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Prevalence and determinants of unintended pregnancy among antenatal attendees at ESUT Teaching Hospital Parklane Enugu, Nigeria

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Abstract

Background: An unintended pregnancy is a pregnancy that is unwanted or mistimed. Even though preventable it has remained a significant source of morbidity and mortality to women in our environment. There is paucity of studies on prevalence and determinants of unintended pregnancy among antenatal attendees in our environment.

Objective: To determine the prevalence and determinants of unintended pregnancy among antenatal attendees at ESUT Teaching Hospital Parklane Enugu, Nigeria

Materials and methods: A total of 387 pregnant women were interviewed with semi-structured questionnaire following consent at the antenatal clinic of ESUT Teaching Hospital Parklane, Enugu. Convenient sampling method was used. Data collected were entered into excel and later exported to SPSS version 27 with which it was analyzed.

Results: Prevalence of unintended pregnancy among the respondents was 27.4%. Marital status (COR = 0.15; 95% CI: 0.06–0.39; p =<0.001), parity (COR =0.33; 95% CI: 0.18–0.61; p =<0.001), and history of spontaneous miscarriage (COR =2.27; 95% CI: 1.17–4.42; p =0.016) were identified to be significantly associated with unintended pregnancy.

Conclusion: Prevalence of unintended pregnancy among the respondents was 27.4%. Being unmarried, having parity of greater than 2 and previous history of spontaneous miscarriage were identified as predictors of unintended pregnancy. Effort should be made to increase awareness and use of contraceptives among all women in our environment however unmarried women should be particularly targeted with this campaign because of their increased risk for unintended pregnancy.

Keywords: Prevalence; Determinants; Unintended Pregnancy; Antenatal Attendees; Tertiary Hospital Enugu

1. Introduction

An unintended pregnancy is a pregnancy that is unwanted (occurred when no children or more children is desired) or mistimed (occurred earlier than desired) [1]. Causes include but not limited to failure of contraceptive methods, not using contraceptive methods, lack of contraceptive methods, incidental sexual intercourse, including rape, and lack of awareness regarding family planning [2] Unintended pregnancy is a global health problem and a significant source of maternal and or neonatal morbidities and mortalities. However, the low- and middle-income countries bear a greater burden of the problem compared to the developed nations of the world [3]. The unequal distribution is most likely due to higher literacy levels, easier access to contraceptives and other healthcare services as well as lower unmet need for contraception in the developed nations of the world compared to the low- and middle-income countries. Two hundred

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and ten million pregnancies have been estimated to occur every year and out of these 38% has been reported to be unintended [4]. Of the estimated annual global unintended pregnancies 22% has been reported to end in abortion many of which are done with unsafe techniques and or in unsafe circumstances while 18% result in unplanned births thereby adding to the work load on existing health systems [5].

Unsafe abortion for unintended pregnancy is serious problem in Nigeria. This is because the abortion law in the country is restrictive and as such abortion in Nigeria is illegal and only permitted when it is medically recommended to save a woman's life. [6,7]. As a result, a number of women who want abortion but not legally qualified resort to patronizing quacks such that a lot of abortions are done with unsafe technique and in unsafe circumstances. Six hundred and ten thousand abortions have been reported to occur annually in Nigeria [8] with a lot of maternal deaths reported to result from complication of abortions [9-13]. As a result, maternal mortality ratio in Nigeria has remained unacceptably high. Beyond the ultimate price of dying from unintended pregnancy, it is a significant cause of disruption of academic pursuit among teenagers and young women who become victims unintended pregnancy. Onyeka and colleagues reported that 43% of victims of unintended pregnancy in their study did not continue education in the same school they were prior to conception [14]. Empirical observation in our environment reveals that many of such young women end up dropping out of school. For many of these young women whose educational carriers are truncated as a result of unintended pregnancy the likelihood of being uneducated, unemployed and poor is high. With poor education, unemployment and poverty many of these women become even more vulnerable with increased likelihood many of them resorting to prostitution thereby creating a vicious cycle of vulnerability to unintended pregnancy and its complications.

Even when women with unintended pregnancy decides to carry the pregnancy till delivery, reports have shown that such women are at increased risk of certain challenges. For example, unintended pregnancy has been reported to be associated with late booking for antenatal care, poor utilization of antenatal care services [14-17], maternal depression and anxiety [18-19] as well as smoking and drinking behaviors during pregnancy [16-19]. Women with unintended pregnancy has also been reported to be associated with higher risk of cesarean delivery and inappropriate weight gain during pregnancy [20].

A number of previous studies have been done on prevalence and determinants of unintended pregnancy in our country [21-26]. However, for assessment of pregnancy intention, many of these studies relied on asking the respondents whether they considered their pregnancy to be unintended or intended. Others relied on asking the respondents if they desired the pregnancy at the time of conception, or whether the pregnancy was conceived earlier or later than desired or not desired at all. Some others relied on asking their respondents if they could recall having unintended pregnancy at some point in their lives. Considering the numerous problems associated with unintended pregnancy, there is the need to be more objective in assessment for it. This is to ensure provision of credible data to guide policies and interventions to reduce unintended pregnancy and also to ensure that our data are comparable to reports from other parts of the world. London Measure of Unplanned Pregnancy (LMUP) has been widely used for assessment of pregnancy intention and also well regarded for its objectivity [27-29]. In South East zone of Nigeria where our study center is located, there is also paucity of studies on prevalence and determinants of unintended pregnancy among antenatal attendees. It was against this background that this study was done to assess prevalence and determinants of unintended pregnancy among antenatal attendees at ESUT Teaching Hospital Parklane Enugu, Nigeria using the LMUP.

2. Materials and Methods

This study was part of a bigger study on the pregnancy planning status and the determinants of the respective pregnancy planning status of antenatal clinic attendees at ESUT Teaching Hospital Parklane Enugu, Nigeria during the study period. It was a hospital based cross sectional study and it spanned from August, 2024 to July, 2025. ESUT Teaching hospital Parklane Enugu is located in the center of Enugu Metropolis. It serves as a referral center for most states in the South East Nigeria. The department of Obstetrics and Gynaecology is one of the four major departments of the hospital and antenatal clinic is one of the outpatient clinics in the department of Obstetrics and Gynaecology. The antenatal clinic attends to all categories of pregnant women and runs from 8:00 am in the morning to 4:00pm in the evening Monday to Friday of every week. Every week day (from Monday to Friday) the clinic is managed by a team of consultant Obstetrician and Gynaecologists, resident doctors, nurses and other allied health workers. The antenatal clinic is a fairly busy clinic.

The target population was pregnant women that received antenatal care at the antenatal clinic of ESUT Teaching hospital Parklane Enugu, Nigeria within the study period. Written informed consent was obtained from all the respondents and they were reassured of the confidentiality of information provided. Each of the respondents were interviewed with well-structured interviewer administered questionnaire. The questionnaire was in two parts: the first part contained questions on the respondents' sociodemographic characteristics as well as past reproductive history and family planning. The second part of the questionnaire was the London Measure of Unplanned Pregnancy (LMUP) [5]. This part contained six questions each with three possible response options with assigned scores of 0, 1 or 2. The pregnancy

intention scale (LMUP) was used to assess the intendedness of the pregnancy and the total intendedness score could be any score ranging from zero (0) to twelve (12). Depending on the intention score the pregnancies were classified into three namely unplanned (0-3), ambivalent or mistimed (4-9) and planned (10-12). Women with pregnancy intendedness score of less than 10 (including both ambivalent and unplanned pregnancies) were considered as having unintended pregnancy [5]. The questionnaire was pretested and all ambiguity removed. Ethical clearance for the study was obtained from the ethics committee of ESUT Teaching hospital Parklane, Enugu.

Data collected were entered into excel and later exported to SPSS version 27 with which it was analyzed. Data cleaning was performed to ensure completeness and accuracy prior to analysis. Descriptive statistics (frequencies and percentages) were used to summarize respondents' sociodemographic, pregnancy-related and family planning characteristics of the respondents. Binary logistic regression was performed to identify determinants of unintended pregnancy. The overall model was statistically significant (χ^2 = 67.687, p < 0.001), indicating that the independent variables jointly contributed to predicting unintended pregnancy. The model explained approximately 23.7% of the variation in pregnancy intention (Nagelkerke R^2 = 0.237), and the classification accuracy improved from 72.5% in the null model to 76.7% in the final model.

Bivariate analyses were first conducted for exploratory purposes, while variables for the multivariable model were selected based on theoretical relevance and prior evidence, regardless of bivariate significance. All assumptions of binary logistic regression were met, including a dichotomous outcome, independent observations, and absence of multicollinearity. Nine respondents who reported "Can't remember" for age at coitarche were coded as missing. Adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported, with p < 0.05 considered statistically significant.

3. Results

Majority of the respondents were between the ages of ≥ 25years – < 35years 255(65.9%), urban dwellers 337 (87.1%), married 360(93%) and with post primary education 377(97.4%). The rest of the sociodemographic characteristics of the respondents were as shown on **table1** below.

Table 1 Respondents' sociodemographic characteristics

Respondents' characteristic	**Variable**	**Frequency**	**Percentage**
Age in years	< 25 years	56	14.5
	≥ 25years – < 35years	255	65.9
	≥ 35 years	76	19.6
Residence	Urban	337	87.1
	Rural	50	12.9
Marital status	Married	360	93
	Currently not married	27	7
Duration of marriage	< 5 years	230	62.7
	≥ 5 years	137	37.3
Educational status	≤Primary Education	10	2.6
	Post primary education	377	97.4
Employment status	Unemployed	71	18.3
	Self employed	163	42.1
	Employed	153	39.5
Husband Educational status	≤ Primary Education	11	2.8
	Post primary education	356	92
	Unemployed	3	0.8

Husband employment status	Self employed	169	43.7
	Employed	195	50.4

Table 2 Respondents' Pregnancy related characteristics

Respondents' characteristics	**Variable**	**Frequency**	**Percentage**
Parity	≤ 2	303	78.3
	>2	84	21.7
Gestational age at interview	≤26weeks	180	46.5
	>26weeks	207	53.5
Gestational age at booking	≤ 20weeks	297	76.7
	>20weeks	90	23.3
Last inter-pregnancy interval	<12months	22	5.7
	≥12months–<24 months	65	16.8
	≥24 months	160	41.3
	Not applicable	140	36.2
Age at marriage	<25years	139	35.9
	≥25years	228	58.9
	Not applicable	20	5.2
Age at coitarche	< 20 years	104	26.9
	≥ 20years - <30years	249	64.3
	≥30years	25	6.5
	Can't remember	9	2.3
History of termination of pregnancy	No	332	85.8
	Yes	55	14.2
History of spontaneous miscarriage	No	287	74.2
	Yes	100	25.8

As can be seen on **table 2** above majority of the respondents had given birth 2 times or less 303(78.3%), booked for antenatal care in the first half of pregnancy 297(76.7%), married at ≥25years 228(58.9%) and initiated sexual activity between the ages of ≥ 20years - <30years 249(64.3%).

Table 3 Respondents' Family Planning Related characteristics

Respondents' characteristics	**Variable**	**Frequency**	**Percentage**
Knowledge of contraception n=387	Yes	322	83.2
	No	65	16.8
Source of knowledge of contraception (Multiple responses) n=322	Spouse	19	5.9
	Church	17	5.3
	Health workers	189	58.7

	Radio	7	2.2
	Television	17	5.3
	Social media	102	31.7
	Friends	47	14.6
	Parents	3	0.9
	School	41	12.7
	Not Applicable	65	20.2
Prior use of contraception n=387	Yes	140	63.8
	No	247	36.2

More than 80% of the respondents had knowledge of contraception with majority of the respondents getting their knowledge about contraception from health workers followed by social media. However, only 63.8% of the respondents had used contraception.

Table 4 Types of contraception used by the respondents (Multiple response)

Type of contraception	**Frequency (n=140)**	**Percentage**
Barrier method	51	36.4
Oral contraceptive pills	49	35
Implants	14	10
Intrauterine contraceptive Device (IUCD)	4	2.9
Injectable contraception	13	9.3
Traditional method	1	0.7
Emergency contraception	23	16.4

The most commonly used and the second most commonly used methods of contraception among the respondents were the barrier method and oral contraceptive pills respectively.

Table 5 Prevalence of unintended pregnancy among the respondents

Pregnancy Intention	**Frequency**	**Percent (100%)**
Intended Pregnancy	281	72.6
Unintended Pregnancy	106	27.4

Following assessment with London Measure of Unplanned Pregnancy the prevalence of unintended pregnancy among the respondents was 27.4%.

Table 6 Determinants of unintended pregnancy among the respondents

Respondents' characteristic	Variable	COR (95% CI)	p-value	AOR (95% CI)	p-value
Age in years	< 25 years	1.96 (0.95–4.08)	0.07	1.05 (0.37–3.02)	0.928
	25–34 years	0.82 (0.46–1.47)	0.511	0.67 (0.33–1.38)	0.281
	≥ 35 years (REF)	1	–	1	–
Residence	Urban	1.23 (0.61–2.45)	0.565	2.28 (0.99–5.24)	0.052
	Rural (REF)	1	–	1	–
Marital status	Married	7.45 (3.15–17.62)	<0.001	0.15 (0.06–0.39)	<0.001*
	Currently not married (REF)	1	–	1	–
Educational status	≤ Primary education	4.16 (1.15–15.03)	0.03	2.67 (0.60–11.99)	0.199
	Post primary (REF)	1	–	1	–
Employment status	Unemployed	2.37 (1.29–4.35)	0.006	1.47 (0.66–3.27)	0.343
	Self-employed	1.39 (0.82–2.34)	0.214	1.61 (0.88–2.95)	0.12
	Employed (REF)	1	–	1	–
Parity	≤ 2	0.43 (0.25–0.73)	0.001	0.33 (0.18–0.61)	<0.001*
	> 2 (REF)	1	–	1	–
History of termination	No	1.42 (0.72–2.79)	0.319	1.95 (0.88–4.29)	0.099
	Yes (REF)	1	–	1	–
History of miscarriage	No	1.58 (0.92–2.71)	0.098	2.27 (1.17–4.42)	0.016*
	Yes (REF)	1	–	1	–
Knowledge of contraception	No	1.86 (1.06–3.27)	0.03	1.56 (0.77–3.20)	0.221
	Yes (REF)	1	–	1	–
Prior contraceptive use	No	1.30 (0.82–2.05)	0.27	1.54 (0.87–2.73)	0.136
	Yes (REF)	1	–	1	–
Age at coitarche	< 20 years	8.43 (1.90–37.50)	0.005	4.74 (0.91–24.77)	0.065
	20–29 years	3.49 (0.80–15.30)	0.096	2.73 (0.56–13.40)	0.215
	≥ 30 years (REF)	1	–	1	–

Table 6 above shows the outcome binary logistic regression. After the exploratory bivariate analysis marital status (COR =7.45; 95% CI: 3.15–17.62; p = <0.001), educational status (COR =4.16; 95% CI: 1.15–15.03; p =0.03), parity (COR =0.43; 95% CI: 0.25–0.73; p =0.001), knowledge of contraception (COR =1.86; 95% CI: 1.06–3.27; p =0.03) and age at coitarche of less than 20 years (COR = 8.43; 95% CI: 1.90–37.50; p =0.005) were identified to be statistically significantly associated with unintended pregnancy.

However, following multivariable binary logistic regression only marital status (COR = 0.15; 95% CI: 0.06–0.39; p =<0.001), parity (COR =0.33; 95% CI: 0.18–0.61; p =<0.001), and history of spontaneous miscarriage (COR =2.27; 95% CI: 1.17–4.42; p =0.016) were statistically significantly associated with unintended pregnancy.

Educational status (COR = 2.67; 95% CI: 0.60–11.99; p =0.199), knowledge of contraception (COR =1.56; 95% CI: 0.77–3.20; p =0.221) and age at coitarche of less than 20 years (COR =4.74; 95% CI: 0.91–24.77; p =0.065) did not remain statistically significantly associated with unintended pregnancy.

4. Discussion

Even though preventable unintended pregnancy has remained a significant source of morbidity and mortality to women in low- and middle-income countries of the world and especially in Nigeria. In south East Nigeria, there is paucity of studies on prevalence and determinants of unintended pregnancy among antenatal attendees. There is also the need to be more objective in assessment for unintended pregnancy in our environment. It was against this background that this study was done to assess the prevalence and determinants of unintended pregnancy among antenatal attendees at ESUT Teaching Hospital Parklane Enugu, Nigeria.

Following assessment with London measure of unplanned pregnancy, prevalence of unintended pregnancy among the respondents was 27.4%. Although slightly higher, this is similar to the prevalence of unintended reported by Mohammed and colleagues in Ethiopia (27.1%) [30]. It is however higher than the prevalence of unintended pregnancy reported by Goshu and colleagues in Ethiopia (26.1%) [2], Oppah and colleagues in South South Nigeria (16.28%) [21], as well as that reported by Agida and colleagues in Northern Nigeria (16%) [24]. On the other hand, the prevalence of unintended pregnancy as found by this study is lower than that reported by Eliason and colleagues in Ghana (70%) [31], Sanga and colleagues in Papua New Guinea (49.4%) [32], Lawani and colleagues in Abakaliki South East Nigeria (43.8%) [23], Ashimi and colleagues in Northern Nigeria (39.7%) [22], Habib and colleagues in Pakistan (38.2%) [5], Wasswa and colleagues in Uganda (37%) [33] as well as Lamina in Southwest Nigeria (35.9%) [26]. The differences in study settings as well as variations in methodology may account for the variation in reported prevalence.

This study showed that marital status is strong predictor of unintended pregnancy. Married women were about 85% less likely to experience unintended pregnancy compared to women who were not married (AOR = 0.15; 95% CI: 0.06–0.39; p < 0.001). On the other hand, women who were not married were 6.7 times more likely to have unintended pregnancy compared to married women. This is similar to the reports by Eliason and colleagues in Ghana [31] as well as that by Mohammed and colleagues in Ethiopia [30]. This is understandable since women who are not married are more likely to engage in casual sex as well as sex in exchange for money and other favors hence the resulting pregnancy is more likely to be unintended compared to that by married women who are in stable relationships.

Another of the respondents' characteristics which was discovered by this study to be statistically significantly associated with unintended pregnancy was parity. Parity refers to the number of times a woman had been delivered of a child after carrying the pregnancy beyond the age of viability (28 weeks in our environment) irrespective of whether the baby was delivered dead or alive. Women with parity ≤ 2 were found to be about 67% less likely to have unintended pregnancy compared to those with higher parity (AOR = 0.33; 95% CI: 0.18–0.61; p < 0.001). On the other hand, women with higher parity (>2) were about 3 times more likely to experience unintended pregnancy compared to those with lower parity. This finding is similar to finding in the report by Mohammed and colleagues in Ethiopia [30], Oppah and colleagues in South South Nigeria [21], Ashimi and colleagues in Northern Nigeria [22], Habib and colleagues in Pakistan [29] as well as Wasswa and colleagues in Uganda [33]. It follows logical reasoning that the more the number of times a woman had been delivered of children the more the likelihood that she would have exceeded her desired family size and the more likely that the pregnancy she is carrying is unintended.

Again, another factor found by this study to be associated with unintended pregnancy was previous history of spontaneous miscarriage. Women with no history of spontaneous miscarriage were found to be about 2.3 times more likely to have unintended pregnancy compared to those with a history of miscarriage (AOR = 2.27; 95% CI: 1.17–4.42; p = 0.016). It is unclear why women with no previous miscarriage will be at increased risk of unintended pregnancy. Habib and colleagues [5] reported that history of previous miscarriage or termination of pregnancy was not significantly associated with unintended pregnancy after multivariate analysis. More studies may be necessary to clarify the relationship between history of previous miscarriage and the likelihood of unintended pregnancy.

Up to 83.2% of the respondents had some knowledge of contraception. While this appears reasonable, it is lower than that reported by Lamina in Southwestern Nigeria (91.7%) [26], Oppah and colleagues in South South Nigeria (97.21%) [21], Agida and colleagues in Northern Nigeria (86.3%) [24] as well as Habib and colleagues in Pakistan (89.9%) [5]. On

the other hand, proportion of the respondents who had ever used contraception was 63.8% and this was higher than that reported by Oppah and colleagues (46.8%) [21], Agida and colleagues (61.9%) [24] as well as that reported by Habib and colleagues (33.4%) [5]. Also, the most commonly used modern contraceptive method among the respondents was barrier method and this is similar to report by Habib and colleagues [5] as well as Oppah and colleagues [21]. On the other hand, Agida and colleagues reported combined oral contraceptive pills as the most commonly used [24]. There is the need to increase awareness campaign to improve both awareness and use of contraceptives among our women to prevent unintended pregnancy.

5. Conclusion

The prevalence of unintended pregnancy among the respondents was 27.4%. This is unacceptable considering the challenges associated with unintended pregnancy. Being unmarried, having parity of greater than 2 and previous history of spontaneous miscarriage were identified as predictors of unintended pregnancy. Enlightenment campaign targeted at unmarried women with the message of the need for consistent and correct use of contraceptives may go a long way in stemming the tide of unintended pregnancy. Also, health talks during antenatal care, outreaches to women organizations as well as campaigns through the mass media and social media should be more utilized to educate all our women on the need to use contraceptives to prevent unintended pregnancy.

Compliance with ethical standards

Disclosure of conflict of interest

The author declares that there is no conflict of interest.

Statement of ethical approval

Ethical clearance for the study was obtained from the ethics committee of ESUT Teaching Hospital Parklane Enugu, Enugu State Nigeria

Statement of informed consent

The author declares that written informed consent was obtained from all the respondents.

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