intervention programs on Emergency Contraceptive Awareness among university undergraduate female students in Jigawa State?

Table 1: Mean and Standard Deviation of Effect of Health Education Intervention on Awareness of Emergency Contraceptives among University Undergraduate Female in Jigawa State (N = 30).

Item	Mean	Std. Dev.	Mean Difference
Pretest	1.79	0.78	2.14
Post-test	3.93	0.79	

Source: Field Work (2025)

The data presented in Table 1 illustrate the effect of a health education intervention on emergency contraceptives awareness among university undergraduate female students in Jigawa State. The pretest mean score of 1.79 indicates a low level of awareness about emergency contraceptives prior to the intervention. Following the intervention, the post-test mean score increased substantially to 3.93, resulting in a mean difference of 2.14. This increase in mean scores confirmed that the health education intervention was effective in significantly enhancing the participants' awareness of emergency contraceptives.

Research Question 2

What is the mean difference on awareness of Emergency Contraceptives between university undergraduate female students exposed to Health Education intervention programs and those not exposed to the program in Jigawa State?

Table 2: Mean and Standard Deviation of the difference between experimental and control groups after health education intervention programs on awareness of emergency contraceptives among university undergraduate female students in Jigawa State

Item	N	Mean	Std. Dev.	Mean Difference
Control	30	1.65	0.63	2.28
Experiment	30	3.93	0.79	

Source: Field Work (2025)

Table 2 presents the comparison between the experimental and control groups after health education intervention programs aimed at improving awareness of emergency contraceptives among university undergraduate female students in Jigawa State. The data indicate that the experimental group (N = 30), which received the health education intervention, recorded a higher mean score of 3.93 on awareness of emergency contraceptives compared to the control group (N = 30), which recorded a much lower mean score of 1.65. This yields a mean difference of 2.28 in favour of the experimental group. The marked disparity in mean scores affirmed that the health education intervention had a strong and positive impact on the awareness levels of the participants in the experimental group. It implies that exposure to the intervention was effective in enhancing their understanding of emergency contraceptive methods, while the control group, which did not receive any structured educational input, maintained a low level of awareness.

Hypothesis 1

There is no significant mean response of Health Education intervention programs on Emergency Contraceptive Awareness among university undergraduate female students in Jigawa State.

Table 3: Paired Sample t-test representation of Pretest and Post-test of Emergency Contraceptives Awareness (N = 30)

Emergency contraceptives	Mean	Std. Dev.	Mean Difference	df	t-value	Sig.
Pretest	1.79	0.78	2.14	29	13.30	0.000
Post-test	3.93	0.79				

p cal. < 0.05, t cal, > 1.96 at df 29

Table 3 presents the results of a paired sample t-test comparing the pretest and post-test scores on awareness of emergency contraceptives among 30 university undergraduate female students in Jigawa State, following a health education intervention. The mean score before the intervention (pretest) was 1.79, while the mean score after the intervention (post-test) increased



Effect of Health Education Intervention Programs on... Bii, A. A., Et. al. (2025)

markedly to 3.93, resulting in a mean difference of 2.14. The calculated t-value of 13.30 is significantly greater than the critical t-value of 1.96 at 29 degrees of freedom, and the corresponding p-value of 0.000 is well below the alpha level of 0.05, indicating a statistically significant difference between the pretest and post-test scores. With this, the null hypothesis, which states that there is no significant mean response of Health Education intervention programs on Emergency Contraceptive Awareness among university undergraduate female students in Jigawa State was rejected. This implies that the health education intervention had a significant positive effect on improving the participants' awareness of emergency contraceptives.

Hypothesis 2

There is no significant mean difference on awareness of Emergency Contraceptives between and university undergraduate female students exposed to Health Education intervention programs and those not exposed to the program in Jigawa State.

Table 4: Independent Sample t-test representation of the difference between experimental and control groups after health education intervention programs on awareness of emergency contraceptives

Emergency contraceptives	N	Mean	Std. Dev.	Mean Difference	df	t-value	Sig.
Control	30	1.65	0.63				
Experimental	30	3.93	0.79	2.28	58	14.88	0.000

p cal. < 0.05, t cal, > 1.96 at df 58

Table 4 presents the results of an independent sample t-test conducted to determine whether there is a significant difference in the awareness of emergency contraceptives between the experimental and control groups after health education intervention programs among university undergraduate female students in Jigawa State. The data shows that the experimental group, which received the health education intervention, had a higher mean awareness score (Mean = 3.93) compared to the control group (Mean = 1.65), with a mean difference of 2.28. The t-value calculated is 14.88 with 58 degrees of freedom (df), and the corresponding p-value is 0.000. Since the p-value is less than the 0.05 level of significance and the calculated t-value (14.88) exceeds the critical t-value of 1.96 at df = 58, the null hypothesis, which states that there is no significant mean difference on awareness of emergency contraceptives between and university undergraduate female students exposed to health education intervention programs and those not exposed to the program in Jigawa State was rejected. This indicates that the health education intervention had a statistically significant positive effect on improving the awareness of emergency contraceptives among the university undergraduate female students in the experimental group.

Discussion of Findings

The result of hypothesis one shows that awareness of emergency contraceptives has been improved with health education intervention, with a t-value of 13.30 was found to be greater than the t critical value of 1.96 at degree of freedom 29 and $P < 0.05$. This shows that the hypothesis that states that there is no significant mean response of health education intervention programs on emergency contraceptive awareness among university undergraduate female students in Jigawa State is rejected. This implies that the gap in awareness of emergency contraceptives among university undergraduate female students in Jigawa State has been filled. This finding correlates with Abera et al. (2021), who identified a low level of awareness as one of the major predictors of utilization of emergency contraceptives among the respondents.

The study recommends that awareness creation through health education intervention should be focused on. Kaushal et al. (2014) reported that none of the respondents knew intrauterine devices as emergency contraceptives. Nevertheless, Barbian et al. (2021) revealed that emergency contraceptive usage is prevalent among female university students; however, several gaps in awareness still exist, and this demonstrates the importance of discussing this issue earlier and planning actions of an informative nature. Therefore, health education intervention is required to fill the awareness gap. The study of Mamuye et al. (2021) lies in between, which revealed that even though there is awareness of emergency contraception among the respondents, there is a gap concerning the correct time of use. Similarly, Williams et al. (2021) reported that the respondents were aware of emergency contraception; however, misunderstandings regarding emergency contraceptives were common, which reveals inadequate awareness. Therefore, educating adolescents on emergency contraceptives may improve their awareness of the respondents. Incompatibility with the result, Fekadu (2017) revealed that 95.9% of university students have heard about emergency contraceptives, which implies that awareness of emergency contraceptives among the respondents was high. In the same vein, Mishore et al. (2019) reveal that 70% of the study participants had good awareness of emergency contraceptives. Moreover, awareness was the only determining factor of the practice of EC. The study then concludes that female students of older age and higher educational status of parents had higher awareness and practice of EC.



Effect of Health Education Intervention Programs on... Bii, A. A., Et. al. (2025)

Hypothesis two revealed that there is a significant difference between experimental and control groups after health education intervention programs on awareness of emergency contraceptives among university undergraduate female students in Jigawa State. The finding aligns with and corroborates the results of several previous studies. For instance, Durosimi-Etti (2016) found that reproductive health education intervention significantly improved the awareness of contraceptive choices among undergraduate female students, which supports the current study's conclusion that health education interventions enhance awareness of emergency contraceptives. Similarly, Abdulrazaq et al. (2014) demonstrated that educational interventions led to a significant increase in family planning awareness among married women, further validating the current findings. The positive effect observed in the experimental group also resonates with Alemayehu et al. (2020), where community-based interventions, including health education, significantly improved family planning use and intentions.

Conversely, the findings of the current study oppose the results of Jimoh (2018), who reported that rural women in Kogi State did not exhibit a significant attitude or practice toward family planning despite having awareness. However, this discrepancy may stem from differences in study populations and contexts, as Jimoh's research focused on rural women rather than undergraduates. Additionally, the current study's results counter the observations of Olabode et al. (2015), where female students demonstrated poor awareness of emergency contraceptives. Yet, this disagreement can be attributed to the absence of an intervention in Olabode's study, whereas the current research employed a structured health education program, highlighting the critical role of health education interventions in improving awareness.

Conclusion

The study concludes that health education intervention effectively enhances the awareness of emergency contraceptives among university undergraduate female students in Jigawa State. Furthermore, the findings reveal a significant difference in the level of awareness between the experimental group, which received the intervention, and the control group, which did not, indicating the positive effect of the health education program.

Recommendations

Based on the conclusion, the following recommendations were made:

1. The university health educators and counsellors should regularly implement structured health education programs on emergency contraceptives for undergraduate female students.
2. The university management and relevant educational authorities should integrate reproductive health education, including emergency contraception, into the general orientation and curriculum for female students.

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Effect of Health Education Intervention Programs on... Bii, A. A., Et. al. (2025)

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Effect of Health Education Intervention Programs on... Bii, A. A., Et. al. (2025)

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