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# Emergency contraception – pharmacists' knowledge and attitude on emergency contraceptives' dispensing practices

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## Abstract

**Objectives:** Emergency contraceptives have the potential to reduce health complications in women with unintended/unwanted pregnancies. Access to availability and use of emergency contraceptive pills (ECPs) is influenced by pharmacist knowledge and attitudes, and there are limited data in Nigeria on pharmacists' ECPs dispensing practices. This study assessed pharmacists' knowledge, attitude and practice towards the use of emergency contraceptives.

**Methods:** A cross-sectional study conducted among 100 community pharmacists in Ibadan metropolis, Nigeria with the use of a self-administered structured questionnaire. The questionnaire contained Likert-type 17-item knowledge, 9-item attitude and 15-item practice scales. The scales utilised 5–7 graded responses. The scaled score was graded as good and poor knowledge, positive and negative attitude and high, moderate or low-level practice of emergency contraception. The ability to predict the level of practice of emergency contraception, based on the pharmacist's knowledge and attitude towards the use of ECP, was determined with hierarchical multiple regression as $P < 0.05$.

**Key findings:** Good knowledge of emergency contraceptives was displayed by 51.5% of the pharmacists, and 51.9% had a positive attitude towards the use of ECPs. The level of ECP dispensing practices was high among 43.4% of pharmacists and low among 30.1% of pharmacists. More than 30% of the pharmacists offer a high level of educational services practice for ECPs. Pharmacists' knowledge ($\beta = 0.348$, $P = 0.002$) and attitude ($\beta = -0.302$, $P = 0.007$) were predictive of the dispensing practice of ECPs.

**Conclusion:** The community pharmacists have good knowledge of emergency contraceptive use and showed a positive attitude towards the dispensing of emergency contraceptive pills.

**Keywords:** emergency contraceptives; community pharmacists; emergency contraception

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## Introduction

Appropriate and comprehensive counselling on the use of emergency contraception pills (ECP) is essential to safeguarding the independence of women in childbearing age and has been demonstrated to be a dominant tool of social change.[1] Emergency contraceptives (ECs) are used after unprotected sexual intercourse, when a contraceptive method has failed, or after sexual violence. They have the potential to reduce unintended pregnancies and possibly abortion rates.[1] In Nigeria, the most populous country in Africa, the use of contraceptives among adolescents is low,[2, 3] which is similar to those reported in developing countries (25–35%).[3] Studies in western and southern Nigeria reported the rate of contraceptive use among sexually active adolescents to be about 30%,[4–6] which is significantly lower than those reported for some developed countries.[4–6]

Globally, there were about 303 000 maternal deaths in 2015; of this, approximately 99% (302 000) were from developing countries, with sub-Saharan Africa alone accounting for about 66% (201 000), followed by Southern Asia (66 000). At the country level, Nigeria and India were estimated to account for one-third of all maternal deaths worldwide in 2015.[7] Worldwide, 210 million women become pregnant each year. Of these, 80 million pregnancies are unplanned. Out of these unplanned pregnancies, 46 million are terminated each year, and 19 million ends with unsafe abortion.[8–12] Unintended pregnancies ranged from 30% in Western Africa to 59% in Southern Africa in 2008, with an estimate of 39% in sub-Saharan Africa (SSA).[13] Women from Sub-Saharan African countries have the higher proportion, among these cases.[11] Unplanned pregnancies are still a major public health problem associated with 13% of maternal deaths worldwide.[12, 14, 15]

Women with unintended/unwanted pregnancies are more likely to be predisposed to health complications such as the increased probability of adverse birth outcomes, delayed detection of pregnancy, gestational diabetes and hypertension during pregnancy, which might lead to hospitalisation during pregnancy when compared with women with intended pregnancies.[16] The outcome of unwanted childbearing could affect both the child and the mother in various ways.[17] The low use of contraceptives among adolescents in Nigeria may

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suggest insufficient contraceptive knowledge and access. They may also insinuate the perception among youth that it is easier and safer to obtain an abortion than to practice contraception on a regular basis.[2] ECs are, however, available over the counter in Nigeria.

Pharmacists are usually the first point of contact for minor ailments and medications, EC inclusive. Access to emergency contraceptive pills as well as their use and availability is influenced by pharmacist knowledge and attitudes towards them.[18] Studies from other settings have discovered that women's access to contraception may be obstructed by a lack of knowledge and negative attitudes among pharmacy and health care staff.[19, 20] To the best of our knowledge, there are limited data in Nigeria to explore pharmacist dispensing practice, knowledge and attitudes on emergency contraceptive pills. The aim of the present study was to assess pharmacist knowledge, attitude and practice towards the use of emergency contraceptive pills in a southwestern state in Nigeria.

## Methods

### Ethics approval

The protocol for the study was approved by the joint Ethics Committee of the University of Ibadan and University College Hospital with the approval number - UI/EC/16/0111. Before the commencement of the study, written informed consents were obtained from participating community pharmacists.

### Study site and population

The survey was carried out in the Ibadan metropolis. Ibadan is one of the largest city in Nigeria. It is the capital city of Oyo State in the southwestern part of Nigeria. The study participants were community pharmacists working in registered community pharmacies located within the Ibadan metropolis during the period of the study.

### Study design and sample size

The study was a cross-sectional, descriptive survey. The sample frame was extracted from the 2015 Pharmacists Council of Nigeria register of community pharmacists. There were 130 community pharmacies registered in the Ibadan metropolis. The sample size was determined using the Taro Yamane formula[21] with the level of error tolerance set at 5% and 95% confidence interval. The sample size obtained after the addition of 10% non-response was 110.

### Sampling and data collection procedure

A consecutive sampling technique/approach was used for participants' enrolment. Eligible community pharmacists were approached by visiting individual pharmacists in their respective pharmacy premises. The paper questionnaire was distributed to 110 community pharmacists. Objectives of the study were explained to every pharmacist, after which voluntary verbal informed consent was obtained to signify the intention to participate in the study. The paper questionnaire was self-administered by all consented pharmacists and retrieved within 25–30 min of completion of the questionnaire. Anonymity and confidentiality of responses were assured, while participation was entirely voluntary. Measures were put in place to ensure that no pharmacist filled more than one questionnaire. This was achieved by coding each questionnaire administered to the pharmacist from each community pharmacy to avoid duplication. At least one pharmacist per community pharmacy premises completed the questionnaire on his/her own. The investigator collecting the data was given all the necessary training about the instrument and appropriate ways of approaching the pharmacists and gaining their permission to fill the questionnaire prior to the data collection process. There was no incentive provided to the respondents for participating in the study.

### Study period and instrument

The study was conducted from June to September 2016. A self-administered pre-tested structured questionnaire containing four sections was used. The questionnaire was developed after an extensive review of literature related to the knowledge, attitude and practice of contraceptives among health professionals.[18–20] The first section of the questionnaire contained socio-demographic questions, which included age, gender, years of practice, religion and marital status. The second section contained a 17-item knowledge scale with 5-graded responses (1 – strongly disagree, 5 – strongly agree). The third section also contained a 13-item Likert-type scale on attitude with similar 5-graded responses as the knowledge scale. The fourth section had a Likert-format practice scale containing 15 items with 5-graded responses (1 – never, 5 – often). These scales were developed by the investigators to assess the knowledge, attitude and the practice of contraception by community pharmacists.

The questionnaire was assessed by two lecturers in the department of clinical pharmacy for content validity, while the face validity was assessed during the pre-test, which was conducted among 10 community pharmacists who were not part of the study population. Based on the face and content validity, some of the questions that appeared ambiguous and lacked relevance were removed. The results of the pre-test were not used in the final analysis.

There were six negatively worded questions (items 4, 6, 7, 11, 16 and 17) in the knowledge scale and one negatively worded question (item 13) in the practice scale. No negatively worded items in the attitude scale were reversed or scored because of the attitudinal nature of the scale. For simplicity, knowledge was dichotomised into poor and good knowledge by classifying responses of 'strongly agreed', and 'agreed' as good knowledge while responses of 'neutral', 'disagree' and 'strongly disagree' were classified as poor knowledge. However, on the attitude scale, because all the items were negatively worded and lower scores represented positive attitude, responses of 'disagree' and 'strongly disagree' were classified as positive attitude while responses of 'strongly agreed', 'agreed' and 'neutral' were classified as negative attitude. For the practice scale, options 'very often' and 'often' were classified as high level of practice; option 'sometimes' as a moderate level of practice and options 'rarely' and 'never' as low level of practice. The questionnaire, which took an average of 15 min to complete was administered to each community pharmacist and retrieved the same day. When the pharmacists were too busy to fill the questionnaire, it was administered to the pharmacists on another day that was mutually agreed upon by the community pharmacists and one of the investigators.

### Statistical analysis

Statistical Package for Social Sciences, SPSS version 25 (IBM Corp, New York, USA), was used for data entry, cleaning

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and analysis. Frequency, percentage and mean ± standard deviation, median (interquartile range) and 95% confidence interval were the descriptive statistics used to summarise the data. Before analysis, all the negatively worded items in two scales (knowledge and practice) were reversed scored. Factor analysis was performed using the principal component analysis. Preceding this, the factorability of the data for each of the three developed scales was assessed with the inspection of the correlation matrix, Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's Test of Sphericity. The number of factors for each scale was determined by Eigenvalue >1, an inspection of the Catell's scree plot and the determination of Monte Carlo Parallel analysis. Oblimin with Kaiser normalisation factors rotation method was used.

The internal consistency of each scale and its subscale was determined by computing the Cronbach α coefficient. Total scores for each scale and subscales were also computed by summing up participants' responses. The association between gender, age group, year of practice and the knowledge, attitude and practice scores were determined with either Mann–Whitney *U* or Kruskal–Wallis tests with a significance level set at $P < 0.05$.

Also, hierarchical multiple regression analysis was used to determine the ability of community pharmacists' knowledge of ECPs, and attitude towards emergency contraception to predict the level of practice of emergency contraception after controlling for age and years of community pharmacy experience.

## Results

### Socio-demographic characteristics of respondents

Of the selected 110 pharmacies, 100 pharmacists participated in the study giving a response rate of 90.9%. Seven pharmacists declined participation in the study, while three pharmacists failed to fill out the questionnaire after two visits by the investigator.

The gender of participants were equally represented in a 1:1 ratio (Table 1), and the mean age of the community pharmacists was 35.1 ± 11.0 years, with their ages ranging from 22 to 70 years. Seventy-eight per cent of the pharmacists were Christians, while 20.0% practice Islam. Eighty per cent of the community pharmacists had > 10 years of practice experience (range 1.5 months to 45 years; Table 1).

### Factor analysis

The two and three components solution for the practice and attitude scales explained a total of 59.8% and 55.7%, respectively of the variance. There was a weak positive correlation between the two factors in the practice scale ($r = 0.049$), while in the attitude scale, there was no correlation between components 1 and 3, but there were weak positive correlations between components 1 and 2 ($r = 0.131$) and components 2 and 3 ($r = 0.291$). The loading of and the percentage variance contributed by each component of the attitude and practice scales are shown in Supplementary Tables 1 and 2, respectively. The Cronbach α for the scales and subscales ranged from 0.650 to 0.715.

### Respondents' awareness of contraceptive methods

All the study participants were aware of post-coital contraceptives; 88% had received prior training or instructions on family planning and contraceptive methods. Familiarity with the various contraceptive methods available varied among the respondents. Between 70% and 93% of the pharmacists knew about female condoms, oral and parenteral birth controls and intra-uterine device. Forty-two per cent were accustomed with spermicides, 35.0% knew about diaphragm, while 19.0% and 9.0% were aware of cervical caps and sponges as forms of contraceptives, respectively.

### Knowledge of emergency contraceptives

Good knowledge of emergency contraceptives was displayed by 51.5% of the pharmacists, and almost all the community pharmacists knew that contraceptives are used for birth control. Sixty-four per cent of the pharmacists agreed that emergency contraceptive pills are a form of post-coital contraception while another 64.0% of the participants agreed that they are used immediately after unprotected sexual intercourse, but 63.0% did not agree that intra-uterine device could be used as a form of post-coital contraception. Interestingly, most of the pharmacists are familiar with when and how emergency contraceptive pills should be used. As given in Table 2, less than half of the pharmacists (43.0%) knew that ECPs cannot be used as abortifacients while another 28.0% agreed that ECPs could not cause weight gain. Other responses of the pharmacists to questions on the knowledge of ECPs are given in Table 2.

**Table 1** Demographic characteristics of community pharmacists ($n$ = 100)

| Demographic variables | Frequency |
|---|---|
| Age, year, mean ± SD | 35.06 ± 11.00 |
| [a]Age group, year | |
| 21–32.5 | 64 |
| 32.51–45 | 20 |
| 46–57.5 | 9 |
| 57.51+ | 7 |
| Gender | |
| Male | 50 |
| Female | 50 |
| Marital status | |
| Single | 37 |
| Married | 63 |
| Religion | |
| Christianity | 78 |
| Islam | 20 |
| Traditional | 2 |
| Year of community pharmacy practice, mean ± SD | 7.43 ± 9.14 |
| [a]Year of community pharmacy practice group, year | |
| ≤3 | 42 |
| 3.01–5.00 | 27 |
| ≥5.01 | 31 |

SD, standard deviation
[a]Binned group based on equal percentile.

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**Table 2** Respondents' knowledge of emergency contraceptives

| Items | Statements | Median (IQR) | Level of knowledge | |
|---|---|---|---|---|
| | | | Poor knowledge | Good knowledge |
| Correct statements | | | | |
| | Contraceptive methods are useful for birth spacing. | 5 (1.0) | 1% | 99% |
| | Post-coital contraception are contraceptive methods used immediately after unprotected sexual intercourse has occurred. | 4 (3.0) | 36% | 64% |
| | Post-coital contraception includes use of Intra - Uterine Devices. | 2 (2.0) | 63% | 37% |
| | Pregnant women should not take emergency contraceptives pills. | 4 (3.0) | 33% | 67% |
| | Post-coital contraception includes the use of emergency contraceptive pills | 4 (2.0) | 36% | 64% |
| | Emergency oral contraceptives are effective if taken within 72 h of unprotected sexual intercourse | 4 (3.0) | 35% | 65% |
| | Nausea and vomiting are common side effects of emergency contraceptive pills | 4 (1.75) | 48% | 52% |
| | [a]The combined oral contraceptive pills (ethinylestradiol plus levonorgestrel) cannot be used as Emergency contraceptive pills. | 3 (2.0) | 64% | 36% |
| | The progestin only contraceptive can be used as a single dose of two tablets (levonorgetrel 0.75 mg each) after unprotected intercourse. | 3 (2.0) | 56% | 44% |
| | Levonorgestrel 0.75 mg should be used, with each dose taken with a 12-h interval. | 3.5 (2.0) | 50% | 50% |
| | Emergency contraceptive pills do not cause weight gain. | 3 (2.0) | 72% | 28% |
| | Emergency contraceptive pills can be used as a regular method of contraception. | 3 (2.0) | 52% | 48% |
| Incorrect statements | | | | |
| | [a]Emergency contraceptive pills can be used as an abortifacient. | 3 (2.0) | 57% | 43% |
| | [a]Emergency oral contraceptives are not effective if taken one week after unprotected sexual intercourse | 4 (2.0) | 48% | 52% |
| | [a]Repeated use of emergency contraceptive pills can lead to breast cancer. | 3 (2.0) | 71% | 29% |
| | [a]Sales of emergency contraceptive pills are illegal | 4 (3.0) | 44% | 56% |
| | [a]Emergency contraceptive pills are contraindicated in female adolescents below 18 years of age. | 3 (2.0) | 59% | 41% |
| | Average | | 48.53% | 51.47% |

IQR, interquartile range.
[a]Reverse scored.

## Attitude towards emergency contraceptive use

From the factor analysis results, three attitude subscales were detected and subsequently named by the authors after deliberations as attitude towards the availability and use of ECPs, attitude towards who is eligible to use ECPs, and attitude towards ECPs use misconceptions (Table 3).

More than half of the pharmacists (62.8%) showed a positive attitude towards who is eligible to use ECPs, and 51.4% also had a positive attitude towards the use and availability of ECPs, while 32% of the pharmacists also had a positive attitude towards the misconceptions about the use of ECP (Table 3). Thirty-six per cent of the community pharmacist who displayed a positive attitude towards ECPs disagreed that emergency contraceptives may also be used to abort an early pregnancy. The pharmacists who showed negative attitudes towards ECPs agreed that the availability of ECPs may decrease the use of condoms and promote sexually transmitted diseases (72.0%).

## Dispensing practice of ECPs

Factor analysis identified two subscales in the practice scale. The first scale identified as dispensing and counselling practice contain seven items, while the second subscale identified as Educational Services Practice contains six items. The overall level of dispensing practice was high among 43.36% of pharmacists and low among 30.14% of pharmacists (Table 4). About half of the community pharmacists (50.13%) displayed a high level of dispensing and counselling practices for ECPs. These pharmacists, most of the time, offer ECP on request (56%), treat adolescent and married people seeking ECPs the same way (50%) and counsel adolescents on sexual and reproductive health (50%) (Table 4). More than 30% of the pharmacists offer a high level of educational services practice for ECPs. Some of the practices often offered to the patients were provision of written material on the use of ECPs (31%) and distribution of materials encouraging the use of ECPs as back-up for contraception to condom buyers (29%).

## Predictability of ECPs dispensing practices

Two scales were statistically significant in predicting the dispensing practice of ECPs total score with the knowledge score having higher β value (β = 0.348, $P$ = 0.002) than attitude towards the availability and use of ECPs subscale (β = −0.302, $P$ = 0.007; Table 4). When the two subscales of

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**Table 3** Community pharmacists' attitude towards the use of contraceptives

| | Items | Median (IQR) | [a]Negative | [b]Positive |
|---|---|---|---|---|
| Attitude towards the availability and use of ECPs | | | | |
| | Emergency contraceptives should not be sold in pharmacies. | 2 (3.0) | 35% | 65% |
| | Emergency contraceptive pills should only be made available from hospitals and health centres. | 2 (2.0) | 42% | 58% |
| | Only female adolescents of loose morals use emergency contraceptive pills. | 2 (2.0) | 45% | 55% |
| | Adolescent females younger than 21 years old have no business using emergency contraceptive pills. | 3 (2.0) | 57% | 43% |
| | The use of emergency contraceptive pills has reduced the fear of unwanted pregnancies. | 3 (2.0) | 54% | 46% |
| | It is solely the duty of parents to counsel adolescents on reproductive health. | 3 (2.0) | 52% | 48% |
| | Emergency contraceptive pills should not be made available as an over-the-counter medication. | 3 (2.0) | 55% | 45% |
| | Average | **18 (8.75)** | **48.57%** | **51.43%** |
| Attitude towards who is eligible to use ECPs | | | | |
| | Unmarried females who seek contraception should be refused. | 2 (2.0) | 33% | 67% |
| | Only married females should be allowed to use contraceptives. | 2 (2.0) | 34% | 66% |
| | The use of any method of contraception should be disallowed | 2 (1.0) | 20% | 80% |
| | The availability of emergency contraceptives to adolescents encourages promiscuity. | 3 (2.0) | 62% | 38% |
| | Average | **9 (7.0)** | **37.25%** | **62.75%** |
| Attitude towards ECPs use misconception | | | | |
| 10 | Adolescents who buy emergency contraceptive pills may also use it to abort early pregnancies. | 3 (2.0) | 64% | 36% |
| 8 | Availability of emergency contraceptives to adolescents may lead to decrease in the use of condoms which protects them from Sexually transmitted diseases. | 4 (2.0) | 72% | 28% |
| | Average | **6 (3.0)** | **68%** | **32%** |
| | Overall average | **36 (11.0)** | **48.08%** | **51.92%** |

[a]Negative attitude – participants chose the options Neutral, Agree and Strongly agree;
[b]Positive attitude – participants chose the options Disagree and Strongly disagree; low median values (1–2) signify positive attitude and high median values (3–5) signify negative attitude.

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dispensing practice; dispensing and counselling practice and educational services practice were considered as outcome variables, knowledge scale score had the highest predictability value (β = 0.478, $P$ <0.001) for dispensing and counselling practice subscale followed by attitude towards the availability and use of ECPs subscale (β = −0.421, $P$ < 0.001) and attitude towards ECPs use misconception (β = −0.168, $P$ = 0.003; Table 5). For the educational service practice subscale, the knowledge scale and the three attitude subscales were unable to predict this dispensing practice of ECPs by community pharmacists (Table 6).

## Discussion

This study illustrated that about half of the respondents had good knowledge of ECPs. The result was lower than the studies conducted in Kathmandu Valley, Nepal (65.6%)[22] and New Mexico (71.2%),[23] where the pharmacists had higher overall knowledge scores. This difference may be due to the higher number of participants in the Nepal and New Mexico studies, the content of the self-administered questionnaires used in studies, and the existing legal framework in each country for the dispensing of ECPs. Moreover, 57% of the participants believed that ECP could be used as an abortifacient. Despite this belief of ECP acting as an abortifacient, it was still sold by the community pharmacist. Most of the respondents reported that ECP should be taken within 72 h after unprotected sexual intercourse, but few knew that post-coital contraception includes the use of Intra-Uterine Devices (IUD). This corroborates the findings of studies conducted in Nepal, Jamaica and South Africa.[22, 24, 25] Inadequate knowledge of such important information might have significant undesirable effects. For instance, a woman approaching the community pharmacy after 72 h of unprotected intercourse might not be given the option of IUD, which can be used up to 120 h after unprotected intercourse and may opt for other measures such as terminating the pregnancy or leading to unintended pregnancy. Pharmacists being the information conveyors to the patients have the obligation to remain knowledgeable regarding the various contraceptive methods, including the ECP to ensure that a woman gets an appropriate sexual and reproductive health services. The average knowledge of the community pharmacists in this study is indicative of the need for educational and awareness intervention for the community pharmacists on ECP use, as they are the first point of contact for customers seeking ECP after unprotected intercourse. Thus, the community pharmacists play an essential role in maintaining good sexual and reproductive health in women.

The current study found that the overall positive attitude towards emergency contraceptive products was on the average (51.92%). More than half of the respondents opined that emergency contraceptive pills should not be made available as

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**Table 4** Dispensing practices of post-coital contraceptives by community pharmacists

| Item no. | Items | Median (IQR) | Level of practice | | |
|---|---|---|---|---|---|
| | | | Low | Moderate | High |
| Dispensing and counselling practice | | | | | |
| | I dispense both emergency and regular contraceptives in my pharmacy | 4 (2.0) | 27% | 21% | 52% |
| | I offer emergency contraceptive pills on request by the patient. | 4 (2.0) | 28% | 16% | 56% |
| | [a]I deny adolescents access to emergency contraceptive pills. | 4 (3.0) | 29% | 15% | 56% |
| | Adolescents regularly come to my pharmacy for emergency contraceptive pills. | 3 (2.0) | 29% | 26% | 45% |
| | I treat adolescents seeking emergency contraceptives with the same respect as I treat married people seeking the same. | 3.5 (2.0) | 29% | 21% | 50% |
| | I advise patients on the method of contraception most suitable for them. | 3 (2.0) | 26% | 25% | 49% |
| | I counsel patients on other regular methods of pregnancy prevention. | 3 (1.0) | 20% | 37% | 43% |
| | I counsel adolescents on sexual and reproductive health by advising them on abstinence and the various forms of contraceptives most suitable for them | 3.5 (1.0) | 22% | 28% | 50% |
| Average | | **28 (10.75)** | **26.25%** | **23.63%** | **50.13%** |
| Educational Services Practice | | | | | |
| | I provide written materials on how to use emergency contraception to my patients. | 3 (2.0) | 40% | 29% | 31% |
| | I provide educational materials on how to prevent HIV and STIs to patients. | 3 (2.0) | 35% | 33% | 32% |
| | I distribute materials that promote emergency contraceptives as a back-up method of contraception to condom buyers. | 3 (2.0) | 49% | 22% | 29% |
| | I set up follow-up appointments with patients. | 3 (2.0) | 29% | 31% | 40% |
| | I offer HIV and STI prevention counselling to patients who request emergency contraceptives. | 3 (2.0) | 30% | 35% | 35% |
| | I enquire about the situation surrounding use before dispensing emergency contraceptives to adolescents. | 3 (2.0) | 29% | 32% | 39% |
| Average | | 17 (7.0) | 35.33% | 30.33% | 34.33% |
| Overall average | | 45 (12.75) | 30.14% | 26.50% | 43.36% |

[a]Item reverse scored; high level of practice represents 'very often' and 'often' options; moderate level of practice represents 'sometimes' option; low level of practice represents 'rarely' and 'never' options.

**Table 5** Predictability of pharmacists' knowledge and attitude on general dispensing practices of emergency contraceptive pills

| Predictors | B ± SE | β | 95% CI |
|---|---|---|---|
| (Constant) | 26.364 ± 9.875 | | 6.755; 45.973 |
| Age | 0.077 ± 0.159 | 0.093 | −0.239; 0.394 |
| Practice | −0.155 ± 0.192 | −0.155 | −0.535; 0.226 |
| Knowledge score | 0.418 ± 0.131 | 0.348* | 0.158; 0.678 |
| Attitude towards the availability and use of ECPs | −0.434 ± 0.156 | −0.302* | −0.744; −0.124 |
| Attitude towards who is eligible to use ECPs | 0.155 ± 0.208 | 0.065 | −0.257; 0.567 |
| Attitude towards ECPs use misconception | 0.303 ± 0.450 | 0.059 | −0.590; 1.196 |

CI, confidence interval; SE, standard error.
**P* < 0.001.

over-the-counter medication. This response could have been part of the reason why most participants feel the availability of emergency contraceptives to adolescents encourages promiscuity and that adolescents' females younger than 21 years old have no business using emergency contraceptives. These attitudes of community pharmacists could discourage some women from the purchase of ECP and might explain the low use of contraceptives among sexually active adolescents in Nigeria, as reported in previous studies.[2–6] Denial of ECP access to minors or imposing age restriction by community pharmacists, who are the first point of approach might surge the occurrence of unintended pregnancies, putting them at a reproductive health risk. Previous studies favoured ECP to be an over-the-counter product.[25, 27] Emergency contraceptives are sold over-the-counter in most developed countries, with the community pharmacists having the responsibility for evaluating whether the product is appropriate and to educate women on proper use. It was reported in 2015 that oral emergency contraceptives are now available in Germany without a prescription and only in pharmacies.[26] This difference in attitudinal response may be due to the concern of community pharmacists in the Ibadan metropolis regarding unwise use of ECP by the adolescents and the risk of an increase in unsafe sexual intercourse, which is evident from the response that the availability of emergency contraceptives to adolescents may lead

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**Table 6** Predictability of pharmacists' knowledge and attitude on dispensing and counselling practice of emergency contraceptive pills

| Predictors | B ± SE | β | 95% CI |
|---|---|---|---|
| (Constant) | 5.531 ± 5.052 | | −4.501; 15.562 |
| Age | 0.068 ± 0.081 | 0.102 | −0.094; 0.230 |
| Practice | −0.148 ± 0.098 | −0.186 | −0.343;.0046 |
| Knowledge score | 0.460 ± 0.067 | 0.478** | 0.327; 0.593 |
| Attitude towards the availability and use of ECPs | −0.483 ± 0.080 | −0.421** | −0.642; −0.325 |
| Attitude towards who is eligible to use ECPs | 0.074 ± 0.106 | 0.039 | −0.137; 0.285 |
| Attitude towards ECPs use misconception | 0.692 ± 0.230 | 0.168* | .0236; 1.149 |

CI, confidence interval; SE, standard error.
$*P < 0.001$; $**P < 0.0005$.

to decrease in the use of condoms which protects them from sexually transmitted diseases. This finding was in line with the study conducted in South Africa in which the majority stated that the use of pills promoted promiscuity, repeat use and increased risk of contracting human immunodeficiency virus (HIV) and other STIs[25] but is contrary to the findings of Apikoglu-Rabus *et al*., where 52% of the pharmacists believed that teenagers are fully capable of taking responsibility for ECP use.[28] Unavailability of ECPs over-the-counter might pose a huge challenge for women seeking emergency contraception due to the obligation of obtaining an appointment from the doctor within the time frame of 72 h. Hence, the community pharmacy serves as an important facility that offers prompt access to most women seeking ECP within the crucial time frame, thus safeguarding them from the risk of unintended pregnancies or abortions.[28] This ultimately depends on the community pharmacists' attitude and acceptance regarding the use of emergency contraceptives.[27] A course focussed on emergency contraceptives and its public health benefits can be incorporated into the Mandatory Continuing Education program for pharmacists to enable community pharmacists to provide adequate counselling services to women seeking emergency contraception.

Most of the respondents in this study had dispensed ECP, and most of the product was sold on patients' request without a prescription. Provision of counselling to women seeking emergency contraceptives was reported by some of the respondents, yet less than 50% of the respondents did counsel HIV and STI prevention and enquire about the situation surrounding use before dispensing ECP. This statistic is lower than studies carried out in Germany and Turkey in which counselling was offered as an essential service[28–30] by almost all of the pharmacists. This variation may be due to either lack of private counselling areas in most community pharmacies in Ibadan or a lack of knowledge and awareness on what to counsel the women before dispensing the ECP. It will be advocated that government and the various pharmacy organisations should encourage community pharmacists and design and run educational campaigns that can aid in mainstreaming ECP use by improving their knowledge, attitude and dispensing practice. Dispensing of ECP in this study was predicted by the knowledge, attitude towards the availability and use of ECP, and attitude towards ECPs use and misconception.

### Limitations

Self-report is prone to over and under-reporting and recall bias. The convenient sampling method used might have limited the representativeness of the sample to the target population. Also, the study was conducted in one city, and the results may not be generalisable to community pharmacists in other cities of the state or the country at large. Cultural and religious belief barriers related to contraception may exist; however, this was not considered in this study. It might be interesting for further study to observe the influence of other variables, such as culture and religion on the knowledge, attitude and practice of ECPs by community pharmacists.

## Conclusion

The community pharmacists have moderate knowledge of emergency contraception and showed a positive attitude towards the dispensing of emergency contraceptive pills. The practice of dispensing emergency contraceptive pills was influenced by knowledge and attitude towards the availability and use of ECPs.

## Supplementary Material

Supplementary data are available at *Journal of Pharmaceutical Health Services Research* online.

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## Author Contributions

We declare that this work was done by the author(s) named in this article. W.A.S., V.D.J. and S.J.S. conceived the idea, designed the study, contributed in data acquisition, performed data analysis and interpretation and drafted the manuscript. All authors contributed to the preparation of the manuscript, read and approved the final version.

## Conflict of Interest

The authors declare that they have no conflict of interests.

## Data Availability

The datasets used and analysed during the current study are not publicly available due to lack of approval by authors and

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participants for unbounded publication. The corresponding author can be contacted for more information and data provided on reasonable request.

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