Cigarette smoking and perception of its advertisement among antenatal clinic attendees in referral health facilities in Enugu, Nigeria

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Abstract

Background: The most predominant form of tobacco use is cigarette smoking, and it poses serious threats to maternal and child health. The magnitude of cigarette smoking in pregnancy in our environment is not well-known. The study aimed to determine the prevalence of cigarette smoking among pregnant women in Enugu, Nigeria as well as their exposures and perceptions of cigarette smoking advertisement.

Materials and Methods: Questionnaires were administered to a cross-section of pregnant women randomly selected from three hospitals in Enugu, South-East Nigeria, from May 2, 2012 to June 12, 2012. Analysis was both descriptive and inferential at 95% confidence levels.

Results: The prevalence of tobacco smoking in pregnancy was 4.5% (9/200). Over 90% of respondents admitted that cigarette smoking could harm both mother and unborn baby. In all, 79.5% (159/200) of respondents had seen or heard of advertisement for cigarette smoking as against 82.5% (165/200) that had seen or heard of antismoking advertisement (P = 0.444, odds ratio = 1.2 [95% confidence intervals: 0.74, 2.00]).

Conclusions: The prevalence of cigarette smoking in pregnancy in Enugu, Nigeria was low, and there was high exposure to both pro-and anti-smoking advertisement. The awareness of harmful health effect of smoking was high but, that of the specific diseases associated with smoking in pregnancy was limited. Hence, antenatal classes and antismoking advertisement should be scaled-up to include maternal and peri-natal diseases/conditions associated with cigarette smoking.

Key words: Cigarette advertisement, cigarette smoking, Enugu-Nigeria, pregnancy

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Introduction

Tobacco use is associated with deaths resulting from adverse health condition such as lung cancer, chronic obstructive pulmonary disease, ischemic heart disease, stroke, oral cancer. This justifies the global campaign against its use. Unfortunately, the prevalence of tobacco use for both men and women appears to be increasing in many low- and middle-income countries (LMICs) contrary to the situation in some high-income countries where there is a decrease.[1] The increasing tobacco use among women in LMICs has been attributed to several factors including high rate of smoking by men, increased targeting of women by tobacco companies, improvement in the status of women, as well as the erosion of cultural constraints on women smoking that is associated with globalization.[1] For under-resourced countries such as Nigeria, the predictable health and economic burdens of increasing tobacco use and

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dependence may be devastating especially for the vulnerable populations including pregnant women.[1] Notably, the most predominant form of tobacco use is cigarette smoking;[2] and both the active and passive maternal tobacco smoking have well-established adverse peri-natal outcomes.[1,3]

Outside being a major cause of deaths in poor resource settings, tobacco use is associated with poor pregnancy outcomes and threatens to undermine or reverse the gains in maternal and child health. By the year 2030, an estimated 80% of deaths due to tobacco use are expected to occur.[4] Tobacco-related diseases specific to women include: Cancer of the cervix, premenopausal breast cancer, early menopause, dysmenorrhea, osteoporosis, premature wrinkling and hearing loss.[5,6] With respect to pregnancy, preconception cessation of smoking is important to decrease the risk of miscarriages.[6] Furthermore, maternal smoking impairs fetal growth and causes preterm labor leading to preterm birth with significant fetal and infant mortality and morbidity.[5] Furthermore, it has been shown that maternal smoking during pregnancy increases the risks of all respiratory outcomes in childhood.[7] Other effects of *in-utero* exposure to cigarette smoking include: Sudden infant death syndrome, middle ear disease, low birth weight, and long-term cognitive and behavioral deficits. One-third to one-half of all pregnant women are exposed to cigarette smoke through passive or involuntary means, either in their homes, at work or in public.[8,9] It should be stressed that cigarette smoke contains toxic compounds such as polycyclic aromatic hydrocarbons, nitrosamines and formaldehyde.[10,11] These compounds have been implicated in human diseases including lung cancer.

It is obvious that antenatal tobacco use is a public health problem with consequences on both the drug user and the offspring. Therefore, in Nigeria and other poor resource settings with sub-optimal maternal and infant health outcomes, the situation may worsen if maternal tobacco use increases. Nevertheless, magnitude of this problem is not well-known in this environment hence, this study aimed to determine the prevalence of cigarette smoking during pregnancy, as well as pregnant women's exposures and attitude toward cigarette smoking advertisement.

Materials and Methods

Description of study area

The study was carried out among antenatal women in Enugu metropolis. The latter is an urban setting and the capital territory of Enugu state. The state has a population of over 3 million,[12] and it is one of the five states that make up the Igbo speaking South-East geo-political zone of Nigeria. The Igbo culture and societal norms do not support cigarette smoking especially among women. Nevertheless, the prevalence of cigarette smoking among men in Enugu[13] and the South-East zone is high-in fact, the zone seems to have the highest proportion of men that smoke cigarette in Nigeria.[14] At the moment, Enugu State has no legislation against smoking in public or its advertisement.

Study design

The study design was cross-sectional descriptive using pretested structured questionnaires administered to a sample of antenatal women in three hospitals thus: Poly Clinic Asata Enugu (an Enugu state owned general hospital), University of Nigeria Teaching Hospital (UNTH) Ituku-Ozalla Enugu (a teaching hospital owned by Federal Government of Nigeria), and Annunciation Specialist Hospital Emene (a faith-based specialist hospital). All hospitals were selected by simple random sampling from a frame of government and mission hospitals in Enugu metropolis with high antenatal patients' load of 50 women per visit and/or are referral centers. All pregnant women receiving antenatal care in the hospitals were eligible for the study. The primary outcome measure was the prevalence of cigarette smoking in pregnancy in Enugu, Nigeria. A sample size of 210 respondents was adequate to determine the primary outcome measure, assuming a cigarette smoking rate of 1.7% among adult Nigerian women (≥15 years),[15] at a confidence level of 95%, error margin of 2%, and nonresponse rate of 10%. The sample population was distributed equally among the three hospitals (70 women/center). Systematic random sampling method was used to select respondents; thus, it was assumed that 1000 women would be attended to in the three hospitals within the proposed study period of 4 weeks (50/week day), which gave a sampling interval of five. A random start was determined per clinic day in each center; afterwards, every fifth antenatal woman was recruited after obtaining informed consent-this procedure continued per center till the allocated sample size was attained. Two trained assistants (midwives or medical interns) assisted in respondents' counseling and questionnaire administration for each hospital.

Ethical approval for this study was obtained from the Health Research Ethics Committee of the UNTH, Ituku/Ozalla, Enugu.

Data analysis

Data analysis was by descriptive and inferential statistics using Statistical Package for the Social Sciences (SPSS) computer software version 17.0 (IBM Corporation). Proportions were compared with Chi-square test, and $P < 0.05$ was considered as statistically significant.

Results

Two hundred and ten questionnaires were administered during the study but, 200 were appropriately completed

Table 1: Respondent's sociodemographic characteristics

Respondent's characteristic	Sub-groups	Frequency (%)
Age group (years)	15-19	0 (0.0)
	20-24	23 (11.5)
	25-29	95 (47.5)
	30-34	53 (26.5)
	35-39	23 (11.5)
	40-44	6 (3.0)
	45-49	0 (0.0)
Marital status	Single	3 (1.5)
	Married	195 (97.5)
	Widowed	2 (1.0)
Educational level	No education	6 (3.0)
	Primary education	3 (1.5)
	Secondary education	40 (20.0)
	Tertiary education	151 (75.5)
Occupation	Professionals	33 (16.5)
	Nonprofessionals/semi-skilled	66 (33.0)
	Unskilled personnel	29 (14.5)
	Unemployed	72 (36.0)
Parity	Para 0	78 (39.0)
	Para 1	46 (23.0)
	Para 2-4	69 (34.5)
	Para≥5	7 (3.5)

Table 2: Respondent's knowledge of effects of cigarette smoking

Respondent's general knowledge of cigarette effect	Frequency (%)
Know that cigarette smoking harms woman's health	185 (92.5)
Specific disease/condition that could be named	
Asthma	36 (19.5)
Bronchitis	32 (17.3)
Lung disease	83 (44.9)
Cough	69 (37.3)
Lung cancer	60 (32.4)
Other cancers	10 (5.4)
Heart disease	70 (37.8)
Don't know	18 (9.7)
Know that cigarette smoking during pregnancy harms baby	183 (91.5)
Specific disease/condition that could be named	
Lower birth weight	34 (18.6)
Preterm delivery	13 (7.1)
Still birth	10 (5.5)
Sudden infant death	10 (5.5)
Respiratory/breathing problem	44 (24.0)
Don't know	17 (9.3)

which gave a response rate of 95.2%. The mean age of respondents was 29.3 years (standard deviation ± 4.7) and the modal age group was 25–29 years. The majority of the respondents were parous (61.0%, 122/200), and had tertiary education (75.5%, 151/200). More than 97% of the respondents were married. With respect to occupation, there were 33 (16.5%) professionals such as doctors, lawyers, etc., while 72 (36.0%) were unemployed including housewives and students. The details of respondents' sociodemographic characteristics are shown in Table 1.

Table 3: Respondent's attitude and use of cigarette smoking

Variable (n=200)	Respondent's responses (%)		
	Yes	No	Don't know
Acceptable for women to smoke cigarette	7 (3.5)	181 (90.5)	12 (6.0)
Acceptable for women to use other tobacco products	7 (3.5)	175 (87.5)	18 (9.0)
Smoking during pregnancy harms women's health	185 (92.5)	3 (1.5)	12 (6.0)
Smoking during pregnancy harms baby	183 (91.5)	0 (0.0)	17 (8.5)
Ever smoked cigarette in life	11 (5.5)	189 (94.5)	0 (0.0)
Current cigarette smokers	9 (4.5)	191 (95.5)	0 (0.0)

In all, 185 (92.5%) respondents were of the affirmative when asked if they knew if a woman who smoked cigarette/used tobacco products constitute harm to her own health or not [Table 2]. Lung diseases were the most frequent disease or condition noted by respondents (44.9%, 83/185), followed by heart diseases (37.8%, 70/185). About 10% of the respondents did not know of any disease/condition caused by cigarette smoking.

One hundred and eighty-three (91.5%) respondents agreed that cigarette smoking/use of tobacco products during pregnancy could harm the unborn baby; whereas the remaining women (8.5%, 17/200) did not know [Table 2]. One hundred and eighty-one (90.5%) respondents reported that it was not acceptable for women to smoke cigarette while a slightly lower proportion (87.5%, 175/200) reported that it was not acceptable to use other tobacco products. In all, 11 (5.5%) respondents had ever smoked cigarette out of which nine women were current cigarette smokers which gave a prevalence of smoking in pregnancy of 4.5% of all respondents (81.8% of those who ever smoked cigarette [Table 3].

One hundred and fifty-nine respondents (79.5%) reported ever seen or heard of advertisement for tobacco products, while 43.4% (69/159) of them reported having seen or heard of it at least once in the last 30 days preceding the study. Conversely, 165 (82.5%) women had seen or heard of advertisement against tobacco products, while 38.8% (64/165) of them reported having seen or heard the antitobacco use advert at least once within the last 30 days preceding the study [Table 4]. The observed difference in the proportions of respondents exposed to antismoking adverts (82.5%, 164/200) and pro-smoking adverts (79.5%, 159/200) was not significant (P = 0.444, odds ratio = 1.2 [95% confidence intervals: 0.74, 2.00]). All

Table 4: Respondent's exposure to cigarette smoking advertisement

Variables	Sub-groups	Category of cigarette smoking advertisement	
		For smoking (%) (n=159)	Against smoking (%) (n=165)
History seeing or hearing of cigarette advert	Ever seen/heard cigarette advertising (n=200)	159 (79.5)	165 (82.5)
	Seen/heard one or more times a day	42 (26.4)	54 (32.7)
	Seen/heard one or more times a week	48 (30.2)	47 (28.5)
	Seen/heard one or more times a month	69 (43.4)	64 (38.8)
Which media did you see/hear the advert?	Television	78 (49.1)	78 (47.3)
	Radio	52 (32.7)	36 (21.8)
	Print media	5 (3.1)	4 (2.4)
	Bill boards/sign posts	20 (12.6)	16 (9.7)
	Others	4 (2.5)	31 (18.8)
Which location did you see/hear the advert?	Home	92 (57.9)	82 (49.7)
	School	11 (6.9)	13 (7.9)
	Work	1 (0.6)	3 (1.8)
	Market/shop	15 (9.4)	8 (4.8)
	Sports arena	29 (18.2)	1 (0.6)
	Road side	10 (6.3)	18 (10.9)
	Hospital	1 (0.6)	40 (24.2)

respondents who were current smokers had seen or heard both pro-tobacco use and antitobacco use adverts at least once within 30 days of the study.

One hundred and twenty-five (62.5%) respondents reported that advertising cigarette/tobacco products were not appropriate, 45 (22.5%) reported it was appropriate while 30 (15.0%) did not know. Conversely, 147 (73.5%) of the respondents did report that advertising against tobacco products was appropriate, 21 (10.5%) reported otherwise, and 32 (16.0%) did not know.

Discussion

The modal age group of 25-29 years observed in the study suggests that the group has the highest fertility rate among the reproductive age women in the study area. The finding is consistent with the 2008 National Demographic Survey in Nigeria, which showed that the age group had the highest age specific fertility rate.[14] Likewise, the high literacy level observed in this study was consistent with earlier studies on antenatal women in Enugu, Nigeria.[16,17]

The overwhelming majority of the respondents knew that cigarette smoking was harmful to the woman as well as to her unborn baby. The overall knowledge of these hazards was high unlike in a related study in some parts of Africa where the knowledge of the hazards of smoking was very limited.[18] The urban setting of this study may be responsible for this high knowledge. Unfortunately, an appreciable proportion of the respondents did not know of the specific conditions/diseases that were associated with cigarette smoking in the mother as well as in the unborn baby which has an implication on the content of the antitobacco use campaign in the study area.

It is not surprising that the majority of the respondents in this study felt that it was unacceptable for women to smoke cigarette because of the existing cultural and societal norms in the study environment, which frown at cigarette smoking, especially among women. This cultural disposition may explain why most respondents felt that advertising for cigarette was not appropriate.

The socio-cultural restraints discussed above might also be responsible for the low prevalence of smoking in pregnancy or ever smoked cigarette, recorded in this study. These findings are consistent with available data suggesting a low level of female cigarette smoking in most countries of sub-Saharan Africa.[19,20] Furthermore, the low rate of cigarette smoking in this study is higher than 1.7% reported for Nigerian women[15] but, lower than 10% found among pregnant women in America.[21] When compared to women population in general, our finding was far lower than reports from developed countries of United States of America and Germany where the cigarette smoking rates of up to 17-21%, and 20% respectively were reported.[22-24]

In this study, almost all respondents were exposed frequently to advertisement for and against cigarette smoking and the commonest channels of exposures were electronic media and bill boards/sign posts [Table 4]. It is noteworthy that most cited locations of pro-cigarette advertisement were at homes, sports arena and at markets/shops while those of antismoking adverts were at homes, hospital. The latter was in keeping with the findings of a study in America where 50% of the respondents received the information on quitting

smoking from health facilities.[25] Furthermore, it has been observed that sports arena rarely advertise against cigarette, while workplace and hospitals rarely advertise for cigarette. It is, therefore, not surprising that only one respondent indicated exposure to antismoking advertisement in sports arena in this study thus buttressing the fact that sports such as car racing were sponsored by tobacco companies before the strict enforcement of the restriction of tobacco adverts in developed countries as encouraged by the WHO.[26] On the other hand, respondents rarely saw or heard of advertisement for cigarette in the hospitals or workplaces. This is for obvious reasons because health warning messages are written on cigarette packets and are mandatory in many countries including Nigeria;[27] and it is a cost-effective way of increasing public knowledge on the hazards of cigarette smoking.[28]

It is possible that the increased awareness of cigarette smoking and its harmful effects by pregnant women could be attributed to the increased exposure to pro- and anti-cigarette advertisements noted in the study. However, this increased exposure to the adverts did not seem to translate to increased cigarette smoking in this cohort of women contrary to what was noted in previous studies where advertising was noted as a factor promoting cigarette smoking.[29-32] Adequately powered studies are required in our environment to determine the effect of pro-smoking versus antismoking adverts on the prevalence of smoking in women generally and pregnant women in particular.

It was concluded that the prevalence of cigarette smoking among pregnant women in Enugu, Nigeria was low. There was high awareness that cigarette smoking is harmful to both the mother and the unborn baby but, the awareness of the specific diseases/conditions associated with smoking in pregnancy was limited. Furthermore, the exposure to pro-smoking and anticigarette smoking advertisement did not differ among pregnant women in the study area. It is, therefore, recommended that the content of antenatal classes and antismoking advertisement should be scaled-up to include maternal and peri-natal diseases/conditions associated with cigarette smoking. It is expected that this strategy will strengthen the existing socio-cultural inhibition for maternal cigarette smoking in our environment.

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