

# Effect of Social-Demographic Factors on Smoking among Women of Child-Bearing Age in Federal Medical Centre Owerri, Imo State

U.J. Ozowara<sup>1</sup>, C.R. Nwifo<sup>2</sup>, C.A. Nsofor<sup>3</sup>

<sup>1</sup>Department of Biotechnology, Federal University of Technology, Owerri, Nigeria

<sup>2</sup>Department of Public Health Technology, Federal University of Technology, Owerri, Nigeria

<sup>3</sup>Department of Forensic Science, Federal University of Technology, Owerri, Nigeria

**Abstract** – Smoking is a leading cause of preventable morbidity and death worldwide. The objective of the study was to determine the effect of socio-demographic factors on smoking among women of child-bearing age attending antenatal and postnatal care in Federal Medical Centre Owerri, Imo State. The study employed descriptive cross-sectional study design which aided in examining the influence of socio-demographic factors and smoking of women of child bearing age in Federal Medical Center Owerri. A total of 300 questionnaires were administered to women of child bearing age attended antenatal and postnatal care in Federal Medical Centre (FMC) Owerri. The data were analyzed using descriptive statistics and the results were displayed in frequency tables, percentages and charts. The highest age percentage (42.3%) of the respondents was found in 26-35 years and majority of the women were married 239(79.7%), It was proved that marital status has significant influence on smoking ( $X^2 = 49.16$ ;  $df = 3$ ;  $p\text{-value} < 0.001$ ). The educational qualification of women assessed on smoking habit recorded highest on tertiary level (50%) and it showed a significant influence of smoking ( $X^2 = 20.90$ ;  $df = 3$ ;  $p\text{-value} < 0.001$ ). In conclusion, it was proved statistically that demographic factors had influence in smoking among women and most of them were influenced into smoking by friends. Therefore, health education should be provided for the women of child bearing age on dangers of smoking in Imo State and beyond in order to reduce the effect of smoking on women.

## I. INTRODUCTION

Smoking is a leading global disease risk factor. Smoking by women of child bearing age remains one of the most common preventable causes of diseases, disability, mobility and mortality. According to Centres for Disease Control (CDC) [1], nearly 443,000 U.S. deaths are attributable annually to cigarette smoking. Worldwide, cigarette smoking is linked to cancer, heart disease, lung disease and stroke and place women at a greater overall risk of disease than men. Smoking raises a woman's risk of breast cancer, cervical cancer ovarian cancer; infertility and early menopause. According to World Health Organization WHO [2], an estimated 19.8 million women in the United States smoke, 23 percent of women report smoking in the three months before pregnancy, while 13 percent report smoking in the last three months of pregnancy. Smoking prevalence among women

varies markedly across countries; the percentage range from an estimated 7 percent in developing countries to 24 percent in developed countries. Thwarting further increases in maternal cigarette smoking is one of the greatest disease prevention opportunities in the world today.

Among Africans in general, the awareness of some of the dangers posed by smoking is very low. According to Demography and Health Survey (DHS) [3], the prevalence of smoking among women of child bearing age was lowest among African region (5.1%) and the highest was in the Southeast Asia region (11.8%). Overall 12% of women smoke throughout pregnancy ranging from one in 200 (0.5%) in affluent area smoking to higher than one in four (27%) in most deprived region.

In West Africa, smoking is viewed as an important threat to the health of women and their children. American Lung Association [4], reported that maternal smoking during pregnancy can lead to future lineage obesity, which can lead to variety of health problems such as: Diabetes, Hypertension and Cardiovascular Diseases. However, the extent of smoking in women in low income and middle income earners remains unclear.

Nationally, in Nigeria, smoking used to be an exclusive preserve of male gender in the past, but with modernization, it appears the trend is changing as Nigeria women are now taking to smoking [5]. In Imo State, as [6] reported that the most predominant form of tobacco used by women of child bearing age in our environment is cigarette smoking. Women of reproductive age (15-49 years) who smoke risk adverse pregnancy outcome and adverse health consequences such as; Cancer, High blood pressure. Heart diseases still birth. They also expose their children to second hand smoke and modeling behavior that will increase the likelihood that their children will become smokers. These generally poses serious threat to maternal and child health.

The purpose of this study is to determine the influence of socio-demographic factors on smoking among women of child

bearing age attending antenatal care and post-natal of Federal Medical Centre (FMC) Owerri.

## II. EMPIRICAL REVIEW

A number of empirical studies have explored the link between adverse prenatal conditions and increased risk for diseases health problem and psychological outcome later in development. Maternal smoking leads to starvation during pregnancy and a number of challenging adverse health and developmental out\*] `lcome which include difficulty in getting pregnant, cancer, decrease born density. Rheumatoid arthritis, gum disease [5].

In addition, [7], smoking by women of child bearing age can lead to a plethora of health risk to both the mother and fetus such as miscarriages, pregnancy - induced hypertension, implication for the umbilical cord, premature rupture of membrane, placental abruption, premature birth, placenta previa. Smoking usually double the risk of low birth weight sudden infant death syndrome, other health challenges and birth defect ranging from heart defect, club foot, limb reduction deled hernia. Recent study by [8] stated that maternal weight loss or moderate to low weight gain was significantly associated with infant weight. length and other measures of fatal growth status [9], emphasized that in relation to psychological outcome, increased risk of affective disorder has been found in female exposed to famine. [10], have shown that more than 4,000 chemicals in cigarette smoke including benzo pyrene, Nicotine and carbon monoxide and more than 40 of these chemical are known carcinogens. [11] Declared that Nicotine crosses the placenta and causes fetal Nicotine maternal concentration.

According to [12], there is decrease in the overall prevalence of smoking in women in the past 20years. [13], suggested that the prevalence of smoking in young women under 20years of age has increased with prevalence rate of 30 -40 percent [14], reported that 12-15% of all women of child bearing age smoke. Considering the fact that women who smoke are more likely to be Nicotine dependent, less likely to quit and importantly have a partner who smokes in the study contended that women may also be exposed to second hand smoke in homes, vehicles, the work place or public areas. More than 126 million nonsmoking adults continue to be exposed to second hand smoke and current estimates suggest that almost 60% of children, aged 3-11 are exposed second hand smoke. United State Department of Health (2006) previous studies had suggested that maternal cigarette smoking especially is associated with increased risk of spontaneous abortion, Respiratory diseases. Immune system difficulties such as asthma, allergies and cancer later in life [15]. also suggested that there are a variety of placental complications linked to prenatal exposure to cigarette smoking including alteration of the development and function of placental [16].

Tobacco exposure is associated with a number of serious neuro developmental and behavioral consequences in infant, children and adolescent[17] stressed that maternal smoking is associated with delayed psychomotor and mental development.[18] analyzed and determined that maternal cigarette smoking was negatively related to auditory brainstem response and suggest that maternal cigarette smoking may negatively impact a child's future speech and language development.[20] asserted an association of prenatal smoke and increase externalizing disorder, conduct disorder and attention defect, hyper activity disorder. [13]. Pointed out that cognitive function has also been shown to be negatively affected by maternal smoking.[28], described dose response relationship, in which the smoking related relative risk increases with amount of smoked have also been reported for general cognitive ability.

Maternal second hand smoke exposure is associated with a decrease in infant mental development index score and an increase in the risk of developmental delay in infant ( Lee *et al*, 2013), There by extending the risk profile related to smoking exposure beyond just direct-primary smoke exposure. Smoke exposure remains a common exposure that can have major ramifications on the in utero growth and development of the fetus.

Furthermore, due to the plethora of scientific data suggesting negative consequences associated with smoking, women are cautioned against smoking[30]. However. due to the undesirable outcome in women and children exposed to smoke, women of child bearing age and women generally are encouraged to stop smoking.

## III. MATERIALS AND METHODS

### A. Research Design

First, confirm that you have the correct template for your paper size. This template has been tailored for output on the A4 paper size. If you are using US letter-sized paper, please close this file and download the file for "MSW\_USltr\_format". Specifically, a descriptive cross-sectional survey design was employed to enhance the achievement of the study objectives. Cross-sectional design was appropriate for this study, because it was easy and economical to be conducted, and it was very useful for investigating a variety of characteristics of individuals, such as socio-demographic status and ethnicity[21]. The study was carried out to ascertain the influence of socio-demographic factors on smoking among women of child bearing age visiting Federal Medical Centre (FMC). Owerri. This design was to enable the researcher to collect and analyze relevant data, in order to find out the influence of socio-demographic factors on smoking among women of child bearing age at the FMC. Owerri. Imo Stale. It explained that cross sectional designs can be used to estimate levels of influence of socio-

demographic factors on smoking about a given health case or health disease.

### B. Study Area

Federal Medical Center (FMC) is situated at Owerri and is one of the hospitals owned by the Federal Government. It has male and female healthcare workers and many wards. As a medical center, the hospital is located at the heart of Owerri along Amakohia - Orlu road. It is bounded on the north by Douglas road, on the south by Amakohia road, on the west by Okigwe road and on the east by Onitsha road. As a medical center, it has many departments such as antenatal care (ANC), place of delivery (POD); post-natal care (PNC) - served as dependent variables (DVs); while mother's age, Education level, religion, occupation, family wealth index (FWI) represented independent variables (IDVs).

### C. Population of Study

A total population of 2,500 mothers who attended Federal Medical Center (FMC). Owerri is under the study. Data for women of 2,500 reproductive age (WRA) from the Federal Medical Center (FMC), Owerri, was included. Since the study was aimed at analyzing the influence of socio-demographic factors on smoking that influencing the maternal mortality and morbidity data from all the mothers who attended the hospital was included such as those who have given birth or pregnant; hence, there were exclusion criterion of non-mother's criteria who have not given birth or being pregnant but smokes.

### D. Sample Size

#### Sample Size Estimation

Minimum sample size was calculated using the formula [29],

$$ME = z \sqrt{p \frac{(1-p)}{n}} = \frac{p(1-p)z^2}{ME^2}$$

n = Desired sample size

ME = Desired margin of error

Z = Standard normal deviate, usually set at 1.96 (more simply 2.0) which corresponds to the 95% confidence level.

p = Population of the study was estimated to be 80% to represent the target population in this study.

$$\text{Sample size} = \frac{(1.96)^2 (0.80)(0.20)}{(0.05)^2}$$

$$N = 245.9$$

In order to cover large portion of the population, adding an iteration of 20% to draw valid conclusions, to give an adequate reflection of the study population and to cater for non-responses

$$(20\% \times 245.9) = 49.18$$

$$\text{Sample size to the nearest hundred} = 245.9 + 49.18 = 300$$

By ensuring an appropriate sample design as well as a large enough sample size, sample error can also be decreased.

### E. Sample Technique

A simple random sampling technique was used in administration of questionnaire to the women of child bearing age which includes pregnant mothers that attends Federal Medical Center (FMC), Owerri. The sample of the questionnaire was administered to the women for 6 intervals based on the appointed date of contact in the antenatal care (ANC) - place of delivery (POD), it was given to the mothers that nearly put to bed and post-natal care (PNC) unit. The questionnaire was administered to women that visited for six week check up and women of child bearing age that were at the hospital for the immunization of their children. A 50 sample of the questionnaire was given to 50 women drawn at random within the antenatal care and post-natal care for 6 contact periods given a total of 300 samples used in the study. During the study period, women at between 15 and 49 year were assessed in study.

### F. Inclusion and Exclusion Criteria

All the reproductive women who attended Federal Medical Center (FMC) Owerri from October 2015 to February 2016. Were included and excluded those mothers who were below the age of 15 years, irrespective of their health conditions such as diabetic, cardiac problems and had multiple pregnancies.

For the purpose of this study, as noted in the literature review, majority of maternal deaths and disabilities occurred due to smoking during reproductive age were included. For this reason, antenatal care was also selected since its importance as a proxy to the early detection of complications has been demonstrated in the literature.

### G. Instrument for Data Collection

A data collection *preform* that served to answer the research question was created following the extraction of relevant data from the sources mentioned above. The sample of the questionnaire was administered to the women by the researcher and with the help of research assistant for 6 intervals based on the appointed date of contact in the antenatal care (ANC) - place of delivery (POD); and post-natal care (PNC) unit. The completed questionnaire was collected at spot and those who refused to provide the information were skipped.

### H. Validity of the Instrument

Validity describes as the properties of tests and measures. A test or measure is valid if the inferences made from it are appropriate, meaningful and useful. The instrument was validated for content relevant to the topic and objectives as

well as appropriateness of language by the supervisor and health service experts in the federal Medical Center (FMC), Owerri. Validity of this study focused on ensuring that chance, bias and confounding are addressed in the study design, sample, and data collection. The bias should be avoided through proper use of perform to get right information from the study women, it was validated by the supervisor and three other experts in reproductive health for the relevant content of the objectives.

*Reliability of the instrument:* The questionnaire was pro-pilot by distributing to a small group of respondents (30 students) at Alvan Ikoku Collage of Education similar to those in the target population at Federal Medical Center (FMC), Owerri. The results of the pilot study were used to make appropriate corrections/adjustments for content and clarity. The reliability of the instrument was also tested using Chronbach Alpha Coefficient of Reliability lest and a coefficient of 0.7 approximately was got and regarded reliable

#### I. Method of Data Analysis

First, data for the study were cross tabulated in an excel worksheet and transported into Statistical Package for Social Sciences (SPSS, version 20.0). The analysis was done using descriptive statistics and the results were displayed in tables and charts. Then, frequency tables, were generated for the socio-demographic distribution of respondents and percentage of smoking among women. Bar charts were subsequently created to aid visual appreciation of influence of education on smoking. Bivariate analysis was carried out to show the association between smoking and socio-demographic variables. The Chi-square lest is used to examine whether or not an association exists between two categorical variables but does not show the strength or direction of that association. The significance level for all statistical analysis was set at  $p \leq 0.05$ .

#### J. Ethical Considerations

The study and verbal consent process received ethical approval from the Department of Public Health, Federal University of Technology Owerri. As such, no ethical approval was require from the local authorities. However, ethical approval was sought (for procedural reasons) and obtained from the Ethical committee of the Federal Medical Centre Owerri, Imo State.

Verbal consent was collected from all the participating respondents. The mothers were consulted before the administration of the questionnaire, the participants who gave verbal consent were ticked and interviewed, and those who refused were skipped. Participation was voluntary.

### IV. RESULTS AND DISCUSSION

This section presents the result of data analysis from a descriptive survey on the influence of socio-demographic

factors on smoking among women of child hearing age in Federal Medical Centre, Owerri.

#### A. Demographic Data of Respondents

The demographic data of the respondents were presented in table 1: age of them were as follows. 15-25 years had 52(17.3%), 26-35 years had 127(42.3%), 36-45 years had 112(37.3%) while 46-55 years had 9(3.0%). On the same table, the highest percentage of respondents on marital status was found on married women 239(79.7%) followed by single ones 54(18%), 5(1.7%) were widow while the least was on divorced/separated with 2(0.7%). The religion of the respondents. Christians had the highest percentage (74.3%) followed by Pentecostal with 24(24%) while the least 1(0.3%) was on Islamic worshipers. The majority of the respondents were Igbos 277(92.3%) while others were Hausa 3(1%), Yoruba 7(2.3%), and others 13(4.3%).

Table 1: Demographic Characteristic of respondents

Variables	Frequency	Percentage
Age of the respondent		
15-25 years	52	17.3
26-35 years	127	42.3
36-45 years	112	37.3
46-55 years	9	3.0
Total	300	100.0
Marital status of the respondent		
Single	54	18.0
Married	239	79.7
Divorced/separated	2	0.7
Widow	5	1.7
Total	300	100.0
Religion of the respondents		
Christianity	223	74.3
Islamic	1	0.3
Pentecostal	72	24.0
Protestants	4	1.3
Total	300	100.0
Tribe of the respondents		
Igbo	277	92.3
Hausa	3	1.0
Yoruba	7	2.3
Others	13	4.3
Total	300	100.0

*Influence of age on smoking women of child bearing age*

From the statistical analysis as shown in Table 2 below, there is significant influence between age and smoking among women of child bearing age where  $X^2 = 47.72$ ;  $df=3$ ;  $p\text{-value} < 0.001$ .

Table 2: Influence of age on smoking among women of child bearing age

Age	Smoker	Non-smoker	Total
15-25 years	18(35%)	34(65%)	52(17.3%)
26-35 years	0(0%)	127(100%)	127(42.3%)
36-45 years	12(11%)	100(89%)	112(37.3 %)
46-55 years	2(22%)	7(78%,)	9(3%)
Statistical tool used $X^2 = 47.72$ ; $df = 3$ ; $p\text{-value} < 0.001$			

*B. Percentage of educational qualification of women of child bearing age*

The above figure presented the educational qualification of women on smoking habit where tertiary level of education recorded 50%, secondary had 48% while 2% was for primary education.

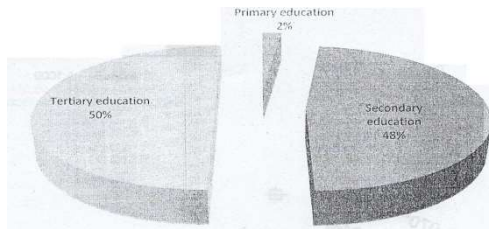


Figure 1: Level of education of the respondents

*C. Influence of education on smoking among women of child bearing age*

Table 3 shows the statistical influence between education on smoking among women of child hearing age where  $X^2 = 20.90$ ;  $df = 3$ ;  $p\text{-value} < 0.001$ .

Table 3: Influence of education on smoking among women of child bearing age

Level of education	Smoker	Non- smoker	Total
No education	0 (0%)	0(0%)	0(0%)
Primary	4 (67%)	2(33%)	6(2%)
Secondary	16(11%)	128(89%)	144(48%,)
Tertiary	12(8%,)	138(92%)	150(50%,)
Statistical tool used	$X^2 = 20.90$ ; $df = 3$ ; $p\text{-value} < 0.001$		

*D. Awareness of women on smoking*

Table 4 depicted the awareness of women smoking; 298(99.3%) agreed that they have heard about smoking and only 2(0.7%) was on no response. From that view, majority 163(64.3%) stated that they heard it through friends, 119(39.7%) said through media, 13(4.3%) reported through doctors while only 5(1.7%) reported from parents.

Table 4: Awareness/knowledge of women on smoking

Variables	Frequency	Percentage
Have heard about smoking		
Yes	298	99.3
No response	2	0.7
No	0	0.0
Total	300	100.0
Source of your information		
Doctor	13	4.3
Friends	163	54.3
Parents	5	1.7
Media	119	39.7
Total	300	100.0

*E. Awareness of women on smoking*

The figure above presented the factors that influence smoking; majority (92%) reported influence of friends, 5% said by advert and social acceptance through imitation had 2%.

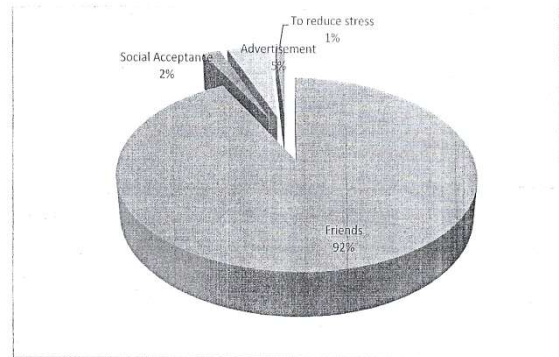


Figure 2: Factors that Influence Smoking

*F. Percentage of smoking habit among women*

Table 5 depicted the percentage of smoking habit among women; majority 266(88.7%) said they never smoke while 32(10.7%) do smoke. The category of smoker (casual or regular), 18(56.3%) reported they are casual smokers while 14(43.8%) were regular smokers. From the table, 21(65.6%) take an average 1-3 sticks of cigarettes smoking in a day, 11(34.4%) took 4-6 sticks of cigarettes smoking in a day. Period me respondents had engaged in smoking; greater

number 12(37.5%) of the respondents said more than 3 years ago, 11(34.4%) said 1-3 years, 6-12 months had 3(9.4%) while 1-6months recorded 1-6 months.

Table 5: Percentage of smoking habit among women

Variables	Frequency	Percentage
Have ever smoked		
No response	2	0.7
Yes	32	10.7
No	266	88.7
Total	300	100.0
Category of smoker (casual or regular)		
Casual	18	56.3
Regular	14	43.8
Total	32	100.0
Average sticks of cigarettes smoking in a day		
1-3 sticks	21	65.6
4-6 sticks	11	34.4
More than 6 sticks	0	0.0
Total	32	100.0
Period the respondents had engaged in smoking		
1-6months	5	15.6
6-12 months	3	9.4
1-3 years	11	34.4
More than 3 years	12	37.5
No response	1	3.1
Total	32	100.0

G. Reason for smoking

The figure 3 presented the reason for smoking among women, majority of the 31.3% of the interviewed women reported addiction. 25% said for enjoyment. 16% said because their parents smoke while the least was 6% that reported cigarette advert.

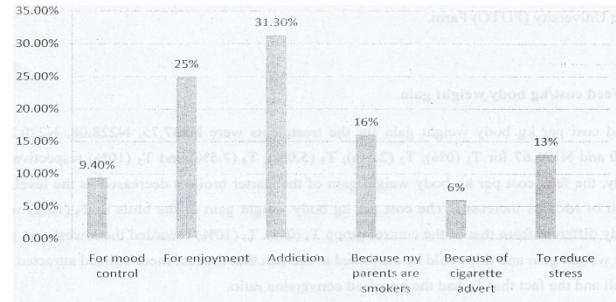


Figure 3: Reason for Smoking

H. Health implications of smoking

Table 7 shown the health implications of smoking among women: 99.7% of them said they aware of the dangers smoking and 295(98.3%) said the most common danger is chronic lung disease followed by miscarriage that has 5(1.7%). The women were assessed on whether they have tried to quit smoking: 24(75%) said yes while 5(15.6%) said no to that view. From the table, 24(75%) believe that self help smoking cessation is a good process to quit smoking, 6(19%) said using smokers quit line and only 2(6.3%) reported going for counseling. Methods to discourage smokers from smoking; 252(84%) said to restrict smoking in public places, 41(13.7%) said to ban advertisement on cigarettes and 6(2%) said write the adverse effect of smoking on cigarette packets.

Table 7: Health implications of smoking

Variables	Frequency	Percentage
Aware of the dangers of smoking		
Yes	299	99.7
No	1	0.3
Total	300	100.0
Dangers of smoking		
Chronic lung disease	295	98.3
Oxygen prevention	0	0.0
Placenta abruption	0	0.0
Placenta previa	0	0.0
Miscarriage	5	1.7
Ever tried to quit smoking		
No response	3	9.4
Yes	24	75.0
No	5	15.6
Total	32	100.0
Process of quitting smoking		
Going for counseling	2	6.3
Using smokers quit line	6	19.0
Using self help smoking cessation materials	24	75.0

Total	32	100.0
Methods to discourage smokers from smoking		
Restrict smoking in public		
Places	252	84.0
Ban advertisement on cigarettes	41	
Adverse effect of smoking		
written on cigarette packets	6	
No response	1	-3
Total	300	100.0

### I. Diseases encountered due to smoking

Figure 4 presented the diseases encounter due to smoking; the highest percentage was on lung cancer (68%) followed by chronic lung disease (21%), bronchitis and pneumonia had 7% and fatal tobacco syndrome recorded 3%.

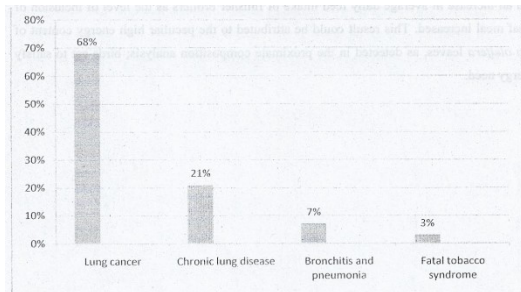


Figure 4: Diseases Encounter due to Smoking

## IV. DISCUSSION

The findings of this study showed that demographic factors such as age, marital status and education have influence in smoking among women of child bearing age. The rate of smoking was not high when compared to some studies conducted in different part of the world. In the UK, one study found that tobacco consumption rate was high and it affects uterine receptivity, with heavy smokers more likely to be affected[22]. However, in comparatively low levels of smoking as seen in this study can have a significant impact on female fertility. There is also a higher rate of ectopic pregnancies among smokers in United Kingdom (UK).

The influence of education on smoking among women of reproductive age was significant. The effect of education on smoking has tremendously reducing the cases of maternal mortality and morbidity globally. Among the global population of individuals who smoke, women are a subpopulation that have proven to be particularly vulnerable to the adoption and effects of tobacco use over their lifespan [23]. Presently, research indicates that the global smoking population is on its way to becoming increasingly on females as the tobacco industry begins to market its products to women in developing countries[24]. To better understand and

address the issue of smoking during pregnancy and the postpartum period. Then, among the population of global tobacco users, the proportion of them who are women has been increasing for several years [25]. In 2006 the prevalence of smoking among women was 9%, which accounted for 200 million of the 1 billion global smokers. While it is believed that men's smoking rates have peaked and are now decreasing, it is projected that women's smoking will reach a prevalence of 20% globally by 2025 [26].

According to [12], opined that there is a decrease in the overall rate of smoking in women in past 20 years and [13], suggested that the rate of smoking in young women under 20 years of age has increased with 30-40 percent which was not similar to the findings of this study which recorded 17 percent among age of 15-25 years. From the findings, majority of women that gave their consent on smoking falls between 26-35 years which was seen as a reasonable age that can take decision of their lifestyle.

On the same note, large numbers of them are married and among the smokers, the influence suggested peer pressure. In this regard, greater number the women reported their source information about smoking was through friends which stands the chance to lure them into smoking.

From the study, the result proved that women that smoke, majority takes an average of 1-3 sticks per day and some of them have lasted to 1-3 years or more than. This was not far from the influence of friends.

Greater percentage of the women reported they smoke because they are addict to it due to the influence of friends and few of them smoke in order to reduce stress and control anger. Under the reproductive age, some women quit because smoking poses a high risk of harm like chronic lung diseases and miscarriage to both mother and fetus during pregnancy, it is important that pregnant women to be supported in order to stop smoking at all but if not possible at least for the duration of the pregnancy and postpartum[27].

Most of the women were on opinion that self help smoking cessation materials will be a good process of quitting smoking and also another good method is to restrict smoking in public places.

## V. CONCLUSION

The findings of this research indicated low level smoking prevalence among women of reproductive age in Federal Medical Centre, Owerri. It was proved statistically that demographic and socioeconomic factors had influence in smoking among women. In general view, most of the women were influenced into smoking by friends and the awareness level of the danger of smoking was high but quitting the smoking still need a serious interventions for women both smokers and non smokers.

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