

# Unintended Pregnancy Determinants among Antenatal Clinic Attendees: A University of Port Harcourt Teaching Hospital Experience

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## Abstract

An unintended pregnancy is a pregnancy that is either mistimed or unplanned. The objectives of this study were to determine the prevalence of unintended pregnancy as well as to document the determinant factors among pregnant women attending antenatal clinics at the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt, Rivers State, Nigeria. It was a descriptive, cross-sectional study of 215 women attending the antenatal clinic of UPTH from July to August 2022. Information on socio-demographic characteristics, reproductive history, desirability of the current pregnancy at the time of conception, knowledge and use of contraceptive methods were collected using a pretested questionnaire and analyzed using SPSS version 26.0. Chi-square test was used for test of associations with the level of significance set at  $P < 0.05$ . The prevalence rate of unintended pregnancy from the study was 16.28% ( $\approx 16\%$ ). The contraceptive awareness was very high (209, 97.21%), however, 101 (46.98%) participants had never used any form of contraceptives. Univariate analysis using Chi-square test showed a statistically significant association between age and unintended pregnancy ( $P = 0.042$ ), level of education and unwanted pregnancy ( $P = 0.033$ ) as well as parity and unintended pregnancy ( $P = 0.019$ ). The prevalence of unintended pregnancy among women attending antenatal clinics was high, possibly due to low contraceptive usage. More efforts should be geared towards ensuring access to comprehensive contraceptive care and contraceptive methods, this will enhance uptake and reduce the rate of unintended pregnancy.

## Keywords

Unintended Pregnancy, Determinants, Prevalence, Antenatal Attendees

## 1. Introduction

Unintended pregnancies are pregnancies that are either unwanted (*i.e.*, occur when no children or no more children are desired) or mistimed (*i.e.*, occur earlier or later than desired) [1]. The term unintended pregnancy is also used interchangeably with unplanned pregnancy. Global data show that an estimated 80 million unplanned pregnancies occur yearly, leading to 42 million induced abortions, 20 million of which are carried out in dangerous settings or by untrained medical professionals, and 34 million of which result in unexpected births [2] [3]. In low-resource settings, unintended pregnancies, often related to high-parity pregnancies, are associated with an increased risk of maternal mortality in childbirth and with higher rates of neonatal, infant and under-5 child mortality [4] [5]. Unintended pregnancy is affected by many factors and varies from country to country. Factors include religion, sex without effective contraception, sexual harassment/intimidation, poor sexual contact among partners, lower economic status, promiscuity, dread over the use of hormonal contraceptives, higher illiteracy level among the female gender, unmarried status, age, use of substances, number of children and residence [6] [7]. Unintended pregnancies, especially in developing countries could be avoided to a larger extent if the uptake of modern contraceptive methods is high, which will subsequently lead to better planning and improved pregnancy outcomes.

A cross-sectional study by Kassahun *et al.* [8] in Ethiopia done in 2017, involving 313 pregnant women, showed that women between the age group (18 - 34 years) were more likely to have an unintended pregnancy than those aged <18 years and >35 years. They also reported that women who lived alone were more likely than women who were currently married to experience an unintended pregnancy (AOR = 9.9, 95% CI 1.80, 53.40) and had three or four children (AOR = 3.5, 95% CI 1.10, 11.04). Moreover, the odds of unintended pregnancy in the study were 38.6 times (AOR = 38.6, 95% CI 10.07, 148.01) as high among women who were single compared to married women. Congruently, a cross-sectional study conducted in 2015 among 185 antenatal clinic attendees by Lawani *et al.* [9] in Federal Teaching Hospital, Abakaliki, showed that the highest percentage (75%) of unintended pregnancies occurred in women within 45 - 49 years age group followed by those within 15 - 19 years age group (71.4%). The women within the 20 - 24 years age group had the lowest percentage, 30.8% of unintended pregnancies.

Furthermore, a descriptive cross-sectional survey, utilizing a sociodemographic questionnaire as well as clinic records of recruited participants done at the primary health centre in Thekwini Municipality of KwaZulu-Natal (KZN), South Africa gave a prevalence of unintended pregnancy to be 64.33% [10]. Contrastingly, the cross-sectional study by Kassahun *et al.* [8] reported a lower overall prevalence of unintended pregnancy (29.7%) among pregnant women attending antenatal care in Maichew Town, Tigray region, Northern Ethiopia. In Nigeria, the studies of Lamina [11] and Lawani *et al.* [9] reported an unintended pregnancy prevalence of 35.9% and 43.8% among women in Ogun state and

Abakiliki, respectively. However, a descriptive cross-sectional, questionnaire-based survey conducted among 254 pregnant women attending the antenatal clinic at the University of Abuja Teaching Hospital, Gwagwalada, Abuja by Agida *et al.* [1] reported a 16% prevalence of unintended pregnancy.

Over the years, Nigeria has emerged as one of the countries with the fastest-growing population globally due to the low utilization of contraceptives [12]. It is estimated that Nigeria's population has exceeded 170 million, and more than 400,000 Nigerian women's lives are lost to childbirth and associated intricacies from unintended pregnancies every year [13]. Research indicates that the promotion of modern contraceptive use prevents approximately 32% and 10% of maternal and child mortality respectively, in countries with high fertility and fecundity rates, such as Nigeria [12]. According to available data from the 2018 National Demographic Health Survey (NDHS), modern contraceptive use in Nigeria is higher among sexually active unmarried women (28%) than among currently married women (12%) [14]. The report also showed that the contraceptive prevalence rate (CPR) for any method both modern and traditional is 17% among currently married women aged 15 - 49 [14].

Among women who experienced an unintended pregnancy leading to an abortion, half had discontinued their contraceptive methods due to issues related to the use of the method such as health concerns, side effects or inconvenience of use, many such issues could have been addressed through effective family planning counselling, support and follow up [15]. Congruently, the cross-sectional questionnaire-based study by Bekele *et al.* [16], among 612 randomly selected pregnant women attending antenatal care at Bako Tibe district public health facility in Ethiopia, reported that high parity, family size  $\geq 6$ , and lack of spousal communication about family planning showed a significant association with the problem of unintended pregnancy. Hence, this study aimed to ascertain the prevalence and determinants of unintended pregnancy at the University of Port Harcourt Teaching Hospital antenatal attendees.

## 2. Materials and Methods

### 2.1. Study Design

This was a descriptive cross-sectional study.

### 2.2. Study Area

The study was conducted in the Antenatal clinic of the Department of Obstetrics and Gynaecology, University of Port Harcourt Teaching Hospital (UPTH), Nigeria, from July to August 2022.

The hospital is one of the major tertiary health institutions in the Niger Delta Region of Nigeria. The Port Harcourt city houses two local councils, Obio-Akpor local government area and Port Harcourt local government area. The state has 23 local councils, accounting for more than 40% of Nigeria's crude oil. The University of Port Harcourt Teaching Hospital provides specialized health-

care services for Port Harcourt, the entire Rivers State, as well as the neighbouring states.

The antenatal clinic runs on weekdays: Mondays—Fridays. The clinic consists of two sections; the first is the reception, where the pregnant women assemble to receive health talks, and the second is for consultation, where the doctors attend to them.

### 2.3. Study Population

All pregnant women who registered for antenatal care (ANC) during the data collection period were included in the study. From this target population, those who met the eligibility criteria were recruited into the study until the sample size was reached.

### 2.4. Inclusion and Exclusion Criteria

#### 2.4.1. Inclusion Criteria

Pregnant women who registered for antenatal care at UPTH, were clinically and consented to the study.

#### 2.4.2. Exclusion Criteria

Pregnant women who were ill, women with communication problems like deafness and pregnant women who declined consent.

### 2.5. Sample Size Determination

The sample size was determined using the single population proportion formula

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

where;

$n$  = desired sample size;

$z$  = standard normal deviation = 1.96 at 95% confidence interval;

$P$  = prevalence of unintended pregnancy among patients attending antenatal clinic which was 16% from a study conducted in Abuja [1].

$q = 1 - P$ ;

$d$  = degree of accuracy desired = 0.05.

$$\frac{1.96^2 \times 0.16(0.844)}{0.05} = 207$$

Adding 10% non-response rate, it was rounded up to 215.

### 2.6. Sampling Technique

All consented booked pregnant women were recruited from the antenatal clinic of The University of Port Harcourt Teaching Hospital. The participants were selected using a systematic sampling method. The clinic records of 2021 showed that about 45 antenatal patients were seen daily, which implied that about 225 patients were seen in a week and 900 patients in a month. Therefore, the sampling interval ( $K$ ) was obtained by applying the formula  $K = N/n$ , where  $N$  is the

average number of patients seen by the clinic in a month and  $n$  = the estimated sample size of the study. It was calculated thus;  $K = 900/215 = 4.2 (\approx 4)$ . The first participant was selected by simple random sampling from among the first four participants on each clinic day. Thereafter, every fourth patient who presented to the clinic that day and consented to the study was selected. The recruitment continued until the required sample size was obtained. The participants were adequately counselled on the study and their concerns, if any were addressed. An informed consent was also obtained from each of the participants.

## 2.7. Data Collection Method

A semi-structured pre-tested questionnaire was used for data collection. It was an interviewer-administered questionnaire that was organized into 3 sections covering the socio-demographic variables of the women, contraception awareness/use and the determinants of unintended pregnancy. The questionnaires were administered by trained assistants while the participants were waiting to be attended to by the doctors.

The dependent variable in this study was pregnancy intention, measured as a two-outcome variable and coded as; intended pregnancy, if the pregnancy occurred at a time when the woman wanted it, and unintended pregnancy, if the pregnancy occurred at a time when the woman would have wanted it later or did not want it at all.

The independent variables used in this study included education (coded as none, primary, secondary, and tertiary), parity, age, marital status, employment status, use of contraception, and discussion with spouse. These variables have been found to affect the incidence of unintended pregnancy in other places.

The questionnaire was designed by the researchers. The content validity of the questionnaire items was thoroughly critiqued by peers and expert researchers to ensure that valid and relevant questions were asked to eliminate non-clarity and correct any form of ambiguity. It was also pre-tested on a group of women attending antenatal clinic in another tertiary health facility in Port Harcourt.

## 2.8. Data Analysis Procedure

The Data was extracted from the questionnaires into Microsoft Excel<sup>®</sup> version 2010, coded and cleaned, then imported into Epi Info version 7.02, a healthcare computer database and analysis package where further cleaning was done. Data analysis was conducted using ANALYSIS in Epi Info 7.02 and the Statistical Product and Service Solutions (SPSS) version 26. Categorical data were presented in the form of frequencies and percentages (%) and summary statistics in means and standard deviations (*SD*) with results presented in tables and charts.

Chi-square ( $\chi^2$ ) test analysis was performed to test for association between two categorical variables and their proportions (%) and determined the statistical significance level between the associated variables. Differences in continuous data and means were tested using the student t-test as appropriate.

The results were presented using descriptive statistics, cross-tabulation and

logistic regression. Logistic regression was used to assess the association between some selected variables and the experience of unintended pregnancy at level of significance  $P < 0.05$  and a 95 % confidence interval. An observation was said to be statistically significant if the “*P-value* was less than or equal to 0.05 ( $\leq 0.05$ )” at a 95% confidence interval.

### 3. Results

A minimum sample size of 215 was calculated for this study. A total of 215 respondents completed the questionnaires giving a response rate of 100%.

#### 3.1. Socio-Demographic Characteristics

**Table 1** shows the socio-demographic structure of the respondents. The age of the respondents ranged from 22 - 40 years, with the mean ( $\pm$ SD) of 32.47 ( $\pm$ 4.08) years. There were more respondents between the age range of 30 - 39 years (163, 75.8%). The literacy level was high amongst the respondents, with 98.6% of them having at least secondary education. **Table 1** also shows that the majority of them, 95 (44.19%), were businesswomen, 29 (13.49%) were civil servants, and 19 (8.84%) were housewives.

#### 3.2. Contraceptive Awareness and Use

**Table 2** shows that 209 (97.21%) of the respondents were aware of one form of contraception or the other. Despite the high level of awareness of contraception, 101 (46.98%) had not used any form of contraceptives in the past. Among those who had knowledge on contraceptives, condoms (79%), accounted for the most popularly used contraceptive. More than half of the women, 84 (53.85%) stated that they had no need for it, 22 (14.10%) feared the side effects, while 12 (7.69%) felt they were not at risk of an unintended pregnancy. Partner refusal accounted for 6.41% of non-use. As regards being allowed to take the decision of using contraception without the partner's approval, 111 (51.63%), had the free will to take the decision while 104 (48.37%), had to seek consent or approval from their partner. In addition, 108 (50.23%) had discussed contraception with their spouse while 107 (49.77%) had never discussed contraception with their spouse (**Table 3**).

#### 3.3. Prevalence of Unintended Pregnancy

The study revealed that 35 (16%) of the respondents had unintended pregnancy while 180 (84%) of the women did not, as shown in **Figure 1**.

#### 3.4. Reasons for Categorizing Current Pregnancy as Unintended

The reasons that were given for categorizing the current pregnancy as unintended or otherwise are stated in **Figure 2** where pregnancy being unwanted by partner constituted 22.9% whereas being single accounted for 20.0%. Fewer respondents (11.4%) said they had completed their family size, while 2.8% gave the reason for being too young. When the women were further asked why the preg-

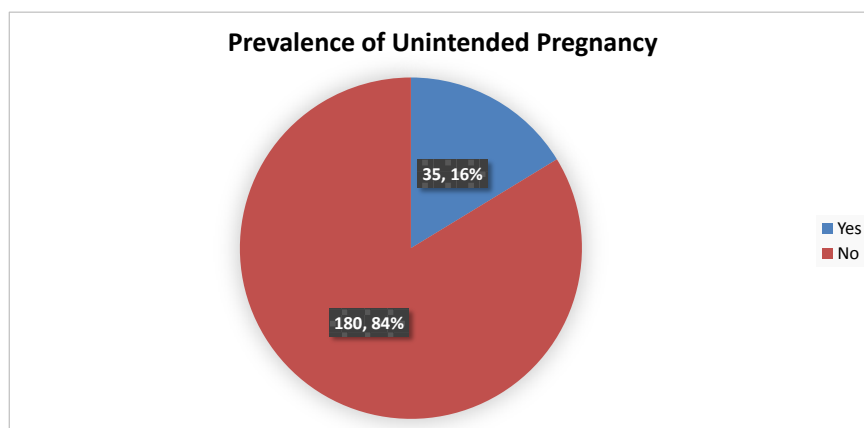
nancy was unintended, majority (58.8%) stated that they desired the pregnancy later, 23.5% wanted the pregnancy earlier, while 17.7% did not desire the pregnancy at all as shown in **Figure 3**.

**Table 1.** Socio-demographic Characteristics ( $n = 215$ ).

Characteristics	Frequency (n)	Percent (%)
<b>Age of respondent</b>		
20 - 29	49	22.79
30 - 39	163	75.81
40	3	1.40
<i>Mean (SD)</i>	<i>32.47 ± 4.08</i>	
<b>Level of Education</b>		
Primary	3	1.40
Secondary	23	10.70
Tertiary	189	87.91
<b>Weight</b>		
<i>Mean (SD)</i>	<i>75.32 ± 10.57</i>	
<b>Gestational age</b>		
<i>Mean (SD)</i>	<i>27.68 ± 7.53</i>	
<b>Parity (Deliveries)</b>		
Nullpara (0)	71	33.02
Primipara (1)	59	27.44
Multipara (2 - 4)	84	39.07
Grandmultipara (≥5)	1	0.47
<i>Median (IQR)</i>	<i>1 (0 - 2)</i>	
<b>Terminations of pregnancy</b>		
0	153	71.16
1	34	15.81
2	18	8.37
≥3	10	4.65
<i>Median (IQR)</i>	<i>0 (0 - 1)</i>	
<b>IQR = Interquartile range</b>		
<b>Occupation</b>		
Professional	14	6.51
Civil servants	29	13.49
Business	95	44.19
Teaching	23	10.70
Artisan	14	6.51
Housewife	19	8.84
Student	21	9.77

**Table 2.** Contraceptive Awareness and Use ( $n = 215$ ).

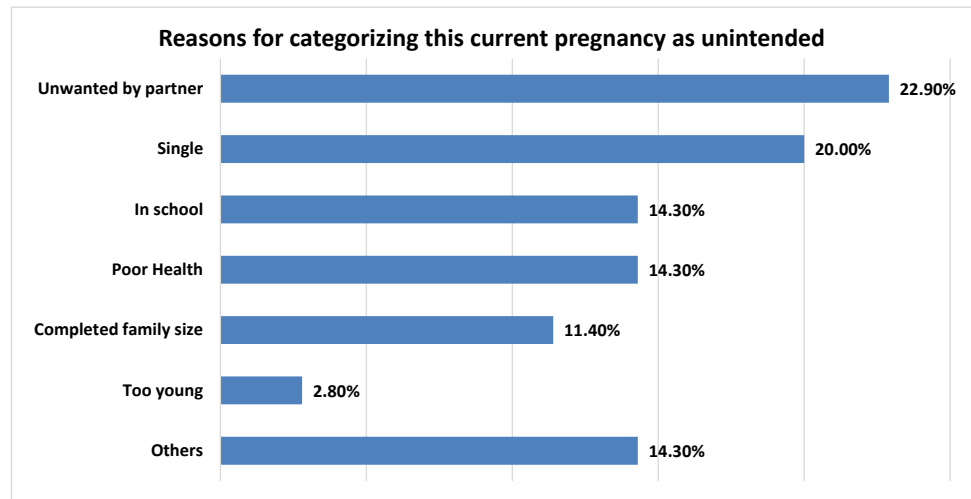
Characteristics	Frequency (n)	Percent (%)
<b>Heard of contraception</b>		
Yes	209	97.21
No	6	2.79
<b>Used any form of contraceptive</b>		
Yes	114	53.02
No	101	46.98
<b>Contraceptive known (Multiple responses applicable)</b>		
Condom	170	79.07
COCP	25	11.63
Implant	22	10.23
IUCD	17	7.91
Injectable	13	6.05
None	8	3.72
<b>Reason for not using (Multiple responses applicable)</b>		
No need for it	84	53.85
Fear of side effects	22	14.10
I am not at risk	12	7.69
Partner refused	10	6.41
Had a bad experience when I used it last	5	3.21
Others	23	14.74
<b>Allowed to take the decision of using contraception on your own or your husband has to approve</b>		
Yes	111	51.63
No	104	48.37

**Figure 1.** Prevalence of unintended pregnancy.

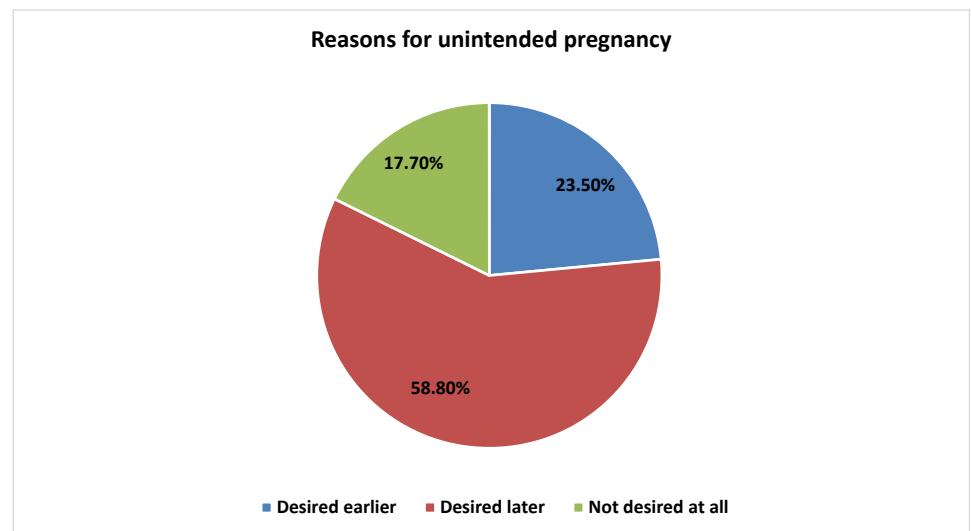


**Table 3.** Determinants of unintended pregnancy ( $n = 215$ ).

Characteristics	Frequency (n)	Percent (%)
<b>Unintended Pregnancy had previously</b>		
Yes	93	43.26
No	122	56.74
<b>Total number of all unintended pregnancies</b>		
0	122	56.74
1	32	14.88
2	52	24.19
3	3	1.40
4	6	2.79
<b>Number of unintended pregnancies that occurred before marriage (n = 83)</b>		
1	44	53.01
2	33	39.76
3	6	7.23
<b>Number of unintended pregnancies that occurred during marriage (n = 46)</b>		
1	35	76.09
2	11	23.91
<b>Discussed contraception with spouse</b>		
Yes	108	50.23
No	107	49.77
<b>Drink Alcohol</b>		
Yes	76	35.35
No	139	64.65
<b>Smoke</b>		
Yes	0	0.0
No	215	100.0
<b>Take recreational drugs</b>		
Yes	0	0.0
No	215	100.0
<b>Experience any form of intimate partner violence or abuse from your partner</b>		
Yes	2	0.93
No	213	99.07



**Figure 2.** Reasons for categorizing current pregnancy as unintended.



**Figure 3.** Reasons for unintended pregnancy.

### 3.5. Determinants of Unintended Pregnancy

The test of associations was done using a chi-square with the level of significance set at  $P < 0.05$  as shown in **Table 4**. Test of association using Chi-square showed a significant association between age and unintended pregnancy ( $P = 0.042$ ), as those that were between 31 - 40 showed a higher proportion for unintended pregnancy compared to those between the ages 20 - 30 (20.30% vs 9.76%).

There was also a significant finding in the educational status of the responders ( $P = 0.033$ ); those with primary and secondary education had a higher proportion of unintended pregnancies when compared to those with tertiary levels of education (30.77% vs 14.29%).

There was a significant association between parity and unintended pregnancy ( $P = 0.019$ ), as those who had 2 or more children had a higher proportion of unintended pregnancy than those who had 1 child or none.

**Table 4.** Risk factors associated with unintended pregnancy (n = 215).

Variables	Unintended Pregnancy		Total	$\chi^2$ (P-value)
	Yes (n = 35)	No (n = 180)		
	n (%)	n (%)		
<b>Age</b>				
20 - 30	8 (9.76)	74 (90.24)	82 (100.0)	<b>4.14 (0.042)*</b>
31 - 40	27 (20.30)	106 (79.70)	133 (100.0)	
<b>Level of Education</b>				
≤Secondary	8 (30.77)	18 (69.23)	26 (100.0)	<b>4.56 (0.033)*</b>
Tertiary	27 (14.29)	162 (85.71)	189 (100.0)	
<b>Occupation</b>				
Professional	2 (14.29)	12 (85.71)	14 (100.0)	0.849 <sup>y</sup>
Civil servants	6 (20.69)	23 (79.31)	29 (100.0)	
Business	18 (18.95)	77 (81.05)	95 (100.0)	
Teaching	2 (8.70)	21 (91.30)	23 (100.0)	
Artisan	2 (14.29)	12 (85.71)	14 (100.0)	
Housewife	3 (15.79)	16 (84.21)	19 (100.0)	
Student	2 (9.52)	19 (90.48)	21 (100.0)	
<b>Parity</b>				
Nullpara (0)	6 (8.45)	65 (91.55)	71 (100.0)	<b>7.94 (0.019)*<sup>y</sup></b>
Primipara (1)	8 (13.56)	51 (86.44)	59 (100.0)	
Multipara (≥2)	21 (24.71)	64 (75.29)	85 (100.0)	
<b>Previous use of contraceptive</b>				
Yes	20 (17.54)	94 (82.46)	114 (100.0)	0.29 (0.594)
No	15 (14.85)	86 (85.15)	101 (100.0)	
<b>Allowed to make the decision of using contraception on your own or your husband has to approve</b>				
Yes	18 (16.22)	93 (83.78)	111 (100.0)	0.00 (0.979)
No	17 (16.35)	87 (83.65)	104 (100.0)	
<b>Discussed contraception with spouse</b>				
Yes	24 (22.22)	84 (77.78)	108 (100.0)	<b>5.62 (0.018)*</b>
No	11 (10.28)	96 (89.72)	107 (100.0)	
<b>Drink Alcohol</b>				
Yes	19 (25.0)	57 (75.0)	76 (100.0)	<b>6.56 (0.001)*</b>
No	16 (11.51)	123 (88.49)	139 (100.0)	

\*Statistically significant (P < 0.05);  $\chi^2$  = Chi-Square; <sup>y</sup> = Fisher's Exact p.

The test of association also showed significant association between unintended pregnancy and alcohol consumption ( $P = 0.001$ ). From the study it was observed that those who consumed alcohol had a higher chance of having an unintended pregnancy.

A significant association also existed between unintended pregnancy and discussion of contraception with spouse ( $P = 0.018$ ). Women who discussed contraception with their spouses had more unintended pregnancies compared to those who did not.

There were no significant associations between occupation and unintended pregnancy ( $P = 0.849$ ), previous use of contraception and unintended pregnancy ( $P = 0.594$ ), women being allowed to make decisions on the use of contraception and unintended pregnancy ( $P = 0.979$ ).

#### 4. Discussion

In this study, the prevalence and predictors of unintended pregnancies were determined based on a sample of 215 women attending antenatal care at The University of Port Harcourt Teaching Hospital, Rivers State. The findings in this study showed that 16.28% ( $\approx 16\%$ ) of women reported the index pregnancy as unintended. The findings from this study were similar to 16% reported from Abuja, Nigeria [1]. However, a similar study conducted in this same centre eight years ago by Asuquo *et al.* [17] gave a higher prevalence of 24.4%. In contrast with the result of this study, the magnitude of unintended pregnancy was noticed to be higher in a study done in Ghana where it was 40% [18]. Similarly, two Ethiopian studies by Feyisso *et al.* [19] and Bekele *et al.* [16] also reported higher rates of unintended pregnancies (36.9% and 33.3% respectively) among women in Dilla South and Bako Tibe districts respectively. Furthermore, a Kenyan study reported a 24% prevalence [19] while a study in Guinea reported a prevalence of 49.4% [4]. The reason for the lower prevalence in our study when compared to the other centres could be that most of the participants had a tertiary level of education.

The lower prevalence in this study when compared to when it was earlier done 8 years ago in this centre could be due to the change in awareness over the course of time. Also, the differences when compared to other health facilities might be due to the difference in the source population, sample size, sociocultural characteristics, health coverage of the study area, as well as the difference in the availability and accessibility of services (like access to modern contraceptives) for maternal health services in the countries.

The factors that were significantly associated with unintended pregnancy in this study were age, level of education, parity, those who discussed contraception with their spouses and alcohol use. Our study also found out that women in the older age categories (31 - 40 years), were more likely to experience unintended pregnancies when compared to women aged 20 - 30 years. This result corresponded to other studies, where it was reported that older women have the high-

est proportion of unintended pregnancies compared to the younger age group [1] [6]. This finding could be alluded to the fact that older women might already have the desirable number of children have a higher parity, and such may consider any additional pregnancy as unwanted [17]. However, this finding was different in other studies where, when compared to older women, those women whose age was less than 20 years were more likely to have unintended pregnancy. This might be due to the possible poor reproductive health knowledge and lesser opportunity to freely access family planning services by the women in the younger age group [20].

The least proportion of unintended pregnancy in our study was seen in women with higher level of education. This result is in line with other studies [16] [21]. Education has been shown to be an influential predictor of human actions, it raises women's awareness about the implications of unwanted/ unintended pregnancies and also the different contraceptive methods available which educated women are more likely to take advantage of. Despite the high level of awareness of contraception (97.21%) in this study, only 53.02% of the responders had ever used any form of contraception in their lifetime, this trend is quite the norm as seen in many studies that have been carried out [20] [21] [22]. In more than half (53.85%) of the responders in our study, the most common reason for non-use was that the women felt they had no need for it. Only 3.21% had ever had a bad experience from use.

Among all unintended pregnancies in this study, 17.65% ( $\approx 17.7\%$ ) of the women did not desire the pregnancy at all and 58.82% ( $\approx 58.8\%$ ) desired the pregnancy later. The most frequent reason for categorising the pregnancy as unintended was that the pregnancy was unwanted by the partner which was seen in 22.9% of those that had unintended pregnancy. Only 11.4% of the women gave the reason of having completed their family size. However, the strange finding from this study was that women who discussed contraception with their partners were found to have a higher risk of having unintended pregnancy when compared to women who did not. On further probing, it was noticed that the women openly discussed contraception with their spouses only after the incident of unintended pregnancy had occurred.

Using the results of this study, various comparisons have been drawn from similar studies done in other countries of the world, especially in the sub-Saharan Africa. The findings are almost the same regarding the determinant factors at the root cause of unintended pregnancy. Mass literacy campaigns at regional and national levels as regards modern contraceptive practices, with monitoring and evaluation check list will contribute positively to the reduction in the rate of unintended pregnancy.

## 5. Conclusion

This study showed that unintended pregnancy among the women attending antenatal clinic at the University of Port Harcourt Teaching Hospital was high.

Higher level of education, increasing age and parity of participants were the predisposing factors and determinants of unintended pregnancy in this study. Despite the high level of awareness of contraceptives and high educational status, the utilization of contraception services was still low among the women attending antenatal clinic at the University of Port Harcourt Teaching Hospital.

There should be adequate information, education, and communication materials provided during antenatal health talks and also, regular counselling of women at the antenatal clinic to embrace modern contraceptive methods. Male involvement in family planning is also crucial, especially when they accompany their partners to antenatal classes. Also ensuring access to comprehensive contraceptive care and contraceptive methods as an integral component of women's health may help in reducing the incidence of unintended pregnancy.

## 6. Limitations of the Study

The knowledge and use of contraception among men were not determined in the study given that men play a significant role in decision making concerning contraceptive use in our environment which could contribute greatly to the reduction of unintended pregnancies.

## Ethical Approval and Consent

Ethical clearance and approval were sought and obtained from the University of Port Harcourt Research Ethics Committee (UNIPORT REC) before embarking on the study.

A signed informed consent form was obtained from each participant before recruitment into the study. The study objectives, procedure and full implications of the participation in the study were discussed with the participants before their consent was obtained. The participants were made to understand that non-refusal to be involved in the study would not affect their management or antenatal care visits.

## Acknowledgements

We would like to thank all the women who participated in this study, our research assistants and the antenatal clinic staff of the hospital.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Appendix

### DATA COLLECTION SHEET

#### SECTION A: SOCIO-DEMOGRAPHIC DATA

- 1) Hospital No: .....
- 2) Age: .....
- 3) Weight: .....
- 4) Gestational age: .....
- 5) Parity: .....
- 6) Tribe: .....
- 7) Occupation: .....
- 8) Level of education: A) Primary [ ] B) Secondary [ ] C) Tertiary [ ] D) No formal education [ ]

#### SECTION B: CONTRACEPTION AWARENESS AND USE

- 9) Have you heard of contraception? A) YES B) NO
- 10) Have you used any? A) YES B) NO
- 11) Which one do you know? A) None B) IUCD C) Condom D) Implants E) Injectable F) COCP.
- 12) Why are you not using it? A) Fear of side effects B) Did not know where to access it C) Religious reasons D) No money to purchase it E) I am not at risk F) Partner refused G) No need for it I) Had a bad experience when I used it last. J) Others.
- 13) Are you allowed to take the decision of using contraception on your own or your husband has to approve? A) YES B) NO.

#### SECTION C: DETERMINANTS OF UNINTENDED PREGNANCY

- 14) How many unintended pregnancies have you had? .....
- 15) How many occurred before marriage? .....
- 16) How many occurred during marriage? .....
- 17) How many occurred after marriage? .....
- 18) Is this pregnancy unintended? .....
- 19) Reasons for categorizing this current pregnancy as unintended. A) Single B) In school C) Unwanted by partner D) Completed family size E) Too young F) Poor health G) Resulted from extramarital affair H) My job is demanding I) No money to care for it J) Others.
- 20) Why is it unintended? A) Desired earlier B) Desired later C) Not desired at all.
- 21) Have you discussed contraception/family planning with your spouse? A) YES B) NO.
- 22) Do you drink Alcohol? A) YES B) NO.
- 23) Do you smoke? A) YES B) NO.
- 24) Do you take other recreational drugs? A) YES B) NO.
- 25) Do you experience any form of intimate partner violence or abuse from your partner? A) YES B) NO.