ISSN No. 2456-4400
Int J Med Lab Res 2018, 3(1): 6-14

IJMLR

RESEARCH ARTICLE INTERNATIONAL JOURNAL OF MEDICAL LABORATORY RESEARCH (IJMLR)

HORMONAL CONTRACEPTIVES USE AND THE FEAR OF CERVICAL CANCER AS ITS AFFECT THE NIGERIAN POPULATION GROWTH

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Received: 17 Feb, 2018/Revised: 1 March, 2018/Accepted: 18 March, 2018

ABSTRACT: This study on cervical cytology of women on contraceptives in Calabar Metropolis was conducted as there was a need to dismiss or confirm the widespread attribution of the increased risk of cervical cancer to the use of hormonal contraceptives. The prevalence of contraceptive use in Nigeria is 11-13%. However, the high mortality rate of 20-40% attributed to this low prevalence is to a large extent a result of the acclaimed myths of the effect of hormonal contraceptives uses and the risk of cervical cancer. The study seeks to ascertain if there is any abnormal cytological change in the cervix of women using hormonal contraceptives in Calabar Metropolis that could lead to cervical cancer. Random sampling techniques were employed by trained research assistants. Cervical smears were collected from 70 women using hormonal contraceptives and 96 women who did not. The smears were prepared, stained and reported for cervical dysplasia using the Bethesda system. The results obtained showed that 98.6% of the test subjects and 92.6% of the control subjects had smear negative for squamous intraepithelial lesion, while 1.4% of test subjects and 4.2% of control subjects had low grade squamous intraepithelial lesion. Papanicoloau smear results showed that 38.6% of test subjects and 29.5% of control subjects had inflammatory smears. This study has shown that there is no association of cervical dysplasia with hormonal contraceptives use as there were more cases of cervical dysplasia among control subjects as compared to the test group and almost equal incidence of inflammatory smears in both groups.

KEYWORDS: Cervical cancer, Hormonal contraceptives, Pap smear, Cervical cytology.

INTRODUCTION:

Hormonal/oral contraceptive have been reported as a risk factor of cervical cancer[2]. The importance of family planning in addressing a range of challenges in developing countries is now widely accepted. Family planning is a key factor in achieving the Sustainable Development Goals

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(SDG). Contraceptives lie at the heart of proper family planning, but its use can be shaped by several factors. This includes cultural norms and values as well as the desires and decisions of couples. Added to these are myths and misconception. Many women avoid using hormonal contraceptives because of fear of cervical cancer and other myths associated with the use of hormonal contraceptives. This research was carried out to evaluate the association between hormonal contraceptives and cervical cancer in Calabar Metropolis, south-south, Nigeria using cervical cytology to either encourage or dissuade contraceptives use among women. High maternal mortality rate has been largely due to low contraceptive use which in Nigeria is currently only 15%. [4]

MATERIALS AND METHOD

Study Area

The study was carried out in Calabar Metropolis. Calabar is the capital city of Cross River State, south-south Nigeria and it has often been described as the tourism capital of Nigeria (Achum, 2015). The city has a land mass of 406km^2 and a population size of 3,866,022 at the 2016 projected census (NPC, 2017). The city lies on latitude 4^{0}57' 32.15'N and longitude 8^{0}19' 37.02'E. It has an elevation of 32 metres above sea level. Calabar is a large metropolis with several towns which include Akim, Ikot Ansa, Ikot Ishie, Kasuk town, Duke town, Henshaw town, Ikot Omin, Obutong, Bakassi, Biase and Akamkpa. The University of Calabar Teaching Hospital (UCTH) is the largest referral hospital in Calabar. The hospital is a federal tertiary health care institution.

Study Design

Cluster random sampling method was employed. Using a well-structured pre-tested questionnaire, distributed to a number of hospitals with family planning units within the metropolis, also women at the University of Calabar campus and the women at the College of Health Technology, Calabar. The subjects were classified based on their responses to the questionnaires. The procedure to be carried out on the subjects was well explained to the subjects and their consent to be part of the research was sort and obtained. The study subjects were between the ages of 15-44 years. The socio-economic characteristics, age, educational background, marital status, number of children etc. of the subjects who were not pregnant at the time of this study and had no previous history of cervical malignancies were considered in this study. The consenting women on contraceptives (oral contraceptive pills, injectable contraceptives, or implants) where referred to the University of Calabar Teaching Hospital Histopathology Department for cervical cytology examination, while those not on contraceptives but consented to free cervical cytology examination became the control samples. Age matching between the two groups was used in a 5-year age grouping: 15-20, 21-26, 27-32, 33-38, 39-44. Marital status was either married or single.

Sample Size Determination

The contraceptive prevalence rate in southwest Nigeria was 0.317 (NPC 2008). Using the formulae: $n = \frac{Z^2pq}{d^2}$

n = minimum sample size when population is more than 10,000
Z = standard normal deviate which is set at 1.96 which corresponds to 95% confidence level
p= contraceptive prevalence rate

q = 1-p

d = degree of accuracy desired which is set at 0.05

So, $n = \frac{Z^2\ pq}{d^2} = \frac{1.96^2 \times 0.317 \times (1-1.96)}{0.05^2} = \frac{3.8416 \times 0.317 \times 0.683}{0.0025} = \frac{0.83174866}{0.0025}$

Sample size = 333 subjects

However, the total number of samples collected for this study was 166 as against 333 due to certain limitations which include; unwillingness of volunteers for the study, time constraint and resources.

Sample Collection and Preparation

The cervical smears were collected with the aid of a speculum and spatula from the cervix of subjects. The smears were made on glass slides and fixed in 95% ethanol for 15minutes.The fixed smears were then stained with Papaniculoau stain, May-Grunwald Giemsa stain and Gram stain.

Data analysis

Data were analyzed using SPSS version 20 (SPSS Inc., Chicago, IL, USA). Chi squareχ^2 for matched-pair studies was used to analyze the categorical data, while Student's *t-test* was used for continuous variables. *P*-values ≤0.05 were considered statistically significant. Ethical consideration was sought and obtained from the Cross River State Ministry of Health Ethics committee with no.CRS/MH/HREC/017/VOL.V1/031.

RESULTS:

Six hundred (600) questionnaires were distributed, 450 were filled and returned by potential participants. 90 potential participants were excluded based on the selection criteria. Three hundred and sixty subjects were invited for cervical screening (pap smear test) while 250 subjects showed up for the test. One hundred and fifty subjects were qualified for the screening on the first day they showed up, 50 subjects did not consent to take the test after being properly informed about the pap test and 50 were not qualified on the first day they showed up and were rescheduled, whereas only 20 returned to take the pap test on the scheduled date.

In total, 170 subjects were screened, 4 smears were inconclusive when stained and screened and subjects did not show up when informed of the need for a second pap test. In total 166 results were screened and analysed, 70 were test subjects (subjects presently using hormonal contraceptives and intrauterine contraceptive devices) while 96 were control subjects (subjects using other methods of contraception or none).

In this study as shown on Tables 1 and 2, majority of the respondents belonged to the 39-44 years age group with a frequency of 40 (44%) for the test subjects and 55(57.9%) for the control subjects. 61.4% of test subjects were married, 37.1% were single and 1.4% were separated. For the control subjects 50.5% were married, 37.9% were single, 3.2% were widowed, 4.2% were divorced while 3.2% were separated. Majority of the subjects were Christians who had tertiary education and had professional jobs.

Figure 4 shows that majority 30(42.9%) of the respondents used contraceptives because they had had enough children and the minority 12(17%) used it because they were trying to space their children. Majority of the respondents 30(40.9%) experienced no side effects due to use of hormonal contraceptives. 31.4% of the respondents experienced irregular menstruation, 21.4% experienced heavy menses while weight gain and other side effects were scarcely reported.

The perception of both test and control respondents towards contraceptive use was positive. Figure 3 shows that majority of the control subjects however did not use contraceptives because they desired to have more children (20%), the fear of side effects of hormonal contraceptives was the reason why 18.9% of the control subjects did not use contraceptives, 6% had no reason, another 6% did not use because of their religious beliefs and 2% of the subjects did not get approval from their partners to use hormonal contraceptives.

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Figure 2 shows that the most used hormonal contraceptives by the test subjects were pills (ranging from postinor 1&2 to menstrogen) with a frequency of 40(57%) and the least used were injectables with a frequency of 14 (20%).

Among the test subjects, 98.6% of the respondents had smear negative for squamous intraepithelial lesion that led to malignancy, 1.4% had low grade squamous intraepithelial lesion that could not be completely traced to the use of hormonal contraceptives. 38.6% of the subjects had pap smear results that showed inflammatory smears with 20% having Gram positive microorganisms and 18.6% showing Gram negative microorganisms.

Among the control subjects, 92.6% of the respondents had smear negative for squamous intraepithelial lesion that led to malignancy, 4.2% of the respondents had low squamous intraepithelial lesion while 3.2% of the respondents had high grade squamous intraepithelial lesion. 29.5% of the pap smears showed inflammatory smear with 15.8% having Gram positive microorganisms and 13.7% had Gram negative microorganisms.

Table 1. Socio-Demographic Characteristics of Respondents for Test

Variables	Frequency (n=70)	Percentages (%)
Age (Years)		
15-20	3	4.3
21-26	13	18.6
27-32	9	12.9
33-38	14	20.0
39-44	31	44.3
Marital Status		
Single	26	37.1
Married	43	61.4
Separated	1	1.4
Religion		
Christianity	69	98.4
Islam	1	1.4
Tribe		
Bekwara	6	8.6
Efik	14	20.0
Hausa	1	1.4
Ibibio	11	15.7
Igbo	15	21.4
Yoruba	1	1.4
Others	22	31.4
Educational Background		
Primary	1	1.4
Secondary	11	15.7
Tertiary	58	82.9
Occupation		
Professional	28	40.0
Skilled worker	14	20.0
Students	19	27.1
Unemployed	7	10.0
Unskilled worker	1	1.4
Others	1	1.4

Table 2. Socio-Demographic Characteristics of Respondents for control

Variables	Frequency (n=95)	Percentages (%)
Age (Years)		
15-20	3	3.2
21-26	13	13.7
27-32	14	14.7
33-38	10	10.5
39-44	55	57.9
Marital Status		
Single	37	39.0
Married	48	50.5
Separated	3	3.2
Divorced		4.2
Widowed	3	3.2
Religion		
Christianity	92	96.8
Islam	3	3.2
Tribe		
Bekwara	6	6.3
Efik	15	15.8
Hausa	2	2.1
Ibibio	26	27.4
Igbo	17	17.9
Yoruba	4	4.2
Others	25	26.3
Educational Background		
Primary	2	2.1
Secondary	34	35.8
Tertiary	59	62.1
Occupation		
Professional	31	32.7
Skilled worker	20	21.1
Students	22	23.2
Unemployed	8	8.4
Unskilled worker	14	14.7

Table 3. Age of control subjects and pap smear result

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Age (Years)	Gram-negative	Gram-positive	Inflammatory	Neg for SIL	LSIL	HSIL
	n (%)`	n(%)	n(%)	n(%)	n(%)	n(%)
15-20	1 (1.4)	1 (1.4)	2 (2.9)	3 (4.3)	0 (0.00)	0 (0.00)
21-26	5(7.1)	4 (5.7)	9 (12.9)	13 (18.6)	0 (0.00)	0 (0.00)
27-32	1 (1.4)	4 (5.7)	5 (7.1)	9 (12.9)	0 (0.00)	0 (0.00)
33-38	3 (4.3)	1 (1.4)	4 (5.7)	14 (20.0)	0 (0.00)	0 (0.00)
39-44	5 (7.1)	3 (4.3)	7 (10.0)	30 (42.1)	1 (1.4)	0 (0.00)
Total	15 (21.4)	13 (18.1)	27 (38.6)	69 (98.6)	1 (1.4)	0 (0.00)

Table 4. Duration of Hormonal Contraceptive Use and Pap Smear Result

Duration of contraceptive use(Years)	Gram-negative n(%)	Gram-positive n(%)	Inflammatory n (%)	Negative for SIL n(%)	Low grade SIL n(%)	High grade SIL n(%)
<1	5 (7.1)	4 (5.7)	8 (11.4)	23 (34.3)	1 (1.4)	0 (0.00)
01-05	10 (14.3)	7 (10.0)	17 (24.3)	40 (57.1)	0 (0.00)	0 (0.00)
06-10	0 (0.00)	2 (2.9)	2 (2.9)	6 (8.6)	0 (0.00)	0 (0.00)
Total	15 (21.4)	13 (18.6)	27 (38.6)	69 (98.0)	1 (1.4)	0 (0.00)

Table 5. Chi-Square Analysis Showing Correlation of Age and Test Results

Gram Result

Age	Gram Positive	Gram Negative	Normal	Total	P-Value
15-20	1 (1.4)	1 (1.4)	1 (1.4)	3 (4.3)	
21-26	5(7.1)	4 (5.7)	4 (5.7)	13 (18.6)	
27-32	1 (1.4)	4 (5.7)	4 (5.7)	9 (12.9)	
33-38	3 (4.3)	1 (1.4)	10 (14.5)	14 (20.0)	0.091
39-44	5 (7.1)	3 (4.3)	23 (32.9)	31 (44.3)	
Total	15 (21.4)	13 (18.1)	42 (60.0)	70 (100.0)	

Maygraunwald Stain Results

Age	Inflammatory	Normal	Total	P-value
15-20	2 (2.9)	1 (1.4)	3 (4.3)	
21-26	9 (12.9)	4 (5.7)	13 (18.6)	
27-32	5 (7.1)	4 (5.7)	9 (12.9)	
33-38	4 (5.7)	10 (14.3)	14 (20.0)	0.025
39-44	7 (10.0)	24 (34.3)	31 (44.3)	
Total	27 (38.6)	43 (61.4)	70 (100.0)	

Papanicoloau's Results

Age	Low-grade SIL n(%)	High-grade SIL n(%)	Negative for SIL n(%)	Total n(%)	p-value
15-20	0 (0.00)	0 (0.00)	3 (4.3)	3 (4.3)	
21-26	0 (0.00)	0 (0.00)	13 (18.6)	13 (18.6)	
27-32	0 (0.00)	0 (0.00)	9 (12.9)	9 (12.9)	
33-38	0 (0.00)	0 (0.00)	14 (20.0)	14 (20.0)	0.865
39-44	1 (1.4)	0 (0.00)	30 (42.1)	31 (44. 5)	
Total	1 (1.4)	0 (0.00)	69 (98.6)	70 (100.0)	

Table 6. Chi-Square Analysis Showing Duration of Contraceptive Use

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Gram Result

Duration of Contraceptive Use	Gram Positive	Gram Negative	Normal	Total	P-Valu
<1	5 (7.1)	4 (5.7)	15 (21.4)	24 (34.3)	
01-05	10 (14.3)	7 (10.0)	23 (32.9)	40 (57.1)	0.66
06-10	0 (0.00)	2 (2.9)	4 (5.7)	6 (8.6)	
Total	15 (21.4)	13 (18.6)	42 (60.0)	70 (100.0)	

Papinoculaou Technique

Duration of Contraceptive Use	Low-grade SIL n(%)	High-grade SIL n(%)	Negative for SIL n(%)	Total n(%)	p-val
<1	1 (1.4)	0 (0.00)	23 (34.3)	24 (34.3)	
01-05	0 (0.00)	0 (0.00)	40 (57.1)	40 (57.1)	0.378
06-10	0 (0.00)	0 (0.00)	6 (8.6)	6 (8.6)	
Total	1 (1.4)	0 (0.00)	69 (98.0)	70 (100.0)	

Maygrunwald Giemsa Results

Duration of Contraceptive Use	Inflammatory	Normal	Total	p-val
<1	8 (11.4)	16 (22.1)	24 (34.3)	
01-05	17 (24.3)	23 (32.9)	40 (57.1)	
06-10	2 (2.9)	4 (5.7)	6 (8.6)	0.738
Total	27 (38.6)	43 (61.4)	70 (100.0)	

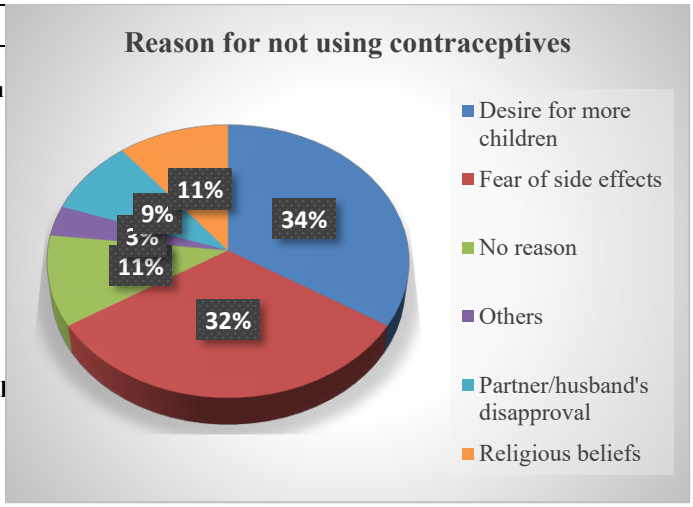


Figure 3: Showing various reasons for not using contraceptives by control subjects.

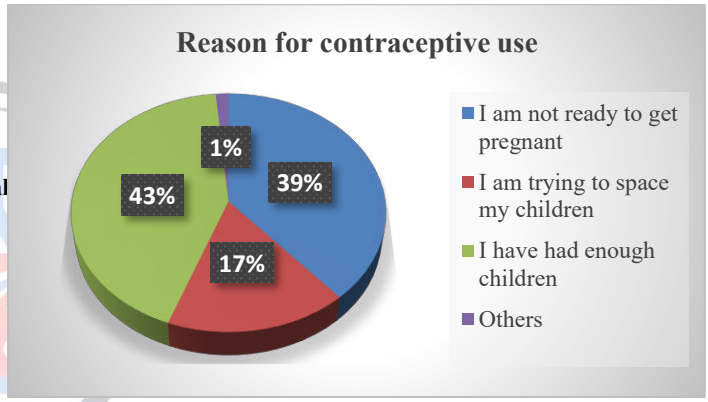


Figure 4: Reason for contraceptive use

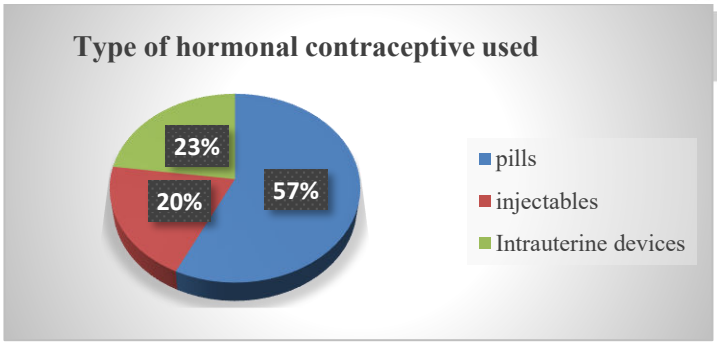
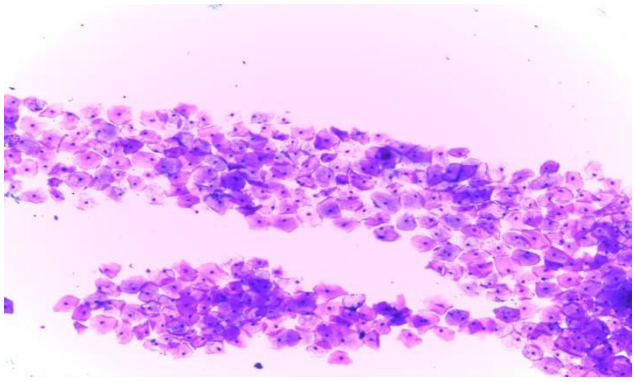


Figure 2: Showing percentage of the types of contraceptives used



×100 (Papaniculaou staining technique) PLATE 1: Photomicrograph of pap smear showing mainly superficial cells having pin-point nuclei. Negative for malignancy.

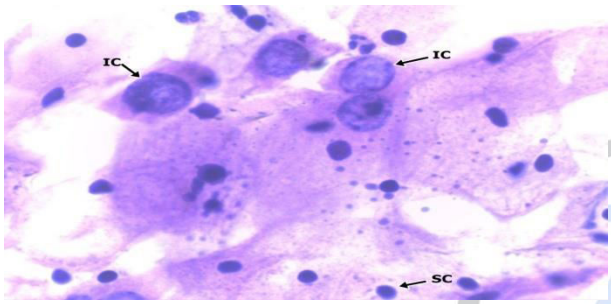
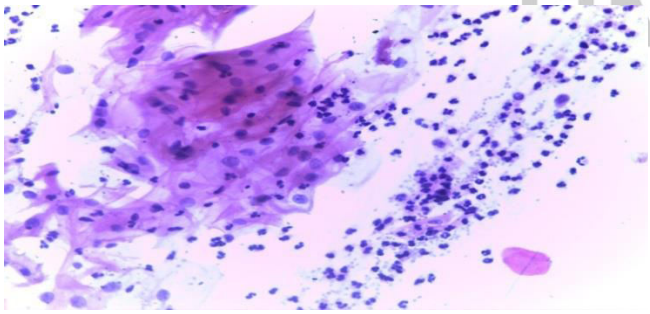


PLATE 2: ×400 (Papaniculaou staining technique) LEGEND IC- Intermediate cell, SC- superficial cell. Photomicrograph showing intermediate cells with some displaying koilocytic changes. Some of the cells have angulated nuclei and coarse chromatin pattern. Low grade squamous intraepithelial lesion.



×100 (Papaniculaou staining technique)

PLATE 3: Photomicrograph showing florid neutrophilic infiltrates mainly polymorphs and both superficial and intermediate cells having benign cellular features. Inflammatory smear (indicative of cervical cancer)

DISCUSSION:

This study reported high knowledge of contraceptives as all the subjects admitted to have heard about at least one method of contraception. This high level of contraceptive awareness has been similarly reported by previous studies within and outside Calabar ([9, 11,5.])

Among test subjects, the major source of information was electronic media with 30% of the respondents and the least source of information about contraceptives was printed media. Among the control subjects, 30.5% of them had heard about contraceptives through health care workers while only 4% heard about contraceptives through printed media. This was collaborated by Eko and coworkers.[5] The most commonly used hormonal contraceptive in this study was oral contraceptives (pills) being reported to be used by 57% of the test subjects. This is in line with the research by Fayehun[6] in which 71% of the subjects used 'the pill'.

The reasons for non-contraceptive use by control subjects was mainly desire for more children (34%), closely followed by fear of side effects (32%) and the reason least reported was husband's or partner's disapproval. This is in line with the research reported by Nwaamaka.[3] This study reported only 1 case (1.4%) of low-grade intraepithelial lesion among the test subjects. This case however cannot be said to be due to use of hormonal contraceptives due to some other underlying conditions (the human papilloma virus) and the fact that some of the control subjects also had low-grade squamous intraepithelial lesion. This is in line with the research reported by Durowade and coworkers[7] on cervical carcinogenesis and contraception in which no severe case of dysplasia or malignancy was seen in women on contraceptives for over 5 years and the research by Margolis[10] which also reported no association of oral contraceptive consumption and abnormal pap smear after examining 1286 women

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with history of oral contraceptive use for over 5 years. Inflammatory cells and microorganisms were also seen in smears of both test and control subjects. This was also collaborated by Ajah and coworkers.[2] It appeared that women on modern contraception had the tendency of having earlier sexual exposure than those on no form of modern contraception. Therefore, there is a need to properly educate clients who seek family planning that apart from barrier contraceptives, other modern contraceptive options do not protect against sexually transmitted infections. The strength of this study was the systematic sampling and matching of the confounding variables in the recruitment of the study participants so this finding indicates that it safe to take contraceptives and help to encourage Nigeria economic development.

CONCLUSION:

In conclusion the use of hormonal contraceptives did not cause any abnormal cervical changes in women of reproductive age between 15-44 years in Calabar metropolis included in this study. There was no significant association between age of contraceptive users and pap smear result (p-value = 0.865). There was also no significant association between duration of contraceptive use and pap smear result (p-value = 0.375). Hormonal Contraceptives may not cause cervical cancer.

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CONFLICT OF INTEREST: Authors declared no conflict of interest

SOURCE OF FINANCIAL SUPPORT: Nil

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Cite of article: Inyang IJ, Udonkang M, Bassey IB, Eyo AA, Anyanwu S, Asemota E, Omashiem L. Hormonal contraceptives use and the fear of cervical cancer as it affects the Nigerian population growth. Int J Med Lab Res. 2018;3(1):6–14. http://doi.org/10.35503/IJMLR.2018.0102