KNOWLEDGE, ATTITUDE AND PREVALENCE OF SECONDHAND SMOKING AMONG UNDERGRADUATE STUDENTS OF THE UNIVERSITY OF IBADAN, IBADAN, OYO STATE, NIGERIA

BY

ESSIENUDOH, IMAOFON GODWIN

B.sc Microbiology (Port Harcourt)

MATRIC NO: 182141

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DEDICATION

This project is dedicated to God Almighty who has been my eternal rock and source of refuge.

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Essienudoh, Imaofon Godwin

ABSTRACT

Secondhand smoke (SHS) is a substantial health hazard and a major public health issue causing death, diseases and disability. However, in Nigeria not much efforts have been devoted to preventing and investigating students' exposure to secondhand smoking. Therefore, this study was designed to investigate the knowledge, attitude and prevalence of secondhand smoking among undergraduate students of the University of Ibadan.

The study was a descriptive cross-sectional survey which involved the use of a four stage sampling technique to select 395 students from the undergraduate students' population. A validated self-administered semi-structured questionnaire developed from relevant literatures was used to obtain data on socio-demographic characteristics, prevalence of SHS exposure, knowledge on secondhand smoking, attitudes towards secondhand smoking, factors influencing secondhand smoking and self-efficacy in preventing secondhand smoking. Overall knowledge on secondhand smoking was assessed using a 17-item, 21 points instrument. Knowledge scores ≤9, >9-15 and >15 were classified as poor, fair and good respectively. Students attitude was scored on an 11-item, 22 points instrument. Scores ≤11 and >11were categorised as negative and positive attitude respectively. Data were analysed using descriptive statistics and Chi square tests at p=0.05 level of significance.

Respondents' mean age was 20.9±3.4 and exposure to secondhand smoke was reported by 93.2% of the respondent. Although the proportion of males (94.0%) exposed to SHS was higher than females (93.2%), the difference was not statistically significant (p>0.05). Students were mostly exposed to SHS at public places (80.0%), in public transports (61.0%) and schools (38.7%). The proportion of respondents exposed to secondhand smoke in the last thirty (30) days prior to the study was significantly high ranging from 4.6% to 43.3%, with 11.1% of the respondents being exposed 5 – 6days within a week. Although, relatively low percentage (38.0%) of the students had good knowledge on the health consequences of SHS with overall knowledge score of 14.1± 3.6, a higher percentage of 80.6% and 66.6% had positive attitude and high self-efficacy respectively. Also, respondents identified factors that influence students' exposure to SHS as lack of implementation of educational strategies in schools, students smoking in the hostels, lack of smoke free policies in

schools and public places, and easy accessibility and affordability of cigarette around schools and off campus.

This study indicates that most of the students are exposed to SHS irrespective of their positive attitude and high self-efficacy in preventing secondhand smoking. Therefore, Universities authorities should design educational programs that would reduce exposure to SHS and advocate for enforcement of smoke free policies in all environments.

Keywords: Secondhand smoke, students, health consequences, educational strategies, smoke free policies

Word counts: 413

CERTIFICATION

I certify that this work was carried out by ESSIENUDOH, IMAOFON GODWIN in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

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Supervisor

Prof. Oladimeji Oladepo
B.Sc (Ib); MPH (Ib); Ph.D (Ib); FRSPH (UK)
Department of Health Promotion and Education
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan, Nigeria.

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LIST OF ABBREVIATIONS

ASH – Action on Smoking and Health

BCC – Behavioural Change Communication

ETS – Environment Tobacco Smoke

GATS – Global Adult Tobacco Survey

GHPSS – Global Health Profession Students Survey

IARC – The International Agency for Research on Cancer

NCDs – Non Communicable Diseases

p – P value

PRECEDE – Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Education

SCOTH – Scientific Committee on Tobacco and Health

SHS – Secondhand smoke

SIDS – Sudden Infant Death Syndrome

SPSS – Statistical Package for Social Science

UCH – University College Hospital

WHO – World Health Organisation

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

Secondhand Smoke (SHS) exposure is a potentially preventable environmental pollutant that remains a major global public health concern (Haddad, Baker, El-Shahawy, Al-Ali and Shudayfat, 2013). Breathing other people's cigarette smoke is known as passive, involuntary or secondhand smoking as well as 'environmental tobacco smoke'. Smokers and non-smokers alike inhale SHS since inhaling cigarette smoke is an unavoidable consequence of being in a smoke-filled environment. SHS is a mixture of air-diluted 'sidestream' smoke from the burning tip of a cigarette, and the exhaled 'mainstream' smoke exhaled by the smoker. While the proportions of sidestream and exhaled mainstream smoke can differ, sidestream smoke is usually the larger constituent of SHS (Action on Smoking and Health research report, 2014).

Mainstream smoke inhaled by a smoker contains over 4000 chemicals (both particles and gases), including chemical irritants and almost 70 carcinogens (cancer causing substances). Sidestream smoke has a similar composition but the relative quantities of chemicals can differ. Mainstream and sidestream smoke contain fine particles and thousands of gases made up from the combustion of tobacco, paper and additives in a cigarette. The concentration of these chemicals and particles changes over time and in different environmental conditions. The concentration is dependent on the number of smokers, the rate at which they are smoking and the volume of air into which the smoke is distributed (ASH research report, 2014).

According to a report of the Surgeon General Atlanta cited in King, Dube and Babb (2013), exposure to Secondhand smoke (SHS) from burning tobacco products causes disease and premature death among non-smokers. Health effects associated with exposure to SHS have been well documented and include lung cancer, lower respiratory tract infections, asthma, cardiovascular disease, eye and nasal irritation, and low birth weight in babies of non-smokers (Callinan, Clarke, Doherty and Kelleher, 2010).

There is no risk-free level of SHS exposure, and even brief exposure can cause immediate harm. Increased knowledge of the harmful effects of SHS exposure is an evidence-based key indicator for eliminating non-smokers' exposure to SHS (Starr, Rogers, Schooley, Porter, Wiesen and Jamison, 2005 cited in: King, Dube, and Babb, 2013). The succession of change associated with eliminating non-smokers' exposure to SHS typically starts with increasing people's knowledge of the hazards of exposure to SHS, changing their attitudes toward the acceptability of exposing non-smokers to SHS, and enhancing their favourability toward smoke-free environments. Such changes can lead to increases in the adoption of, and compliance with, smoke free environments as people become more conscious of the public health benefits of smoke-free air.

University students besides being the future nation builders, also represent the most viable target population for education on smoke free environment as institutions have been tagged as platforms for health promotion and education. Although, smoking is a major determinant of health, the prevalence of smoking is still high among students (Alexander, Piazza, Mekos, Valente, 2010).

Emmons, Wechsler, Dowdall and Abraham (1998) cited in Mishra, Thind, Gokarakonda, Lartey, Watkins and Chahal (2011) stated that the probability of smoking among university students is strongly guided by risky lifestyle behaviours such as having multiple sex partners, using marijuana and heavy drinking habits. Other lifestyle factors that may encourage smoking include memberships in fraternities and cult, lack of satisfaction with academic performance, peer influence and social acceptability.

Smoke free environment is necessary for students to stay healthy and helps prevent health consequences caused by secondhand smoke. The goal of this study, therefore, is to investigate the knowledge, attitude and prevalence of secondhand smoking among undergraduate students in University of Ibadan, Ibadan, Oyo State.

1.1 Statement of the problem

The World Health Organization (WHO) has estimated that five million deaths occur annually due to tobacco use and this number of deaths is expected to exceed eight million by the year 2030 and about 80% of this number will be in developing

countries (WHO, 2009). Smoking has a great economic burden by causing a decrease of economic productivity and high health care expenditures in addition to the cost of tobacco. It also has an environmental impact due to secondhand smoke (El-Ansari, 2002). This impact is not limited to the smokers but can spread to affect non-smokers as well; it also has an impact on birth outcomes represented in low birth weight (Abu-Baker, Haddad and Savage, 2010), and contributes significantly to respiratory tract infections in infants (Jones, Hashim, McKeever, Cook, Britton and Leonardi-Bee, 2011).

Tobacco smoke from cigarettes contains thousands of chemicals that are released during burning as gases, vapours and particles. Mainstream smoke emitted as SHS is composed primarily of carbon monoxide (3–11%), particles (15–43%) and nicotine (1–9%) (Baker and Proctor, 1990 cited in Oberg, Taakkota, Pruss-ustun, Schweizer and Woodward, 2010). Worldwide, an estimated 33% of male non-smokers, 35% of female non-smokers and 40% of children are exposed to SHS (Oberg, Jaakkola, Woodward, Peruga and Pruss, 2011). Furthermore, Action on Smoking and Health (ASH) research report (2014) mentioned the report of the Surgeon General which said that exposure to SHS has immediate health effects: reduces the lung function, exacerbates respiratory problems, triggers asthma attacks, reduces coronary blood flow, irritates eyes and causes headaches, coughs, sore throats, dizziness and nausea. It also has long-term health effects, especially with continued exposure over time and short-term effect, since there is no risk-free level of exposure to SHS. It also cited a review by the Scientific Committee on Tobacco and Health (SCOTH), which concluded that "no infant, child or adult should be exposed to second hand smoke" and that SHS is a substantial health hazard.

In line with the aforementioned, university students are highly exposed to the dangers associated with secondhand smoking as university years are frequently a young adult's first experience with total independence, and along with this independence come lifestyle choices. Social smoking, defined as individuals who smoke mainly with others and not alone, is common among university students and may predispose them to a lifetime of nicotine addiction. Durham (2008) cited in Mishra, Thind, Gokarakonda, Lartey, Watkins and Chahal (2011) conducted a study which revealed that approximately one third of young adults (ages 18-24) attend a college or

university out of which approximately 12% smoked daily, while 24% had smoked a cigarette within a one month period. Most of the students in this study thought of themselves as "social smokers" and that smoking was a "harmless pleasure". Students think they can quit smoking once they graduate from college. However, by the time they graduate, they are addicted to the nicotine, and have become lifetime smokers.

Secondhand smoke exposure have been reported among university students in various studies. The findings from a study to assess secondhand smoke exposure among university students in the northern part of Jordan showed that SHS exposure among non-smoking university students was 96%. In addition, the mean hours of exposure per day was 4.64±4.28, while the mean days of exposure per week was 5.14±2.1. It stated that students had knowledge on the negative effects of SHS on adults and children, they either agreed or strongly agreed with the described negative health effects of SHS exposure on adults. This included general adults' health (66.2%), heart and lung disease (75.5%), shortening of people's lives (90.3%), and low infant birth weight (61.2%). But the attitude of students was not very positive towards avoidance of SHS, only 38% of the students expressed that they will not let visitors smoke in their homes and 50% of the students expressed that they would ask people around them to put out their cigarettes (Haddad, Baker, El-Shahawy, Al- Ali and Shudayfat, 2013).

Also, a school based survey conducted to assess students' tobacco use and exposure to secondhand smoke among 1,217 third year students in 12 medical schools in Turkey revealed that, the prevalence of current tobacco use among respondents was 28.5% and students exposed to secondhand smoke in the last seven days before the study was 46.9% at home and 42.2% in other places (Inandi, Caman, Aydin, Onal, Kaypmaz, Turhan, Erguder and Warren, 2013). Similarly, the Global Health Professions Student Survey (GHPSS) conducted to obtain information regarding health profession students' smoking habits and perceptions, exposure to secondhand smoke (SHS) as well as level of knowledge and training on tobacco use and smoking cessation counselling, reported that, the prevalence of students exposed to SHS were 21.5% among medical students, 20.9% among dental students, 16.3% among pharmacy students, 23.7% among nursing students, 33.3% among health visitor students and 28.8% among nutrition students. This indicated that exposure to secondhand smoke

among medical student was high (Barbouni, Hadjichristodoulou, Mirakou, Antoniadou, Korea, Miloni, Warren, Rahiotis and Kremastinou, 2012).

Although, the studies highlighted above were conducted among students, the study on secondhand smoking in Nigeria is not well documented, most especially on students in higher institutions. Nonetheless, there is a study conducted to determine the prevalence and correlation of secondhand smoke exposure among 585non-smoking adults in two Nigerian cities (Enugu north and Enugu east Local Government areas in Enugu city and Ilorin west Local Government area in Ilorin city), this indicated that, 38.8% had regular exposure to SHS, mostly in public places (24.4%). More men were exposed at public places when compared with women (27.0% versus 19.5%) and the strongest factor associated with exposure to SHS in women was having a spouse who smokes with a prevalence rate of -7.76 and in men it was lack of smoking restrictions at home with a prevalence rate of -6.35 (Desalu, Onyedum, Adewole, Fawibe and Salami, 2011).

In Nigeria, limited studies have been conducted on secondhand smoke exposure among young people, therefore, it is crucial to investigate the level of knowledge, attitude, and the prevalence of secondhand smoking among them; and the factors that influence their exposure to secondhand smoke; hence, this study among undergraduate students of University of Ibadan.

1.2 Justification of the study

Studies that have been carried out on knowledge and attitude towards secondhand smoking among students, showed that they are knowledgeable about the health consequences of secondhand smoking but their attitudes do not reflect this (Gharaibeh, Haddad, Alzyoud, El-Shahawy, Abu-Baker and Umlauf, 2011; Haddad, Baker, El-Shahawy, Al- Ali and Shudayfat, 2013). However, none of this studies focused on students' knowledge and attitude in Nigeria. Therefore, this study will provide needed evidence in this direction.

The prevalence of secondhand smoking has been studied by Barbouni, Hadjichristodoulou, Mirakou, Antoniadou, Korea, Miloni, Warren, Rahiotis and Kremastinou (2012) and Inandi, Caman, Aydin, Onal, Kaypmaz, Turhan, Erguder and

Warren (2013). In Nigeria, Desalu, Onyedum, Adewole, Fawibe and Salami (2011) studied the prevalence and correlation of secondhand smoke exposure among 585non-smoking adults in two Nigerian cities (Enugu north and Enugu east Local Government areas in Enugu city and Ilorin west Local Government area in Ilorin city). However, none of these studies looked at the prevalence of secondhand smoking among students in Nigeria, therefore, this study will provide information on the prevalence of secondhand smoking among students in Nigeria.

In addition, the information generated from this study will help policy makers appreciate the necessity to create laws that would prohibit smoking in public places or enhance the creation of smoke free sections in public places. Also, it would enable the general public to appreciate and adopt the rationale behind the tobacco control bill signed into law on May 27, 2015 by the then President of Nigeria.

This study will also contribute to the growing literature on secondhand smoking since there is a dearth of studies investigating the knowledge, attitude and prevalence of secondhand smoking in Nigeria.Furthermore, this study will serve as a point of reference for future researchers who wish to conduct further research work in this field.

1.3 Research questions

The research questions framed to guide the study were as follows:

1) What is the level of knowledge of undergraduate students of University of Ibadan on secondhand smoking?
2) What are the attitudes of undergraduate students of University of Ibadan towards secondhand smoking?
3) What is the prevalence of secondhand smoke exposure among undergraduate students of University of Ibadan
4) What are the factorsinfluencingundergraduate students'exposure to secondhand smoking?
5) What is the self-efficacy of undergraduate students of University of Ibadan in preventing secondhand smoking?

1.4 Research objectives

The **Broad objective**of this study is to investigate the knowledge, attitude and prevalence of secondhand smoking among undergraduate students of University of Ibadan.

Specific objectives:

The specific objectives of this study were to:

1) Assess the knowledge of undergraduate students of University of Ibadan on secondhand smoking.
2) Describe the attitudes of undergraduate students of University of Ibadan towards secondhand smoking.
3) Determine the prevalence of secondhand smoke exposure among undergraduate students of University of Ibadan.
4) Identify factorsinfluencingundergraduate students' of University of Ibadan exposure to secondhand smoking.
5) Determine the self-efficacy of undergraduate students of University of Ibadan in preventing secondhand smoking.

1.5 Research hypotheses

1) There is no significant difference in the proportion of male and female respondents that are exposed to secondhand smoking.
2) There is no association between residence of respondents and their exposure to secondhand smoke.
3) There is no association between the knowledge of the respondents and their attitude towards secondhand smoking
4) There is no association between the residence of respondents and their exposure to secondhand smoke in the last 30days

CHAPTER TWO

LITERATURE REVIEW

2.1 Smoking

Smoking is the inhalation of the smoke of burning tobacco encased in cigarettes, cigars and pipes. A smoker is a person who smokes at least one cigarette a week. Smoking remains the main cause of preventable disease and premature death in the world (Bristol Public Health, 2010).

There are about 1.3 billion smokers in the world and approximately 80% of them live in developing countries. Previous studies on the burden of tobacco use in Nigeria had reported a prevalence of current smoking to be 31.9% in some urban areas and 17.6% in some rural areas (Desalu, Onyedum, Adewole, Fawibe and Salami, 2011). A recent study in Osogbo, Osun state to assess the prevalence and characteristics of cigarette smokers among the residents reported that 8.7% of their study participants were current smokers (Adepoju, Olowookere, Adeleke, Afolabi, Olajide and Aluko, 2013).It is also estimated that each year around 207,000 children in the United Kingdom start smoking.(Hopkinson, Lester-George, Ormiston-Smith, Cox and Arnott, 2013).

2.2 Secondhand Smoking

Secondhand smoke (SHS) exposure is a potentially preventable environmental pollutant that remains a major global public health concern, this is due to the high prevalence of smoking, since smoking does not only affect the smoker but also non-smokers exposed to the smoke. Cigarette smoking is the main source of SHS exposure, because it is the most prevalent form of tobacco smoking, although specific patterns differ between countries. Callinan, Clarke, Doherty and Kelleher (2010) defined secondhand tobacco smoke as the combination of sidestream smoke, that is smoke that is emitted between puffs of burning tobacco and mainstream smoke, that is smoke that is exhaled by the smoker, while secondhand smoking is inhaling other people's cigarette smoke.

Cigarettes give off two types of smoke: first the mainstream smoke, which is filtered by the cigarette and inhaled by the smoker; and the second is the sidestream smoke, which goes directly from the end of the cigarette into the air, since it is not filtered, it contains a higher concentration of harmful substances than the mainstream smoke. Therefore, it is potentially more dangerous to non-smokers, especially when they are exposed to it for long periods of time. Tobacco smoke from cigarettes contains thousands of chemicals that are released during burning as gases, vapours and particles. Mainstream smoke emitted as SHS is composed primarily of carbon monoxide (3–11%), particles (15–43%) and nicotine (1–9%) (Baker and Proctor, 1990 cited in Oberg, Taakkota, Pruss-ustun, Schweizer and Woodward, 2010). Worldwide, an estimated 33% of male non-smokers, 35% of female non-smokers and 40% of children are exposed to SHS (Oberg, Jaakkola, Woodward, Peruga and Pruss, 2011).

Exposure to SHS can take place in homes, workplaces, schools, restaurants or other environments that are accessible to the public (e.g. bars and public transports). The health effects associated with exposure to SHS have been well documented, among adults and children, and they include lung cancer, lower respiratory tract infections, asthma, cardiovascular disease, eye and nasal irritation, low birth weight in babies, etc. (Bristol Public Health, 2010 and Callinan, Clarke, Doherty and Kelleher, 2010).

2.3 Factors contributing to secondhand smoke exposure

Hussain (2015) investigated the prevalence of secondhand smoking among Iraqi adolescents and children as well as some factors associated with it. From the study, it was found that some of the factors that influence adolescents and children exposure to secondhand smoking were age, gender, peer influence, parental influence, lack of knowledge on the health consequences of secondhand smoking and negative attitude towards secondhand smoking. Similarly, according to a study carried out by Wang, Ma, Xu, Wang, Mei and Yang (2009) to determine the prevalence and factors contributing to household secondhand smoke exposure in China. It was reported that the factors correlated with household secondhand smoke exposure were gender, age, marital status, educational level, occupation, secondhand smoke exposure health risk knowledge, tobacco control policies advocacy status and household smoking restriction status. It stated that people's knowledge about the harm of secondhand

smoking, their attitude towards tobacco control and smoke free policies were fundamental factors in reducing secondhand smoke exposure.

Furthermore, a study conducted by Desalu, Onyedum, Adewole, Fawibe and Salami (2011) to determine the prevalence and correlates of secondhand smoke exposure among non-smoking adults in two Nigerian cities indicated that factors associated with exposure to secondhand smoking among women at any location were: having a smoking spouse, residing in slum apartment and lack of home smoking restrictions. Among men, secondhand smoking exposure at any location was associated with lack of secondary school education, residing in slum apartment, living with a smoking family member (non-spouse), lack of home smoking restriction and alcohol intake. Also, the study identified lack of non-smokers sections in public places and workplaces as factors influencing people's exposure to secondhand smoking. In summary, the main factors influencing people's exposure to secondhand smoking documented in previous studies were: age, gender, marital status, occupation, peer influence, parental influence, lack of knowledge on the health consequences of secondhand smoking, negative attitude towards secondhand smoking, tobacco control policies advocacy status, household restriction status, residing in slum apartments, lack of non- smokers sections in public places, workplaces, among others.

2.4 Secondhand smoking and non-communicable diseases

Tobacco use is a risk factor for four of the 10 main causes of deaths in Africa, and its use and dependence among the majority of adult smokers usually begins during adolescence. (Reshma and Toshiko, 2015) it was also reported that almost 6 million people die from tobacco each year, both from direct tobacco and second hand smoke (Ekpeyong, Udokang, Akpan, and Samson, 2012).A report of the Surgeon General Atlanta, referred to by Keshavarz, Jafari, Khami, and Virtanen (2013) equally affirms that conclusive evidence exists about the association between passive smoking and several life-threatening diseases such as lung cancer, coronary heart disease, and sudden infant death syndrome.

Some of the Non communicable diseases(NCDs) that are associated with exposure to secondhand smoking are:

Lung Cancer: The International Agency for Research on Cancer (IARC) in 2004 established that a non-smoker living with a smoker has a significantly increased risk of lung cancer, by approximately 24% for women and 37% for men. It also reported that studies of non-smokers exposed to SHS in their workplace show an increased risk of lung cancer of the order of 16% to 19% compared to people not exposed and the exposure-response relationship from living with a smoking spouse and the development of lung cancer. The non-smoking spouse risk of developing lung cancer increased with the years spent living with the smoker and the number of cigarettes the smoker consumed. (International Agency for Research on Cancer [IARC], 2004) Similarly, the 2006 US Surgeon General's report and review of the evidence concluded a causal link between SHS exposure and lung cancer, with the risks of developing lung cancer increasing by between 20-30% for non-smokers who live with a smoker. More recently, a systematic review of 20 papers published in 2011 reported an increased risk of lung cancer of 25% among those exposed to SHS in the workplace (ASH, 2014).

Cardiovascular diseases: Secondhand smoke exposure causes coronary heart disease in adults, increasing the risk of disease by approximately 25–30% (U.S. department of health and human services, 2010). Exposure to SHS increases blood platelet activity, causing the blood to thicken and become more likely to clot. The tobacco smoke also affects cells lining the coronary arteries, contributing towards the narrowing of the arteries. This reduction in blood flow may lead to a heart attack. A small study in 2001 concluded that even half an hour of exposure to SHS can reduce coronary blood flow (Otsuka, Watanable and Hirata cited in Action on Smoking and Health report, 2014). The Institute of Medicine in the United States confirms that exposure to SHS is a cause of heart disease in non-smokers (Board on population health and public health, 2010).

A review and meta-analysis of 20 studies published in 2011 established a strong, dose dependent association between exposure to SHS and risk of stroke. SHS exposure was associated with an increased risk of stroke of 25% and rose to 56% in those with high levels of exposure of 40 cigarettes per day. It was stated that even at very low levels of secondhand smoking, the risk of stroke was disproportionately high suggesting that there is no safe level of exposure to tobacco smoke (Oono and Mackay, 2011).

Chronic respiratory symptoms: The IARC research showed that the strongest causal effect of SHS exposure is chronic respiratory symptoms in adults. Although, research on the link between SHS exposure and asthma has mainly focused on childhood asthma, the US Surgeon General's report found a link between SHS exposure and exacerbation of acute respiratory symptom in adults with asthma (Action on Smoking and Health report, 2014). Also, IARC reported that studies have shown that people with allergies and asthma experience more nasal symptoms, headaches, cough, wheezing, sore throat, hoarseness, eye irritation and aggravation of asthma symptoms due to exposure to SHS (IARC, 2004 cited in Action on Smoking and Health report, 2014).

Diabetes: from a previous study by Houston, Person and Pletcher, Lui, Iribarren and Kiefe (2006) cited in ASH (2014) who assessed whether active and passive smokers are more likely than non-smokers to develop clinically relevant glucose intolerance or diabetes using prospective coronary artery risk development in young adults cohort study reported an increased risk of glucose intolerance (a precursor to diabetes) from SHS exposure over a 15 year time period. The incidence of glucose intolerance amongst young adults was 17% among non-smokers exposed to SHS compared to 12% not exposed to SHS. Also, a review and meta-analysis observed passive smoking to significantly increase the risk of type-2 diabetes by 28% (Wang, Ji, Lui, Deng and He, 2013).

2.5 Knowledge and attitudes towards Secondhand Smoking

Gharaibeh, Haddad, Alzyoud, El-Shahawy, Abu-Baker and Umlauf (2011) conducted a study to assess the knowledge, attitudes, and avoidance behaviour towards SHS exposure among employed Jordanian women with higher education. A total of 209 women were included in the analysis. Two questionnaires regarding SHS exposure were used to measure knowledge, attitudes and avoidance practices. From the study, it was documented that almost all the women in the study (97.6%) perceived SHS exposure as dangerous to the health of the exposed non-smoker, although, the percentage decreased slightly (92.9%) when subjects were asked about the association of SHS exposure and lung cancer in non-smokers. Majority of respondents had good knowledge of the SHS negative health impacts on children. They either agreed or

strongly agreed on the proposed negative health effects of SHS exposure on children. This included asthma (89.9%), general child's health (89.9%), allergies (83.7%), heart attacks (70.8%), low birth weight (85.2%) crib death (Sudden Infant Death Syndrome, SIDS) (68.9%) and ear infections (68.4%). On the other hand, respondents attitudes towards SHS exposure documented was that only 17.7% of women expressed that they will not let their "visitors" smoke in their house and 47.8% of respondents expressed that they would ask "people" around them to put out their cigarettes.
The results suggested that although respondents had good knowledge of the health consequences of SHS, their attitude and avoidance behaviour did not reflect this.

Haddad, Baker, El-Shahawy, Al- Ali and Shudayfat (2013) used a descriptive cross-sectional design to assess secondhand smoke exposure, knowledge, attitudes, and avoidance behaviours, as well as policy agreements related to SHS among university students in the northern part of Jordan. A convenience sample of 800 university students from three public universities participated in the study. Four questionnaires: the Socio demographic Questionnaire, the Household SHS Exposure Questionnaire, the Knowledge and Attitudes toward SHS Exposure Questionnaire, and the Avoidance of SHS Exposure Scale were used for data collection. Findings showed that SHS exposure among non-smoking university students was 96%. In addition, the mean hours of exposure per day was 4.64±4.28, and the mean days of exposure per week was 5.14±2.1. It stated that students had knowledge on the negative effects of SHS on adults and children, they either agreed or strongly agreed with the described negative health effects of SHS exposure on adults. This included general adults' health (66.2%), heart and lung disease (75.5%), shortening of people's lives (90.3%), and low infant birth weight (61.2%). But the attitude of students was not very positive towards avoidance of SHS, only 38% of the students expressed that they will not let visitors smoke in their homes and 50% of the students expressed that they would ask people around them to put out their cigarettes. Based on the results, it can be seen that despite the good knowledge of the negative effects of SHS, students' attitude and avoidance behaviour is still low. Therefore, there is need for an educational and behavioural intervention.

Keshavarz, Jafari, Khami, and Virtanen (2013) investigated the prevalence of passive smoking among Iranian dental students and assessed their attitudes towards tobacco

control programs, in other to explore the association between these two and tobacco use. In eight randomly selected dental schools, 325 fourth-year students were surveyed by means of a self-administered anonymous questionnaire in December 2010. From the data analysed they found out that exposure to Environmental Tobacco Smoke (ETS) was reported by 74% of the participants. Men were significantly more exposed to ETS at home, and in other places than were women. Most of the students agreed on queried tobacco control policies. The lowest agreement (72%) was for banning smoking in coffee shops and teahouses. A logistic regression model showed that adjusted for gender, passive smoking at home is significantly associated with current tobacco use. A linear regression model suggested that the total score of attitudes is significantly associated with passive smoking at home, passive smoking in other places and current tobacco use. The study reported high exposure to ETS among dental students, and its association with current tobacco use and attitudes towards tobacco control.

Mishra, Thind, Gokarakonda, Lartey, Watkins and Chahal (2011) carried out a study to examine the attitudes and perceptions of faculty staff and students concerning tobacco policies at a university campus in a tobacco producing state. A questionnaire was used to assess knowledge, attitudes and beliefs related to smoking and exposure to secondhand smoke on campus. A total of 2,914 respondents participated in the study, results from the study showed that majority of the respondents, perceived secondhand smoke as harmful to health. Specifically, 89% of respondents agreed or strongly agreed that secondhand smoke was harmful to their health, and 86% of them believed it increased their chances of developing lung cancer. Whereas 44% believed avoiding secondhand smoke on campus was not difficult and 60% of respondents agreed or strongly agreed that the university administration was responsible for protecting the campus community from secondhand smoke.

2.6 Prevalence of secondhand smoking

Inandi, Caman, Aydin, Onal, Kaypmaz, Turhan, Erguder and Warren (2013) conducted a school based survey of third year students (1217) in 12 medical schools to assess medical students' tobacco use, exposure to secondhand tobacco smoke and opinion as well as smoking policies at medical faculties in Turkey. From the data analysed, the prevalence of current tobacco use among respondents

was 28.5% and students exposed to secondhand smoke in the last seven days before the study was 46.9% at home and 42.2% in other places. This indicated that the exposure to SHS among medical students was high.

The Ministry of health Turkey Global Adult Tobacco Survey (GATS) reported that 30.5 million adults (59.7%) in Turkey were living in homes where smoking was allowed, including 19.5 million non-smokers. The same study showed that over 10 million non-smokers were living in homes where someone smoked indoors at least daily.

According to a study carried out among employed Jordanian women with higher education in Jordan, it was found out that most respondents were regularly exposed to SHS in various locations during daily life, even though they were very knowledgeable about the dangers of SHS exposure for women and children. The non-cumulative percentage among women who reported exposure was 20% in educational facility, 29% in private worksite, 60% in homes, 40% in government worksite, 45% in transportation, 53% in restaurant or bar and 55% in homes of others. From the data reported it was apparent that women were mostly exposed in their homes (Gharaibeh, Haddad, Alzyoud, El-Shahawy, Abu-Baker and Umlauf, 2011).

Cai, Wu, Goyal, Han, Cui, He, Xiao, Zhao, Jiao and Song (2013) used a cross-sectional survey to examine contextual and individual demographical predictors of smoking and exposure to second-hand smoke among 4120 respondents in a tobacco-cultivating rural area of Southwest, China. Findings from the study revealed that the prevalence of current smoking among men ages 18 – 34 years was 64.4% while men ages 65 and above was 52.9%. Also, the prevalence of current smoking among women ages 18- 34 years was 0.0% while that of women ages 65years and above was 1.3%. The prevalence of current smoking was high among men than women. Prevalence of exposure to second-hand smoke was high for both men and women with 74.3% among men ages 18-34 years and 71.7% for men above 65 years. Similarly, women ages 18 – 34 years hand a prevalence of SHS exposure of 72.4% and 59.8% for women above 65 years. From the results, it can be seen that men are more likely to smoke than women and they are also more likely to be exposed to second-hand smoke.

Barbouni, Hadjichristodoulou, Mirakou, Antoniadou, Korea, Miloni, Warren, Rahiotis and Kremastinou (2012) conducted a Global Health Professions Student Survey (GHPSS) to obtain information regarding health profession students' smoking habits and perceptions, exposure to secondhand smoke (SHS) as well as level of knowledge and training on tobacco use and smoking cessation counselling. GHPSS is a survey for third-year students in the following fields: health visitors, dentistry, medicine, nursing and/or pharmacy. From the study the prevalence of students exposed to SHS were 21.5% among medical students, 20.9% among dental students, 16.3% among pharmacy students, 23.7% among nursing students, 33.3% of health visitor students and 28.8% of nutrition students reported SHS exposure at home on each of the past seven days. Among health visitor students, 53.3% reported that they had been exposed to SHS in public places on each of the past seven days. Similarly, 46.3% of dental, 4.2% among pharmacy students, 39.6% among medical students, 30.3% among nutrition students and 28.3% among nursing students reported being exposed to SHS in public places on each of the past seven days. Generally, most of the students were exposed to secondhand smoke in school or in public places.

Desalu, Onyedum, Adewole, Fawibe and Salami (2011) used a cross sectional study to determine the prevalence and correlation of secondhand smoke exposure among non-smoking adults in two Nigerian cities (Enugu north and Enugu east Local Government areas in Enugu city and Ilorin west Local Government area in Ilorin city). From the data analysed, among 585 non-smoking adults that completed the study, 38.8% had regular exposure to SHS, mostly in public places (24.4%). More men were exposed at public places when compared with women (27.0% versus 19.5%). The strongest factor associated with exposure to SHS in women was having a spouse who smokes with a prevalence rate of -7.76 and in men it was lack of smoking restrictions at home with a prevalence rate of -6.35. More than two third (72.0%) of respondents were aware of the harmful effects of SHS on the health. From the results, prevalence of SHS exposure was the highest in public places, hence the need for enactment of comprehensive smoke free legislation and implementation of educational strategies to reduce SHS exposure in homes.

2.7 Conceptual framework

Conceptual framework are essential statements or theories identifying factors that are likely to produce particular results under specified conditions. Theories aim at identifying and helping us understand elements that affect seemingly diverse classes of behaviours and tell us how the elements function. In this study, the Precede framework was adopted to provide clear explanation of how the important variables were linked.

2.7.1 PRECEDE framework

Lawrence W. Green and colleagues in 1974 propounded the PRECEDE - PROCEED model. This was to aid health program planners, policy makers, and other evaluators analyse situations and design health programs efficiently (Green and Kreuter, 2005). The PRECEDE (Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation) component of the model is used for planning health programmes while the PROCEED (Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development) is used for evaluating health programmes. However, for the purpose of this study only the PRECEDE component of the model was considered.

PRECEDE framework emphasizes the importance of careful preparation before any intervention program is launched, and comprises a diagnostic approach for deciding what type of intervention is likely to be useful in altering behaviour, and then for assessing its likely impact. It consists of five planning phases:

a) Phase 1 - Social Diagnosis
b) Phase 2 – Epidemiological diagnosis

c) Phase 3 - Behavioural and Environmental Diagnosis
d) Phase 4 - Educational and Ecological Diagnosis
e) Phase 5 - Administrative and Policy Diagnosis

Social diagnosis: The first stage in the program planning phase deals with identifying and evaluating the social problems that have an impact on the quality of life of a population of interest. During this stage, the program planners try to gain an understanding of the social problems that affect the quality of life of the community and its members, their strengths, weaknesses, and resources; and their readiness to change.

Epidemiological diagnosis: epidemiological assessment deals with determining and focusing on specific health issue(s) of the community.

Behavioural and environmental diagnosis: these are factors related to prioritized health needs of the community. Based on these priorities, achievable program goals and objectives for the program being developed are then established.

Educational and ecological diagnosis: once the behavioural and environmental factors are identified and interventions are selected, planners can start to work on selecting factors that if modified will most likely result in behaviour change, and can sustain this change process. These factors are classified as predisposing factors, enabling factors, and reinforcing factors.

a) **Predisposing factors**: these are any characteristics of a person or population that facilitates or hinders motivation for behaviour change. They include an individual's knowledge, beliefs, values, attitudes and self-efficacy beliefs.
b) **Enabling factors**: these are those characteristics of the environment that facilitate or oppose action and any skill or resource required to attain specific behaviour. They include programs, services, availability and accessibility of resources, or new skills required to enable behaviour change.
c) **Reinforcing factors**: these are rewards or punishments following or anticipated as a consequence of a behaviour. They serve to strengthen the motivation for behaviour. Some of the reinforcing factors include social support, peer support or pressure and family influences.

Administrative and policy Diagnosis: administrative Diagnosis assess policies, resources, circumstances, prevailing organizational situations that could hinder or facilitate the development of the health program. Policy Diagnosis assesses the compatibility of the program goals and objectives with those of the organization and its administration. Figure 2.1 presents the PRECEED conceptual framework.

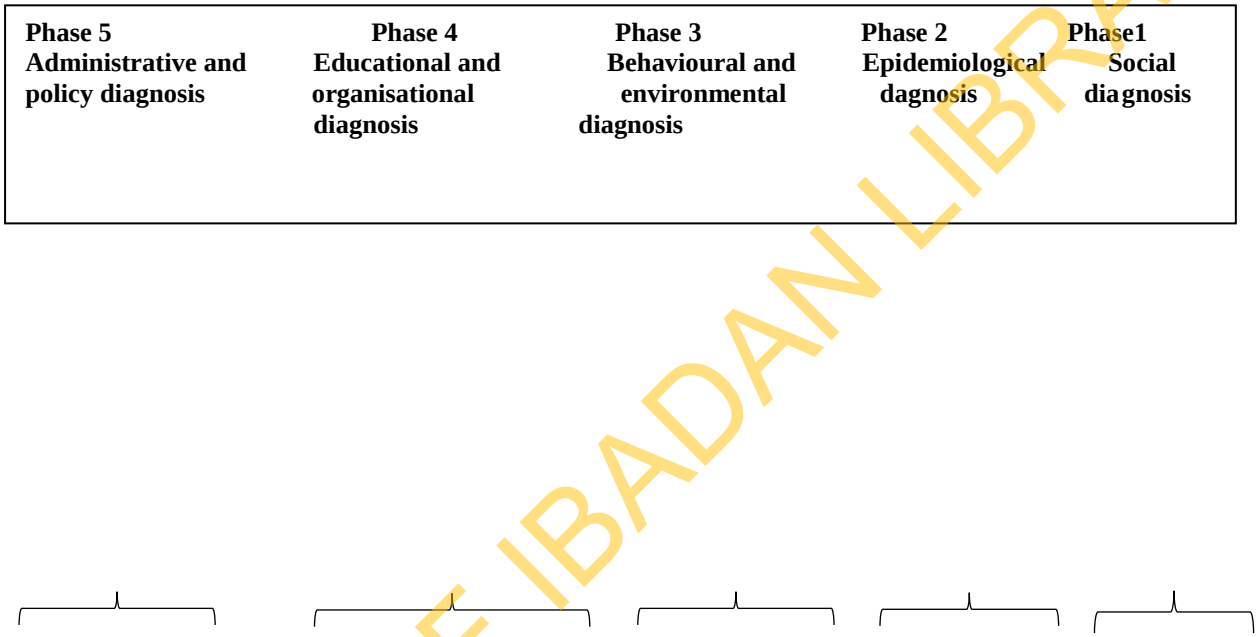


Figure 2.1: The PRECEDE Conceptual Framework(Source: Aldiabat and Navenec, 2013)

2.7.2 Application of the PRECEDE framework to the study

In this study the main focus of the framework was the use of the educational and ecological diagnosis to outline and describe the behavioural antecedent factors that influences undergraduate students' exposure to secondhand smoke. This included: Predisposing factors, Enabling factors and Reinforcing factors.

Predisposing factors: within the context of this study, knowledge, attitude and self-efficacy in preventing secondhand smoking were referred to as predisposing factors.Applying this framework to the study, the researcher asked questions about students' knowledge on the health consequences of secondhand smoking and places people can be exposed to secondhand smoke, students' attitude towards secondhand smoking and students' self-efficacy in preventing secondhand smoking.

Enabling factors: These include availability of non-smokers sections in bars, sit outs and night clubs, availability and accessibility of cigarettes, socio-economic status, availability of smoking restrictions in schools and availability of smoke free polices in public places, homes and workplaces. These factors influence the establishment of the new behaviour. Some questions were asked to assess the enabling factors to secondhand smoke exposure among students in the study.

Reinforcing Factors: They are also factors subsequent to behaviour that provide perpetual rewards or incentives for the behaviour and contribute to its persistence or extraction. Examples of these factors to be considered include peer influence, family influence, mass media/television commercials, and other social support groups. Applying this to the study, the researcher asked the students, if they smoke, or had friends or family members who smoke around them. Application of the framework is illustrated in figure 2.2.

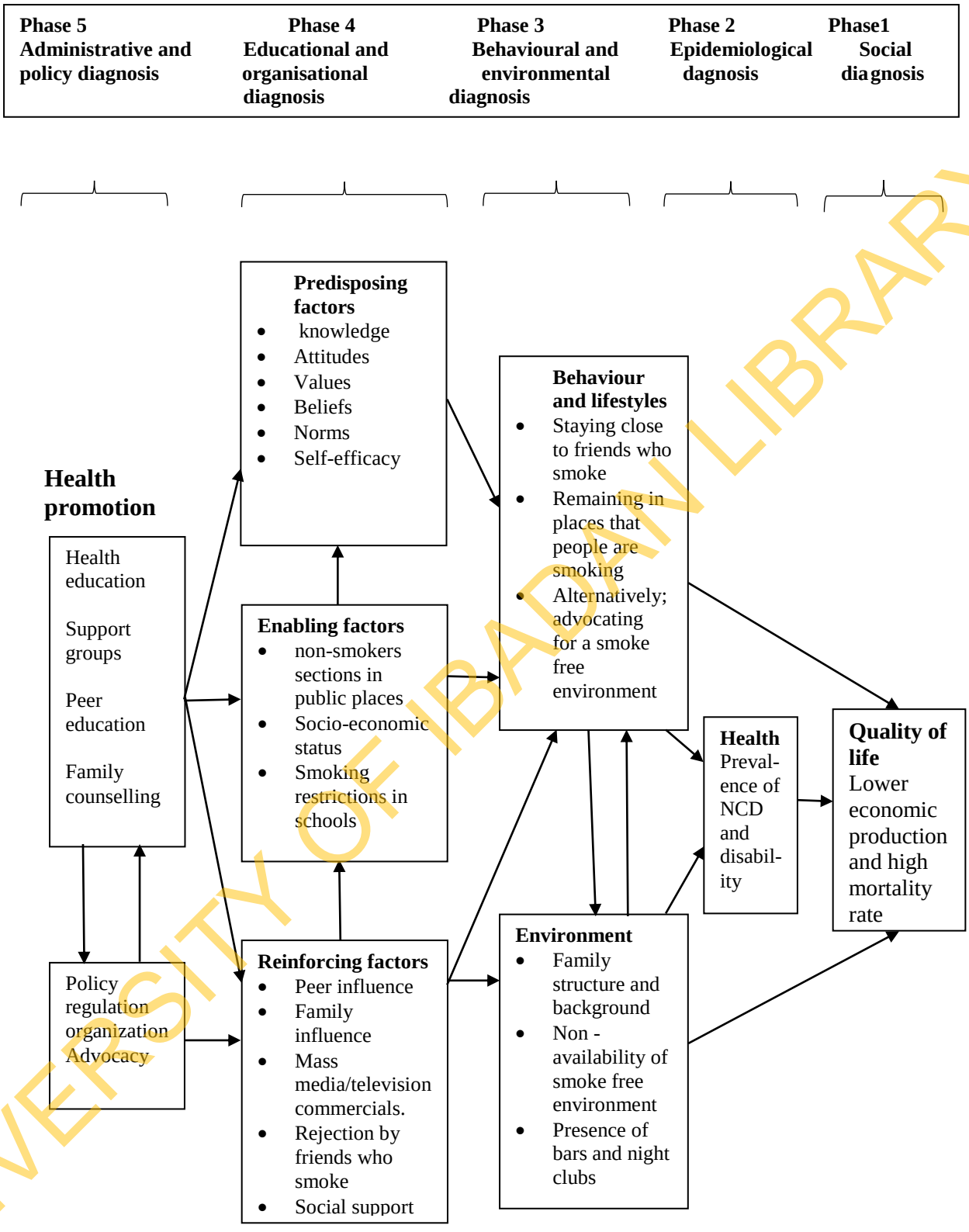


Figure 2.2: Application of PRECEDE conceptual framework to the study

CHAPTER THREE

METHODOLOGY

3.1 Study design

The study was a descriptive cross sectional design involving the use of quantitative methods to investigate the knowledge, attitude and prevalence of secondhand smoking among undergraduate students of the University of Ibadan.

3.2 Study area

This study was carried out at the University of Ibadan, Oyo state. The University of Ibadan is the oldest and one of the most prestigious Nigeria Universities located in the major city of Ibadan, in Western Nigeria. The institution was established at its permanent site in 1948 after it had been moved from Yaba College, Lagos State. The University was originally instituted as an independent external college of the University of London, when it was called University College, Ibadan. The University of Ibadan became an independent University in 1962.

Besides the College of Medicine, there are now thirteen other faculties, namely: Arts, Science, Agriculture and Forestry, Social Sciences, Education, Veterinary Medicine, Technology, Law, Public Health, Dentistry, Clinical Sciences, Basic Medical Sciences and Pharmacy, Outside the main campus ground and within the University College Hospital is the College of Medicine. The University has one hundred and fourteen (114) departments in all.

The University has 12 halls of residence, six (6) halls are occupied by male undergraduates, they are; Mellanby Hall, Tedder hall, Sultan Bello hall, Kuti hall, Nnamdi Azikiwe hall, Independence hall, two (2) halls are occupied by female undergraduates include, they are; Queen Elizabeth II hall and Queen Idia hall; Alexander Brown hall is occupied by both male and female undergraduates and Awolowo hall is by both undergraduates and post graduates while Abubakar hall and Tafawa Balewa halls are occupied by male and female postgraduate students. Some social activities which could contribute to students' exposure to secondhand smoking on campus are the presence of joints where smoking and drinking occur, organisation of variety nights, carnivals and parties during the different anniversary weeks by the

student union, department, faculty and hall representative. Also, the presence of clubs, garages, viewing centers, lounge, restaurants, hotels, joints and bars outside the school campus could also expose students to secondhand smoking.

3.3 Study variables

The independent variables consisted of the socio-demographic characteristics of the respondents which included their faculty, department, level of study, age, sex, residence, religion, ethnicity, and marital status, smoking status, smoking status of their friends and family members and information on smoking restrictions in their school.

The dependent variables were the knowledge of secondhand smoking, attitude towards second hand smoking, prevalence of secondhand smoking, factors influencing respondents' exposure to secondhand smoking and self-efficacy of respondents in preventing secondhand smoking.

3.4 Study population

The study population consisted of undergraduate students of the University of Ibadan who were presently admitted for full-time academic programmes at the institution during the time of the research.

Inclusion criteria

Only the undergraduate students of the University of Ibadan, who had full-time programme status and consented to participating were included in the study.

Exclusion criteria

The study excluded postgraduate students as well as part-time or distant learning students and eligible students who declined participation.

3.5 Sample size determination

The sample size (n) was determined by using sample size formula:

$$n = \frac{Z^2 p(1-p)}{d^2}$$ (Bamidele, 2009)

Where n= minimum sample size required

Z= confidence limit of survey at 95% (1.96)

P= Proportion of people exposed to secondhand smoking = 38.8% (Desalu, Onyedum, Adewole, Fawibe and Salami, 2011)

d=absolute deviation from true value (degree of accuracy) = 5%

$n = \frac{1.96^2 \times 0.388 \times 0.612}{0.05^2} = 364.89$ approximately = 365

Therefore, the minimum sample size estimate for the study was 365

A non-response rate of 10% of 365 = $\frac{365 \times 10}{100} = 36.5$

was added to the minimum sample size to increase the precision of the study and to compensate for possible cases of loss and rejection of questionnaire due to poor filling. Hence, the sample size used for the study was 402.

3.6 Sampling procedure

A multistage sampling technique involving four stages was used to select 402 respondents from the undergraduate students' population for the study as follows:

Stage 1: The University of Ibadan has 13 faculties that cater for undergraduate students, 6 out of which represent about 50% of the faculties were selected by simple random sampling through the use of ballot technique. The six selected faculties were Arts, Social science, Technology, Science, Education and Basic medical science.

Stage 2: There are 46 departments across the six selected faculties as shown in table 3.1. To ensure that departments were adequately represented, one third of the total number of the departments, which are approximately 15 departments were used for the study. The departments to be selected from each faculty was calculated proportionately and simple random sampling by balloting was used to select the required number of departments from each faculty. The calculated proportion and the departments randomly selected from each faculty are represented in table 3.2 and table 3.3 respectively.

The proportion of departments for each faculty =

$\frac{\text{Total number of departments in the faculty}}{}$ x Total number of departments required

Total number of departments in the 6 selected faculties

Where total number of departments required is 15 and total number of departments in the six selected faculties is 46.

Stage three: The number of respondents to be selected from each department was determined by using the proportionate sampling technique. The number of students in each of the selected departments was obtained from the Academic Planning Unit of the university and was used to calculate the proportion of respondents to be assigned to each department. The total number of students in the fifteen (15) selected departments were three thousand two hundred and forty nine (3249), Table 3.4 shows the proportion of respondents calculated for each department.

The proportion of respondents for each department =

$$\frac{\text{Total number of students in the departments}}{\text{Total number of students in all the selected departments}} \times \text{Sample size}$$

Stage four:The final sampling stage involved selection of the required number of students from each department. From the sample frame individual respondents were selected using systematic sampling technique.

Table 3.1 List of departments in the six selected faculties

S/N	Faculties						
	Arts	Social Science	Science	Technology	Basic Medical Science	Education	
1	Archaeology &Anthro-pology	Economics	Archaeology &Anthro-pology	Agricultural engineering	Physiology	Adult education	
2	Arabic& Islamic studies	Geography	Botany	Wood products engineering	Bio-chemistry	Teacher education	
3	Classics	Political science	Chemistry	Civil engineering	Medical laboratory science	Special education	
4	Comm. Language arts	Psychology	Computer science	Electrical Electronics engineering		Education manage-ment	
5	English	Sociology	Geology	Food technology		Guidance & counselling	
6	History		Geography	Industrial engineering		Library, archival & info. Studies	
7	Linguistics & African language		Mathematics	Mechanical engineering		Human kinetics & health education	
8	European studies		Microbiology	Petroleum engineering			
9	Music		Physics				
10	Philosophy		Statistics				
11	Religious studies		Zoology				
12	Theatre arts						
	Total 12	5	11	8	3	7	= 46

Source: Academic planning unit, University of Ibadan

Table 3.2 Proportion of departments calculated from each faculty

S/N	Faculty	Proportion calculated	Departments required (n)
1	Arts	12 x 15 = 3.9 46	4
2	Social science	5 x 15 = 1.6 46	2
3	Technology	8 x 15 = 2.6 46	3
4	Basic medical science	3 x 15 = 0.9 46	1
5	Science	11 x 15 = 3.6 46	3
6	Education	7 x 15 = 2.2 46	2
	Total		15

Table 3.3 Randomly selected departments from each faculty

S/N	Faculty	Department
1	Arts	Classics English Theatre arts Linguistics& African language
2	Science	Botany Computer science Geology
3	Technology	Civil engineering Electrical/ Electronics engineering Food technology
4	Education	Guidance and counselling Teacher education
5	Social science	Economics Political science
6	Basic medical science	Physiology

Table 3.4 Proportion of respondents calculated for each departments

S/N	Department	Proportion calculated	Students required (n)
1	Classics	99/3249 x 402 = 12.3	12
2	English	218/3249 x 402 = 26.9	27
3	Theatre Arts	202/3249 x 402 = 24.9	25
4	Linguistics and African lang.	195/3249 x 402 = 24.1	24
5	Botany	126/3249 x 402 = 15.6	16
6	Computer science	296/3249 x 402 = 36.6	37
7	Geology	161/3249 x 402 = 19.9	20
8	Civil engineering	186/3249 x 402 = 23.0	23
9	Electrical/ electronics	208/3249 x 402 = 25.7	26
10	Food technology	143/3249 x 402 = 17.7	18
11	Guidance and counselling	257/3249 x 402 = 31.8	32
12	Teacher education	333/3249 x 402 = 41.2	41
13	Economics	303/3249 x 402 = 37.4	37
14	Political science	301/3249 x 402 = 37.2	37
15	Physiology	221/3249 x 402 = 27.3	27
	Total		402

3.7 Instrument for data collection

A semi structured self-administered questionnaire was developed for data collection. The questionnaire was developed using information obtained from literatures on knowledge of students on second hand smoking, attitude of students towards second hand smoking, prevalence of secondhand smoking among students, factors influencing students' exposure to secondhand smoking and self-efficacy of students in preventing secondhand smoking. The questionnaire was divided into five sections (A-E) which were: section A – the socio demographic characteristics of respondents; section B – knowledge of respondents on secondhand smoking; section C – attitude of respondents towards secondhand smoking; section D – prevalence of secondhand smoking among respondents; section E – factors influencing respondents' exposure to secondhand smoking; section F – self-efficacy of respondents in preventing secondhand smoking.

3.8 Validity of instrument

Validity of the instrument was ensured through the development of a draft instrument by consulting relevant literature guided by the research objectives and adopting questions from relevant questionnaires of researches related to the study. The instruments was further validated by giving them out to peers and lecturers in the department for review and corrections. The final validation was done by the project supervisor.

3.9 Reliability of instrument

The draft instrument for data collection was pre-tested among students of The Polytechnic, Ibadan. A total number of 40 students which makes up 10% of the sample size was assessed using a semi- structured questionnaire; this was coded and analysed using statistical package for social science (SPSS version 20) software. Thereafter, the questionnaires were subjected to a measure of internal consistency using the Cronbach's Alpha model technique. The Cronbach's Alpha test was applied to it to determine the reliability co-efficient. The value obtained was 0.7 which was close to one, hence the instrument was found to be reliable.

3.10 Procedure for data collection

Two research assistants were trained to administer and retrieve the questionnaires. The research assistants were given adequate training about the objectives of the research project, data collection process, sampling procedures, and the content of the questionnaire to avoid probable mistakes that may affect the results of the study. Respondents were given an explanation about the purpose and objectives of the study before being asked for informed consent and to fill the questionnaire. The researcher provided adequate supervision to the research assistants and also participated in data collection. The research assistants submitted the filled questionnaires to the researcher daily. The data collection process lasted for a period of two (2) weeks, from September 21, 2015 to October 5, 2015, excluding Saturdays and Sundays.

Challenges encountered during this period were: first, some lecturers changed the time and the venue of their classes; second, sometimes students were requested to leave the lecture venue immediately after some of their classes for some other lecture to take place, and finally, some of the students were uncooperative.To surmount this challenges we worked closely with the class representatives, first, to find out if their lecture time and venue had been changed and the new time and venue allocated for the course; second, to enquire when they had a free venue immediately after a lecture and were also free at that time, since, this meant that most of them will remain in the class after the lectures and the questionnaires could be administered. Finally, uncooperative students wereappealed to and made to understand the importance of their participation in the study.

3.11 Ethical consideration

Ethical approval was sought from the UCH/ UI Research Ethics Review Committee. The confidentiality of each respondent was ensured both during and after data collection. There was no identifiers such as names and address of the respondents on the questionnaires, the data was stored in a computer protected by password to restrict access to it and data obtained was used for research purpose only.

During data collection, the details of the study was explained in clear terms to the respondents, only those who showed complete willingness and signed the informed

consent form participated in the study. The study was also risk free since no intervention procedure was done that could cause harm to the respondents and it was clearly stated to the respondents that they had the right to withdraw their participation at any time during the study. Furthermore, the filled questionnaires were stored in a safe place.

3.12 Data management and analysis

The researcher checked all the administered questionnaires to ensure they were completely and accurately filled. Questionnaires that were not properly filled were considered invalid and discarded, while serial numbers were assigned to the valid ones. A coding guide was developed to facilitate data entry. Each questionnaire was coded and entered into the computer for analysis. Data analysis was done using the SPSS software (version 20). Simple descriptive statistics (frequency, percentages and mean), and Inferential (Chi-square) statistics were adopted for the analysis. Cross tabulation of some of the socio demographic characteristics of the respondents, such as gender against exposure to secondhand smoking, residence of respondents against their exposure to secondhand smoke, level of knowledge of respondents against their attitude towards secondhand smoking and residence of respondents against exposure to secondhand smoking in the last 30days were done to test the hypotheses of the research.

3.13 Limitation

The limitation of the study is that the investigator relied only on what the respondents disclosed or reported, since, smoking is not a topic that is socially accepted in our society, some respondents might have not provided correct responses to some of the questions. Also, the study used a self-administered questionnaire where recall bias may have affected some responses on the prevalence of exposure to secondhand smoke, similarly, social desirability bias might have occurred too, in that respondents provide what they feel are socially desirable responses (that is the desire of the respondents to present themselves in the best possible light resulting in over-reporting of desirable behaviours and under-reporting of undesirable behaviours. Moreover, the study was conducted only among undergraduate students of the University of Ibadan and was limited to a small proportion of students due to time and financial constraint.

CHAPTER FOUR

RESULTS

This chapter presents the outcomes of the study on the knowledge, attitude and prevalence of secondhand smoking (SHS) among undergraduate students of the University of Ibadan, Oyo State. Questionnaires were administered to four hundred and two (402) students, a total of three hundred and ninety nine (399) were retrieved and four (4) questionnaires were excluded due to poor and incomplete filling. Hence, three hundred and ninety five (395) questionnaires were used for data analysis.

The findings of the study are organised into six (6) subsections:

1. The socio demographic characteristics
2. Prevalence of secondhand smoke exposure
3. Knowledge on secondhand smoking
4. Attitude towards secondhand smoking
5. Factors influencing students' exposure to secondhand smoking
6. Self-efficacy in preventing secondhand smoking

4.1 Respondents' socio demographic characteristics

A total of three hundred and ninety five (395) undergraduate students responded to the study. Table 4.1 shows the socio demographic characteristics of the students. Of the total number of respondents, 202 (51.1%) were males and 193 (48.9%) were females. The respondents' age ranged from 16 to 44 years with a mean age of 20.9±3.4, most of the respondents (46.6%) were between 16 – 20 years of age while very few (1.0%) were in the age range of above 30 years. By residence, majority of the students (71.9%) stayed on campus while others (27.8 %) stayed off campus.

Regarding religion, most of the respondents (81.8%) were Christians, while others (18.0%) were Muslims. Majority of respondents (75.9%) were from the Yoruba ethnic group, followed by Igbos (14.2%), Hausas (1.3%) and 8.0% belonged to other ethnic

groups. Nearly all the respondents (96.7%) were single with only a very few (2.3%) being married.

Overall they were more non-smokers (97.5%) than smokers (2.0 %) in the study. With respect to respondents who had friends who smoked around them, about three- quarter (75.7%) of the respondents reported not having friends who smoked around them while 23.5% of the respondents said they had friends who smoked around them. As regards members in the respondents' household who smoked around them, most of the respondents (87.1%) said they did not have household members who smoked around them, although, a few (12.2%) responded that they had members in their household who smoked around them.

Concerning the existence of smoking restrictions in the University, most of the students (69.9%) said smoking restrictions existed in the school while 26.6% of the students said there were no smoking restrictions in the University.

Table 4.1: Respondents' socio demographic characteristics (N= 395)

Variable		Frequency (n)	Percentage (%)
Faculty	**Department**		
Science	Botany	16	4.1
	Computer science	35	8.9
	Geology	22	5.6
Education	Guidance and	35	8.9
counselling		43	10.9
	Teacher education		
Arts	Classics	12	3.0
	English	23	5.8
	Theatre arts	22	5.6
	Linguistics and African-language	22	5.6
Social science	Economics	40	10.1
	Political science	34	8.6
Technology	Civil engineering	22	5.6
	Electrical and electronic-engineering	26	6.6
	Food technology	19	4.8
Basic medical science	Physiology	24	6.1
Level of study	100 level	74	18.7
	200 level	114	28.9
	300 level	158	40.0
	400 level	30	7.6
	500 level	19	4.8
Age (in years)	16 – 20 years	184	46.6
	21 – 25 years	133	33.7
	26 – 30 years	29	7.3
	31 – 35 years	2	0.5
	36 – 40 years	1	0.3
	41 – 45 years	1	0.3

Gender	Male	202	51.1
	Female	193	48.9

***Non responses were excluded**

4.2 Prevalence of secondhand smoke exposure

In the study, nearly all the respondents (93.2%) have been exposed to secondhand smoke in one location or the other, with only a few (6.3%) who have never been exposed to secondhand smoke in any location. With respect to specific locations, majority (73.4%) of the respondents reported that they had never been exposed to secondhand smoke at home, while 23.0% of the respondents said they had been exposed to secondhand smoke at their homes. More than one third (38.7%) reported to had been exposed to secondhand smoke in schools, while 59.0% of the respondents said they had never been exposed to secondhand smoking in schools. Three quarter (75.7%) of the respondents stated that they had never been exposed to secondhand smoke at workplaces, while 17.7% of the respondents said they had been exposed to secondhand smoke at workplaces. Majority (61.0%) of the respondents reported they had been exposed to secondhand smoke in public transports, while 35.4% said they had never been exposed to secondhand smoke in public transports. Majority (80.0%) of the respondents said they had been exposed to secondhand smoke in public places such as bars, night clubs, sport arena and restaurants, while only a few (17.5%) said they had never been exposed to secondhand smoke in public places. Only a few (15.2%) respondents' responded that they had been exposed to secondhand smoke in other locations such as motor parks, football field, market places, on the street, Hausa sales shops and garages. Figure 4.1 shows the prevalence of secondhand smoke exposure at various locations.

Regarding, the respondents' greatest source of exposure to secondhand smoke, majority (51.1%) reported public places such as bar, night club, sport arena and restaurants, with the least (0.3%) reported place was Hausa sale shop. The respondents were further asked when last they were around someone who smoked in the last 30 days, majority (43.3%) responded 22 to 30 days ago, 11.1% said 1 to 7 days ago, 7.6% said 8 to 14days ago, 6.3% said 15 to 21days ago and only a few (4.6%) said today. When they were asked how often they were exposed to secondhand smoke in a week, nearly half (45.8%) said zero (0) day, 15.9% said one to

two (1 – 2) days, 5.1% said three to four (3 – 4) days, 11.1% said five to six (5 – 6) days and 1.8% said they were exposed daily to secondhand smoke in a week. Furthermore, they were asked how long they stayed with the person/ people while they smoked, the severity of exposure was classified as low intensity exposure if it was less than one (1) hour, intermediate intensity exposure, if it was one to four hours and severe intensity exposure, if it was greater than four hours. Two third (65.3%) of the respondents reported low intensity exposure to secondhand smoke, 8.4 % of the respondents reported intermediate-intensity exposure to secondhand smoke while 3.8% of the respondents reported severe-intensity exposure to secondhand smoke. Table 4. 2a and table 4.2b shows the prevalence of secondhand smoke exposure at various places and secondhand exposure rate among respondents.

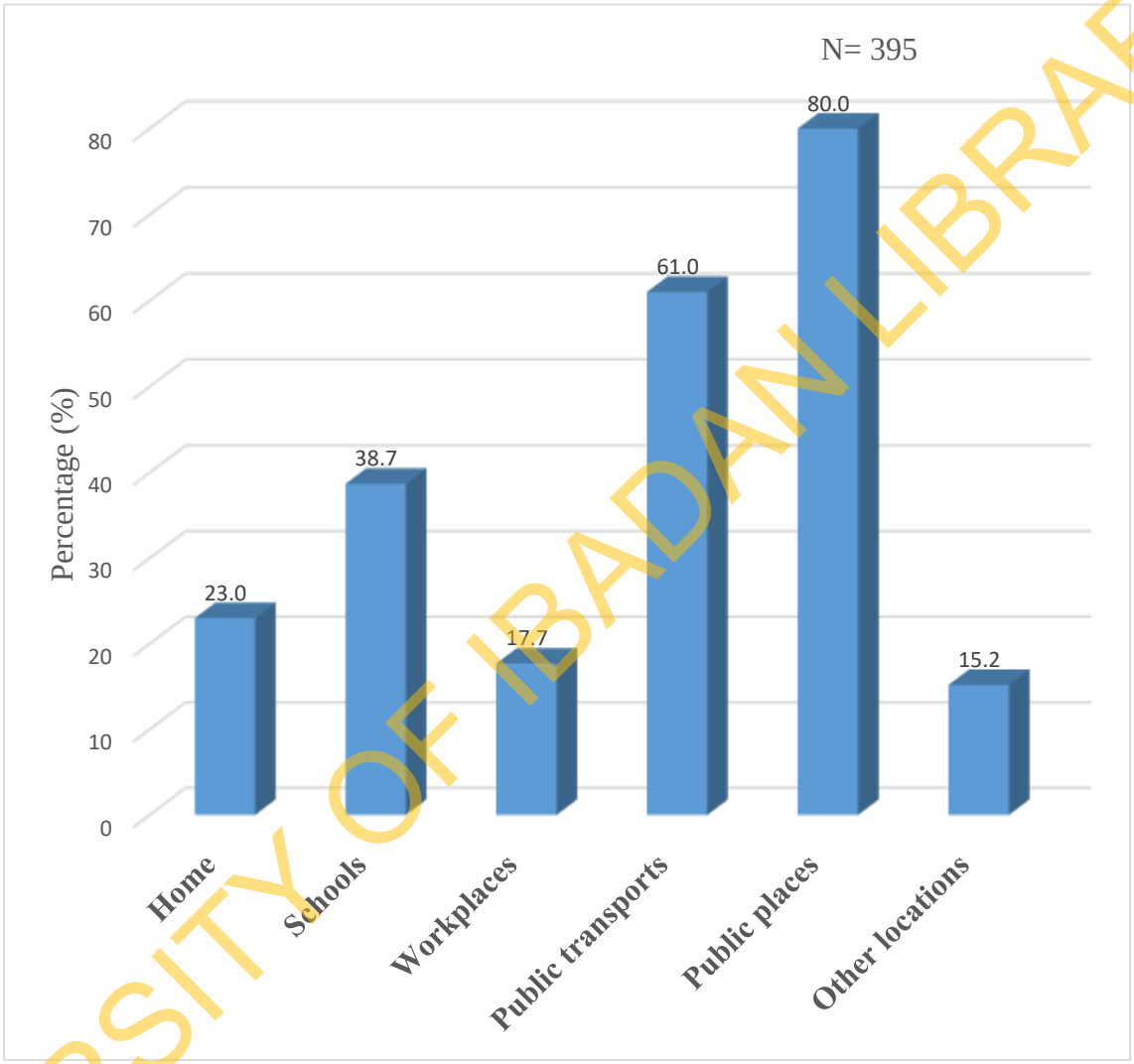


Figure 4.1 Prevalence of secondhand smoke exposure at various locations

Table 4.2a Prevalence of secondhand smoke exposure among respondents at various location (N = 395)

	Secondhand smoke (SHS) exposure	
	Yes (%)	**No (%)**
Ever been exposed to SHS in any location	368 (93.2)	25 (6.3)
Ever been exposed at home	91 (23.0)	290 (73.4)
Ever been exposed in schools	153(38.7)	233 (59.0)
Ever been exposed at workplaces	70 (17.7)	299 (75.7)
Ever been exposed in public transports	241 (61.0)	140 (35.4)
Ever been exposed in public places	316 (80.0)	69 (17.5)
Other locations	60 (15.2)	21 (5.3)
Greatest source of exposure to SHS	**Frequency (n)**	**Percentage (%)**
Public transport	57	14.4
Public places	202	51.1
Home	19	4.8
School	23	5.8
Motor park	8	2.0
Football field	1	0.3
Market	3	0.8
On the street	8	2.0
Hausa sales shop	1	0.3
Garage	3	0.8
Workplaces	3	0.8
Friend's room	3	0.8

***Non responses were excluded**

Table 4.2b Prevalence of secondhand smoke exposure among respondents (N = 395)

Prevalence	Frequency (n)	Percentage (%)
When last were you around someone who smoked in the last 30 days?		
Today	18	4.6
1 to 7days ago	44	11.1
8 to 14days ago	30	7.6
15 to 21days ago	25	6.3
22 to 30 days ago	171	43.3
How often are you exposed to secondhand smoke in a week?		
0 day	181	45.8
1 – 2 days	63	15.9
3 – 4 days	20	5.1
5 – 6 days	44	11.1
Daily	7	1.8
How long did you stay with the person / people while they smoked?		
Less than 1 hour	258	65.3
1 – 4 hours	33	8.4
Greater than 4 hours	15	3.8

***Non responses were excluded**

4.3 Knowledge on secondhand smoking

The respondents' knowledge on places that people can be exposed to secondhand smoke is presented in table 4.3a. The most frequently mentioned places were bar/ beer parlour and night club with percentages of 33.2% and 39.7% respectively. The least mentioned places which had the same percentage of 0.3% were road traffic, sports arena, uncompleted buildings, bush, graveyard, lecture halls, football field, and pedestrian walkway.

Similarly, the respondents' knowledge on health consequences of secondhand smoke is presented in table 4.3b. They were asked to mention three (3) health consequences of secondhand smoke. More than half (56.4%) mentioned lung cancer as the health consequences of secondhand smoke, followed by Heart diseases/ cardiovascular diseases (29.4%), Cough (20.8%), Asthma attack (20.3%) and Breathing problems / respiratory problems (18.5%). Among the wrongly mentioned health consequences were dehydration (0.3%), Tinted eyes (0.3%), black mouth/ lips (2.3%), ulcer (0.7%) and tooth decay (1.8%).

Regarding, the question is tobacco smoke dangerous for non-smokers health, more than three quarter of the respondents (86.1%) said yes, 4.8% said no while 8.1% said they do not know. Also, when asked if secondhand smoke causes heart diseases in non-smokers, most of the respondents (62.8%) said yes, 10.1% said no while 26.3% said they do not know. Respondents were also asked if secondhand smoke triggers asthma attack, majority of them (84.3%) said yes, 2.3 % said no while 12.7% of the respondents said they do not know. A question was also asked if secondhand smoke causes stroke, only about one quarter (27.1%) of the respondents said yes, 19.7% said no, while more than half of them (51.1%) said they do not know. When asked if second hand smoke causes low birth weight in children, one third (32.9%) of the respondents said yes, 9.6% said no and more than half (56.5%) said they do not know. Respondents were also asked if secondhand smoke causes diabetes, few of them (14.2%) said yes, 30.9% said no while more than half (53.2%) said they do not know. When they were asked if secondhand smoke is potentially dangerous to non-

smokers especially when they are exposed to it for long periods of time, nearly all (90.4%) said yes, 2.3% said no while 5.6% said they do not know.

The total mean score for the questions asked on knowledge of respondents on secondhand smoking was 14.1± 3.6, respondents' with good knowledge were 38.0%, while those with fair and poor knowledge were 51.4% and 10.6% respectively. The results indicated that more than half (51.4%) of the respondents had a fair knowledge on the places people can be exposed to secondhand smoke and the health consequences of secondhand smoke. Table 4.3c and Figure 4.2 presents respondents' knowledge on secondhand smoking and their total knowledge score respectively.

Table 4.3a List of places people can be exposed to secondhand smoke (N = 395)

SN	Places**	Frequency	Percentage (%)
1	Market place	38	9.6
2	Road traffic	4	1.0
3	Cafeteria/ restaurants	32	8.1
4	Night club	131	33.2
5	Bar/ beer parlour	157	39.7
6	Public transport/ in a vehicle	21	5.3
7	Friend's room / room	21	5.3
8	Sports arena	8	2.0
9	Cigarette shops/ Mallam's shops	18	4.6
10	Joints	26	6.6
11	Home	45	11.4
12	Garage	38	9.6
13	Motor park/ bus stops	58	14.7
14	On the streets	59	14.9
15	Ghettos/ slums	12	3.0
16	Open environments	7	1.8
17	Social gatherings/ parties	68	17.2
18	School	76	19.2
19	Workplaces/ industrial areas	18	4.6
20	Rural areas	7	1.8
21	Hotel	33	8.4
22	Public toilet	5	1.3
23	Uncompleted building	1	0.3
24	Bush	1	0.3
25	Carwash	2	0.5
26	Graveyard	1	0.3
27	Viewing centres	3	0.8

28	Recreational centres	5	1.3
29	Pedestrian walkway	1	0.3
30	Lounge	4	1.0

**** Multiple responses were included**

Table 4.3b List of health consequences of secondhand smoke (N=395)

SN	Health consequences**	Frequency	Percentage (%)
1	Lung cancer / lung damage *	223	56.4
2	Dehydration	1	0.3
3	Asthma attack*	80	20.3
4	Eye and nasal irritation*	29	7.3
5	Heart disease/ cardiovascular diseases*	116	29.4
6	Breathing problems / respiratory problems*	73	18.5
7	Cough*	82	20.8
8	Shortens life span*	31	7.8
9	Nausea/ loss of appetite*	9	2.3
10	Tinted eyes	1	0.3
11	Broadens the mind	1	0.3
12	Liver damage*	30	7.6
13	Black mouth / lips	9	2.3
14	Kidney damage*	26	6.8
15	Stroke*	4	1.0
16	Bad body odour*	2	0.5
17	Cancer of the brain/ brain damage*	6	1.5
18	Death*	24	6.1
19	Tuberculosis*	15	3.8
20	Emotional breakdown*	7	1.8

21	Headache*	18	4.5
22	Dizziness*	2	0.5

Table 4.3b List of health consequences of secondhand smoke cont'd (N=395)

SN	Health consequences	Frequency	Percentage (%)
23	Dry skin*	4	1.0
24	Ulcer*	3	0.7
25	Infertility*	2	0.5
26	Bad teeth / tooth decay	4	1.0
27	Bad breath	4	1.0
28	Nose bleeding*	4	1.0
29	Miscarriage*	1	0.3
30	Weight loss	2	0.5
31	Bronchitis*	5	1.3
32	Kills children*	1	0.3
33	Bad sight	2	0.5

**** Multiple responses were included**

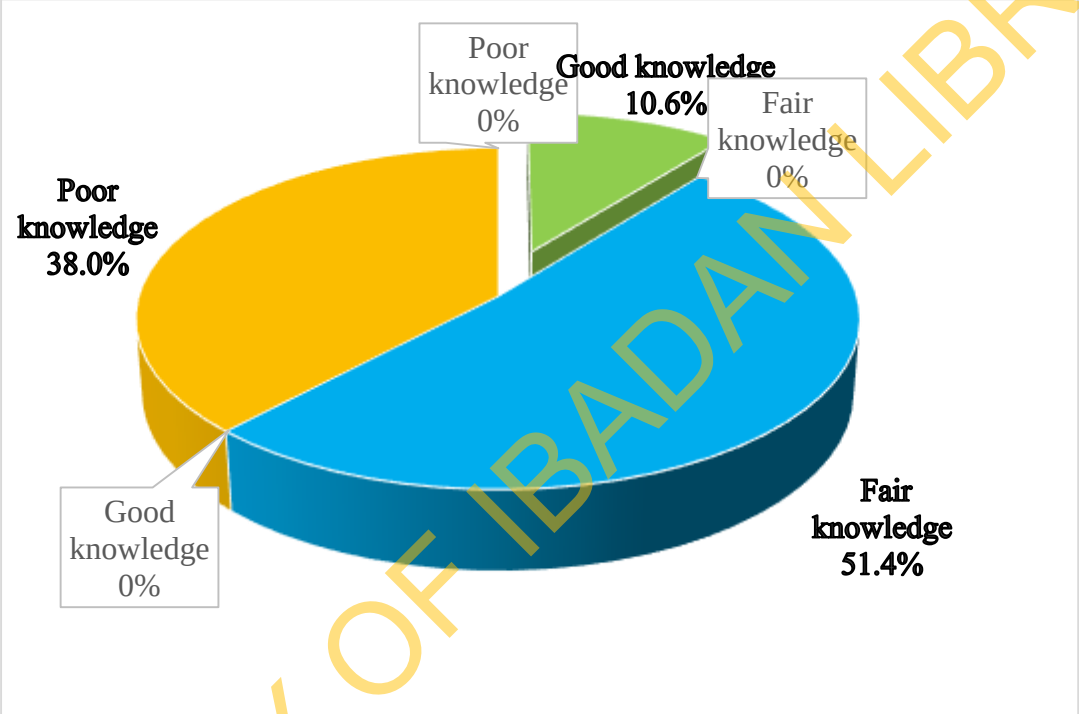
***Correct responses**

Table 4.3c Respondents' knowledge on secondhand smoking (N= 395)

Knowledge statements	Responses		
	Yes (%)	No (%)	Don't know
Tobacco smoke is dangerous for non-smoker's health	340 (86.1)	19 (4.8)	32 (8.1)
Secondhand smoking causes heart diseases in non-smokers	248 (62.8)	40 (10.1%)	104 (26.3)
Smoke from other people's cigarettes is harmful	364 (92.2)	5 (1.3)	21 (5.3)
Smoke from other people's cigarettes shortens life span	247 (62.5)	46 (11.6)	98 (24.8)
Secondhand smoking triggers asthma attack	333 (84.3)	9 (2.3)	50 (12.7)
Secondhand smoking causes lung cancer	312 (79.0)	20 (5.1)	61 (15.4)
Secondhand smoking causes stroke	107 (27.1)	78 (19.7)	202 (51.1)
Secondhand smoking causes eye and nasal irritation	315 (79.7)	14 (3.5)	61 (15.4)
Secondhand smoking causes cardiovascular diseases	231 (58.5)	27 (6.8)	135 (34.2)
Secondhand smoking causes low birth weight in babies	130 (32.9)	38 (9.6)	223 (56.5)
Secondhand smoking causes respiratory problems	343 (86.8)	9 (2.3)	42 (2.3)
Secondhand smoking causes dizziness and nausea	236 (59.7)	22 (5.6)	133 (33.7)
Secondhand smoking causes headache	213 (53.9)	44 (11.1)	137 (34.7)

Secondhand smoking leads to diabetes	56 (14.2)	122 (30.9)	210 (53.2)
Secondhand smoke is potentially dangerous to non-smokers, especially when they are exposed to it for long periods of time	357 (90.4)	9 (2.3)	22 (5.6)

***Non responses were excluded**



Total knowledge score = 21
Poor knowledge = 1 – 9
Fair knowledge = 10 - 15
Good knowledge = 16 - 21

Figure 4.2 Total knowledge score of respondents on secondhand smoking

4.4 Attitude towards secondhand smoking

The attitude of students towards secondhand smoking was examined. Majority (88.9%) of the respondents agreed that when students encounter someone who is smoking, they should distance themselves to prevent exposure to the smoke. More than three quarter (80.8%) disagreed with the statement, "when a student is within a group of people, and someone begins to smoke, he or she should remain with the group". Also, one third (33.7%) agreed with the statement that "if a student encounters a friend or relative who is smoking, he or she should sit and talk with the person", 23.5% were undecided while 42.5% disagreed with this. More than three quarter (82.0%) disagreed with the statement, "staying in a friend/parent/colleague's car when they are smoking will not bother you" while 84.3% of the respondents agreed that people should not smoke in their cars. Majority (85.3%) of the respondents disagreed with the statement, "if a student's boyfriend, girlfriend, friends or relatives are gathering in a designated area to smoke, he or she should join them rather than be alone".

Concerning, the statement, "whenever students are exposed to secondhand smoke, they should wash their clothes solely to remove the smell of smoke from them even if they are otherwise clean, about half (52.4%) of the respondents agreed to this, 29.6% were undecided while 17.2% disagreed with this. 69.1% and 69.4% of the respondents respectively disagreed with the statements, "it is good to associate with people who smoke and secondhand smoke is not offensive". Majority (81.3%) of the respondents agreed that smoking should be banned in all public places and campuses. Also, more than three quarter (78.5%) of the respondents agreed that most people are ignorant about the adverse effect of their exposure to secondhand smoking, hence they readily stay with friends while they smoke. Overall, majority (80.8%) had a positive attitude

towards avoidance of secondhand smoke exposure, with the mean attitudinal score of 16.5±4.6. Table 4.4 presents respondents attitude towards secondhand smoking.

Table 4.4 Respondents attitude towards secondhand smoking (N =395)

Statements	Responses		
	Agree (%)	Undecided (%)	Disagree (%)
When students encounter someone who is smoking, they should distance themselves to prevent exposure to smoke	351 (88.9)	28 (7.1)	16 (4.1)
When a student is within a group of people, and someone begins to smoke, he or she should remain with the group	31 (7.8)	45 (11.4)	319 (80.8)
If a student encounters a friend or relative who is smoking, he or she should sit and talk with the person	133 (33.7)	93 (23.5)	168 (42.5)
Staying in a friend/ parent/ colleague's car when they are smoking will not bother you	34 (8.6)	36 (9.1)	324 (82.0)
People should not smoke in their cars	333 (84.3)	36 (9.1)	19 (4.8)
If a student's boyfriend, girlfriend, friends or relatives are gathering in a designated area to smoke, he or she should join them rather than be alone	24 (6.1)	33 (8.4)	337 (85.3)
Whenever students are exposed to secondhand smoke, they should wash their clothes solely to remove the smell of smoke from them even if they are otherwise clean	207 (52.4)	117 (29.6)	68 (17.2)
It is good to associate with people who smoke	28 (7.1)	91 (23.0)	273 (69.1)

Secondhand smoke is not offensive	52 (13.2)	59 (14.9)	274 (69.4)
Smoking should be banned in all public places and campuses	321 (81.3)	39 (9.9)	33 (8.4)
Most people are ignorant about the adverse effect of their exposure to SHS, hence they readily stay with friends while they smoke	310 (78.5)	54 (13.7)	28 (7.1)

***Non responses were excluded**

4.5 Factors influencing students' exposure to secondhand smoking

In relation to, factors that influence students' exposure to secondhand smoking, most of the respondents (61.3%) believed that lack of non- smokers sections in bars, sit outs, restaurants, gardens and night club was one of the factors influencing students exposure to secondhand smoke, 15.9% did not believe this while 21.0% said they do not know. When asked if lack of smoke free policies and lack of implementation of educational strategies in school influences students exposure to secondhand smoking, most of the respondents 62.5% and 71.4% respectively said they believed it did. Also, 51.4% of the respondents said some students' smoking in hostels was one of the factors that influencestudents'exposure to secondhand smoke. More than half (51.1%) said not being able to stay away from friends who smoked was not an influencing factor to secondhand smoke, while, 64.6% said the lack of knowledge on the health consequences of secondhand smoke was one of the factors that predisposes students.

When asked if parents smoking in the house and having a spouse who smokes exposes people to secondhand smoking, some of the respondents 43.8% and 54.4% respectively said yes. Furthermore, they were asked if people being able to easily access and afford cigarette was also a factor, more than three quarter (80.8%) said yes, 9.4% said no, while 8.9% of the respondents said they do not know. Respondents were asked if living in residence/ off campus where smoking is allowed and lack of smoking restrictions at home were also factors that could influence people's exposure to secondhand smoking, majority (61.0%, 58.7%) of the respondents respectively said yes. Lastly, respondents were asked if residing in slum apartments exposes people to secondhand smoking, more than half (53.7%) said yes, 33.4% said no, while few

(12.2%) of the respondents said they do not know. Table 4.5 shows the factors that influence students' exposure to secondhand smoking.

Table 4.5 Factors influencing students' exposureto secondhand smoking (N= 395)

Statements	Responses		
	Yes (%)	No (%)	Don't know (%)
Lack of non-smokers sections in bars, sit outs, restaurants, gardens and night clubs	242 (61.3)	63 (15.9)	83 (21.0)
Lack of smoke free policies in school	247 (62.5)	87 (22.0)	57 (14.4)
Lack of implementation of educational strategies to reduce secondhand smoke exposure in schools	282 (71.4)	52 (13.2)	50 (12.7)
Some students smoke in the hostels	203 (51.4)	101 (25.6)	89 (22.5)
Not being able to stay away from friends who smoke	149 (37.7)	202 (51.1)	35 (8.9)
Lack of knowledge on the health consequences of secondhand smoke	255 (64.6)	105 (26.6)	32(8.1)
Parents smoking in the house	173 (43.8)	180 (45.6)	39 (9.9)
People can easily access and afford cigarette	319 (80.8)	37 (9.4)	35 (8.9)
Living in residence/ off campus where smoking is allowed	241 (61.0)	116 (29.4)	38 (9.6)
Having a spouse who smokes	215 (54.4)	141 (35.7)	35 (8.9)

Residing in slum apartment	212 (53.7)	132 (33.4)	48 (12.2)
Lack of smoking restrictions at home	232 (58.7)	116 (29.4)	47 (11.9)

***Non responses were excluded**

4.6 Self-efficacy in preventing secondhand smoking

Self-efficacy of respondents in preventing secondhand smoking was determined. Majority (79.2%) of respondents were confident that they would tell other students or friends not to smoke where they were, 12.4% said they would not, while 8.1% said they do not know. More than three quarter (76.2%) of the respondents said they would tell people not to smoke in the car, 16.7% said they would not, while 6.6% said they do not know. Also, more than half (54.2%) said they would ask people around them to put out their cigarette, 30.9% said they would not, while 14.2% said they do not know. Most of the respondents (72.2%) said they would visit only smoke free recreational centres. Similarly, 81.8% of the respondents said they would leave anytime someone lights a cigarette around, 10.1% said they would not, while 7.3% said they do not know. When asked if they would advocate for the ban of smoking in public places and on campus, 76.2% said yes, 14.2% said no, while 9.4% said they do not know. Lastly, respondents were asked if they would leave public places such as restaurants, schools, parks, gardens, sit outs or bars, if someone starts smoking, three quarter (75.9%) said yes, 13.9% said no, while 9.1% said they do not know. Overall, the mean self-efficacy score was 5.2±1.7, where 66.6% of the respondents had a high self-efficacy in preventing secondhand smoking. Respondents' self-efficacy in preventing secondhand smoking is presented in table 4.6.

Table 4.6 Respondents' self-efficacy in preventing secondhand smoking

Statements	Responses		
	Yes (%)	No (%)	Don't know (%)
Tell other students or friends they cannot smoke where you are	313 (79.2)	49 (12.4)	32 (8.1)
Tell people they cannot smoke in the car	301 (76.2)	66 (16.7)	26 (6.6)
Ask people around you to put out their cigarettes	214 (54.2)	122 (30.9)	56 (14.2)
Visit only smoke free recreational centres	285 (72.2)	77 (19.5)	31 (7.8)
Leave anytime someone lights a cigarette around you	323 (81.8)	40 (10.1)	29 (7.3)
Advocate for the ban of smoking in public places and on campus	301 (76.2)	56 (14.2)	37 (9.4)
Leave public places such as restaurants, schools, parks, gardens, sit outs or bars, if someone starts smoking.	300 (75.9)	55 (13.9)	36 (9.1)

***Non responses were excluded**

4.7 Test of hypotheses

Hypothesis 1: the null hypotheses stated that there is no significant difference in the proportion of male and female respondents that are exposed to secondhand smoking. Chi- square test was used to determine the difference. Table 4.7a shows the result when the sex of respondents and their exposure to secondhand smoke was compared. More males (94.0%) were exposed to secondhand smoke than females (93.2%). However, the observed difference was not statistically significant ($p>0.05$). Therefore there was no significant different in the proportion of male and female respondents that were exposed to secondhand smoke, hence, we fail to reject the null hypotheses.

Hypothesis 2: the null hypotheses stated that there is no association between residence of respondents and their exposure to secondhand smoke. The results of the findings is presented in table 4.7b. Although, the percentage of respondents who are exposed to secondhand smoke was higher among respondents living on campus (94.0%) than those living off campus (92.7%), the observed relationship was not statistically significant ($p>0.05$). Therefore, we fail to reject the null hypotheses.

Hypothesis 3: the null hypotheses stated that there is no association between the knowledge of the respondents and their attitude towards secondhand smoking. Table 4.7c shows the result when the knowledge of respondents and their attitude towards secondhand smoke was compared. Nearly all (91.4%) of the respondents who had

good knowledge on the health consequences of secondhand smoking, had a positive attitude towards the avoidance of secondhand smoke exposure while very few (8.6%) had a negative attitude. Also, majority (88.3%) of the respondents who had fair knowledge on the health consequences of secondhand smoking, had a positive attitude towards the avoidance of secondhand smoke exposure with only few (11.7%) had a negative attitude. However, almost one third (32.4%) of the respondents who had poor knowledge on the health consequences of secondhand smoke had negative attitude towards the avoidance of secondhand smoking. The observed relationship was found to be statistically significant ($p<0.05$). Therefore, the null hypothesis was rejected.

Hypothesis 4: the null hypotheses stated that there is no association between the residence of respondents and their exposure to secondhand smoke in the last 30days. The result of the analysis is presented in table 4.7d. From the results, it was observed that more respondents (10.7%) staying off campus were exposed to secondhand smoke on the day of the survey as compared to 4.4% of respondents residing on campus. Also, more respondents (26.2%) reported that they had been exposed to secondhand smoke in the last seven (7) days before they survey, as compared to 10.8% of respondents living on campus. However, the percentage differed among respondents exposed to secondhand smoke within 22 to 30days before the survey, as nearly two third (65.2%) of the respondents residing on campus said they had been exposed to secondhand smoke as opposed to 45.2% of respondents staying off campus. The observed relationship between the residence of respondents and their exposure to secondhand smoke was found to be statistically significant ($p<0.05$). Therefore, the null hypothesis was rejected.

Table 4.7a Relationship between proportion of male and female respondents and exposure to secondhand smoke

Sex	Exposure to secondhand smoke					
	Yes (%)	No (%)	Total	X^2	df	p value
Male	189 (94.0)	12 (6.0)	201			
Female	179 (93.2)	13 (6.8)	192	0.107	2	0.948
Total	368 (93.6)	25 (6.4)	393			

Table 4.7b Distribution of respondents based on their residence and their exposure to secondhand smoke

Residence	Exposure to secondhand smoke					
	Yes (%)	No (%)	Total	X^2	df	p value
Campus	266 (94.0)	17(6.0)	283			
Off campus	101 (92.7)	8 (7.3)	109	0.796	4	0.939
Total	367 (93.6)	25 (6.4)	392			

Table 4.7c Relationship between the knowledge of respondents and their attitude towards secondhand exposure

Knowledge	Attitude towards secondhand smoking					
	Negative attitude (%)	Positive attitude (%)	Total	X^2	df	p value
Poor knowledge	12 (32.4)	25 (67.6)	37			
Fair knowledge	22 (11.7)	166 (88.3)	188	15.413	2	0.000
Good knowledge	12 (8.6)	128 (91.4)	140			
Total	46 (12.6)	319 (87.4)	365			

Table 4.7d Association between the residence of respondents and their exposure to secondhand smoke in the last 30days

	Exposure to secondhand smoke in the last 30days							
Residence								
	Today (%)	1–7days ago (%)	8-14days Ago (%)	15 –21days ago (%)	22-30days ago (%)	total	X^2	p value
Campus	9 (4.4)	22 (10.8)	20 (9.8)	20 (9.8)	133 (65.2)	204		
Off campus	9 (10.7)	22 (26.2)	10 (11.9)	5 (6.0)	38 (45.2)	84	18.286	0.001
Total	18 (6.25)	44 (15.3)	30 (10.4)	25 (8.7)	171 (59.4)	288		

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This chapter discusses the findings of the research on knowledge, attitude and prevalence of secondhand smoking among undergraduate students of the University of Ibadan based on the analysed data. Also, it presents the conclusion and recommendation derived from the data analysed and interpreted. The discussion in this chapter was drawn from the data analysed on respondents socio demographic characteristics, prevalence of secondhand smoke exposure among respondents, respondents' knowledge on secondhand smoking, respondents' attitude towards secondhand smoking, factors influencing respondents' exposure to secondhand smoking and respondents' self-efficacy in preventing secondhand smoking. Furthermore, the implication of the research findings to health promotion and education was also discussed.

5.1 Discussion of findings

5.1.1 Socio-demographic characteristics

In this study, 46.6% of the respondents were between the age of 16-20 yearsand more non-smokers (97.5%) than smokers (2.0%) were recorded. The results from previous studies contradict this, as they reported that among adult smokers, about two-third take up smoking before the age of 18 and over 80% before the age of 20 and the 2011 General Lifestyle Survey of adult smokers revealed that almost two-fifths (40%) had

started smoking regularly before the age of 16 (Robinson and Bugler, 2010; Office for National Statistics, 2013).

With respect to members in their household who smoked around them, only a few (12.2%) had household members who smoked around them, while most of the respondents (87.1%) did not have household members who smoked around them. These findings differs from the study conducted by Haddad, Baker, El-Shahawy, Al-Ali and Shudayfat (2013), who reported that 61% of the study participants stated that they had household members who had smoked around them in the past 30 days. The possible reason for the difference in exposure might be due to the fact that smoking is not socially accepted by many people in the Nigerian society, hence household members may hide their smoking habits from their family members and also smokers may hide their smoking habits from others.

Also, more than one quarter of the students said there was no smoking restrictions in the university, this implies that students are not well informed on the existence of such restrictions in the school, and also, this could be due to lack of enforcement of smoking restrictions in the university. This agree with findings from a previous study carried out by Mishra, Thind, Gokarakonda, Lartey, Watkins, and Chahal(2011) but is in contrast with the study conducted by Inandi, Caman, Aydin, Onal, Kaypmaz, Turhan, Erguder, and Warren (2013) which indicated that majority of the students stated that their school had official policy banning smoking in school buildings and hospital and that the school's official smoking ban for school building and hospitals was enforced.

5.1.2 Prevalence of secondhand smoke exposure

The prevalence of respondents who had been exposed to secondhand smoke in one location or the other was 93.2%. Similar findings were reported by Haddad, Baker, El-Shahawy, Al- Ali and Shudayfat (2013) in a study among university students, although it differs from studies conducted by Desalu, Onyedum, Adewole, Fawibe and Salami (2011) who reported the prevalence of secondhand smoke to be 38.8% among non-smoking adults in two Nigerian cities.

The prevalence of secondhand smoke exposure of respondents at home was 23.0%. Although, these results differ from what was observed earlier, that only 12.2% of respondents had household members who smoked around them. It is consistent with the findings of Barbouni, Hadjichristodoulou, Antoniadou, Korea, Miloni, Warren, Rahiotis and Kremastinou (2012) Global Health Professions Students Survey (GHPSS) who reported that 21.5% of medical students, 20.9% of dental students, 23.7% of nursing students and 28.8% of nutrition students reported SHS exposure at home. Surprisingly, the prevalence of secondhand smoke among respondent in school, was quite high (38.7%), this indicates that they might be more students who smoke than the number reported in the study. Also, it could be deduced that students do smoke in the school premises, hall of residence and lecture hall irrespective of the smoking restrictions in the school. These findings reinforce earlier report that secondhand smoke is an important health issue on university campus (Mishra, Thind, Gokarakonda, Lartey, Watkins, and Chahal, 2011). The implication of this is that the administration of the University Campus need to be conscious of the fact that they would be blamed for adverse health consequences of secondhand smoke exposure of their students if they fail to enforce smoke free policies in their campus.

In this study, majority of the students had never been exposed to secondhand smoke at workplace. This could be due to the fact that most young adults in Nigeria do not work. However, almost two third of the respondents had been exposed to secondhand smoking in public places such as bars, night club, sport arena and restaurants, also it was found that students' exposure to secondhand smoke was highest in public places, as compared to other locations. This findings correlates with previous studies conducted among university students, who mentioned high prevalence of secondhand smoke exposure at public places among students (Gharaibeh, Haddad, Alzyoud, El-Shahawy, Abu-Baker and Umlauf, 2011; Barbouni, Hadjichristodoulou, Mirakou, Antoniadou, Korea, Miloni, Warren, Rahiotis and Kremastinou, 2012).

The proportion of respondents exposed to secondhand smoke in the last thirty (30) days prior to the study was significantly high ranging from 4.6% to 43.3%, with 11.1% of the respondents being exposed 5 – 6days within a week. With regards to duration of exposure to secondhand smoke within a week, 3.8% of respondents had been severely exposed to secondhand smoke, this differs from the study conducted

among adults in two Nigerian cities (Desalu, Onyedum, Adewole, Fawibe and Salami, 2011). Although, there was no association between residence of respondents and their exposure to secondhand smoke ($p>0.05$), an association was observed between the residence of respondents and their exposure to secondhand smoke in the last 30days ($p<0.05$). Students residing in off campus apartments were more currently exposed to secondhand smoke than student residing on campus.

In Nigeria, tobacco smoking (control) Decree no.20 of 1990 was the first extant law on the consumption and advertisement of tobacco (Federal Military Government of Nigeria, 1990). However, the decree was not very effective. In recent times, major strides towards national tobacco control have been made since it became signatory to the WHO Framework Convention on Tobacco Control (FCTC) in June 2004 (National tobacco control plan, 2010 – 2015). Although, the Nigerian senate passed a bill on March 15, 2011 which was expected to be signed into law shortly, to regulate and control production, manufacture, sale, advertising, promotion and sponsorship of tobacco or tobacco products. (Agaku, Akinyele, and Oluwafemi, 2012). The Tobacco control bill was only signed into law on May 27, 2015, by the then president of Nigeria and from the high prevalence of secondhand smoke recorded in this study, it shows that this bill is yet to be effectively implemented in the Nigerian society.

5.1.3 Knowledge on secondhand smoking

The findings of this study showed that most students had fair knowledge (51.4%) on the health consequences of secondhand smoke, with the total knowledge mean score of 14.1± 3.6. this slightly differ from other studies conducted among students in other countries, where majority of the students had good knowledge on the health consequences of secondhand smoke (Gharaibeh, Haddad, Alzyoud,, El-Shahawy, Abu-Baker, and Umlauf, 2011; Haddad, Baker, El-Shahawy, Al-Ali, and Shudayfat, 2013). This disparity could be due to the fact that in developed countries there have been major efforts to promote smoking cessation and to educate the public about the adverse effect of smoking, as well as the hazards of secondhand smoking (WHO, 2008).

However, majority of the respondents agreed to the fact that tobacco smoke is dangerous for non-smokers health, causes heart diseases in non-smokers, triggers asthma attack and causes lung cancer. This correlates with similar studies conducted on students (Mishra, Thind, Gokarakonda, Lartey, Watkins and Chahal, 2011; Gharaibeh, Haddad, Alzyoud, El-Shahawy, Abu-Baker, and Umlauf, 2011; King, Dube and Babb, 2013). Despite, the fact that majority of the students agreed that tobacco smoke is dangerous for non-smokers health, only a few knew that secondhand smoke causes stroke, low birth weight in babies, and could lead to diabetes. This is in agreement with a previous study conducted among Vietnamese adults (An, Minh, Huong, Giang, Xuan, Hai, Nga and Hsia, 2013).

The association between respondents' level of knowledge and their attitude towards secondhand smoking was found to be statistically significant (p = 0.000), this shows that the more knowledgeable students are on the adverse effect of secondhand smoke, the more positive their attitude will be in avoiding exposure to secondhand smoke. Also, the respondents' minimal level of knowledge on consequences of secondhand smoking might be one of the reasons their exposure rate to secondhand smoke is very high.

5.1.4 Attitude towards secondhand smoking

The mean attitudinal score of the respondents was 16.5±4.6 and it was found that majority (80.6%) of the respondents had positive attitude towards avoiding exposure to secondhand smoke. This is related to a previous study which stated that most students had positive attitude toward avoiding secondhand smoke exposure (Keshavarz, Jafari, Khami and Virtanen, 2013) but differs from the study conducted by Haddad, Baker, El-Shahawy, Al-Ali and Shudayfat (2013), which reported that the attitude of students was not very positive towards avoidance of secondhand smoking, in that only 38% of the students expressed that they would ask people around them to put out their cigarettes.

Similarly, the results showed that majority (81.3%) of the respondents agreed that smoking should be banned in all public places and campus. This is in agreement with previous studies conducted among students (Al-Haqwi, Tamim, Asery, 2010; Mishra,

Thind, Gokarakonda, Lartey, Watkins and Chahal, 2011; Inandi, Caman, Aydin, Onal, Kaypmaz, Turhan, Erguder, and Warren, 2013). Despite the fact that students' attitude towards avoidance of secondhand smoke was very positive, the high rate of exposure to secondhand smoke in the study is questionable, this implies that these are just students' ideas or judgment on secondhand smoke prevention and not actually their practice towards avoiding secondhand smoke exposure.

5.1.5 Factors influencing students' exposure to secondhand smoking

From the various factors presented to the students as possible reasons influencing their exposure to secondhand smoke, more than two third (71.4%) believed that lack of implementation of educational strategies in school influences students exposure to secondhand smoking, also, more than half (51.1%) said students smoking in hostels was one of the factors that influence students' exposure to secondhand smoke. This shows that smoke free policies has not been enforced in the school premises neither has there been educational intervention in the university to educate students on the health hazards of secondhand smoking. This also agrees with the fact that 64.6% of the respondents said lack of knowledge on the health consequences of secondhand smoke contributes to students' exposure to it. This support findings from previous studies conducted by Hussain (2015) and Xu, Wang, Mei and Yang (2009).

A higher percentage (80.8%) believed that easy accessibility and affordability of cigarette around schools and off campus exposed the students to secondhand smoke. 61.0% and 58.7% of the respondents respectively believed that living in residence/ off campus where smoking was allowed and lack of smoking restrictions at home were also factors that could influence people's exposure to secondhand smoking. This is in agreement with findings of a previous conducted byDesalu, Onyedum, Adewole, Fawibe and Salami (2011). Also, almost two third (61.3%) of the respondents believed that lack of non-smokers sections in bars, sit outs, restaurants, gardens and night clubs was equally a factor that predisposes people to secondhand smoke. The perceived factors is a call to action for the Nigerian government, that there is a need to strictly enforce the national tobacco control bill that was passed in 2015 by the then President.

5.1.6 Self-efficacy in preventing secondhand smoking

Self-efficacy reflects confidence in the ability to exert control over one's own motivation, behaviour and social environment. Two third (66.6%) of the respondents were found to have high self-efficacy, confident that they would tell other students or friends not to smoke where they are, ask people around them to put out their cigarette and advocate for the ban of smoking in public places and on campus. Generally, a higher percentage of students were confident in themselves that they could prevent themselves from secondhand smoke exposure. Although, self-belief does not necessarily ensure adoption of positive behaviour but self dis-belief assuredly spans failure to adoption of positive behaviour.

5.2 Implications of findings to health promotion and education

Health Promotion and Education focuses on the behaviours, systems, environments and policies affecting health at a variety of levels. It also involves the development of individual, group, institution and community as well as systemic strategies to improve health, knowledge, attitude, skill and behaviour which empowers people to take more control over their personal, community, and environmental health and well-being. Health Promotion and Education strategies include: individual and group education, training and counselling, audio-visual and computerised educational materials development, community development, public enlightenment, social support, social action and planning, advocacy, coalition building, amongst others.

The findings of this study indicated a high prevalence of secondhand smoking among students and lack of knowledge on the health consequences of secondhand smoking by majority of the students.It also, identified some factors that influence students' exposure to secondhand smoking such as: lack of implementation of educational strategies in schools, students smoking in the hostels, lack of smoke free policies in schools and public places, and easy accessibility and affordability of cigarette around schools and off campus. Therefore, to successfully address these issues, health promotion and education strategies such as advocacy, training, counselling and public enlightenment should be employed.

Advocacy:health promotion and education specialist should develop and present an advocacy brief to the university administration for policy considerations, and to

support specific health promotion and education programmes to reduce secondhand smoking among students. They should also advocate that courses on secondhand smoking are included in the curriculum of every school year. As well as, the implementation and enforcement of smoke free policies in school. Furthermore, advocacy visits should be paid to the local government authorities to enforce polices on smoke free public places, workplaces and homes.

Trainings: Health promotion and education specialist supported by the university administration, faculties and departments should conduct trainings for students, lecturers and school administrators. Thetraining should be focused on improving their social skills, life skills, interpersonal skills and decision making skills, in order to enable them build resistance to the temptation to smoke and protect themselves against exposure to secondhand smoking.Also, the training should include an evaluation component: pre and post-tests to assess their knowledge.

Counselling: students who smoke should be advised on ways to quit smoking. Also, parents and family members should be counselled as well on the necessity of a smoke free environment.

Pubic enlightenment: campus wide campaign facilitated by health workers in Jaja clinic should be conducted throughout the school campus especially during students' resumption week and different anniversary weeks organised by the students union, hall representatives, departments and faculties. Similarly, awareness on the dangers of smoking and exposure to secondhand smoking should be created at the individual and communitylevel through the use of behavioural change communication media such as radio, magazine, television, newspaper, social media, flyer, billboard and telephone.

5.3 Conclusion

This study examined the knowledge, attitude and prevalence of secondhand smoking among undergraduate students of the University of Ibadan. It revealed that the prevalence of secondhand smoking among undergraduate students of the University of Ibadan is very high, in spite of the fact, that majority of the students indicated positive attitude and high self-efficacy in preventing secondhand smoking. This suggest that positive attitude towards secondhand smoking and high self-efficacy in

preventing secondhand smoking does not naturally result in low prevalence of secondhand smoke exposure. Besides, the high prevalence of secondhand smoking among students could be attributed to the low percentage of the students who had good knowledge on the health consequences of secondhand smoking and to some of the factors identified by the students such as lack of non-smokers sections in public places, lack of smoke free polices, lack of implementation of educational strategies to reduce secondhand smoke in schools, students smoking in the hostels and easy accessibility and affordability of cigarette.Consequently, the findings of this study support the need for effective strategies to reduce the prevalence of smoking in Nigeria and protect non-smokers from secondhand smoke exposure.

5.4 Recommendations

The findings of this study has indicated a high prevalence of secondhand smoke exposure among students, relatively low knowledge of health consequences of secondhand smoking and factors that predispose students to secondhand smoking. In line with these findings the following recommendations are made:

1. University of Ibadan administration through official communication and dialogue with relevant university structures should develop, implement and enforce policies that bans smoking within the university campus.

2. The Monitoring and Evaluation team of the strategic implementation committee of the university should set up a monitoring team to assess the level of compliance to non-smoking regulation on campus and ensure that secondhand smoking, as well as sales of cigarette or other tobacco products do not occur.

3. School authorities working with students' union should put up educational campaigns and related programmes to discourage tobacco use and exposure to secondhand smoke among students by raising awareness and educating them on the dangers associated with tobacco use and exposure to secondhand smoke.

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APPENDIXONE

Questionnaire

Knowledge, Attitude and Prevalence of Secondhand Smoking among undergraduate students of University of Ibadan

Greetings; my name is Essienudoh, Imaofon Godwin, a postgraduate student in the department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am undertaking a research titled "Knowledge, Attitude and Prevalence of secondhand smoking among undergraduate students of the University of Ibadan, Oyo state".

The information gotten from this research will be used in developing secondhand smoke prevention programs. The questionnaire has six sections (A to F), which would take you about 15 minutes to fill; in each of these sections you are requested to please give honest responses to these questions as much as possible to ensure the accuracy of the findings from this research. Please note that there areno right or wrong answers to the questions asked or the statements made.Also, the completionof this questionnaire is entirely voluntary and your participation will cost you nothing other than the time you will use in filling the questionnaire. Therefore, your sincere response is encouraged as the information provided will be used for research purposes only and strict confidentiality would be ensured.

For the purpose of this study, secondhand smoking is breathing in others people's smoke from cigarette and other tobacco products.

Now that the study has been well explained to me and I fully understand the extent of the research process and my role in the research, I hereby take a voluntary decision to participate in this study.

Kindly tick (√) 1. Yes [ ] or 2. No [ ]

Thank you.

Section A: Socio demographic information

Instruction: please tick [√] in the appropriate boxes and fill the blank spaces

1. Faculty ……
2. Department …….
3. Level of study: ……
4. Sex: 1. Male [ ] 2. Female [ ]
5. Age in years (as at last birthday): ……..
6. Residence: 1. Campus [ ] 2. Off campus [ ]
7. Religion: 1. Christianity [ ] 2. Islam [ ] 3. Others (specify) ……
8. Ethnicity: 1. Hausa [ ] 2. Igbo [ ] 3. Yoruba [ ] 4. Others (specify)……
9. Marital status: 1. Single [ ] 2. Married [ ] 3. Others (specify)……
10. Do you smoke cigarette? 1. Yes [ ] 2. No [ ]
11. Do you have friends who smoke around you? 1. Yes [ ] 2. No [ ]
12. Do you have members in your household who smoke around you? 1. Yes [ ] 2. No [ ]
13. Is there any smoking restriction in your school? 1. Yes [ ] 2. No [ ]

Section B: Knowledge of undergraduate students on secondhand smoking

Instruction: please supply the correct answers to the following questions.

14. Mention 3 places people can be exposed to secondhand smoke?

a)…… b)……

c)……...

15. Mention 3 health consequences of secondhand smoke?

a)…… b)……

c)……....

Instruction: here are some statements relating to students' knowledge on secondhand smoking. For each statement, please tick [√] "**Yes**" if you know it's correct, tick "**No**" if you know it is incorrect and tick "**Don't know**" if you are not sure

	Statements	Yes	No	Don't know
16	Tobacco smoke is dangerous for non-smoker's health			
17	Secondhand smoking causes heart diseases in non-smokers			
18	Smoke from other people's cigarettes is harmful			
19	Smoke from other people's cigarettes shortens life span			
20	Secondhand smoking triggers asthma attack			
21	Secondhand smoking causes lung cancer			
22	Secondhand smoking causes stroke			
23	Secondhand smoking causes eye and nasal irritation			
24	Secondhand smoking causes cardiovascular diseases			
25	Secondhand smoking causes low birth weight in babies			
26	Secondhand smoking causes respiratory problems			
27	Secondhand smoking causes dizziness and nausea			
28	Secondhand smoking causes headache			
29	Secondhand smoking leads to diabetes			
30	Secondhand smoke is potentially dangerous to non-smokers, especially when they are exposed to it for long periods of time			

Section C:Attitude of undergraduate students towards secondhand smoking

Instruction: here are some statements relating to the attitude of students towards secondhand smoking. For each statement, please indicate by ticking [√] whether you agree, disagree or you are undecided.

	Statements	Agree	Undecided	Disagree
31	When students encounter someone who is smoking, they should distance themselves to prevent exposure to smoke			
32	When a student is within a group of people, and someone begins to smoke, he or she should remain with the group			
33	If a student encounters a friend or relative who is smoking, he or she should sit and talk with the person			
34	Staying in a friend/ parent/ colleague's car when they are smoking will not bother you			
35	People should not smoke in their cars			
36	If a student's boyfriend, girlfriend, friends or relatives are gathering in a designated area to smoke, he or she should join them rather than be alone			
37	Whenever students are exposed to secondhand smoke, they should wash their clothes solely to remove the smell of smoke from them even if they are otherwise clean			
38	It is good to associate with people who smoke			
39	Secondhand smoke is not offensive			
40	Smoking should be banned in all public places and campuses			
41	Most people are ignorant about the adverse effect of their exposure to SHS, hence they readily stay with friends while they smoke			

Section D: Prevalence of secondhand smoke exposure among undergraduate students

Instruction: please read the following questions and tick [√] in the appropriate boxes

42. Have you ever been exposed to secondhand smoke in these places? Please tick [√] all that applies

		Yes	No
A	Home		
B	School		
C	Workplaces		
D	Public transport		
E	Public places : bar, night club, sport arena, restaurants		
F	Other locations, specify……		

43. Which is your greatest source of exposure to secondhand smoke in question 42 above? .....

44. When last were you around someone who smoked in the last 30 days? i. Today [ ] ii. 1 to 7days ago [ ] iii. 8 to 14days ago [ ] iv. 15 to 21days ago [ ] v. 22 to 30 days ago [ ]

45. How often are you exposed to secondhand smoke in a week? i. 0 day [ ] ii. 1- 2 days [ ] iii. 3 – 4 days [ ] iv. 5 – 6 days [ ] v. Daily [ ]

46. How long did you stay with the person/ people while they smoked? i. less than 1 hour [ ] ii. 1- 4 hours [ ] iii. Greater than 4 hours [ ]

Section E: Factors influencing secondhand smoking

Instruction: here are some statements relating to factors that influence students' exposure to secondhand smoking. For each statement please tick 'yes' if you believe it is true, tick 'No' if you believe it is not true and tick ' Don't know' if you are not sure.

	Statements	Yes	No	Don't know
47.	Lack of non-smokers sections in bars, sit outs, restaurants, gardens and night clubs			
48.	ack of smoke free policies in school			
49.	Lack of implementation of educational strategies to reduce secondhand smoke exposure in schools.			
50.	Most of my friends smoke			
51.	Some students smoke in the hostels			
52.	Not being able to stay away from friends who smoke			
53.	Lack of knowledge on the health consequences of secondhand smoke			
54.	Parents smoking in the house			
55.	People can easily access and afford cigarette			
56.	Living in residence/ off campus where smoking is allowed			
57.	Having a spouse who smokes			
58.	Residing in slum apartment			
59.	Lack of smoking restrictions at home			

Section F: Self efficacy in preventing secondhand smoking

Instruction: Please indicate how confident you are that you can do the following in preventing secondhand smoke exposure.

	Statements	Yes	No	Don't know
60.	Tell other students or friends they cannot smoke where you are			
61.	Tell people they cannot smoke in the car			
62.	Ask people around you to put out their cigarettes			
63.	Visit only smoke free recreational centres			
64.	Leave anytime someone lights a cigarette around you			
65.	Advocate for the ban of smoking in public places and on campus			
66.	Leave public places such as restaurants, schools, parks, gardens, sit outs or bars, if someone starts smoking.			

Thank you for your sincere response

APPENDIX TWO

Ethical approval letter

INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)
College of Medicine, University of Ibadan, Ibadan, Nigeria.

Director: **Prof. Catherine O. Falade,** MBBS (Ib), M.Sc, FMCP FWACP
Tel: 0803 326 4593, 0802 360 9151
e-mail: cfalade@comui.edu.ng lillyfunke@yahoo.com

UI/UCH EC Registration Number: **NHREC/05/01/2008a**

NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW

Re: Knowledge, Attitude and Prevalence of Second Hand Smoking among undergraduate Students of the University of Ibadan, Oyo State, Nigeria

UI/UCH Ethics Committee assigned number: UI/EC/15/0220

Name of Principal Investigator: **Essienudoh Imaofon Godwin**
Address of Principal Investigator: Department of Health Promotion & Education, College of Medicine, University of Ibadan, Ibadan

Date of receipt of valid application: 28/07/2015

Date of meeting when final determination on ethical approval was made: **N/A**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and *given full approval by the UI/UCH Ethics Committee.*

This approval dates from **24/11/2015 to 23/11/2016.** If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the* UI/UCH EC *assigned number and duration of* UI/UCH EC *approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC early in order to obtain renewal of your approval to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. *No changes are permitted in the research without prior approval by the* UI/UCH EC *except in circumstances outlined in the Code. The* UI/UCH EC *reserves the right to conduct compliance visit to your research site without previous notification.*

UI/UCH EC APPROVED COLLEGE OF MEDICINE, U.I.

Professor Catherine O. Falade
Director, IAMRAT
Chairperson, UI/UCH Ethics Committee
E-mail: uiuchec@gmail.com

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