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Research Article

Contraceptive Prevalence, Pattern and Socio-demographic Determinants among In- Union Women of Reproductive Age (15-49 years) in Semi-urban Communities of Orlu town, Imo state, Nigeria

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Abstract

Introduction: The use of contraceptives is very important in controlling high and unsustainable population growth thereby reducing its attendant problems of poor national economy and health outcomes of women and children.

Methodology: The study was a community based cross-sectional study carried out among 600 in-union women of reproductive age living in suburban communities in Orlu, Imo State, Nigeria. They were selected using multistage sampling technique. Data was collected using a pre-tested, semi-structured and interviewer administered questionnaire and was analyzed using EPI-INFO version 3.2.1. Descriptive statistics, Chi-square test and regression analysis were performed where necessary. A p-value of ≤ 0.05 was considered significant.

Result: Contraceptive ever used and current use was 66.7% and 36.7% respectively. The commonest modern contraceptive type ever used and currently used was the oral Contraceptive pill (65% vs. 22.8%). Socio-demographic and economic factors found to influence contraceptive use among the women were; age of women ($p=0.002$), status of union ($p<0.0001$), age at union ($p=0.043$), duration of union ($p=0.002$), level of education of women ($p<0.0001$), religion of women ($p<0.0001$), family size ($p<0.0001$), number of male children ($p<0.0001$), monthly income ($p<0.0001$) and previous use of contraceptives ($p<0.0001$).

Conclusion: The use of contraceptive was low and the commonest reason for non-use was due to religious beliefs. Most of the factors influencing use can be modified by appropriate intervention programs. Thus there is need to institute intervention programs by relevant authorities of the state that can help increase contraceptive use among these women.

Keywords: Contraceptive use, prevalence, pattern, socio-demographic, determinants, Orlu, Imo State.

1.0 INTRODUCTION

Contraception is defined as the intentional prevention of conception or impregnation during sexual activity through man made means such as the use of various devices, agents, drugs, sexual practices or surgical procedures^{1,2}. It describes pregnancy prevention by inhibiting the normal process of ovulation, fertilization and implantation^{3,4}. Contraceptive methods are preventive methods which help women avoid unwanted pregnancies and its use is viewed as the corner stone of prevention for unwanted pregnancies^{5,6,7}. Contraceptive methods are classified into two major types: modern and natural methods. The modern methods include; barrier methods (male and female condoms, diaphragm, cervical cap and spermicides), hormonal methods (oral contraceptives, injections, subcutaneous silicone implants), intrauterine devices and surgical methods (tubal ligation, vasectomy and laparoscopic sterilization) while natural/traditional methods includes; rhythm or billings

method, breast feeding, abstinence, withdrawal method and various traditional practices^{6,8,9}.

The use of contraceptives is very important in controlling high and unsustainable population growth thereby reducing its attendant problems that is associated with poor national economy and health outcomes of mostly women and children especially by preventing ill-timed pregnancies and child births^{10,11,12,13}. Worldwide, over 200 million women want to use safe and effective family planning method but are unable to do so, leading to unwanted pregnancies¹⁴. An estimated 600,000 maternal deaths related to pregnancy occur globally each year and WHO estimates that about 13% of these deaths are due to unsafe abortions^{15,16}. In Nigeria an estimated total of about 52,900 maternal deaths occur annually making it an approximately 10% of the global figure^{15,16}. Provision of easy access to contraception for all women in developing countries where contraceptive uptake is still very low, could prevent up to 54 million unintended pregnancies including 21 million unplanned births, 26 million abortions out of which 16 million

would be unsafe, 7 million miscarriages, 79,000 maternal deaths and 1 million infant deaths^{17,18}. In 2012, United Nations fund for Population Activities (UNFPA) reported that in Sub-Saharan Africa alone, an estimated 168,000 women died from pregnancy and birth related causes, 62,000 of these women did not want to become pregnant. Furthermore, unmet need for contraception accounted for 19 million unintended pregnancies, 8 million unplanned births, 5 million abortions, 2 million miscarriages, 550,000 infant deaths and 225,000 newborn death^{14,19}.

Modern contraceptive method utilization has increased globally in the recent past from 54% in 1990 to 57% in 2012. In Africa the estimates has remained consistently low which stood at 23% and 24% respectively within the same time period. The estimates were even lower in countries within the sub-Saharan region of the African continent where Nigeria belongs^{20,21}. In Nigeria reports from the NDHs revealed that despite a high level of contraceptive knowledge (94%) among currently married women, contraceptive use in the country has been consistently low over the years, steady at 12.6% from 2003 to 2008 but increased marginally to 15% in 2012 and 17% in 2018^{10,22,23}. Despite numerous policies by the Nigerian government to control fertility, it has remained consistently high, 5.3 (urban=4.5 rural= 5.9)²² which could account for the high infant and maternal mortalities, population explosion and its attendant problems reported in the country. Furthermore, in the state where this study was conducted, prevalence's higher than the national figure has been reported; 19.4%, 30.7% and 35.2% respectively^{10,22}. These figures were still lower than the average reported from most countries in the continent and therefore should still be of great concern to policy makers.

Globally several factors have been identified in previous studies to be associated with the use of contraceptives among women of reproductive age. They either have positive or negative effects depending on the study location and ranging from socio-demographic, socio-economic, sociocultural, religious, to health care services provision^{3,13,25,26}.

Previous studies have shown evidences of influence of the following socio-demographic and economic factors on contraceptive uptake; age of the women^{1,3,10,21,26,27}. Marital status^{7,13,21,27}, level of education of women^{3,7,13,14,18,21,24,26,27,28,29,30,31,32,33}, educational attainment of partner/spouse^{1,3,14,21,24,28,29,31,32}, religious denomination attended^{1,3,7,10,24,29,32}, wealth index/status of women and families^{3,10,13,26,31,32}, employment status/occupation of women and their partners^{1,21,27,29,31,33}, fertility related factors (parity gravidity, family size, number of living children, number of males, duration of marriage, wish for children, number of children ever born etc.)^{1,3,10,13,18,21,24,26,27,28,29,30,31,33}, previous contraceptive use^{10,24,27,30,31} among others.

With the consistent report of low contraceptive uptake in the country and its attendant problems, this study seeks to determine the prevalence, pattern and socio-demographic/economic factors influencing the use of contraceptives among the study participants. A better understanding of the above aim will therefore provide an efficient framework for developing sustainable interventions that could help in improving contraceptive uptake among women of reproductive age in the state.

2.0 METHODOLOGY

2.1 Study Area

Imo state is one of the 36 states of Nigeria and lies in the south eastern part of the country. It has a population of about 3.93 million people in 2006, comprising more males than females (2.03m and 1.9 million people respectively). The state is made

up of 3 political zones and 27 Local Government Areas (LGA), out of which 22 are rural while 5 are urban as designates by the National Population Commission (NPC) Nigeria.³⁶ This study was conducted in Orlu which is the 2nd largest city in Imo state and houses the only teaching hospital in the state. It is a commercial town and contains both rural and urban communities. The state is bordered by Abia state on the east, River Niger and Delta State to the West, Anambra on the North and Rivers state to the south. The inhabitants are predominantly Igbos' though their official language is English. Christianity is the predominant religion.

2.2 Study Design/Study Population/Selection Criteria.

The study design was a community based cross sectional study of the prevalence, pattern and determinants of contraceptive use among currently married and cohabiting women of reproductive age (15-49 years) from selected communities in Orlu, Imo State, South east, Nigeria. For any woman within the reproductive age to be eligible, she must have been resident in the community of study for at least 1 year preceding the study.

2.3 Sample size estimation

Sample size was determined using the Cochran sample size formula for cross sectional studies in populations greater than 10,000 as stated below:⁶

$$n = \frac{Z^2 PQ}{d^2}$$

Where n = minimum sample size required, Z = standard normal deviate corresponding to 95% significance level = 1.96, P = prevalence of contraceptive use in Imo state from previous study (30.7%),¹⁷ Q = 1 - 0.31 = 0.69, d = level of precision desired for the study set at 0.05. Thus, a minimum sample size of 329 was calculated, but anticipating a high non-response rate, a total sample size of 600 women were enrolled for the study.

2.4 Sampling Technique:

The sampling technique used for this study was the multistage sampling technique which involved 3 stages.

The first stage involved selection of the communities to be studied from Orlu Local Government Area. Thus ten communities, five from both the rural and urban areas were selected using simple random sampling by balloting

The second stage involved the selection of the wards to be studied. Wards are political delineations for representation in Local Government Council. One ward from each of the communities was selected using simple random sampling by balloting.

The 3rd stage involved the selection of the enumeration areas (EA) from the wards. Enumeration areas are geographical clusters delineated by the National Population Commission comprising about 500 households in each. Two enumeration areas per ward was selected using the simple random sampling by balloting. All eligible women in each of the selected clusters were enrolled and studied until the sample size required for the study was obtained.

2.5 Data collection and analysis

Each eligible and consenting woman of reproductive age group were recruited and responses elicited from them using a semi-structured, interviewer administered questionnaire. The questionnaire was divided into three sections. Section A was designed to illicit responses about the socio-demographic characteristics of the respondents like age, sex, marital status, religion, tribe, occupation, residence/region etc.; section B was

designed to obtain information about contraceptive awareness and knowledge while section C was designed to obtain information on the prevalence and pattern of contraceptive use among the women. Data collected was cleaned and validated manually, while a computer software package EPI INFO 3.2.1 was used for data entry and analysis. Frequencies and percentages of relevant variables were generated and test of associations between variables was carried out using the Chi-square and Regression analysis. A p-value of ≤ 0.05 was considered significant.

3.0 RESULTS

Table 1: Socio-demographic characteristics of the women

Variable	Frequency (n=600)	Percentage
Age group (years)		
<20	44	7.3
20-29	160	26.7
30-39	276	46.0
≥ 40	120	20.0
Mean age= 32.9$\pm$7.9		
Status of union		
Currently married	438	73.0
Cohabiting	162	27.0
Age at union/marriage		
<20	80	13.3
20-24	200	33.3
25-29	130	21.7
≥ 30	190	31.7
Mean age at union= 26.5$\pm$6.7		
Duration of marriage/union		
≤ 10	250	41.7
11-20	290	48.3
>20	60	10.0
Level of education		
None	118	19.7
Primary	90	15.0
Secondary	210	35.0
Tertiary	182	30.3
Religion		
Catholics	300	50.0
Pentecostal	150	25.0
Orthodox	100	16.6
Traditional	25	4.2
Islam	25	4.2
Employment status		
Unemployed	150	25.0

2.6 Ethical approval

Ethical approval was obtained from the Ethics Committee of Imo State University Teaching Hospital Orlu (IMSUTHEC) prior to the commencement of the study. Before the questionnaires were administered to the eligible participants, the concept of the study was carefully explained to each of them and oral consent obtained from all the participants. All the Authors hereby declare that the study was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

Employed	450	75.0
Household size		
≤5	250	41.7
>5	350	58.3
Mean household size= 6.3±2.1		
Family size		
≤4	240	40.0
>4	360	60.0
Mean family size=5.9±2.0		
No of living male children		
<2	400	66.7
>2	200	33.3
Mean no of males= 2.2±0.9		
Husband/Spouse/partner's level of education		
None	50	8.3
Primary	100	16.7
Secondary	200	33.3
Tertiary	250	41.7
Employment status of husband/spouse/partner		
Employed	350	58.3
Unemployed	250	41.7
Monthly family income(N)		
<40,000	120	20.0
40,000-49,000	180	30.0
≥50,000	300	50.0
Median family income=49,655		

Table 1 shows that the mean age of the women was 32.8±7.9 years with a higher proportion of the women (46.0%), being within the age group of 30-39 years of age. Majority of the women (73.0%) were currently in a marital union with mean age at first union and duration of union being 26.5±6.7 years and 12.1±6.3 years respectively. A sizeable proportion of the

women had no formal education (19.7%). Majority of them were Catholics (50.0%), employed (75.0%), and lives in households with 5 persons or more (58.3%). The mean family size and the number of living male children were 5.9±2.0 and 2.2±0.9 respectively with a median family income of N49, 655 (130 US dollar).

Table 2: Awareness about Contraceptive use among the women

Variable	Frequency	Percentage
Awareness about contraceptive method use (n=600)		
Yes	430	71.7
No	170	28.3
Contraceptive types known (n=430)***		
Male condom	430	100
Natural methods	350	81.4
Oral contraceptive pills	340	79.1
Emergency contraceptives	300	69.8
Injectable	298	69.3

Traditional methods	250	58.1
Female condom	105	24.4
Implants	60	14.0
IUCD	40	9.3
Spermicidal	35	8.1
Tubal ligation	30	7.0
Diaphragm/cervical cap	25	5.8
Vasectomy	25	5.8
Others ¹	10	2.3
Source(s) of information about contraceptive use (n=430)***		
Health personnel	400	93.0
Village (August) meetings	350	81.4
Radio	292	68.0
NGO	250	58.1
Chemist/Pharmacy	200	46.5
Television	75	17.4
Friends/relatives	70	16.3
School	60	14.0
Newspapers/magazines	50	11.6
Bill boards	20	4.9
Market place	15	3.5
Others ²	7	1.6

***= Multiple Response; Others¹= herbs, soda water, hot drink, alcohol, & sponge; others²= seminars/workshops, church, & traditional birth attendant

Majority of the women (71.7%) have heard about contraceptive method(s) use and the common source(s) of information were; health personnel (93.0%), village/August meeting (81.4%), radio (68.0%), and NGO (58.1%). The

commonest contraceptive method known was the male condom (100%) followed by natural methods (81.4%), and oral contraceptive pills (79.1%). **Table 2**

Table 3: Socio-demographic factors influencing awareness about contraceptive use among the women

Variable	Awareness about contraceptives			Statistics (X ²)	OR: 95% C I
	Yes (%)	No (%)	Total (%)	p-value	
Age group (years)					
<20	6(13.7)	38(86.4)	44(100)	X ² =18.964	1.00
20-29	144(90.0)	16(10.0)	160(100)	p<0.0001*	57.10*(20.88-155.57)
30-39	202(73.2)	74(26.8)	276(100)		17.28*(7.02-42.58)
>40	78(65.0)	42(35.0)	120(100)		11.76*(4.60-30.10)
Total	430(71.7)	170(28.3)	600(100)		
Status of union					
Currently married	298(68.0)	140(32.0)	438(100)	X ² =10.528	1.00
Cohabiting	132(81.5)	30(18.5)	162(100)	p=0.002*	2.07*(1.33-3.22)
Total	430(71.7)	170(28.3)	600(100)		
Age at union (years)					
<20	30(37.5)	50(62.5)	80(100)	X ² =38.171	1.00
20-24	176(88.0)	24(12.0)	200(100)	p<0.0001*	12.22*(6.56-22.76)
25-29	100(77.0)	30(23.0)	130(100)		5.56*(3.02-10.22)

≥30	124(65.3)	66(34.7)	190(100)		3.13*(1.82-5.39)
Total	430(71.7)	170(28.3)	600(100)		
Duration of union(years)					
≤10	223(89.2)	27(10.8)	250(100)	X²=6.940	10.10*(5.29-19.27)
11-20	180(62.1)	110(37.9)	290(100)	p=0.008*	2.0*(1.14-3.51)
>20	27(45.0)	33(55.0)	60(100)		1.00
Total	430(71.7)	170(28.3)	600(100)		
Level of education					
None	10(8.5)	108(91.5)	118(100)	X²=323.663	1.00
Primary	35(37.8)	55(62.2)	90(100)	p<0.0001*	6.87*(3.17-14.91)
Secondary	204(97.1)	6(2.9)	210(100)		367.2*(129.96-1037.5)
Tertiary	181(99.5)	1(0.5)	182(100)		1954.8*(246.81-15482.67)
Total	430(71.7)	170(28.3)	600(100)		
Religion					
Catholics	171(57.0)	129(43.0)	300(100)	X²=32.516	1.00
Pentecostal	144(96.0)	6(4.0)	150(100)	p<0.0001*	18.11*(7.75-42.28)
Orthodox	89(89.0)	11(11.0)	100(100)		6.10*(3.13-11.89)
Traditional	20(80.0)	5(20.0)	25(100)		3.02*(1.10-8.25)
Islam	6(24.0)	19(76.0)	25(100)		0.24*(0.09-0.61)
Total	430(71.7)	170(28.3)	600(100)		
Occupational status of women					
Unemployed	90(60.0)	60(40.0)	150(100)	X²=13.406	1.00
Employed	340(75.6)	110(24.4)	450(100)	p<0.001*	2.06*(1.39-3.49)
Total	430(71.7)	170(28.3)	600(100)		
Household size					
≤5	150(60.0)	100(40.0)	250(100)	X²=28.728	1.00
>5	280(80.0)	70(20.0)	350(100)	p<0.0001*	2.67*(1.85-3.84)
Total	430(71.7)	170(28.3)	600(100)		
Family size					
≤4	200(83.3)	40(16.7)	240(100)	X²=26.819	2.82*(1.89-4.22)
>4	230(63.9)	130(36.1)	360(100)	p<0.0001*	1.00
Total	430(71.7)	170(28.3)	600(100)		
Number of male children					
≤2	290(72.5)	110(27.5)	400(100)	X²=0.410	1.13(0.78-1.64)
>2	140(70.0)	60(30.0)	200(100)	P=0.521	1.00
Total	430(71.1)	170(28.3)	600(100)		
Educational level of spouse/partner					
None	3(6.0)	47(94.0)	50(100)	X²=330.030	1.00
Primary	20(20.0)	80(80.0)	100(100)	p<0.0001*	3.92*(1.11-13.89)
Secondary	160(80.0)	40(20.0)	200(100)		62.67*(18.55-211.74)
Tertiary	247(98.8)	3(1.2)	250(100)		1289.89*(252.65-6586.37)
Total	430(71.7)	170(28.3)	600(100)		
Monthly family income					

<40,000	13(10.8)	107(89.2)	120(100)	X²=84.721	1.00
40,000-49,000	175(97.2)	5(2.8)	180(100)	p<0.0001*	288.08*(99.90-830.75)
≥50,000	242(80.7)	58(19.3)	300(100)		34.34*(18.05-65.33)
Total	430(71.7)	170(28.3)	600(100)		

*= Statistically significant

The factors found to be significantly associated with awareness about contraceptive use among the women were; age ($X^2 = 18.964$, $p < 0.0001$), status of union ($X^2 = 10.528$, $p < 0.002$), age at union, ($X^2 = 38.171$, $p < 0.0001$), duration of union, ($X^2 = 6.940$, $p = 0.008$), level of education of women ($X^2 = 323.663$, $p < 0.0001$), and their partners' ($X^2 = 330.030$, $p < 0.0001$), religion ($X^2 = 32.516$, $p < 0.0001$), occupational status of women ($X^2 = 13.406$, $p < 0.001$), household size ($X^2 = 26.728$, $p < 0.0001$), family size ($X^2 = 26.813$, $p < 0.0001$), and monthly family income ($X^2 = 84.721$, $p < 0.0001$). There was a likelihood of higher awareness about contraception among women aged 20-29 years of age (OR: 57.10; 28.88-155.57),

those cohabiting with spouse (OR: 2.07; 1.33-3.22), women who started their union at age group 20-24 years (OR: 12.22; 6.56-22.76), women who had been in union within 1-10 year preceding study (OR: 10.10; 5.29-19.27), had tertiary education (OR: 1954.80; 246.81-15482.67), partner had tertiary education (OR: 1289.89; 252.65-6586.37), attends Pentecostal denomination (OR: 18.11; 7.75-42.28), currently employed (OR: 2.06; 1.39-3.47), has a large household size > 5 persons (OR: 2.67; 1.85-3.84), a family size of ≤4 children (OR: 2.82; 1.89-4.22) and monthly family income within N40,000-49,000 (OR: 288.08; 99.90-830.75) when compared to their counterparts.

Table 4: Prevalence and pattern of contraceptive use among the women

Variable	Frequency	Percentage
Ever used any form of contraceptive (n=600)		
Yes	400	66.7
No	200	33.3
Methods ever used (n=400)***		
Natural methods	350	85.4
Oral contraceptive pills (OCP)	260	65.0
Male condom	110	27.5
Injectable	100	25.0
IUCD	30	7.5
Emergency contraceptive pills	30	7.5
Traditional methods	30	7.5
Implants	25	6.3
Female condom	20	5.0
Spermicidal creams	10	2.5
Tubal ligation	5	1.3
Main type of method ever used (n=400)		
Modern method	256	63.9
Natural method	144	36.1
Currently using any form contraceptive within the last 12 months preceding study (n=600)		
Yes	220	36.7
No	380	63.3
Methods currently used (n=220)***		
Natural methods	135	61.4
Oral contraceptive pills	50	22.8
Injectable	33	15.0
IUCD	27	12.3
Male condoms	25	11.4

Implants	20	9.1
Emergency contraceptive pill	18	8.2
Female condom	10	4.5
Tubal ligation	5	2.3
Spermicidal cream	5	1.4
Traditional methods	1	0.5
Main type of method currently used (n=220)		
Modern method	131	59.5
Natural method	89	50.5
Proportion of ever used still currently using (n=400)		
Yes	196	48.9
No	204	51.1
Reasons for choice of a particular contraceptive (n=220)***		
It is convenient	66	30.0
Has less side effects	50	22.7
Recommended by health personnel	40	18.2
Easy to use	40	18.2
Cheap/affordable	30	13.6
Effective	30	13.6
Long duration of use	30	13.6
Easily reversible	10	4.5
Reasons for non-use of any type (n=380)***		
Against my religious belief	300	79.0
Spousal objection	280	73.7
Lack of knowledge about how to use	180	47.4
Inability to source type	30	8.0
High cost	20	5.3
Fear of side effects	18	4.2
Needs high technical manpower	10	2.6
Main place contraceptive was sourced (n=220)		
Chemist/Pharmacy	95	43.2
Public hospitals	60	27.3
Private hospitals	23	10.4
NGO/FP clinic	22	10.0
Primary Health Center	20	9.1
Reasons for place of source (n=220)***		
Commodities are cheap	150	68.2
Near to my house	100	45.5
Has qualified health personnel	65	29.5
Availability of product	50	22.7
Good service delivery	37	16.8

***= Multiple response

The prevalence of contraceptive ever use among the women was 66.7% and the common methods ever used were; natural methods (85.7%), oral contraceptive pill (65.0%), and male condoms (27.5%) while the current contraceptive prevalence among the women was 36.7% and the common methods currently used were; natural methods (64.1%), oral contraceptive pills (22.8%) and injectable (15.0%). Among the women that ever used, 63.9% (42.7% of 66.7%) used modern contraceptive methods while 59.5% (21.9% of 36.7%) of current users used modern methods. The proportion of ever

used women still currently using any form of contraception was 48.9%. The commonest reason for their choice of a particular contraceptive was "it was convenient to use" (30.0%) while the commonest reason for non-use was "it was against my religious belief" (79.0%). Majority of the women sourced their commodity from the private sector (72.7%) and their common reasons for sourcing the commodity at that place were; low cost of commodity (68.2%) and nearness to place of residence (45.5%).

Table 5: Socio-demographic determinants of contraceptive use among the women

Variable	Current contraceptive use			Statistics (X ²)	OR: 95% C I
	Yes (%)	No (%)	Total (%)	p-value	
Age group (years)					
<20	5(11.4)	39(88.6)	44(100)	X ² =10.064	1.00
20-29	100(62.5)	60(37.5)	160(100)	p=0.002*	13.00*(4.86-34.79)
30-39	104(37.7)	172(62.3)	276(100)		4.72*(1.80-12.35)
>40	11(9.2)	109(90.8)	120(100)		0.79(0.26-2.41)
Total	220(36.7)	380(63.3)	600(100)		
Status of union					
Currently married	90(20.5)	348(79.5)	438(100)	X ² =181.496	1.00
Cohabiting	130(80.2)	32(19.8)	162(100)	p<0.0001*	15.71*(10.01-24.66)
Total	220(36.7)	380(63.3)	600(100)		
Age at union (years)					
<20	20(25.0)	60(75.0)	80(100)	X ² =6.092	1.00
20-24	105(52.5)	95(47.5)	200(100)	p<0.043*	3.32*(1.86-5.91)
25-29	53(40.8)	77(59.2)	130(100)		2.07*(1.12-3.82)
≥30	42(22.1)	148(77.9)	190(100)		0.85(0.46-1.57)
Total	220(36.7)	380(63.3)	600(100)		
Duration of union(years)					
≤10	112(44.8)	138(55.2)	250(100)	X ² =9.468	5.28*(2.41-11.57)
11-20	100(34.5)	190(65.5)	290(100)	p=0.002*	3.42*(1.56-7.48)
>20	8(13.3)	52(86.7)	60(100)		1.00
Total	220(36.7)	380(63.3)	600(100)		
Level of education					
None	3(2.5)	115(97.5)	118(100)	X ² =51.919	1.00
Primary	14(15.6)	76(84.4)	90(100)	p<0.0001*	7.06*(1.96-25.40)
Secondary	61(29.0)	149(71.0)	210(100)		15.69*(4.80-51.30)
Tertiary	142(78.2)	40(21.9)	182(100)		136.1*(41.04-451.25)
Total	220(36.7)	380(63.3)	600(100)		
Religion					
Catholics	26(8.7)	274(91.3)	300(100)	X ² =151.009	1.00
Pentecostal	97(64.7)	53(35.3)	150(100)	p<0.0001*	19.29*(11.43-35.55)
Orthodox	83(83.0)	17(17.0)	100(100)		51.45*(26.62-99.43)
Traditional	12(48.0)	13(52.0)	25(100)		9.73*(4.03-23.49)

Islam	2(8.0)	23(92.0)	25(100)		0.92(0.21-4.11)
Total	220(36.7)	380(63.3)	600(100)		
Occupational status of women					
Unemployed	10(6.7)	140(93.3)	150(100)	X²=77.512	1.00
Employed	210(46.7)	240(53.3)	450(100)	p<0.0001*	12.25*(6.28-23.89)
Total	220(36.7)	380(63.3)	600(100)		
Family size					
≤4	112(46.7)	128(53.3)	240(100)	X²=17.225	2.04*(1.45-2.87)
>4	108(30.0)	252(70.0)	360(100)	p<0.0001*	1.00
Total	220(36.7)	380(63.3)	600(100)		
Number of male children					
≤2	61(15.2)	339(84.8)	400(100)	X²=237.018	1.00
>2	159(79.5)	41(20.5)	200(100)	p=0.0001*	25.55*(13.90-33.41)
Total	220(36.7)	380(63.3)	600(100)		
Educational level of spouse/partner					
None	3(6.0)	47(94.0)	50(100)	X²=135.328	1.00
Primary	10(10.0)	90(90.0)	100(100)	p<0.0001*	1.74(0.46-6.63)
Secondary	30(15.0)	170(85.0)	200(100)		2.77(0.81-9.46)
Tertiary	177(70.8)	73(29.2)	250(100)		37.99*(11.46-125.94)
Total	220(36.7)	380(63.3)	600(100)		
Monthly family income					
<40,000	12(10.0)	108(90.0)	120(100)	X²=45.933	1.00
≥40,000	208(43.3)	272(56.7)	480(100)	p<0.0001*	6.88*(3.69-12.83)
Total	430(71.7)	170(28.3)	600(100)		
Previous contraceptive use					
Yes	196(49.0)	204(51.0)	400(100)	X²=77.018	7.05*(4.40-11.27)
No	24(12.0)	176(88.0)	200(100)	p<0.0001*	1.00
Total	220(36.7)	380(63.5)	600(100)		

*= Statistically significant

The socio-demographic factors found to be significantly associated with contraceptive use among the women were; age ($X^2 = 10.064$, $p = 0.002$), status of union ($X^2 = 181.496$, $p < 0.0001$), age at union, ($X^2 = 6.090$, $p = 0.043$), duration of union, ($X^2 = 9.468$, $p = 0.002$), level of education of women ($X^2 = 51.919$, $p < 0.0001$), and their spouse/partners' ($X^2 = 135.328$, $p < 0.0001$), religion ($X^2 = 151.009$, $p < 0.0001$), employment status of women ($X^2 = 77.512$, $p < 0.0001$), family size ($X^2 = 17.225$, $p < 0.0001$), number of male children ($X^2 = 237.018$, $p < 0.0001$), monthly family income ($X^2 = 45.933$, $p < 0.0001$) and previous use of contraceptives ($X^2 = 77.018$, $p < 0.0001$). Women aged 20-29 years of age (OR: 13.00; 4.86-34.79), those cohabiting with spouse/partner (OR: 15.71; 10.01-24.66), women who started their union at ages within 20-24 years (OR: 3.32; 1.86-5.91), women who had been in union within 1-10 year preceding study (OR: 5.28; 2.41-11.57), had tertiary education (OR: 136.10; 41.04-451.25), partner had tertiary education (OR: 37.99; 11.46-125.94), who attends orthodox denomination (OR: 54.45; 26.62-99.43), currently employed (OR: 12.25; 6.28-23.89), with a family size of ≤4 children (OR: 2.04; 1.45-2.87), having more than 2 living male children (OR: 25.55; 13.90-33.41) and monthly family income ≥ N40,000

(OR: 6.88; 3.69-12.83) were more likely to be using any form of when compared to their counterparts. Women who had used contraception in the past were about 7 times more likely to currently use when compared to their counterparts that have not used any in the past (OR=7.05; 4.40-11.27)

4.0 DISCUSSION

This study was carried out to access the contraceptive prevalence, pattern and determinants of contraceptive use among in-union women of reproductive age (15-49 years) in a semi-urban Local Government Area in Imo State, Nigeria. The mean age of the women was 32.9± 7.9 years. This mean age observed was similar to figures reported in two previous studies carried out in the state which stood at 31.2± 8.1 years and 32.7± 7.7 years respectively^{10,24}. This mean age could be indicative of peak age of reproduction in this part of the country where the median age at first marriage or cohabitation stood at 25 years.^{22,23} This was similar the mean age at first union reported in this study (25.5 years). Contraceptive method awareness among the study population was found to be relatively high (71.7%). This figure was lower

than that reported from previous studies conducted in the state which stood at 99.1% and 96.1% respectively^{10,24}. Also lower than 94.0% reported at national level²² and from other studies elsewhere; 98.6% from Ekiti State Nigeria⁷, 96.6% from Umuahia, Abia State, Nigeria³³ and 96.7% from Ghana²¹. This lower level of awareness reported could be due to the interaction of several factors, ranging from socio-demographic characteristics of the women, economic status, and cultural issues to type of questions asked and how it was asked by the researchers, interviewers or invigilators. For example, awareness in this study was assessed by asking the women to mention at least one type of contraceptive method known not just if they have heard about contraceptive use. This was different from the other studies reviewed which accessed awareness simply by asking the women if they have ever heard of contraception or family planning.

In this study, prevalence of life-time contraceptive use among the women was 66.7% (modern = 42.7% and natural = 24.0%) while that of current contraceptive use was 36.7% (modern methods = 21.9% and natural methods = 14.8%). This was higher than figures reported from the 2018 National Demographic and Health Survey for both the National and state which stood at 17% and 30.7% respectively²². It was also higher than figures reported from a previous study in the state (19.4%)²⁴, and elsewhere; from Umuahia, Abia State (18.5%)³³, Ekiti State, Nigeria (50.5%)⁷, a rural community in southern Nigeria (24.6%)¹⁴, and a multi-level country survey from all the regions of Nigeria (19.2%)¹³. Nevertheless it was lower than figures reported from other studies within and outside the country^{3,18,30,34} but was consistent with a figure (35.1%) reported from a previous study in the state¹⁰. This level of prevalence reported in this study is worrisome considering the high level of awareness about contraceptive method use seen in this study, coupled with poor maternal and child health indices reported in the state and country when compared to figures from most countries in Africa. Furthermore, the state has one of the highest literacy rates in Nigeria which can be compared to what is obtainable elsewhere around the world but yet this seems to have no effect in improving the contraceptive use in the state. The researchers believe there could be other factors interacting to have such deleterious effect of which this study has sought to explore.

Beside the natural/traditional methods, the commonest modern method used by the women in this study was the oral contraceptive pills, followed by injectable and IUCD. This pattern is in line with the pattern reported among married women in the NDHS of which injectable, pills and implants were commonly used^{22,23}. Other reports from previous studies were similar to this finding except for minor variations in some especially in the use of modern methods^{3,10,13,18,24,30,33,34}. Some of the studies with high condom use were made up of mixed populations of both married and single women. The purpose of use of contraceptive among in-union and singles may differ slightly, while the in-union/married women most a times uses contraceptives for the prevention of pregnancy, singles use it for both prevention of pregnancy and transmission of sexually transmitted infection (STI) including HIV. Thus explaining the low condom use among the study population unlike what was observed from some of the reviewed studies.

The common reasons reported by the women for using a particular contraceptive device were; it is convenient to use, it has less side effects and it was recommend by health personnel while the common reasons for non-use were; it was against my religious beliefs, partner objection and lack of knowledge about contraceptive use. The above reasons for use and non-use has been postulated in previous

studies^{7,10,14,15,24}. This can explain in part the strong role religion and partners objection could have contributed to the low level of use observed in this survey. Majority (72.7%) of the contraceptive commodities were sourced from the private sector (chemist/pharmacy, private hospitals etc.) and the common reasons for sourcing the commodity at such places were; the commodity was cheap to procure and nearness to the place of residence. This pattern was in tandem with reports from several studies^{6,10,15,22,23,24}. This finding supports claim from some quarters in Nigeria of poor government involvement in the provision of family planning services to its citizenry which could have played a critical role in the low contraceptive prevalence observed in this study. Sourcing commodities from the private sector could likely come with some cost of which many of the women may not be able provide or there could be provision of low quality contraceptive commodities which could be detrimental to the health of the women. Use of such low quality commodities may lead a high failure rate. Also services in private settings outside the hospital may be administered by personnel's with inadequate skills which could affect the outcome negatively.

Concerning factors influencing the use of contraceptive among the women, it was found that age of the women was statistically significant with current contraceptive use. Women 20 – 29 years and 30 – 39 years of age have a higher likelihood of use than others. This increased use with increasing age of women that peaks within the 20 – 29 years and 30 – 39 years age group has been reported in several studies^{1,3,10,21,26,29,30,31,32,33}. This could be explained by the fact that at beginning of the union, most of the women will be trying to get pregnant and thus may not use any contraceptive but as they progress in age some of them may have given birth to more children and will want to either space their pregnancy or limit child birth by using of any contraceptive methods. Furthermore, when they reach the age of forty and above, some might have completed their families, or are post-menopausal or having low sexual drive and may not need much contraceptive intervention.

Women cohabiting with their partners were found have a higher likelihood of use, than those currently married and living with their partners. Marital status of women has been found to generally influence contraceptive use as reported in previous studies^{7,13,21,27,31,33}.

While some reported use to be more among currently married women^{7,21,31,33} others reported use to be more among sexually active singles and cohabiting women^{13,22,23} which was in line with the finding this study. Most cohabiting women are not fully married going by traditions/customs of our people and so will want to prevent the occurrence of pregnancy especially in this part of the world where such union is viewed as illegal and shameful. There is a general insinuation especially in this part of the country where the study was carried out that any child delivered out of wedlock may be seen as an illegitimate child which usually affects the children in the general society. Furthermore finding in this study revealed that women whose age at marriage or union was within 20 – 39 years were more likely to use contraception than their counterparts. It was also found that the higher the duration of union, the lower, the use of contraceptives. This was the reverse of what was reported from a study in Egypt which found an increasing use with increase in duration of marriage²⁹.

The study revealed that the use of contraceptive among the women increases with increase in educational level of the woman and their partners. This positive effect of female education on their contraceptive use has been reported in several studies across the globe^{3,7,13,14,18,21,24,26,27,28,229,31,32}. Furthermore, the positive effect of their partner's/spousal education on contraceptive use observed in this study was

consistent with reports from studies elsewhere^{1,3,14,21,24,28,29,31,32}. Education generally creates awareness, deepens individual knowledge and influences positive attitudinal change which could in turn influence healthcare services utilization. It improves health literacy and thus empowers individuals especially women, to make an informed choices concerning their reproductive health needs²⁴. It also helps women to develop skills that could empower them to create wealth and be able to fund their need for family planning services without the help of their partners/spouses. Thus education is viewed as one of the most influential and important investment in a woman's life that could affect positively every aspect of their reproductive and family health¹⁴.

Concerning the employment status of the woman, those who were employed were about 12 times more likely to use any form of contraception than their unemployed counterparts. This was in line with reports from other studies which showed higher contraceptive use among the working population^{1,21,27,29,31,32,33}. This could be explained by the fact that work environment exposes women to a lot of information that could help them in taking care of their health needs and could in-turn positively influence contraceptive use. Also working women may want to space their pregnancy so as to allow them do their work as required without endangering their health or there may be work schedules that pregnant women cannot do thus requiring the need to prevent pregnancy for a time being.

The study revealed that Christians used contraceptives more than Moslems. Furthermore, among the Christians the least use was found among the Catholics while the highest use was found among women attending Orthodox denominations. This higher use among Christians as observed in this study has been reported in studies elsewhere^{1,7,10,24,32} though one of the studies, precisely from Egypt reported a higher use among Moslems³⁰. The finding of least use among Catholics when compared to other Christians denominations was consistent with findings from similar studies^{3,10}, nevertheless one of the studies precisely from the Christians dominated eastern part of Nigeria reported least use among women attending Pentecostal denominations²⁴. Generally, religion has a lot of positive influences on an individual's life but there are a lot of doctrinal differences that could influence health services utilization negatively. While some religions are neutral on contraceptive services utilization, some may encourage use while others may be against the use of some specific methods. This could have influenced the pattern of use reported in this study that was conducted in deeply religious part of the country of which a high proportion of the women were of the Catholic faith. This corroborates the commonest reason given for non-use in this study which was; "it is against my religious beliefs".

Those whose family size was four children or less were about two times more likely to use than their counterparts whose family size was greater than four children. This influence of family size on contraceptive use has been reported in several studies^{1,3,10,13,21,24,26,27,29,31,33}. This pattern observed in the study was contrary to what was reported in several studies which showed increase use with increasing number of family size^{3,10,13,24,26,27,29,31,33}. Nevertheless other studies reported findings similar to what was found in this work in which one of the studies showed greater use among woman with 2 children¹ while another showed greater use among women with 2 – 5 children²¹ when compared to women with higher number of living children. This observed difference could be accounted for by variations in the socio-demographic characteristics of these women who came from different backgrounds. The higher use could be due to need for child

spacing especially for those who are yet to complete their families. Those with higher number of children, may be older and less sexually active, with completed family size and may not be in dire need of contraception when compared with their colleague with lesser family size.

Furthermore women who had greater than 2 female were more likely to use than those with 2 or less number males. This pattern has been reported in previous studies^{10,24}. This is not strange in this part of the world where male dominance is prevalent. Also in this part of the world, family inheritance is mostly shared among the male members of the family who are expected to carry on with the family name and lineage. Thus any woman without a male child is sometimes seen not to have much stake in the family inheritance and sometimes their husbands are advised to marry another wife, who will bear them male children that will continue to bear the family name and lineage. This is one of the common causes of polygamy, divorce, separation and marital problems in this part of the world.

In the assessment wealth status of the women using monthly income, findings revealed that women who earn higher income 40,000 naira (\$97) and above were about 7 times more likely to use contraception than their counterparts who earn less. This pattern of increase in contraceptive use with increase income or wealth status/index has been reported in previous similar studies^{3,10,13,26,31,32}. This shows that women who are empowered financially can pay for their health care needs and make informed choice irrespective of whether their partners help them or not. This could be one of the reasons behind sustained advocacy for women empowerment globally.

Women who have used contraception in the past were more likely to be currently using any form than their counterparts who have not used in the past. This finding was consistent with what was reported from other studies^{10,24,27,31,32}. Those who have used it before will be in the best position to know how it works, its merits and demerits, effectiveness of particular types and will be better informed about contraceptive types than those who have not used any previously. Most of them might have overcome the initial fears and uncertainties associated with contraceptive use and thus can easily access the commodity and use it especially when in need.

In conclusion, despite high level of knowledge about contraceptive method types, the current use of contraception among the women was relatively low. The common reasons for those not using were religious beliefs, spousal objection and lack of knowledge about use. This is worrisome owing to high level of avoidable abortion, neonatal and maternal deaths reported in Nigeria which could be associated with pregnancy and child birth and could be averted by the use of contraception. Also several socio-demographic and economic factors were found to influence contraceptive use of which some of them are modifiable if proper steps are instituted by relevant bodies. Therefore based on the findings of this study, we recommend widespread and sustained awareness about the benefits of family planning use mostly in the rural and suburban communities through the right channels which should be delivered by the appropriate personnel's. There should be need for a sustained free girl child education, financial empowerment of women and their families, involvement of males and community stakeholders especially, religious leaders in family planning programs, monitoring and implementation of already existing policies so as to achieve their desired goal and objectives.

The limitation associated with this study is that this is a cross-sectional study and data collected could be influenced by recall bias. Secondly the sample size may not be large enough

for ease of generalizations of key findings to a larger population.

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Authors' contribution

All authors participated in the conduct of this research study.

Findings

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Competing interest

The authors hereby declare no competing interest.

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QUESTIONNAIRE

QUESTIONNAIRE ON CONTRACEPTIVE PREVALENCE, PATTERN AND SOCIO-DEMOGRAPHIC DETERMINANTS OF CONTRACEPTIVE USE AMONG IN-UNION WOMEN OF REPRODUCTIVE AGE (15-49 YEARS) IN ORLU TOWN, IMO STATE, NIGERIA.

Dear Participant, the purpose of the study is to ascertain contraceptive use and pattern of unmet need among in-union women of reproductive age in communities in Orlu town, Imo State, Nigeria. Findings from this study will help improve the unmet need among women of reproductive health.

We will appreciate your honest answers and the information obtained will be treated with utmost confidentiality.

Instructions:

Please answer the following questions by ticking [] the correct option(s) or writing in the space provided.

SECTION A: SOCIO-DEMOGRAPHIC DATA

1. Age as at last birthday in years.....
 - i) <20[]
 - ii) 21-24[]
 - iii) 25-29[]
 - iv) >30[]
2. Marital status: Currently married [], Cohabiting []
3. Tribe: Igbo [], Hausa [], Yoruba [], others please specify.....
4. Religion: Catholic[], Orthodox[], Pentecostal[], Moslem[], Traditional[], Others(specify).....
5. Average family monthly income: 0-20,000[], 21,000-40,000[], 41,000-60,000[], 61,000 and above []
6. Educational status of participant: None [], Primary [], Secondary [], Tertiary []
7. Educational status of partner: None [], Primary [], Secondary [], Tertiary []
8. Status of Union/marriage: Currently married [], Cohabiting with partner []
9. Occupational status of participant: Employed [], Unemployed [], others specify.....
10. Occupational status of partner: Employed [], Unemployed [], others specify.....
11. How many people are living in your household.....?
12. How many children do you have?: Specify.....
13. How many are males?.....
14. Age at first marriage/cohabiting?.....
15. Number of years in union?.....

SECTION B: KNOWLEDGE & AWARENESS OF CONTRACEPTIVE

1. Have you ever heard or read about contraceptive? Yes [] No []
2. If yes, what was your source(s) of information? (Multiple responses apply): Parents[] Friends[] Relative[] Media[] Book[] Partner[] Health center[] Church[] Mosque[] Market[] School[] Chemist/pharmacy worker[] NGO[] Others specify.....

3. What type of contraceptives do you know? (Multiple responses apply): Withdrawal[], Male condom[], Female condom[], Oral contraceptive pills[], Intrauterine device[], Implants[], Contraceptive injections[], Diaphragm[], Tubal ligation[], Vasectomy[], Spermicidal foam[], Emergency oral contraceptive[], Traditional method[], Natural method[], Others specify.....

4. What are the importance/benefits of contraceptives that you know? (Multiple responses apply): Spacing of children[], Limiting of family size[], Prevention of unplanned pregnancy[], Lowers risk of endometrial cancer[], Reduces menstrual cramps[], It controls heavy menstrual bleeding[], Prevents STI[], Others please specify.....

5. What side effects of contraceptive methods do you know?(Multiple responses apply): Mood changes[], Irregular bleeding[], Nauseous feeling or vomiting[], Skin rash/acne[], Changes in body weight[], Low libido[], Stomach problems and diarrhea[], Breast pain/tenderness[], Others please specify.....

SECTION C: CONTRACEPTIV USE, PATTERN AND UNMET NEED

1. Have you ever used any form of contraceptive before? Yes[], No[]

2. If yes, which one have you used? (Multiple responses apply) Withdrawal[], Male condom[], Female condom[], Oral contraceptive pills[], Intrauterine device[], Implants[], Contraceptive injections[], Diaphragm[], Tubal ligation[], Vasectomy[], Spermicidal foam[], Emergency oral contraceptive[], Traditional method[], Natural method[], Others specify.....

3. Are you currently using any contraception? Yes[] No[]

4. If yes, which one are you using? (Multiple responses apply) Withdrawal[], Male condom[], Female condom[], Oral contraceptive pills[], Intrauterine device[], Implants[], Contraceptive injections[], Diaphragm[], Tubal ligation[], Vasectomy[], Spermicidal foam[], Emergency oral contraceptive[], Traditional method[], Natural method[], Others specify.....

5. State your reason for the use of the contraceptive? (Multiple responses apply): It is cheap[], It is easy to use[], It is convenient[], It is effective[], Less side effects[], It was recommended by a health professional[], It has long period of use[], It is reversible[], Others please specify.....

6. State the reason for non-use? (Multiple responses apply): Against my religious faith[], It can cause disease/barrenness[], Lack of knowledge about use[], Inability to source it[], High technical man power to use[], Spousal objection[], Others please specify.....

7. If you use, from where do you source and get your contraception? (Multiple responses apply) Government hospitals[], Private hospital[], Primary health care[], Chemist[], Churches[], NGO[]

8. What are the reasons for the place of source? (Multiple responses apply): It is near to my house[], They have the contraceptive[], It is cheap[], The man power is available

9. If you are not using, are you in need of family planning now for any reason? Yes[], No[]

10. If yes, what do you need family planning for? To limit pregnancy[], To space childbirth[], To prevent STI[], Others please specify.....

12. Then why are you not using any contraceptive method, despite having need for it? (Multiple responses apply): Spousal objection[], Religious reasons[], Fear of side effects[], Lack of knowledge about source[], It's against my faith[], It's a cultural taboo[], I don't like it personally[], Want more children[], Want male children[], Others please specify.....

Thanks for your participation