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# Knowledge of Mechanism of Action of Emergency Contraception Influences the Perception and the Seeking Attitude in a Group of Female Nigerian Graduates

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## Abstract

The present study examined the knowledge of how and when Emergency Contraception (EC) should be applied for optimum performance in a group of female Nigerian graduates. And we also verified if this knowledge base has influence on their perception and seeking habit of EC. 162 validated, structured questionnaires were distributed among young female graduates, deployed for their National Youth Service Corps (NYSC) with the 23 Local Government Areas of Sokoto state. Mean age of respondents was 24.4 ± 2.5 years. It was found that just 22.8% of the respondents have good knowledge of how EC works. Only 9.9% of them believe EC is effective and a direct relationship was found between this believe with respondent's level of knowledge of mechanism of action EC. It was also found that this knowledge correlates with respondents' willingness to access EC and also to introduce others ($\chi^2 = 28.264$, $p = 0.000$ and $\chi^2 = 9.401$, $p = 0.002$, respectively). We conclude that to address the problem of increasing incidence of unsafe abortions in Nigeria where induced abortion is not legalized, more awareness on the mode of action of EC need be created, among both the healthcare providers and the women of the reproductive age. Also, the facilities should be made available widely and in advance for easy access.

***Keywords:*** *Knowledge; Mechanism of Action; Emergency Contraception; Perception; Seeking attitude*

## Introduction

Unsafe abortion has been estimated, globally to be about 20 million per year, with most of these occurring in developing countries [1]. And this figure is said to be less than half of the incidence of unintended pregnancies [2], most of which will end up in induced abortions (safe or unsafe). The rate of induced abortion in Nigeria has been reported to be on the increase, yet having one of the lowest rates of contraceptives utilization on the African continent [3]. Abortion remain a leading cause of maternal morbidity and mortality, even though it can be prevented [1,2,4]. Contraceptives, including the emergency types have been suggested for women in their reproductive ages, so that unintended pregnancies can be reduced. This is reported, could result in reduction in unintended pregnancies in the United States by half [5] and therefore minimize the rate of abortions. In the developing countries because of lack of supporting legislations, presence of cultural and religious bottle-necks, abortions are mostly carried out clandestinely by untrained hands and therefore unsafe [1-3]. Formal sex education, provision of contraceptives in advance and making it widely available have been demonstrated in previous studies to be able to decrease the rate of unintended pregnancies and abortions and its untoward consequences, where it is wrongly carried [4-12].

Emergency contraceptives which serve as the only lifeline left for a woman who does not want to become pregnant after an unprotected sex or who has missed her regular birth control methods is readily available and generally cost-effective [13]. To this extent, it has been advocated that healthcare providers and their patients be equipped with the knowledge of its proven and potential mechanism of action to enhance it use, to be able to step-up the fight to bring down the rate of unintended pregnancies [5].

EC pills act by delaying or inhibiting ovulation when used within 72 hours of unprotected sexual intercourse especially pre-ovulatory, because it has no proven post fertilization efficiency. It is not known to impair fertility [5,14]. And the Copper-T Intrauterine device (Cu-T IUD) prevents fertilization/implantation, provided pregnancy test proved negative [15,16].

But, studies so far have revealed that the knowledge of how and when it should be employed for proficiency, is poor which consequently makes the utilization low [16,17], even among the at-risk women, worldwide [4,5,18,19]. This is equally low among the healthcare providers [7,10,14,16,20-22]. The result is ineffectiveness of the EC and poor attitudes towards accessing it. The present study intends to examine among female Nigerian graduates, observing their National Youth Service Corps (NYSC). This group is considered as at-risk women to unintended pregnancies. They will be assessed on how much knowledge they have about mode of action of EC and verify if any association exist between this knowledge and their perceptions and seeking attitude of EC. Also, it will be assessed if some relationships exist between the knowledge and some socio-economic stratification of the respondents. In this regard, the respondents will be clustered based on their geo-political area of origin, which in Nigeria are simply into six units. Individual geopolitical zones are usually characterized by a particular ethnicity, (with the exception of the North-central/middle belt), religious belief and a particular level of socio-economic development consequent to the earlier mentioned factors and how much of westernization are inculcated by the zones in question. Consequent to this, the knowledge of when and how to use EC is not expected to be equal among this group of female Nigerian graduates, irrespective of the level of degrees acquired. The present study will therefore analyze these factors and offer some suggestions on how to improve on the knowledge base of the mechanism of action of EC so that unintended pregnancies and its consequences can be reduced.

## Methodology

### Study population and design

This was a cross-sectional descriptive study carried out over three months' period (mid- September to mid-December, 2013) among female, National Youth Service Corps (NYSC) members deployed to the 23 Local Government Areas (LGAs) in Sokoto State, Nigeria, on a mandatory 1-year national service. The study group, typically comprise, female graduates from the universities and polytechnics, mostly in their 20s of age. They are a conglomerate of the various regional, ethnic and religious groups of Nigeria.

### Sampling

The estimated sample size, based on 13.3% prevalence rate of utilization of EC among female undergraduates in Port Harcourt, South, Nigeria [23], was 177. But 162 of the questionnaires were completed and retrieved, giving the response rate to 91.5%. The respondents' selection was by a stratified sampling technique in the following steps;

### Step 1

Prospective respondents were categorized into the 4 zones of NYSC in Sokoto state (Appendix 2).

### Step 2

The 177 estimated sample size was allotted proportionately to the zones according to each zones contribution to the 949 pool of female corps members serving in Sokoto state as at the time of the study. Thus;

**Bodinga:** with 63 female NYSC members was allotted 12 as follows;

$$\frac{63}{949}\times 177 = 12$$

**Gwadabawa:** with 88 female NYSC members was allotted 17, as follows;

$$\frac{88}{949}\times 177 = 17$$

**Sokoto:** with 710 female NYSC members was allotted 135 as follows;

$$\frac{710}{949}\times 177=135 \text{ and}$$

**Wurno:** with 88 female NYSC members was allotted 16 as follows;

$$\frac{88}{949}\times 177=16$$

### Step 3

The NYSC monthly clearance period was used to serve the questionnaires to the respondents, systematically. But, this was after further explaining to them and assuring them of confidentiality. Eventually, 162 questionnaires were filled and returned.

## Evaluation

Respondents' knowledge on mode of action of EC was evaluated with 7 questions. A score of 4 and above correctly answered questions was judged as good knowledge and less than 4 was considered as poor knowledge.

## Statistical Analysis

Database was managed with SPSS version 20.0 statistical package. Age of respondents was expressed as the mean ± S.D of the group. Charts and graphs were used to represent frequencies. Cross-tabulations were display to show correlations between variables. Logistic regression was used to show association between continuous and categorical variables and Pearson's Chi-square statistic test were used to establish relationship between categorical variables. P-value (α) was set at < 0.05.

## Results

The study evaluated 162 female graduates (91.5% response rate), selected from the 23 Local Government Areas (LGAs) in Sokoto State, Nigeria, observing their one-year mandatory national service with the state NYSC for the period of 2013/2014 year. The mean age of the respondents was 24.4 ± 2.5 years. The distribution of the respondents into tribes, religions, marital status, and geopolitical/states of origin are as shown in figures 1(a) - 1(d). The figures reflected a key objective of the NYSC scheme; to deploy Nigerian youths from all ethnic, religious and regional groups to work together in a state, different from their states of origin to foster unity. Figures 2(a) - 2(b) also showed the respondents' distribution in the type of degrees acquired and the courses they studied, respectively.

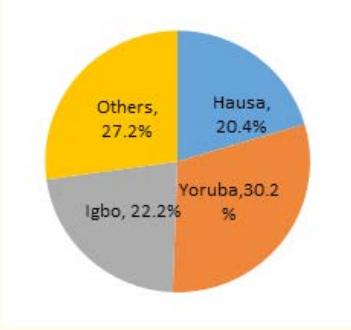


***Figure 1a:*** *Distribution of respondents according to their tribes.*

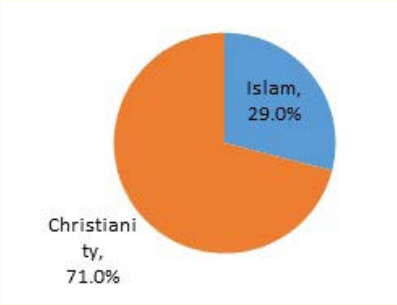


***Figure 1b:*** *Distribution of respondents according to beliefs.*

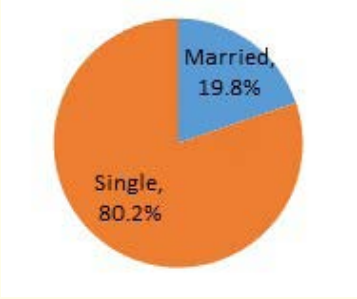


***Figure 1c:*** *Distribution of respondents according to their marital status.*

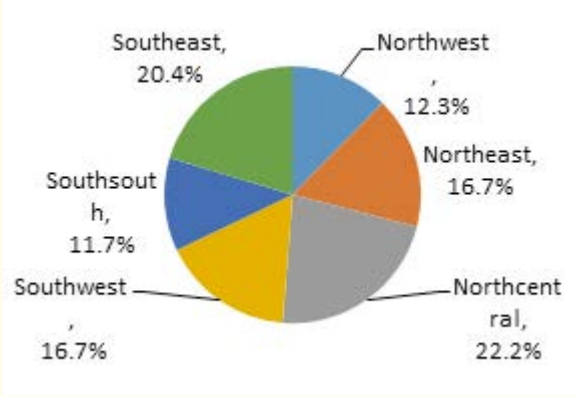


***Figure 1d:*** *Distribution of respondents according to their geopolitical zones.*

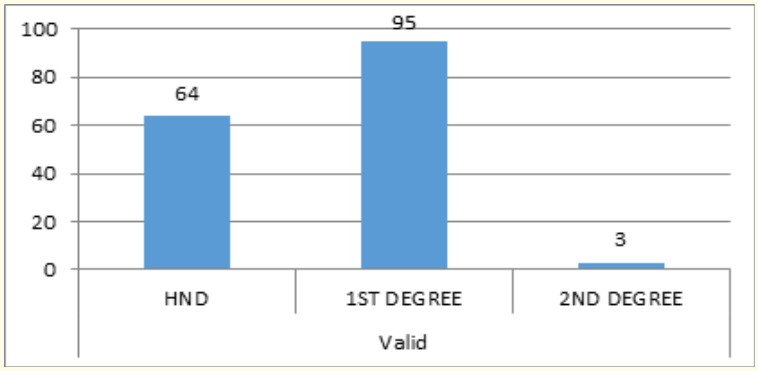


***Figure 2a:*** *Distribution of respondents according to the type of degree they have.*

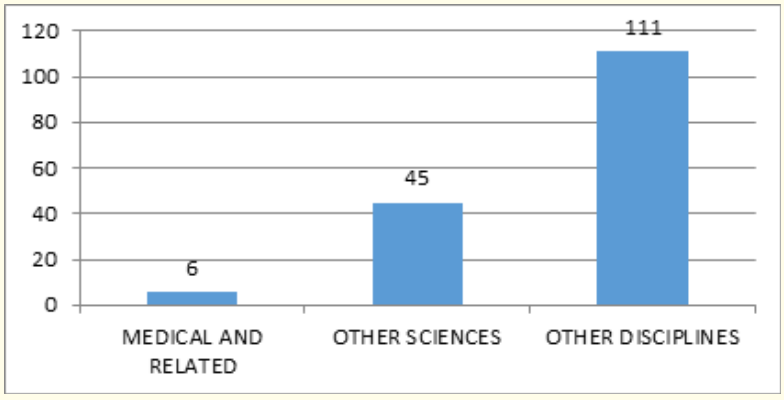


***Figure 2b:*** *Distribution of respondents according to their disciplines.*

## Knowledge of how EC works

About half (53.7%) of the respondents indicated they know what EC is. 28.4% (46) of them answered no, 13.6% (22) were not sure and 4.3% (7) of the respondents chose not to respond to the question. And just 22.8% (37) of the respondents have good knowledge of mode of action of EC, 72.8% (118) of them were poor in knowledge of EC and 7 of the respondents did not answer this question.

## Association/correlations between variables

The results showed a positive relationship between tribe and EC knowledge ($\chi^2 = 8.505$, $p = 0.037$), and the Yoruba and other tribes are likely to display better EC knowledge than Hausa and Igbo. And while there was no good association between the course a correspondent studied and their knowledge of EC ($\chi^2 = 1.174$, $p = 0.556$), there exist a strong positive correlation between EC knowledge and the geopolitical zone of the respondents ($\chi^2 = 17.830$, $p = 0.003$). With the respondents from the North-central (N-C) and South-west (S-W) states likely to have better knowledge of EC than other geopolitical zones.

Only 9.9% (16/162) of the respondents believed EC is effective. And an association was found in this believe and the respondents knowledge of EC (odd ratio = 7.071, p =0.008). There was no correlation between respondents' position on whether EC use is morally alright or not with how effective she felt EC is ($\chi^2$ = 1.270, p = 0.220). On the other hand, table 1a showed there was a strong positive correlation between the belief in the effectiveness of EC and their willingness to access EC services ($\chi^2$ = 28.264, p = 0.000). And table 1b a positive correlation between the belief that EC is effective and willingness to introduce others to an EC facility ($\chi^2$ = 9.401, p = 0.002).

| | | Effective | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| Morality | Yes | 10 | 11 | 21 |
| | No | 4 | 10 | 14 |
| Total | | 14 | 21 | 35 |

***Table 1a:*** *Morality* Effective Cross tabulation.*

Pearson Ch- square = 1.270, df = 1 and p = 0.220

| | | Effective | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| Access EC | Yes | 14 | 3 | 17 |
| | No | 0 | 22 | 22 |
| Total | | 14 | 25 | 39 |

***Table 1b:*** *Access EC* Effective Cross tabulation.*

Pearson Ch- square = 28.26, df = 1 and p = 0.000

| | | Effective | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| Introduce Any | Yes | 7 | 1 | 8 |
| | No | 9 | 23 | 32 |
| Total | | 16 | 24 | 40 |

***Table 1c:*** *Introduce Any* Effective Cross tabulation.*

Pearson Ch- square = 28.26, df = 1 and p = 0.000

## Discussion

The main findings of the present study are as follows; in a representative group of female Nigerian graduates, the general knowledge of EC was low. Unlike the study where no association was found between ethnicity and knowledge of EC [17], the present study showed better EC knowledge rates among Yoruba and other ethnic minorities and this is corroborated by the better knowledge displayed by those from North-central and South-west geopolitical zones. Whatever that confer these advantage on these sub-groups may require further studies.

That, although a tiny portion of the respondents believe EC is effective, it was found that those of them that have a good knowledge of when and how to apply it are more likely to believe its effectiveness. Similarly, a good relationship was demonstrated in respondents' position on the effectiveness of EC and their willingness to access it and also to introduce others to EC facilities. On the other hand, a relationship was not found between respondents' belief in the morality of using EC and how effective it is.

Previous studies have also recorded low general knowledge of EC [18,19,24]. The present study is unique in the sense that it fielded questions that targeted respondents' knowledge of the when and how EC is applied and assessed if this knowledge levels bear any relationship with the respondents' perceptions and seeking attitude to EC. We have found that the respondents that have good knowledge of the mode of actions of EC were also associated with higher odd of believing in its effectiveness (odd ratio = 7.071, p =0.008). This may be explained by the fact that this group of respondents might have applied it at the right time and way, so it was effective for them. Although, only 9.9% of the respondents believe EC is effective, earlier clinical studies and reviews revealed EC especially Cu-IUD has a negligible failure rates among those that applied it properly [13,25,26].

Although, only 44.4% of the respondents believes that it is morally alright to use EC even when there is obvious need for it, we have found that these sentiments on the morality of EC use did not influence the respondents' position on the effectiveness of EC ($\chi^2$ = 1.270, p = 0.220). Respondents' believe that EC was effective was reaffirmed not only by a strong positive correlation with the willingness to access it ($\chi^2$ = 28.264, p = 0.000) but also by a similar willingness to introduce others to EC facilities ($\chi^2$ = 9.401, p = 0.002). This is similar to the submission that women need to be better informed about the mode of action of EC for proficiency to be achieved in its application [17].

The limitations of the present study are; it was a cross-sectional study, so it lacks the value a cause and effect study would have given. It was also conducted only among female NYSC members and therefore may not be used to generalize in the larger society.

## Recommendation

It is obvious from the present and previous studies that knowledge of EC is generally low. The influence of general knowledge of EC as well as knowledge of mode of action of EC on the perception and its utilization by female Nigerian graduates has been made plain in the present study. We, therefore suggest proactive sex-education that may begin with the healthcare providers, whom the women will seek expert advice from, but unfortunately mostly deficient in the knowledge. It may also help to provide EC services in advance and made widely available too, like condoms. This has been proven by earlier studies not to encourage sexual promiscuity. It may also not be out of place to borrow leave from the geopolitical and ethnic sub-groups with better understanding of EC mechanisms; by closely studying factors in these groups that enhances this, so we can increase the utilization of EC and therefore bring down the incidence of unintended pregnancies, induced abortions and the consequences.

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