

*Full Length Research Paper*

# Emergency contraception: A different perspective on knowledge and use among female undergraduates in a non-residential tertiary institution in Nigeria

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This study assessed the knowledge and use of emergency contraception among female undergraduates of a non-residential tertiary institution in Lagos, Nigeria. It was a descriptive cross-sectional study conducted in March, 2011 amongst 363 consenting female undergraduates using pre-tested, structured questionnaires. Respondents were recruited by multistage sampling technique whilst data analysis was done using Epi Info Version 3.5.1 Statistical Software with level of significance set at  $P < 0.05$ . About 26.7% of the respondents were aware of emergency contraceptives, with their major sources of information being friends (55.7%) and doctors (34%). Few (16.5%) respondents were aware that emergency contraceptives are effective within 72 h of use. The proportion of usage of emergency contraceptives amongst respondents who had heard of emergency contraceptives was 21.7%. It was concluded that information sharing strategies on emergency contraception may prove useful in deterring untoward consequences of unprotected sexual experiences amongst the youths.

**Key words:** Contraceptives, emergency, female, undergraduates, tertiary.

## INTRODUCTION

The technique of emergency contraception involves the use of higher doses of regular contraceptive pills or the insertion of intra-uterine devices such as copper T in preventing unplanned or unwanted pregnancies (Galvao et al., 1999). Emergency contraceptive pills prevent ovulation while intrauterine devices prevent implantation (McMahon et al., 2004). Emergency contraceptive pills are also known as “morning after” or “post-coital” pills and have been in existence since the mid-70s (Harvey, 1999).

They are recommended for use within 72 h of unprotected sexual intercourse and some studies have in fact reported longer effectiveness for up to 120 h (Van Riper and Hellerstedt, 2005; ICEC 2004; Shwartz et al., 2007). Emergency contraceptive pills are listed as essential medicines which should be readily available and accessible (World Health Organisation, 2006, 2007; Ehrle and Saker, 2011).

In places where sexual violence and unplanned

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pregnancies remain as major public health issues, the importance of emergency contraception cannot be overemphasized (Ngoc et al., 1997; Ranney et al., 2011; Daru et al., 2011).

Unsafe abortions may result in grave repercussions for women, their families and communities in the context of reproductive health and possible life-threatening complications (Mitsunaga et al., 2005). Precise estimates of Nigerian women who die each year from unsafe abortion procedures may not be readily available. However, unsafe abortions account for about 10% of all maternal deaths in any given year in West Africa (World Health Organisation, 2004).

A United Nations report states that from approximately 6.8 million pregnancies that occur each year in Nigeria, 16% end in miscarriages, 11% in induced abortions, 10% in births that were unplanned and 63% in births that were planned (United Nations, 2003). Therefore, about one in five pregnancies each year in Nigeria (or approximately 1.4 million) are unplanned, and half of these end in abortions (United Nations, 2003; Henshaw et al., 1998).

Research has shown a decreasing age of coitarche and concurrent increase in adolescent sexual activities in developing countries which underscore the need for emergency contraceptives in preventing unwanted pregnancies (Tsfaye et al., 2012).

University under-graduates have been known to indulge in casual sexual relationships, neglecting the necessary precautions due to the absence of direct parental supervision while away from home (Arinze-Onyia et al., 2014). Some studies have revealed a general lack of knowledge about emergency contraception in developing countries compared to their developed counterparts (Aziken et al., 2003; Addo and Tagoe-Darko, 2009; Hoque and Ghuman, 2012). Awareness about emergency contraceptives among university students was 24.3% in Ibadan, Nigeria, 49.8% in South Africa, and 94% in the United States of America (Hoque and Ghuman, 2012; Bello et al., 2009; Vahratian et al., 2008). Other studies have shown relative unawareness about the appropriate interval for efficacy following the use of emergency contraception (de Irala et al., 2007).

A number of studies on the knowledge and perception of emergency contraception among university undergraduates had shown that the majority of the students received information about the method from their friends and colleagues (Aziken et al., 2003; Bello et al., 2009; Ebuehi et al., 2006). Many of such students were lodged in residential university accommodation where interactions with peers and colleagues are presumably easier and at higher levels.

However, a few tertiary educational institutions in Africa practice non-residential housing in a bid to reduce government expenditure on tertiary education (Nkegbe et al., 2012).

A possible deficiency of this cost reduction strategy is the risk of students' exposure to social problems such as

domestic violence, neighbour disturbances, late arrival for lectures, non-conducive atmosphere and sexual harassment in unwholesome dwellings (Yusuff, 2011). It could also be theoretically surmised that this non-residential arrangement could reduce the interphase between peers subsequently leading to reduced flow of information on various life issues including emergency contraception.

This study was therefore conceptualised to assess the perception and practices regarding emergency contraception among undergraduates of a non-residential tertiary institution in Lagos Nigeria.

## MATERIALS AND METHODS

This study was conducted in Lagos State, which is the economic base of Nigeria characterized by a high rural-urban migration rate. In terms of education, there are two universities in Lagos State (one state and one federal-owned).

It is a descriptive cross-sectional study conducted in March, 2011 on the perception and practices of female undergraduates of the state-owned university in Lagos, Nigeria which is non-residential. The study population comprised female undergraduate students of the Lagos State University. The sample size was determined using the formula:

$$n = Z^2pq/d^2$$

where n is the sample size, d is the precision in 5%, Z is the confidence limits of the survey (z=1.96), P = 0.243 (awareness about emergency contraceptives among university students in Ibadan) [22].

$$\begin{aligned} q &= (1-0.24) = 0.76 \\ n &= (1.96)^2 (0.24) (0.76)/0.05^2 \\ n &= 0.700416/0.0025 \\ n &= 280.2 \end{aligned}$$

The minimum sample size for this study was 280; however, to improve accuracy, the sample size was rounded up to 400.

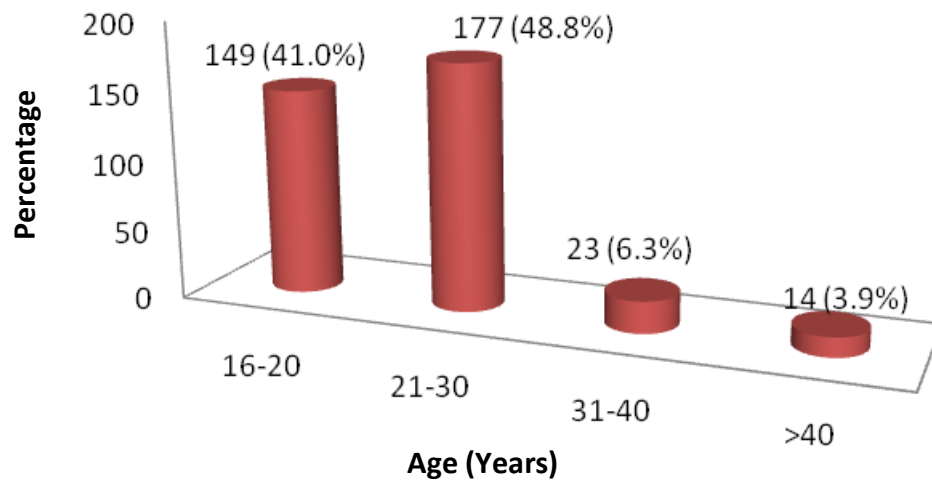
A multistage sampling technique was used in recruiting respondents. At the first stage, 2 of the 3 campuses of the university were selected using the simple random sampling method by balloting (main campus and the college of medicine). Subsequently, respondents were proportionately selected from the various year groups in the College of Medicine as well as 2 randomly selected faculties (by balloting) of the 10 faculties at the main campus. A self-administered structured questionnaire comprising open and close-ended questions on awareness and practices regarding emergency contraception was used for data collection. This questionnaire had been pre-tested at the third campus to exclude ambiguities and to aid tool refinement.

Microsoft Excel and Epi Info Version 3.5.1 Statistical Softwares were utilised for data entry and analysis. Chi test was used to assess possible relationships between variables. The level of significance was set at  $p < 0.05$ .

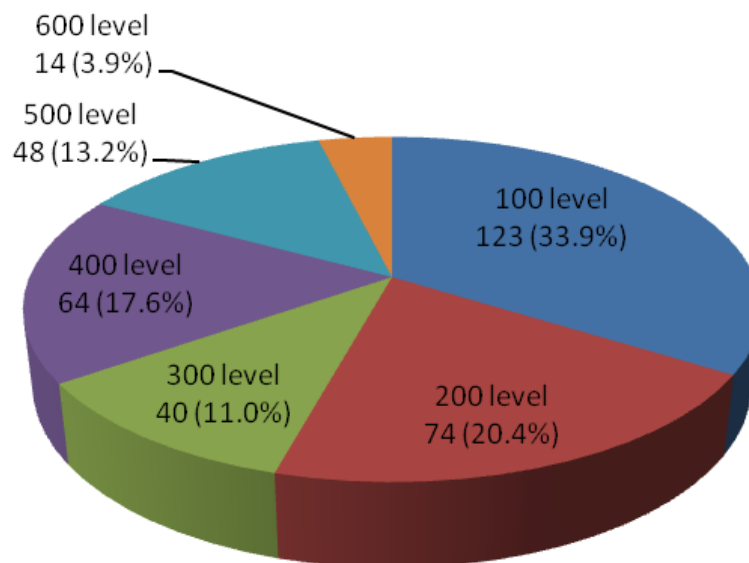
Ethical clearance was obtained prior to the commencement of the study and informed consent was obtained from the participants whilst confidentiality was assured.

## RESULTS

As a result of incomplete filling, a total of 363 complete records were obtained from the 400 questionnaires



**Figure 1.** Age Distribution of respondents.



**Figure 2.** University Level Of Respondents

distributed resulting in a response rate of 90.7%. The majority (89.8%; 326) of respondents were between 16 and 30 years of age (Figure 1). The first year (100 level) students were mostly represented (33.9%; 123) in this study group. Most (87.3%; 317) of the respondents were single at the time of study and Christianity was the predominant religion (77.1%; 280) (Figure 2).

About a third (37.2%; 135) (Figure 3, 4) had been exposed to sexual activity in the past while 41.5% (56) had been pregnant before with 67.9% ending in deliveries and almost half (46.4%; 26) of these pregnancies ending in induced abortions (Table 1).

Less than a third (26.7%; 97) of the respondents reported awareness about emergency contraceptives. Similarly, 28.7% (104) had heard of morning after pills with the major sources of information being friends (55.7%; 54), doctors (34%; 33) and others (37.1%; 36) which include schools, lectures and sexual partners. Furthermore, less than 20% (16.5%; 16) had adequate information that emergency contraceptives are effective within 72 h of use. About 7.2% (7) were of the belief that emergency contraceptives prevent sexually transmitted infections (Table 2). The proportion of usage of emergency contraceptives amongst respondents who had heard of emergency contraceptives was 21.7% (21)

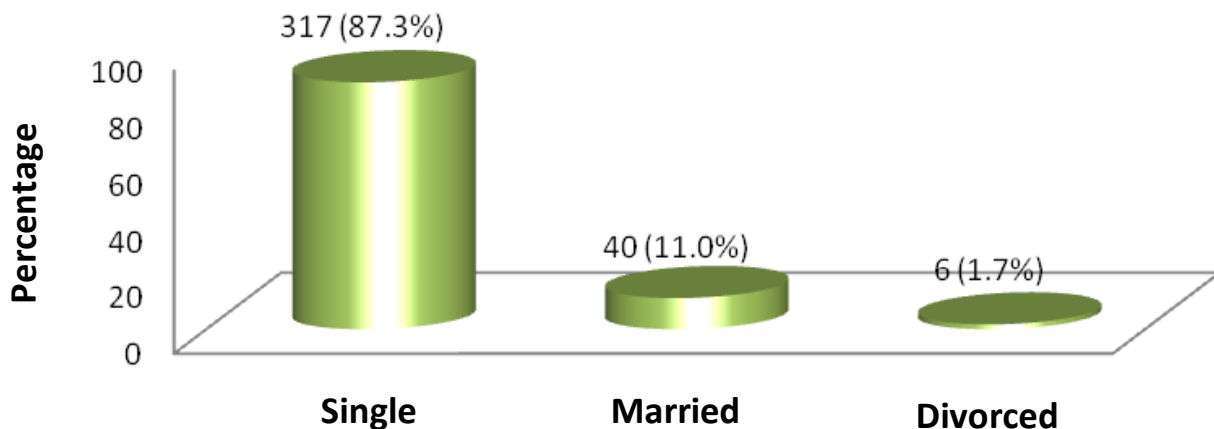


Figure 3. Marital status of respondents.

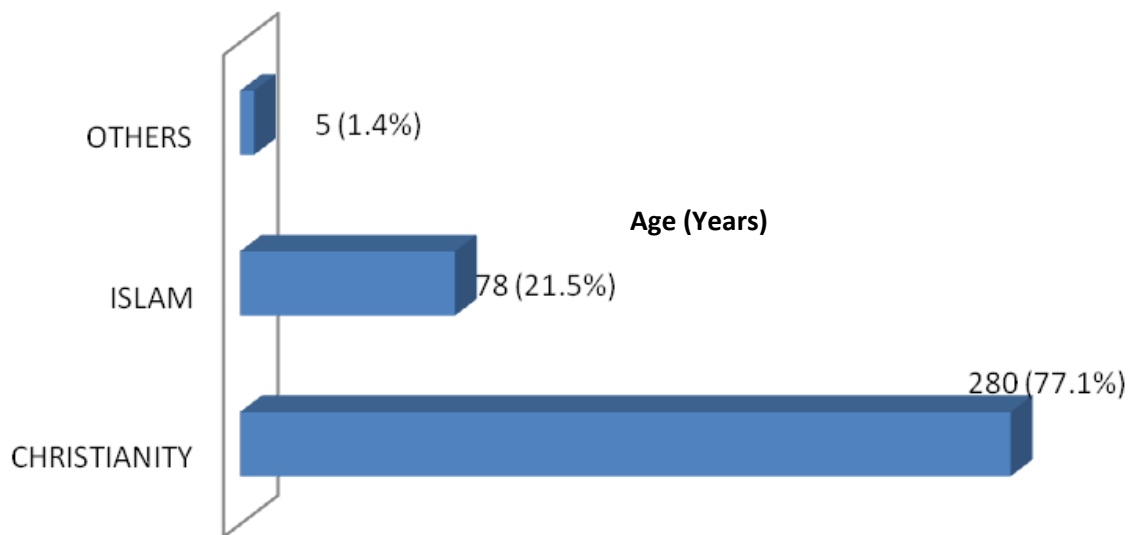


Figure 4. Religion of respondents.

and the most popularly itemized emergency contraceptive used by these respondents is postinor (66.7%; 14). About two thirds (67.1%; 51) had no reason for non-use of emergency contraceptives and irregular menses was the most common (57.1%; 12) side effect experienced by respondents who use emergency contraceptives. A sizeable proportion (62.0%; 13) described emergency contraceptives as being totally effective. Awareness about emergency contraceptives appeared to be higher with increasing university level ( $P < 0.05$ ) (Table 3). However, there was no significant association between awareness about emergency contraceptives and a history of abortion ( $P = 0.062$ ) (Table 4). Moreover, there was no significant relationship between respondents' university level or religion and usage of emergency contraceptives ( $P > 0.05$ ) (Table 5).

## DISCUSSION

This study investigated the perception and practices of female undergraduates concerning emergency contraception. The findings indicate that both awareness and usage of emergency contraceptives were low among the female undergraduates.

An earlier study on the knowledge and use of emergency contraception among female undergraduates of five Nigerian universities reported that 62% of the participants were single (Arowajolu and Adekunle, 1999) in comparison to a higher finding (87.3%) observed in the current survey and some other studies (Addo and Tagoe-Darko, 2009; Hoque and Ghuman, 2012). This trend is not surprising considering the report from Nigeria's demographic and health survey of 2008 which revealed

**Table 1.** Sexual and reproductive history of respondents.

Variable	Frequency	Percentage
<b>Sexually active</b>		
Yes	135	37.2
No	228	62.8
Total	363	100.0
<b>History of pregnancy</b>		
Yes	56	41.5
No	79	58.5
Total	135	100.0
<b>History of delivery(ies)</b>		
Yes	38	67.9
No	18	32.1
Total	56	100.0
<b>History of abortion</b>		
Yes	26	46.4
No	30	53.6
Total	56	100.0

an upward trend in the age at marriage over the last decade with the median age at first marriage increasing from 15.5 years among women with no education to 22.0 years among women with secondary education (Nigeria Demographic and Health Survey, 2008).

The proportion (37.2%) of sexually active respondents observed in the present study was similar to the 33.1% reported among undergraduates of the Ghanaian study assessing knowledge, practices and attitudes of university students regarding emergency contraceptives (Addo and Tagoe-Darko, 2009). Sexual intimacy may actually have been under-reported in these studies because youths are often sensitive to questions on sexual activity, in addition to the fact that issues of sexuality may be enshrouded with some secrecy.

It is interesting that, close to half (41.5%) of all respondents had been pregnant before, and almost half (46.4%) of the participants with a positive history of previous pregnancy admitted to having had induced abortions in the past. This is in contrast to the observation from the Ghanaian study in which about 21.1% of the sexually active female students had used contraception while 11.3% of the respondents had undergone an induced abortion (Addo and Tagoe-Darko, 2009). It is known that a large proportion of abortions among youths in developing countries like Nigeria are unsafe (Ireti et al., 2010; Rasch, 2011). This finding may be associated with the fact that most African societies with restrictive abortion laws frown at pregnancies outside marriage on moral grounds resulting in clandestine abortions and the attendant negative consequences such as bleeding, reproductive tract infections, infertility and even death. The

possible implication of the finding from this study is the potential exposure of the students in this university to the risk of the common complications of unsafe abortion.

There was a similar awareness level (26.7%) of emergency contraception in this study compared to the research on female undergraduates in Ibadan, Nigeria where about 24.3% of the respondents were aware of emergency contraceptives (Bello et al., 2009). However, some other studies conducted in Nigerian tertiary institutions have reported higher levels of awareness regarding emergency contraception (Aziken et al., 2003; Ebuehi et al., 2006; Arowojolu and Adekunle, 1999; Abasiattai et al., 2007; Arowojolu and Adekunle, 2000; Ibekwe and Obuna, 2010; Ikeme et al., 2005). Over half (58%) and 67.8% of undergraduates in Benin and Lagos, respectively were aware of emergency contraception (Aziken et al., 2003; Ebuehi et al., 2006). Furthermore, in a survey among students with previous clandestine abortions in five higher institutions in Southwest Nigeria, 30.1% of the study participants were aware of emergency contraceptives (Arowojolu and Adekunle, 1999).

Studies from other countries reporting higher awareness levels of emergency contraception among female undergraduates include 49.8% in South Africa, 51.4% in Ghana, 63% in Trinidad, 90.3% in Bareilly India and 66% in Nepal (Addo and Tagoe-Darko, 2009; Hoque and Ghuman, 2012; Morroni and Moodley, 2006; Adhikari, 2009; Agrawal and Agrawal, 2013; Parey et al., 2010). The participants in the current study are less likely to have benefitted from the protective effect of emergency contraceptives against unwanted pregnancies considering the low level of awareness observed.

Emergency contraception is a useful strategy in the concept of dual protection from a combination of barrier and non-barrier methods aimed at reducing the risk of sexually transmitted infections in addition to preventing unwanted pregnancies amongst at-risk females such as sex workers. A Swazi study highlighted the potential benefit of emergency contraceptive use in preventing unwanted pregnancies which could result from condom failure due to breakage amongst female sex workers (Yam et al., 2014).

Several studies among female undergraduates conducted in Nigeria and other African countries like Ghana and South Africa have reported considerable lack of knowledge concerning the specifics of emergency contraception among undergraduates as has been observed in this study. For instance, only 18% of the female undergraduates at the University of Benin, Nigeria had correct knowledge on the timing and efficacy of emergency contraceptives (Aziken et al., 2003). Another survey conducted on students in post-secondary institutions in Southwest Nigeria showed that only 11.5% of the students were knowledgeable on the correct timing regarding the use of emergency contraceptive pills despite awareness about this method of contraception (Arowojolu and Adekunle, 2000). This finding is comparable to the 16.5% observed among respondents

**Table 2.** Awareness about emergency contraceptives.

Awareness	Frequency	Percentage
<b>Emergency contraception (EC)</b>		
Yes	97	26.7
No	266	73.3
<b>Morning after pills</b>		
Yes	104	28.7
No	259	71.3
<b>Source(s) of information</b>		
Friends	54	55.7
Nurses	16	16.5
Doctors	33	34.0
Electronic media	16	16.5
Print media	25	25.8
Others	36	37.1
<b>Usage time</b>		
Within 24 h	14	14.4
Within 48 h	23	23.7
Within 72 h	16	16.5
Others	44	45.4
<b>Number of times in a monthly cycle</b>		
Once	16	16.5
Twice	2	2.1
Thrice	4	4.1
Many times	11	11.3
Don't know	64	66.0
<b>Prevention of STIs</b>		
Yes	7	7.2
No	84	86.6
Don't know	6	6.2

of the current study. Similarly, only 11.8% of the undergraduates in the South African study knew the correct time limit in which emergency contraceptives must be used (Roberts et al., 2004). On the other hand, a higher proportion (37.8%) of female undergraduates in a similar study conducted in Lagos, were aware of emergency contraception and the correct time frame for effective use (Ebuehi et al., 2006). A contrary observation was found in a related study with an intervention component in Southeast Nigeria where knowledge of the correct timing of emergency contraceptive pills was 2.7% at baseline and 20.7% at follow-up due to an educational process (Arinze-Onyia et al., 2010).

Another significant finding among the respondents in the present study was the lack of knowledge concerning the number of times emergency contraceptive pills could

be used within a monthly cycle. About two thirds (66%) of the respondents who were aware of emergency contraception did not know how many times emergency contraceptive pills could be used within a monthly cycle. The implication of this observation is the unlikelihood of correct usage of emergency contraceptive pills even among those aware of this method.

Knowledge of the students' main sources of information on emergency contraception may offer a guide on ways of providing accurate information concerning the subject. A large number of students heard about emergency contraceptives from their friends (55.7%) and a few had heard from healthcare workers. This corroborates the finding in female university students in KwaZulu, South Africa where 55.2% of the study participants mentioned their friends as the main source of information on

**Table 3.** Usage of emergency contraceptives.

Variable	Frequency	Percentage
<b>Usage</b>		
Yes	21	21.7
No	76	78.4
Total	97	100.1
<b>Type of EC used</b>		
Postinor	14	66.7
IUCD	1	4.7
Others	6	28.6
Total	21	100.0
<b>Reason(s) for non-use</b>		
Sexually inactive	34	44.7
Side effects	15	19.7
Religion	6	7.9
No reason	51	67.1
Others (Use regular method)	32	42.1
<b>Side effect experienced(s)</b>		
Extended period	4	19.1
Irregular menses	12	57.1
Nausea	4	19.1
Weight gain	5	23.8
Don't know	8	38.1
<b>Effectiveness</b>		
Totally	13	62.0
Partially	5	23.7
Ineffective	3	14.3
Total	21	100.0

emergency contraception (Roberts et al., 2004). Furthermore, in the Lagos study on emergency contraception among female undergraduates in the University of Lagos, Nigeria, the majority of respondents also obtained information on emergency contraception from friends (Ebuehi et al., 2006)

Interestingly, in an earlier study among this sub-set of female undergraduates in the present study on awareness of long acting reversible contraceptives (LARCs), the sources of information were from lectures and health workers (Fabamwo et al., 2012).

Despite the fact that the university campus where this study was conducted is non-residential, the female undergraduates were able to connect sufficiently with their peers to enable access to information about emergency contraception.

The emergency contraceptive utilization rate of 21.2% reported from the study among female university students in South Africa is comparable to the finding of 21.7% usage rate amongst those who had heard of emergency

contraception in the current study (Hoque and Ghuman, 2012). Ezebialu and Eke (2013) reported a higher usage of emergency contraception (37.9%) by female non-medical undergraduates in South Eastern Nigeria. Contrarily, some other studies reported even lower rates. The South African study which assessed the knowledge, use and attitude to the use of emergency contraception among tertiary students reported a lower utilization rate of 11.8% (Roberts et al., 2004). In Nigeria, a lower utilization rate of 7.6% was also reported in the Ibadan study (Bello et al., 2009). Furthermore, another Nigeria survey on tertiary school students also had a very low emergency contraceptive utilization rate of 5.7% (Abasiattai et al., 2007).

It is possible that living in Lagos; a highly cosmopolitan city, could explain the higher usage of emergency contraception observed in this study. The likelihood of exposure of the undergraduates in this study to sexually intimate relationships may be higher, thereby necessitating the resort to the use of contraceptives in general and emergency contraception in particular.

Although the majority of respondents of the present study who were aware of emergency contraceptives but did not report usage, gave no specific reason for non-utilization. The lack of accurate knowledge on its use, concerns associated with cultural and societal beliefs, and misconceptions about its utilization could be some reasons for the low utilization.

Levonorgestrel-only pill (Postinor) was the most commonly used emergency contraception by the study participants as has been reported by a previous study (Ikeme et al., 2005).

Among the respondents who used emergency contraceptives in the present study, 14.3% reported that it was ineffective. This finding was slightly similar to what was reported by undergraduates in Eastern Nigeria where 16% of those who used emergency contraceptive pills still happened to get pregnant (Ikeme et al., 2005). A plausible reason for the observed failure rate in both studies may be due to lack of knowledge about the specifics and correct usage of the Levo-norgestrel only pill (Postinor).

Despite the fact that a higher proportion of emergency contraception usage was observed amongst respondents in the first to third years (100 to 300 levels; 31.2%) and the Christians (28.3%), there was no statistically significant association. In a household survey on sexually experienced women in urban Kenya and Nigeria, significantly more Nigerian Muslims (51.1%) were "never users" of emergency contraceptives (Morgan et al., 2014).

Moreover, the present study revealed a low level of awareness and use of emergency contraceptives among female undergraduates studied in Lagos. There is thus a need to improve perception about emergency contraception among undergraduates, with emphasis on available methods and correct usage to reduce failure rate, unwanted pregnancies and unsafe abortions with the

**Table 4.** Awareness of emergency contraception according to respondents' university level and history of abortion

Variable	Awareness of emergency contraception (N = 363)		Chi square, P value
	Yes [Frequency (%)]	No [Frequency (%)]	
<b>University level</b>			
100	8 (6.5)	115 (93.5)	Yates' $\chi^2 = 78.4$ , Df = 5 P = <0.001
200	11 (14.9)	63 (85.1)	
300	13 (32.5)	27 (67.5)	
400	24 (37.5)	40 (62.5)	
500	31 (64.6)	17 (35.4)	
600	10 (71.4)	4 (28.6)	
<b>History of abortion</b>			
Yes	11 (42.3)	15 (57.7)	$\chi^2 = 3.47$ , Df = 1, P = 0.062
No	86 (25.5)	251 (74.5)	

**Table 5.** Usage of emergency contraception versus respondents' university level and religion.

Variable	Usage of emergency contraception (N = 97)		Chi square, P value
	Yes [Frequency (%)]	No [Frequency (%)]	
<b>University level</b>			
100 - 300	10 (31.2)	22 (68.8)	$\chi^2 = 2.59$ , Df = 1, P = 0.107
400 - 600	11(16.9)	54 (83.1)	
<b>Religion</b>			
Christianity	13 (28.3)	33 (71.7)	$\chi^2 = 2.39$ , Df = 2, P = 0.302
Islam	6 (17.1)	29 (82.9)	
Others	2 (12.5)	14 (87.5)	

attendant effects. The use of peer-educators may assist in knowledge sharing and transfer.

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## Conflict of Interests

The author(s) have not declared any conflict of interests.

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