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ORIGINAL ARTICLE

Predictors of Willingness to Use Modern Contraceptives among female undergraduate students in a tertiary institution in Nigeria: The Health Belief Approach

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Keywords

Predictors;

Willingness;

Modern contraceptive;

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ABSTRACT

Background: More than half of unintended pregnancies in Nigeria end in induced abortion. Unsafe abortion from unintended pregnancies contributes significantly to maternal mortality in Nigeria. Modern contraceptives have proven useful in preventing unintended pregnancy. The health belief model is a comprehensive tool that can be used to predict contraceptive behaviour. It provides a theoretical framework that gives better understanding of how individual beliefs affect contraceptive behaviour. This study determined the predictors of willingness to use modern contraceptives among female undergraduates of Obafemi Awolowo University Ile-Ife from the perspective of the health belief model.

Methods: This descriptive cross-sectional study was conducted among 422 female undergraduates selected by multistage sampling technique. Data were collected using pretested self-administered questionnaire and analysed using IBM SPSS Version 25. Chi square test was used for association while logistic regression was used to determine the predictors. A p-value of <0.05 was considered statistically significant.

Results: The mean age of respondents was 21.4±2.4 years. The prevalence of modern contraceptive use was 9.2%. Majority of the respondents 268 (79.3%) were willing to use contraceptives. The most commonly used modern contraceptive was oral pills 289 (68.5%). Perceived benefit (AOR=0.32, 95%CI=0.17-0.63, p=0.001), perceived severity (AOR=0.48, 95%CI=0.44-0.89, p=0.004) and perceived self-efficacy (AOR=0.41, 95%CI=0.22-0.78, p=0.006) were predictors of willingness to contraceptive use.

Conclusion: Although willingness to use modern contraceptives was high, the actual use of contraceptives was low. Health education programs and improvement of access to different contraceptive methods can improve un-met need for contraception among respondents.

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INTRODUCTION

A modern contraceptive is a medical product or procedure that prevents the process of conception despite acts of sexual intercourse.[1] Therefore, modern contraceptives have proven to be very useful in the prevention of unintended pregnancy among women of reproductive age 15 to 49 years.[1]

Unintended pregnancy on the other hand, is pregnancy that occurred at the wrong time, or was not desired at all.[2] Globally, an estimated 257 million women who want to avoid pregnancy are not using safe, modern methods of contraception, and of these, 172 million women are using no method at all.[3] Between 2015 and 2019, there were roughly 121 million unintended pregnancies globally each year.[4] The World Health Organization (WHO) estimates that 45% of all abortions around the world remain unsafe, hospitalizing about 7 million women a year in developing countries and causing between 4.7% and 13.2% of annual maternal deaths.[5] The burden of unsafe abortion is highest in countries with restrictive abortion laws and approximately 97% of unsafe abortions and nearly all abortion-related deaths occur in low-income and middle-income countries (LMICs).[6] Unintended pregnancy occurs as a result of unmet needs for contraception among women of reproductive age. Unintended pregnancies can be reduced by about 77% if all the contraceptive needs of women are met.[7]

Some factors have been identified to influence the use or non-use of contraception among women of reproductive age. These include: age, marital status, parity, socio-economic status, level of education, religious beliefs, cultural beliefs, and misconceptions about modern contraceptive methods. Other factors identified to be associated with use or non-use of contraceptives are lack of access to the modern contraceptive methods, irregular availability or non-availability of the modern contraceptive methods in the health facilities (especially primary health facilities), disapproval of partner, fear of side effects, infrequent sex, and perceived infecundity.[8,9]

Behavioural factors also play a major role in determining the willingness to use modern contraceptives. These factors can be studied using theoretical frameworks such as the health belief model. The health belief model was developed initially in the 1950s by social psychologists in the United States Public Health Service to explain the widespread failure of people to participate in programmes to prevent or detect diseases.[10] A woman's contraceptive behaviour refers to the process of selecting and using a method of contraception to prevent pregnancy.[11]This contraceptive behaviour is influenced by her motivation to prevent an unintended pregnancy. This motivation may be assessed by the constructs of the health model which include: perceived susceptibility to unintended pregnancy, perceived severity of the complications of unintended pregnancy, perceived barrier to the use of modern contraceptives, perceived benefits of using a modern contraceptive method, and perceived self-efficacy to use the contraceptive method. [11]

The Nigeria Demographic and Health Survey (NDHS) of 2018 revealed that only 17% of all Nigerian women of reproductive age (15–49years) were using any contraceptive method, and out of this proportion, only 12% use a modern method .[12] Also, 19% of married women aged 15–49 years in Nigeria have an unmet need for family planning. This implies that these women are either desirous to space their births or stop childbearing, but are not using contraceptives.[12]

In 2020, the United Nations reported a modern contraceptive global prevalence of 44% among women of reproductive age,[13] In Sub-Saharan Africa, the prevalence of use of any contraceptive method was 29% and 23% in Nigeria.[13] The use of

contraception tends to vary with age and is found to be lower among adolescents and young women. A study found a contraceptive prevalence of 11% among young women between the ages of 15-24 years.[14]

In Nigeria, induced abortion is illegal, and is only permitted when the pregnancy has become a threat to the life of the mother, or if the fetus has severe conditions/malformations that are incompatible with extra uterine life.[15] As a result, women resort to unsafe abortion procedures which contribute significantly to maternal morbidity and mortality. Unsafe abortion accounts for 20-40% of maternal mortality in Nigeria.[16] In addition, about 25% of women that undergo abortion in Nigeria develop severe complications.[17]

Some studies, have used and recognized the importance of the health belief model in predicting the willingness of women and adolescents to use modern contraceptives.[11, 18] However, there are very few studies found that have used this model in Nigeria. Therefore, this study used the health belief model to identify the predictors of the willingness of female undergraduates of the Obafemi Awolowo University Ile-Ife, to use modern contraceptives. The findings from this study will hopefully improve the existing body of knowledge on this topic. It will also provide a better understanding of how individual beliefs affect the willingness of female undergraduate students to use modern contraceptives methods. This will in turn inform and guide future interventions to improve the use of modern contraceptives among this population, thereby, reducing maternal morbidity and mortality locally and globally.

METHODOLOGY

This study was a descriptive cross-sectional study conducted among female undergraduate students aged 18 – 35 years, who reside on the campus of Obafemi Awolowo University Ile-Ife. Data collection was done for six weeks (February to March, 2022). The university was founded in 1961. It was built on about 5,000 acres (20km2) of a total of 11,961 hectares of land, University owned land. Obafemi Awolowo University currently has a total number of 35,000 students with about 5,000 staff. The institution has 13 faculties with 82 departments and two Colleges – the Postgraduate College and the College of Health Sciences. There are four male hostels, five female hostels and one postgraduate hall of residence in the University. Full time female undergraduates aged 18-35 years were included while respondents who were sick and did not give their consent to the study were excluded from the study. A sample size of 384 participants was calculated using the Leslie Fisher's formula, $n = (Z\alpha)^2 \times p (1-p) / d^2$.[19] A prevalence level of 49.7% was used. This is the proportion of respondents with positive attitude towards use of modern contraceptives in a previous study among women in Ogbomoso, Oyo State. [20] The precision was set at 0.05. A non-response rate of 10% was used which increased the sample size to 422.

A multistage sampling technique was used to select the participants from the five female hostels on campus. In stage 1, three out of the five female hostels on campus were selected using simple random sampling technique by balloting. In stage 2, two blocks were selected out of the four available blocks using a simple random sampling technique by balloting. In stage 3, one eligible

respondent was selected from alternate rooms on each selected block. For rooms that have more than one eligible respondents, simple random sampling technique by balloting was used to pick one eligible respondents. During the period of data collection there was commencement of Academic Staff Union of Universities (ASUU) strike. Probably most student left behind in the hostels were students in the medical faculties. Hence the oversampling noticed. A pretested structured facilitated self-administered questionnaire used to collect data from the study respondents. The questionnaire for the study was adapted from the tool used by Kahsay et al.[18] Trained research assistants with MBBS degree collected the data for this study using paper-based questionnaires. This tool had five sections. Section A was on socio-demographic characteristics of respondents, Section B was on obstetric characteristics of the respondents (age at marriage, age at first pregnancy, number of all pregnancies, family size, history of unplanned pregnancy, history of stillbirth etc.), Section C explored the knowledge about traditional and modern contraceptives and also willingness of the respondents to use modern contraceptives, Section D was on the utilization of modern contraceptives and Section E consisted of the Health Belief Model constructs: Perceived susceptibility construct has (5 items); Perceived severity of unwanted pregnancy (5 items); Perceived benefits of modern contraceptive use (5 items); Perceived barriers to use of modern contraceptives (4 items); Perceived self-efficacy to use the methods (4 items).

The constructs of the health belief model were measured using the 5-point Likert Scale ranging from strongly disagree (1 point) to strongly agree (5 points). The Likert Scale was dichotomized using the mean score for the different constructs. Respondents that have greater than or equal to the mean score were categorized as "YES" while respondents with less than the mean score were categorized as "NO". The Oyedeji classification of social economic status (SES) was used. [21] SES was classified into high, medium and low based on the occupation and level of education of the parents. It was graded on a score of 1 to 5, 1 being the highest and 5 being the lowest. Each score had two variables, occupation and level of education. A person with a score of 1 to 2 belonged to the high socioeconomic class, 2.1 to 3 and 3.1 to 5 belonged to the medium and low socioeconomic class, respectively. Data entry and statistical analysis were done using the IBM-Statistical Product and Service Solutions (SPSS) version 25.0.

Univariate analysis was done for the socio-demographic characteristics of the respondents, knowledge and willingness of the respondents to use modern contraceptives, health belief model constructs, and the prevalence of contraceptive use among the respondents. The results were presented in tables, using frequencies and percentages. Bivariate analysis was carried out using Chi-Square statistical test at a p value < 0.05 significance level to determine the relationship between the willingness to use modern contraceptives, and the constructs of the health belief model, as well as their socio-demographic characteristics. Furthermore, logistic regression was done to ascertain predictors of willingness to use contraceptives.

Ethical clearance for this study was obtained from the Institute of Public Health, Obafemi Awolowo University Ile-Ife (HREC Number:

Table 1: Socio-demographic characteristics of respondents

Variables	Frequency (n=422)	Percent
Age (years)		
18-23	355	84.1
24-29	65	15.4
30-35	2	0.5
Marital status		
Married	11	2.6
Unmarried	411	97.4
Religion		
Christianity	363	86.0
Islam	57	13.5
Traditional	2	0.5
Ethnicity		
Yoruba	382	90.5
Igbo	25	5.9
Hausa	7	1.7
Others	8	1.9
Faculty		
Medical	272	64.5
Non-Medical	150	35.5
Level		
100	87	20.6
200	47	11.1
300	53	12.6
400	164	38.9
500	67	15.9
600	4	0.9
Social class		
Low	129	30.6
Middle	220	52.1
High	73	17.3

IPH/OAU/12/1719). A written, informed consent was obtained from each participant before the study.

RESULTS

All questionnaires were filled and returned. The mean age of respondents was 21.4±2.4 years. Majority of the respondents 411 (97.1%) were unmarried. Most of the students were Christians 363 (86%) and from the Yoruba ethnic group 382 (90.5%). Almost two-thirds of the students 272 (64.5%) belonged to the medical faculty (Table1).

Three hundred and thirty-five (79.4%) of respondents were aware of modern contraceptives. They were mostly aware of pills 289 (86.3%), followed by male condoms 253 (75.5%), and female condoms 225 (67.2%). They were least aware of diaphragms 123 (36.7%). More than half of the respondents 178 (53.1%) knew about modern contraceptives from health care professional while very few of the respondents 8 (2.4%) learnt about modern contraceptives from poster (Table 2).

Majority of the respondents 338 (80.1%) are sexually active. Fifty-seven (16.9%) of those who are sexually active had ever used contraceptives while only 31 (9.2%) are currently using modern contraceptives giving a contraceptive prevalent rate of 9.2% in this study. Two-third of the respondents are using pills 21 (67.7) while only a few 2 (6.5%) are using intrauterine device (IUCD).

Table 2: Awareness of respondents on modern contraceptives

Variables	Frequency	Percent
Awareness of modern contraceptives (n=422)		
Yes	335	79.4
No	87	20.6
***Type of modern contraceptives they are aware of (n=335)**		
Pills		
Male condom	289	86.3
Female condom	253	75.5
Injectable	225	67.2
IUCD	192	57.3
Diaphragm	179	53.4
	123	36.7
***Source of information (n=335)**		
Health professional	178	53.1
Peers	109	32.5
Radio	27	8.1
TV	13	3.9
Poster	8	2.4

**Multiple responses*

Majority of the respondents 268 (79.3%) are willing to use contraceptives (Table 3).

One hundred and seventy-nine (85.6%) respondents that perceived they were susceptible to sexually transmitted infection (STI) or getting pregnant were willing to use contraceptives compared to 89 (69.0%) who perceived they were not susceptible. There is a significant relationship between perceived susceptibility to STI or getting pregnant and willingness to use contraceptive (χ^2=13.472, p<0.001). Also, majority of respondents 206 (94.1%) who perceived sexually transmitted infection as a severe disease were willing to use modern contraceptives compared with 62 (52.1%) who do not perceive STI as a severe disease. There is a significant relationship between perceived severity of STI and willingness to use modern contraceptives ((χ^2=82.682, p<0.001).

Majority of respondents 141 (86.0%) that perceived no barrier to using modern contraceptives were willing to use it compared to 127 (73.0%) who perceived barrier to using it. There is a significant relationship between perceived barrier to use of modern contraceptives and willingness to use it. Majority of respondents 187 (87.0%) with perceived self-efficacy were willing to use modern contraceptives compared to 81 (65.9%) that are do not have perceived self-efficacy. There is a significant relationship between self-efficacy and willingness to use modern contraceptives (χ^2=21.846, p<0.001). (Table 4) Using multiple logistic regression, perceived benefit and the faculty of study were found to be the predictors of the willingness to use modern contraceptives among young adult female undergraduates. Those without a perceived benefit were 68% less likely to use modern contraceptives (AOR=0.32, 95%CI=0.17-0.63, p=0.001). While those from non-medical faculties of study were also 56% less likely to use modern contraceptives compared to those in the medical faculty (AOR=0.44, 95%CI=0.23-0.83, p=0.012). Respondents with no perceived severity were 52% less likely to be willing to use contraceptives compared with those that perceived severity (AOR=0.48, 95%CI=0.44-0.89, p=0.004). Respondents with no perceived self -efficacy were

Table 3: Prevalence and willingness of contraceptive use among respondents

Variables	Frequency	Percent
Sexually active (n=422)		
Yes	338	80.1
No	84	19.9
Ever used any contraceptive (n=338)		
Yes		
No	57	16.9
	281	83.1
Current use (n=338)		
Yes	31	9.2
No	307	90.8
***Type of contraceptives used (n=31)**		
Pill	21	67.7
Male condom	16	51.6
Female condom	3	9.7
IUCD	2	6.5
Willing to use modern contraceptive (n=338)		
Yes		
No	268	79.3
	70	20.7

**Multiple responses*

Table 4: Factors associated with willingness to use modern contraceptives

Variables	Willingness to use		Chi square	p-value
	Yes (n=268)	No (n=70)		
Perceived susceptibility				
Yes	179 (85.6)	30 (14.4)	13.472	<0.001
No	89 (69.0)	40 (31.0)		
Perceived benefit				
Yes	173 (92.0)	15 (8.0)	41.815	<0.001
No	95 (63.3)	55 (36.7)		
Perceived severity				
Yes	206 (94.1)	13 (5.9)	82.682	<0.001
No	62 (52.1)	57 (47.9)		
Perceived barrier				
Yes	127 (73.0)	42 (27.0)	11.485	0.003
No	141 (86.0)	23 (14.0)		
Perceived self-efficacy				
Yes	187 (87.0)	28 (13.0)	21.846	<0.001
No	81 (65.9)	42 (34.1)		
Subjective norms				
Yes	121 (82.3)	26 (17.7)	1.140	0.229
No	147 (77.0)	44 (23.0)		
Age				
18-23	217 (80.1)	54 (19.9)	0.351	0.505
24-29	50 (76.9)	15 (23.1)		
30-35	1 (50.0)	1 (50.0)		
Faculty				
Medical	124 (82.7)	26 (17.3)	1.521	0.217
Non-medical	144 (76.6)	44 (23.4)		
Social class				
Low	90 (79.6)	23 (20.4)	33.887	<0.001
Middle	139 (89.7)	16 (10.3)		
High	39 (55.7)	31 (44.3)		
Marital status				
Married	8 (72.7)	3 (27.3)	0.298	0.704
Not Married	260 (79.5)	67 (20.5)		

Table 5: Predictors of willingness to use modern contraceptives

Variables	OR	95%CI	p-value	AOR	95%CI	p-value
Perceived benefit						
Yes (ref)						
No	0.24	0.16-0.38	<0.001	0.32	0.17-0.63	0.001
Perceived susceptibility						
Yes (ref)						
No	0.37	0.24-0.56	<0.001	0.29	0.39-1.33	0.298
Perceived severity						
Yes (ref)						
No	0.44	0.27-0.70	0.001	0.48	0.44-0.89	0.004
Perceived barrier						
No (ref)						
Yes	0.90	0.60-1.35	0.609	0.96	0.56-1.66	0.892
Perceived self-efficacy						
Yes (ref)						
No	0.25	0.16-0.40	<0.001	0.41	0.22-0.78	0.006
Subjective norms						
No (ref)						
Yes	2.50	1.50-4.72	0.001	2.10	1.22-3.83	0.009
Faculty						
Clinical (ref)						
Non-clinical	0.24	0.15-0.38	<0.001	0.44	0.23-1.33	0.012
Age (years)						
18-26 (ref)						
27-35	0.66	0.41-1.04	0.088	0.89	0.44-1.84	0.769
Marital status						
Married (ref)						
Unmarried	0.57	0.48-2.32	0.534	0.79	0.67-2.68	0.622
Social class						
Low (ref)						
Middle	1.5	1.24-1.68	0.024	1.80	1.45-2.44	0.004
High	2.4	1.57-3.45	0.015	3.00	1.59-4.62	0.002

59% less likely to be willing to use contraceptives (AOR=0.41, 95%CI=0.22-0.78, p=0.006) as shown in table 5.

DISCUSSION

Our study found that the awareness of modern contraceptive methods was high (79.4%) among the study population. This finding was consistent with the findings from similar Nigerian studies done in Ekiti, Ogun, Bayelsa and Kano States which found awareness of contraceptives among female undergraduates to be 100%, 95.2%, 96.7% and 87.7% respectively.[16,22,23] This finding was also consistent with similar studies done in Uganda (99.6%) and Tanzania (96%).[24,25] Also, more than three-quarter of the respondents were willing to use modern contraceptives while a quarter of the respondents were not willing to use modern contraceptives. This finding is consistent with a study carried out in Sodo Town, Southern Ethiopia, in which 70% of the participants were willing to use modern contraceptives.[26] It is also similar to findings of a study conducted in Ghana where the magnitude of the intention of postpartum family planning was 70%.[27]

The prevalence of modern contraceptive use in this study was low (9.2%). This findings mirror the pitiable state of our female undergraduates in this study regarding sexual and reproductive health

issues. This is in agreement with the finding from the NDHS report of 2018 which revealed only 17% of all Nigerian women were using any contraceptive method, with only 12% using a modern method.[12] However, this finding was in contrast with that from the study by Toweka et al among female undergraduates in Zimbabwe, in which the prevalence of modern contraceptive use was 95% in a private university, and 87% in a public university.[28] Zimbabwe has the highest contraceptive prevalence and lowest abortion rate in sub-Saharan African[29] while Nigeria has one of the lowest contraceptive prevalence and highest unsafe abortion rate in the region. Contraceptive use will reduce unintended pregnancy thereby reducing un-safe abortion rate.[30] This study also showed that pills and male condoms were the commonest forms of contraceptives used by respondents. This finding in is in keeping with the study among female undergraduates in Bayelsa State, Nigeria which shows that most of the respondents had used oral contraceptive pills, followed by those that had used condom.[16] The common use of pills and condoms, may be because they are presumed to be more easily available and accessible from providers.[31]

In this study, it was discovered that perceived susceptibility, perceived severity, perceived benefit, perceived barrier, and perceived self-efficacy; all constructs under the Health Belief Model were significantly associated with the willingness of young adult female undergraduates to use modern contraceptives. This is in keeping with the study carried out among female pastoralists and female adolescents in Northern Ethiopia.[18] Furthermore, social-class of the participants in this study was also significantly associated with the willingness of the respondents to use modern contraceptives, This finding was in agreement with the findings from a similar study by Ekholuenetale et al, which reveals that social class is significantly associated with contraceptive use.[32]

The perceived benefit was a significant predictor of the willingness to use modern contraceptives among the participants. This may be due to the fact that the respondents were confident of the benefits they will derive from using modern contraceptives. Some of these benefits include: prevention of unwanted pregnancy, prevention of abortion and its consequences, and prevention of STIs, including HIV/AIDS. In our study perceived self-efficacy of the respondents to use modern contraceptives was also a predictor of willingness to use a modern contraceptive. This finding is consistent with the results of a multi-country study in Nigeria and Kenya [33] and that of a previous survey from Uganda, which identified perceived self-efficacy as a significant predictor of modern contraceptive use. [34]

Perceived severity was also a predictor of willingness to use modern contraceptive in this study. This was consistent with one of the constructs of Health Belief Model (HBM), which assumes that the probability of individual's health behavior is predicted by individuals' perception regarding the personalized risk and the severity of the sequels.[35, 36] The faculty of study was also a significant predictor of the willingness to use modern contraceptives among the respondents. This finding should be interpreted with caution as majority of the female respondents were from the medical faculty.

Limitations of the study: Findings from this study should be interpreted in the light of some limitations. First, it is a cross-sectional study and this limit causal conclusion. Also exclusion of the cues for action construct of the health belief model in this study is a limitation. There was a possibility of social desirability bias in the responses of the participants. This was mitigated by reassuring them of the utmost confidentiality of their sincere responses which will be used for the purpose of this research only. During the period of data collection there was commencement of Academic Staff Union of Universities (ASUU) strike. Probably most student left behind in the hostels were students in the medical faculties. Hence the oversampling noticed.

Conclusion: Findings from this study revealed that gap still exist between the willingness and utilization of contraceptives among the respondents. This reiterates the need to empower female undergraduates with regular, correct and appropriate health information on availability and accessibility of contraceptives. If this is done, there is hope that this unmet need with its deleterious sequelae will reduce significantly among female undergraduates.

Recommendations: Health educators should focus on vulnerability of all sexually active persons to sexually transmitted infections, its severity and likelihood to cause long term complications like infertility and chronic pelvic pain and its significant impact on quality of life. Furthermore, health care providers should boost client confidence on their ability to use contraceptives. They should also emphasize its benefits in preventing maternal mortality and morbidity. Policy makers need to make readily available Youth friendly health care centres that provides contraceptives services and encourage uptake. Also, this gap between undergraduate willingness to use contraceptives and the actual use should be explored by future research, probably, with the use of qualitative study design.

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