SMOKING PERCEPTIONS AMONG ADULT CAMEROONIAN MEN WHO SMOKE CIGARETTES

by

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Presented to the Faculty of the Graduate School of

The University of Texas at Arlington in Partial Fulfillment

of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

April, 2016

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Acknowledgements

I want to thank my wife Juliet Forbi and our children Zianna and Braden for their perseverance and support. Thanks to my parents Mr. Ngyia Wilfred and Mrs. Ngyia Mary for instilling in me the thirst for knowledge. To my brothers Nelson, Charles, and Siggy, my sisters Geraldine, Elinor and Carine, my stepmother Ma Lydia, and to my younger ones, Gilbert, Emmanuel, Krispine, Ma, Bih, and Conrad, I am thankful for the words of encouragement from you all, and for calling me "doctor" even when I had not passed my comprehensive examinations. To my uncles Ignatius Atumu and Wilson Atanga, your unwavering support has continued to humble me as a person.

A special appreciation to my committee chair Dr. Barnes who worked with me every step of the way throughout my research project. It is because of you and Dr. John that I have become a better writer. To the other members of my committee, Dr. Adegbola and Dr. Raudonis, I am grateful for your support and encouragement. To the PhD faculty and staff at the University of Texas at Arlington, especially Vivian, I will forever remember the work you did in shaping me as a scholar. To my best friends Freddy and Valerie, I thank you all for the support.

Finally, to Dr. Jennifer Gray, I would not be at this stage in my life long journey of learning if not for your patience and conviction that I could do it. To you, I say God Bless you. I will always remember your kind words of encouragement when I faced unanticipated difficulties during my formation years of becoming a scholar.

Dedication

To my beloved sister Geraldine Ngyia: May your soul rest in perfect peace.

Abstract

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Over five million people die annually from smoking related illnesses. As more people consider quitting smoking in industrialized nations, the rate of smoking has been rising in African countries, also referred to as low and middle-income countries. The projected population growth in Africa has led tobacco manufacturers to strategically target African teenagers who do not clearly understand the adverse effects of smoking cigarettes.

In developed countries such as the United States, public education about the dangers of smoking and the availability of structured smoking cessation programs have been influential in helping smokers quit. Unfortunately in most developing countries in Africa, such as Cameroon, such programs do not exist. In countries that have similar programs, for example in Nigeria, they are ineffective. In order to develop and implement an effective smoking cessation program, it is important to understand the way smokers within the targeted population perceive smoking. The purpose of this study was to describe smoking perceptions among adult Cameroonian men who smoke cigarettes, and to determine if there was a relationship between the demographic variables of age, education level, years of smoking, and number of quit attempts, and the four subscales in the Smoking Consequences Questionnaire (S-SCQ).

A descriptive/correlational design was used for this study. A convenience sample of 200 cognitively intact adult Cameroonian men who smoke cigarettes answered a demographic questionnaire and the S-SCQ. The S-SCQ is a 21-item instrument that was designed to measure smoking perceptions. Because data collection was done in a university city, 50% of subjects were university affiliated (mostly college students and graduates) and the other half had no university affiliation.

The Health Promotion Model was used to guide this study. Concepts in the model were operationalized with subscales in the S-SCQ. Using Spearman's correlation coefficients, relationships between the demographic variables of age, number of quit attempts, education level, and age of smoking onset, and subscales in the SCQ were examined. The University of Texas Arlington Institutional Review Board approved the study.

Results showed a statistically significant correlation between age and negative reinforcement ($r_s = 0.140$, $p = 0.048$), age and appetite/weight control ($r_s = 0.163$, $p = 0.021$), and number of quit attempts and appetite/weight control ($r_s = 0.180$, $p = 0.032$). In other words, older participants appeared to have stronger perceptions about the barriers to smoking cessation. No significant correlation was found between educational level and perceived barriers or perceived benefits to smoking cessation. Paradoxically, although 71% of the sample (n=200) had attempted to quit smoking about five times, those with higher quit attempts had stronger (favorable) perceptions of smoking cigarettes for appetite or weight control. These findings suggest that early smoking cessation interventions and education about the risks of smoking cigarettes may be effective to curb the rate of smoking among adult Cameroonian men and to prevent smoking initiation.

Table of Content

Chapter 1

Smoking Perceptions Among Adult Cameroonian Men Who Smoke Cigarettes

Cigarettes and other tobacco products have adverse health consequences (Abrams, 2014). Knowledge about the negative effects of smoking influences whether people start or contemplate stopping the use of tobacco (Freedman, Nelson, & Feldman, 2011). A rise and drop in smoking prevalence in developed nations characterized the second half of the 20th century, but in Africa, smoking is becoming an epidemic (Tumwine, 2011). Projected population growth in Africa has led cigarette manufacturers to target new and younger smokers (Network of African Science Academies, 2014; Schmidt, 2014). In response to the implementation of anti-tobacco policies developed at the Framework Convention on Tobacco Control, tobacco manufacturers are rethinking and circumventing conventional advertisement strategies in low and medium income countries despite the number of smoking related fatalities (Savell, Gilmore, & Fooks, 2014).

Background and Significance of Smoking

Over five million people die annually in the world from smoking related illnesses (Bierut, Johnson, & Saccone, 2014). Tobacco is responsible for one in every five deaths in the United States; kills more people than HIV, tuberculosis, and malaria combined; and remains the only consumer product that is deadly to more than one third of its users (World Health Organization [WHO], 2013). Despite these shocking statistics, in the United States (U.S), about 16.8% of adults continue to smoke (Centers for Disease Control [CDC], 2014), and approximately 3000 teenagers initiate smoking every day (Schmidt, 2014). Excess mortality in smokers is associated with smoking related diseases like lung cancer, heart disease, and respiratory diseases (Jha et al., 2014). Since 1987, lung cancer has surpassed breast cancer as a leading cause of death among U.S. women, and is projected to kill about 56, 359 women every year (USDHHS, 2014).

As more people consider quitting smoking in industrialized nations, the rate of smoking has been rising in African countries, also referred to as low and middle-income countries (Jemal et al., 2011; Thun, Delancey, Center, Jermal, & Ward, 2010). For instance, since 1965, the rate of smoking in the United States has dropped by about half (from 42% of adults to 18.1 %), while, in the same period, smoking rates in Tunisia, Zimbabwe, Uganda, and Nigeria have risen. This increase is caused by, among a multitude of factors, the number of children who start smoking as early as age 13, cheap and readily available cigarettes, and the slow, but steady change in youth culture that makes smoking amongst females acceptable (Blecher & Ross, 2012).

Smoking related deaths also disproportionately affect developing nations. For example, in 2011, tobacco use was responsible for six million deaths worldwide, and about 80% were from low and middle-income countries (Blecher & Ross, 2012). Without appropriate interventions, the World Health Organization (WHO, 2014) projected that about one billion people could die from using tobacco in the 21st century, mostly from developing countries. In the short term, smoking rates in Africa could increase by 148% by 2030, making tobacco control through research and intervention essential to prevent an imminent health catastrophe in that region (WHO, 2014).

Health Promotion in Africa

Non-communicable diseases are gradually becoming central to the future of healthcare in low and middle-income nations (Blecher & Ross, 2012; WHO, 2013). In Africa, better diagnostic equipment and increasing focus on early cancer screening have raised the number of people diagnosed with lung cancer. It takes several decades before the effects of smoking are experienced but targeted interventions can curb potential tobacco related fatalities (USDHHS,

2014). Rising smoking rates in Africa with projected population growth presents a unique opportunity for intervention using smoking prevention and smoking cessation programs.

In most industrialized countries, tobacco related research has been instrumental in the development of smoking cessation programs (WHO, 2014). Developing smoking cessation interventions begins with a description of people's perceptions of smoking within the population of interest, in this case, West, North, East or South Africa. Studying populations with similar cultures, such as Cameroon and Nigeria, would also yield useful data (Gentina, Butori, Rose, & Bakir, 2014). A contextual understanding of smoking perceptions and an examination of variables such as socio economic status and media influence are vital in formulating successful smoking cessation programs. Unfortunately few scholars have attempted to explore this topic in most low and middle-income countries in Africa such as Cameroon; thus, few smoking cessation programs exist.

Purpose Statement

The purpose of this study was to quantitatively describe smoking perceptions among adult Cameroonian men who smoke cigarettes, and to determine if there was a relationship between the demographic variables of age, education level, years of smoking, and number of quit attempts and smoking perceptions measured using the Smoking Consequences Questionnaire.

Theoretical Framework

Since its inception in 1982, researchers in nursing and other disciplines have used the Health Promotion Model (HPM) as a theoretical framework (Padden, Connors, Posey, Ricciardi, & Agazio, 2013). The HPM is a theory used to explain human behavior as it pertains to initiating and maintaining a positive state of wellbeing (Alkhalaileh, Khaled, Baker, & Bond, 2011). It was designed in the context of environmental, biological, and sociocultural variables,

which individually, or in concert with each other, influence the initiation of positive health behavior (Alkhalaileh et al., 2011).

Origin of the Health Promotion Model

Pender (1982) developed the HPM as an alternative way to conceptualize and view health behaviors and outcomes to health practices (Alkhalaileh, Khaled, Baker, & Bond, 2011; Pender, 2002). The first version of her work was published in 1982, and revised in 1987 and 2006 respectively. Pender viewed health as not only the absence of disease, but also the presence of proactive measures to optimize wellness (Pender, 2009); a view that came as an opposing perspective to the dominant model at the time, the Health Belief Model, in which positive and healthy behaviors were theorized as a reaction to the fear of disease (Cyr, Dunnagan, & Haynes, 2010). Described as a more holistic model, the HPM is characterized by integrating individual cognitive processes and environmental influences to generate a positive health behavioral outcome (Van Lange, Kruglsnaski, & Higgins, 2012). In her formulation of the HPM, Pender was influenced by the expectancy-value and social cognitive theories (Padden et al., 2013; Pender, 2011).

Expectancy Value Theory

Expectancy value theories were developed to explain human motivation and actions in relation to expectancies and values (Simmons-Morton, Leroy, & Wendel, 2012). Examples of these are the theory of reasoned action, theory of planned behavior, health belief model, and information-motivation-behavioral skills model. These theories provide a framework to explain logical behaviors and contemplations involved in decision-making (Simmons-Morton et al., 2012). The expectancy value theories show that individuals alter their behavior because of expectations and a set of beliefs (Simmons-Morton et al., 2012). Expectancies refer to an individual's beliefs regarding personal success. Values refer to how important, useful, and

enjoyable an individual may perceive a certain task (Simmons-Morton et al., 2012). For example, individuals who have experienced a myocardial infarction (MI) are more likely to be compliant with medications when they understand the benefits of such medications in relation to preventing a second MI.

Social Cognitive Theory (SCT)

Bandura (1960) proposed the social learning theory, now known as the social cognitive theory (Van Lange et al., 2012). He posited that individuals acquire knowledge directly by observing occurrences in their environment and are contributors in shaping the outcomes of their life's events. This means that individuals do not learn a new behavior with an unknown end point. Rather, they imitate or model behavior that they have observed with defined consequences (Bandura, 2012). For example, a child observes an older brother studying hard, enrolling in medical school and graduating as a medical doctor. This child subconsciously knows that studying hard and staying in school leads to graduation. Influenced by the expectancy value and social cognitive theories, Pender, whose doctoral studies were focused on psychology and education, wanted to create a model by merging both theories from a nursing perspective (Pender, Murdaugh, & Parsons, 2002).

Theoretical Constructs and Concepts of the Health Promotion Model

There are three main theoretical constructs in the HPM (See Appendix A):

- Individual characteristics and prior experiences,
- Behavior specific cognition and affect, and
- Behavioral outcomes.

Individual Characteristics and Experiences

Each person has unique characteristics that shape his or her behavior, including psychological, biological, and social factors (Alkhalaieh et al., 2011). Every person has experiences that influence the way he or she interact with the environment (Pender, 2011). Interacting concepts in this construct are prior behavior and personal factors (biological, psychological, and socio-economical) which influence individual perceptions about health related behavior (Pender et al., 2002).

Prior Related Behavior. The fundamental idea in the HPM is that prior behavior and personal factors, together with behavioral specific knowledge, influence an individual's determination to engage in health promoting lifestyle changes (Ho, Berggren, Dahlborg-Lyckhage, 2010). For example, a child who is taught that smoking can cause death has a perception about smoking that will influence their behavior as an adolescent. In contemplating initiating a health related behavior, prior experience has a direct relation to perceived benefits of action and perceived barriers to action. Past experiences also influence self-efficacy and self-esteem when engaging in a health related behavior. Self–efficacy is the belief in one's ability to succeed in specific tasks, affecting the way a person feels about them self (Ho et al., 2010).

Personal Factors. Personal factors are biological, psychological, or socioeconomic characteristics of an individual that influence health behavior (Raingruber, 2003). Biological factors are non-modifiable influences such as genetics. Psychological factors refer to mental and cognitive influences on behavior, and socioeconomic factors refer to social, financial, and other economic variances that can affect an individual's commitment to a health promoting behavior (Raingruber). Personal factors have a direct influence on perceived benefits, perceived barriers, and perceived self-efficacy. For example, low-income people are less likely than wealthy people

to engage in healthy eating after a diagnosis of borderline diabetes due to their economic limitation. A commitment to a health action plan can be affected by a complex combination of past experiences and interpersonal variables (Raingruber).

Behavior Specific Cognition and Affect

Behavior specific cognition and affect are individual awareness and feelings about a positive health outcome after behavioral modification (Pender, 2011). Possession, or not, of certain behavioral cognition and affect have significance for modifying interaction with the human environment. This knowledge and feelings (affect), which shape human interaction with the environment, are modifiable, usually towards a desired outcome (Pender). Interacting concepts in this construct are perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity related affect, interpersonal influences, and situational influences (Pender et al., 2002).

Perceived Benefits of Action. This refers to positive aspects derived from engaging in a health promoting behavior. Perceived self-efficacy, perceived barriers to action, interpersonal relationships, and situational influences also affect an individual's perceived benefits of action (Alkhalaieh et al., 2011). For example, exercising is good for an individual with diabetes (perceived benefits). Engaging in the action (exercise) is affected by friends (interpersonal relationships), feelings about his or her ability to maintain the routine (self-efficacy), and the ability to enroll in a local gym (situational influence).

Perceived Barriers to Action. Perceived barriers to action refer to obstacles that hinder commitment to a health promoting behavior (Pender et al., 2002). Barriers are physical or mental, and are influenced by all other concepts in the construct. Prior experiences and individual factors are potential obstacles in an individual's commitment to an action plan. For

example, an overweight diabetic adult may be reluctant to exercise because of a belief that weight is genetic. A prior unsuccessful attempt at losing weight also influences this person's perceptions about exercising and weight loss. Perceived barriers to action can be overcome by perceived benefits of action, in which case an individual is more likely to engage in a health promoting behavior (Padden et al., 2013). For example, perceived benefits of exercising for a diabetic adult (weight loss, decrease risk of heart problems, and increased glucose tolerance) outweigh potential barriers such as lack of motivation and distance to the gymnasium. In this scenario, the individual decides to overcome potential barriers because of perceived benefits of action (Padden et al., 2013).

Perceived Self-Efficacy and Activity Related Affect. Self-efficacy and activity-related affect are self-determined feelings about the ability to succeed after engaging in a health related behavior (Padden et al., 2013). Self-efficacy and personal affect are affected directly by past experiences and individual factors, and in turn, directly influence whether an individual commits to a health related behavior. High self-efficacy and positive affect increases the likelihood of engaging in health related behavior. On the other hand, low self-efficacy has the potential to derail a commitment to initiating health related behavior (Keegan et al., 2012). A diabetic adult who loses weight and has increased self-esteem is more likely to start eating healthy. Feeling good about succeeding increases engagement in health promoting behaviors (Pender et al., 2002).

Interpersonal Relationships and Situational Influences. Interpersonal relationships refer to family, friends, healthcare providers, role models, and everyone whose opinions or actions have the potential of influencing an individual's decision to engage in a health promoting behavior (Samiye, Kerziban, Tokat, Alus, & Pinar, 2013). These persons have the ability to

affect the way an individual feels, and thus, encourage or become an obstacle in their commitment to a healthy plan of action. Prior experiences and personal factors play an important role in shaping the worldview of friends and family members, which unintentionally affects the decisions of those who seek their opinions. For instance, after having withdrawal symptoms while attempting to stop using meth amphetamines, an individual may discourage a friend from quitting, an opinion solely derived from the meth user's prior experience.

Situational influences refer to individual deviations from engaging in a health promoting behavior as a result of specific situational variations (Raingruber, 2003). For example, a 26-year-old female with a family history of cervical cancer may be committed to performing yearly cervical exams; however, despite her commitment, she may be unable to undergo annual cervical examinations because she is uninsured. Situational influences may be anticipated, in which case, commitment to a health promoting behavior will depend on perceived benefits of action (Pender et al., 2002).

Behavioral Outcome

A behavioral outcome is the goal of the HPM (Pender at al., 2002). A set of individual characteristics and experiences, in the influence of modifiable knowledge and environmental variables, can lead to specific behavioral outcomes for health promotion (Pender, 2011). Interacting concepts in this construct are commitment to plan of action, competing demands and preferences, and the health promoting behavior.

Commitment to Plan of Action. This refers to the decision of engaging in a health promoting behavior (Alkhalaieh et al., 2011). Commitment to a plan of action is affected by perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity related affect, interpersonal relationships, and situational influences. Commitment to a plan of action is

the precursor to any health promoting behavior. An individual may have the intention of committing to a plan of action but has other competing demands, which inhibits initiation of a health promoting behavior (Alkhalaieh et al., 2011).

Competing Demands and Preferences. Starting a health promoting behavior can be hindered by other competing demands and preferences. For example, an individual can decide to exercise two times a week in a local gymnasium. However, exercising twice a week may have a competing demand such as attending a child's soccer game. This competing demand has a real possibility of being an obstacle to exercising. Competing demands are environmental situations over which an individual has low control such as family and work commitments, while competing preferences are alternatives over which an individual has high control (Alkhalaieh et al., 2011).

Health Promoting Behavior. Health promoting behavior represents the outcome of the health promotion model (Pender, 2009). Interaction between all involved concepts in the HPM leads to an individual's commitment (or not) to a health promoting behavior.

Theoretical Propositions of the Health Promotion Model

There are several propositional statements of the HPM. The following seven propositional statements are most applicable in this study:

- Inherited characteristics like race and sex, together with past experiences, influence an individual's beliefs and affect, which in turn affect the likelihood of an individual engaging in health promoting behavior.
- People engage in behaviors they perceive as being beneficial. Perceived barriers can hinder initiating a health promoting behavior.

- Perceived self-efficacy has a direct, positive relationship with engaging in particular health-promoting behaviors.
- Positive affect and self-efficacy have direct, positive relationships with engaging in health promoting behaviors.
- Increased commitment to particular positive health outcomes is more likely to result in achieving target goals when there are fewer competing demands over which the individual has less control.
- A commitment to an action plan may not result in the target health promoting behavior when there are alternative and more distracting choices.

Theoretical Assumptions of the Health Promotion Model

- Individuals work to positively regulate their behavior.
- Individuals are complex biophysical beings that interact with their environment to change it, and in turn are transformed by their environment.
- Health professionals are an integral part of the interpersonal environment that affects individuals throughout their life span.
- Self-initiated behavioral change involving the complex interaction between an individual and the environment is essential to change (Pender, 2011).

Adaptation of the HPM for Smoking Cessation

A modified version of the HPM was used in this study of Cameroonian men who smoke cigarettes, where prior behavior was smoking (See Appendix B). Personal factors in smokers are biological (such as genetic predisposition to addiction), psychological (such as wrongful perceptions about the benefits of smoking), and socio cultural (such as peer pressure and low cost of cigarettes). Perceived benefits for smoking cessation are improved self-esteem, living

longer, and decreased risk of cancer and heart disease. Perceived barriers to smoking cessation are nicotine addiction, peer pressure in favor of smoking, and easy availability of cigarettes. Family, friends, nurses, and other healthcare professionals can positively influence smokers to quit. Situational influences for continuing to smoke are poverty, unemployment, stress, and knowledge deficit.

Operational Application of the HPM in Smoking Cessation Research in Africa

Specific concepts in the HPM that were used in this study included perceived benefits of action, perceived barriers to action, and activity related affect. These concepts were applicable when considering the reasons why Cameroonian men smoke cigarettes, and why they may have considered quitting. In developing a smoking cessation program, these concepts would be useful in generating a model that is based on what Cameroonian men perceive as the benefits of smoking and the barriers of quitting smoking. In order to operationalize the concepts in this study, sub-scales in the Smoking Consequences Questionnaire (SCQ; Brandon & Baker, 1991) were used. (See Appendix C for the SCQ).

Table 1: Operationalization of the Health Promotion Model with subscales of the SCQ

Concepts from the HPM	Sub-scale in the SCQ
Perceived benefits of action	Negative consequences subscale (4 items)
Perceived barriers to action	Negative reinforcement subscale (7 items)
Activity related affect	Appetite /weight control subscale (5 items)

Summary

The HPM was developed to explain the complex process that occurs before people engage in a health promoting behaviors (Pender et al., 2002). Conceptualized in a holistic

fashion, the HPM is attractive to researchers in nursing and other social science disciplines. Numerous propositional statements and multiple possible interacting conceptual paths make the HPM one of the most used frameworks in nursing practice and research (Alkhalaieh et. al., 2011). Increasing focus on preventive health in the United States and other countries makes the HPM ideal for studies now and in the coming decades.

In Africa, projected population growth has sparked the curiosity of investors and companies worldwide (Blecher & Ross, 2012). Amongst these companies are tobacco manufacturers planning to broaden their consumer base (Savell et al., 2014). Unfortunately, smoking prevention and cessation programs are scarce in the African region. The HPM is a unique theoretical framework that can be applicable for a study that describes smoking perceptions among adult Cameroon men who smoke cigarette.

CHAPTER 2

Literature Review

This chapter is a review of the literature related to smoking. It is an in-depth examination of risk factors and perceptions associated with smoking worldwide with specific attention to Africa. The role of the tobacco industry in the rising rate of smoking in Africa is also examined. Projected population growth in Africa and the reasons for increasing smoking rates are addressed using Nigeria and Cameroon as examples. This review constitutes the following sections: (a) background and significance of smoking, (b) rate of smoking in the African Region, (c) population growth in Africa, (d) tobacco manufacturers, (e) Framework Convention on Tobacco Control, (f) smoking and health behaviors, and (g) smoking behavior in Nigeria and Cameroon.

Background and Significance of Smoking

Cigarettes and other tobacco products have adverse health consequences (Abrams, 2014). Knowledge about the negative effects of smoking influences whether people start or contemplate stopping the use of tobacco (Freedman, Nelson, & Feldman, 2011). A rise and drop in smoking prevalence in developed nations characterized the second half of the 20th century, but in Africa, smoking is becoming an epidemic (Tumwine, 2011). Projected population growth in Africa has led cigarette manufacturers to target new and younger smokers (Network of African Science Academies, 2014; Schmidt, 2014). Also, in response to the implementation of anti-tobacco policies developed at the Framework Convention on Tobacco Control (2004), tobacco manufacturers are rethinking and circumventing conventional advertisement strategies in low and medium income countries despite the number of smoking related fatalities (Savell, Gilmore, & Fooks, 2014).

Over five million people die annually from smoking related illnesses (Bierut, Johnson, & Saccone, 2014). Tobacco is responsible for one in every five deaths in the United States; kills

more people than HIV, tuberculosis, and malaria combined; and remains the only consumer product that is deadly to more than one third of its users (World Health Organization, 2013). Despite these shocking statistics, about 25% of adults continue to smoke, and approximately 3000 teenagers initiate smoking every day (Schmidt, 2014). Excess mortality in smokers is associated with smoking related diseases like lung cancer, heart disease, and respiratory diseases (Jha et al., 2014). Since 1987, lung cancer has surpassed breast cancer as a leading cause of death amongst U.S. women and is projected to kill about 56, 359 women every year (U.S. Department of Health and Human Services, 2014).

As more people consider quitting smoking in industrialized nations, the rate of smoking has been rising in African countries, also referred to as low and middle-income countries (Jemal et al., 2011; Thun, Delancey, Center, Jermal, & Ward, 2010). For instance, since 1965, the rate of smoking in the United States has dropped by about half (from 42% of adults to 18.1 %), while, in the same period, smoking rates in Tunisia, Zimbabwe, Uganda, and Nigeria have risen. This increase is caused by, among a multitude of factors, the number of children who start smoking as early as age 13, cheap and readily available cigarettes, and the slow, but steady change in youth culture that makes smoking amongst females acceptable (Blecher & Ross, 2012).

Smoking related deaths also disproportionately affect developing nations. For example, in 2011, tobacco use was responsible for six million deaths worldwide and about 80% were from low and middle-income countries (Blecher & Ross, 2012). Without appropriate interventions, the World Health Organization (WHO, 2014) projected that about one billion people could die from using tobacco in the 21st century, mostly from developing countries. In the short term,

smoking rates in Africa could increase by 148% by 2030, making tobacco control an opportunity to prevent an imminent health catastrophe in that region (WHO, 2012).

Rates of Smoking in the African Region

Until the last decade, the public health focus on Africa has been on communicable diseases such as HIV, malaria, and tuberculosis (Dalal et al., 2011). Research funding and domestic health policies have been directed disproportionately towards communicable diseases while ignoring the rise in non-communicable illnesses. By 2030, non-communicable diseases like lung cancer, heart disease, and cervical cancer will be responsible for more deaths in Africa (Dalal et al., 2011). Even worse, when communicable and non-communicable diseases co-exist in one individual, the prognosis is poor. Because tobacco has been identified as a causative agent of several cancers, and it affects multiple organ systems simultaneously, its consumer trajectory in Africa with high rates of communicable diseases is troubling (Marquez & Farrington, 2012).

Data from six health regions classified by the WHO (Africa, Eastern Mediterranean, European, Americas, Western Pacific, and South East Asia) suggest that smoking prevalence in developed regions, such as the American and European regions, is high (20.5% and 31.2% respectively) compared to smoking prevalence in the African region (15.8%; WHO, 2014). When analyzed with the human, social, and financial impact of tobacco related illnesses and deaths in mind, the current rise in tobacco use in Africa would have devastating consequences. For example, despite declining prevalence of smoking in South Africa, 12% to 25% of deaths amongst men are currently still linked to tobacco use (Prabhat & Peto, 2014). At this rate, together with population growth, the proportion of people (especially men) who use and die from tobacco intake is bound to increase (Prabhat & Peto). Other countries like Tunisia, Egypt, and

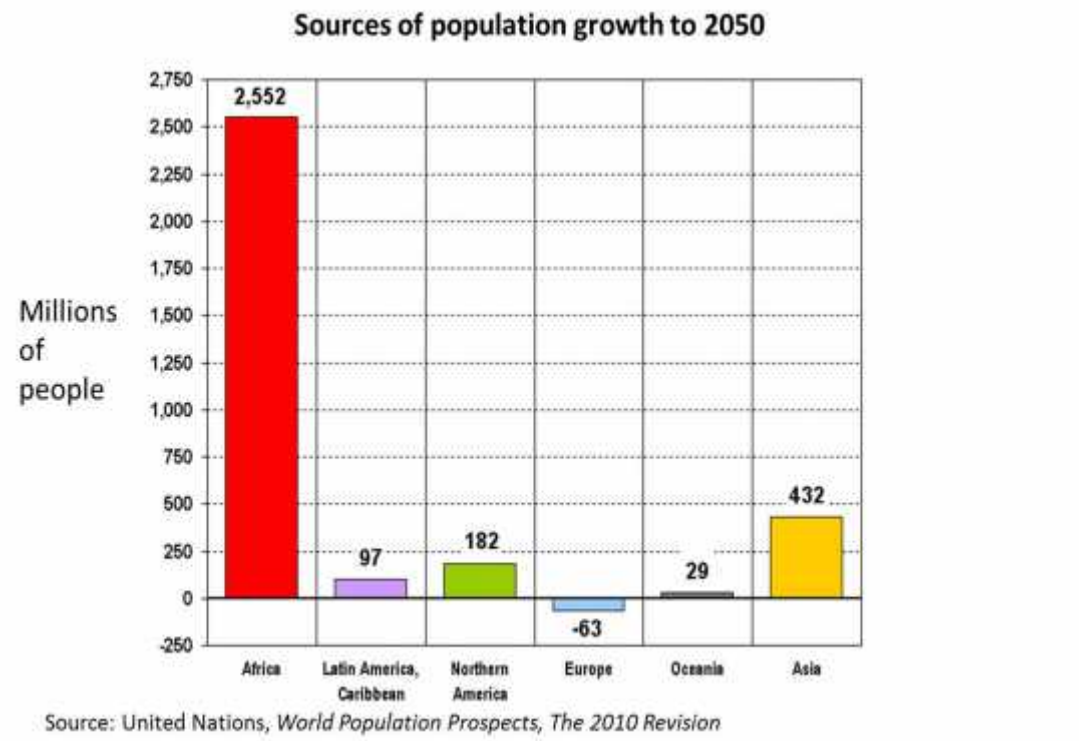
Kenya may have worse numbers because, compared to South Africa with a 22% smoking rate, they had higher smoking rates amongst men in 2009: 58.4 %, 39.7%, and 25.5% respectively (Erickson, Mechay, & Ross, 2013). Despite these statistics, most African leaders recognize the effects and costs of tobacco and have demonstrated their willingness to push back the tobacco epidemic by signing onto the international Framework Convention on Tobacco Control; a framework with policies to reduce tobacco use in light of population growth in Africa (Kale et al., 2012).

Population Growth in Africa

The current population of Africa is about 1.1 billion people (UNICEF, 2014). If current population growth patterns continue, the population of Africa could reach 4.2 billion people by the end of the century. By 2050, the population could hit 2.4 billion persons, with more than 18 million under the age of 18 (UNICEF, 2014). This means that about half of all children in the world would be living in Africa. This population boom can be explained by the fact that poor African countries have the highest fertility rates in the world. For example, on average, women in developed countries have two children, while in Niger, Mali, and Nigeria, in 2014, the average number of children per woman was 7.6, 6.9, and 6.0 respectively. Women in the lower poverty quintile have about 3.2 children more than women in the top wealth quintile (The Economist, 2014).

Despite the projected increase in population, there is still enough landmass to accommodate the unprecedented growth. Asia, the most densely populated continent, has approximately 137 people per square kilometer (The Economist, 2014). Africa, which makes up a quarter of the globe's landmass, has approximately 39 people per square kilometer, mostly in rural areas. As a result, migration experts are predicting an imminent rural to urban migration in

Africa in the coming decades (Guengant & May, 2014; UNICEF, 2014). The graph below (Figure 1) is a simple illustration of projected population growth in Africa compared to other continents by 2050.



This expected population expansion is what makes Africa increasingly central to global economics. Multibillion-dollar companies and investment firms are increasingly exploring opportunities in Africa, amongst which is the tobacco industry, with particular interest in the younger demographics (Brodwin, 2013). In Nigeria alone, the population is likely to increase from 180 million people today to about 1 billion people by the end of this century. Nigeria will account for 1 of all 12 births worldwide (UNICEF, 2014), leading some authors to conclude that the world is increasingly becoming African (Chipman & Nield, 2012).

Nigeria and Cameroon

Nigeria is found in West Africa and has a population of 173.6 million people, with a gross domestic product (GDP) of $52 billion; 80.2 trillion naira, Nigerian currency (World Bank,

2013). It is ranked 24th in the list of world biggest economies, higher than South Africa, Belgium, and Taiwan (The Economist, 2014). Centrally located in West Africa, Nigeria has a land mass of about 923.768 kilometers, and shares international boundaries with the republic of Cameroon to the East, Niger and Chad to the North, and Benin to the West. The Atlantic Ocean is found in the South, so Nigeria serves as an international port for imports and exports. Unlike most African countries, Nigeria has a federal system of government with decentralized territorial control. The federal capital is centrally located in Abuja (The Economist, 2014). In 2012, depending on what data are reviewed, about 10% to 12% of Nigerians (15years or older) used tobacco products, with the proportion of smokers significantly higher amongst men (10.1%) than women (1.2%), and trending upwards (Kale et al., 2013).

Nigeria and Cameroon (with populations of about 23 million people) have similar ethnic and cultural traditions. Both countries have hundreds of ethnic tribes composed of Christians and Muslims. Cross boundary migration is common between both countries. Cities located at the border are split between both countries. The rate of smoking is trending upwards in both countries with the age of smoking initiation continually decreasing (Jemal et al., 2011; Roschenthaler, 2015).

In Nigeria and Cameroon, as in most parts of Africa, cigarettes are sold in packs and also retailed as single cigarettes, making them available and affordable to teenagers who typically initiate smoking as early as 11 to 13years of age (Kluger, 2009). The rise in discretionary income, increased investment from foreign countries, and the ready availability of cheap cigarettes make it easy for teenagers to start smoking. For instance, a pack of cigarettes costs $0.32 (N50, Nigerian currency and 300CFA Cameroon currency) to approximately $1.27 (N200 and 600CFA) for premium brands. Each pack contains twenty cigarettes, so when retailed as

'singles', the cost is significantly less. Despite being poor, most adults and teenagers have the ability to purchase cigarettes multiple times a day, a habit that is enhanced either directly or indirect by tobacco manufacturers (Agaku, Akinyele, & Oluwafemi, 2012).

Tobacco Manufacturers

To increase demand, cigarette manufacturers target first-time tobacco users and advertise smoking as a socially acceptable behavior (Brodwin, 2013). This helps in reducing anxieties and fears associated with teenagers who smoke, which in turn presents a unique opportunity for interventions to inhibit smoking initiation (Prabhat & Peto, 2014). Increased awareness of the health consequences of smoking, and countrywide implementation of policies adopted by the United Nations against advertising tobacco products, have led to alternative approaches by tobacco manufacturers to increase the number of first-time smokers and prevent current smokers from quitting (Agaku et al., 2012). For example, manufacturers are absorbing excise taxes originally designed to inhibit smoking (Network of African Science Academies, 2014).

Other tactics used by tobacco manufacturers to increase clientele are (1) to portray smoking as normal among females who, unlike in developed nations, use tobacco at significantly lower rates than males (Blecher & Ross, 2012), (2) to influence lawmakers through lobbying with misleading arguments about the effects of smoking (Smith, Savell, & Gillmore, 2013), and (3) to invest in local economies by building packaging companies that employ members of the community (Agaku et al., 2012). Despite the changing tactics, unrelenting efforts from public health experts through anti-tobacco campaigns, sustained resistance from policy makers to enact anti-advertisement laws, and the de-normalization of smoking within at-risk groups can be very influential in slowing down smoking rates in Africa (Pierce, White, & Emery, 2011).

The Framework Convention on Tobacco Control (FCTC)

The FCTC is an evidence-based treaty developed by the WHO in response to the global tobacco epidemic (Tumwine, 2011). The objective of the FCTC treaty is to form a coherent and robust reaction to the increasingly powerful and influential tobacco industry worldwide. This includes the use of a multi-factorial approach comprised of price measures (tax hikes, advertisement bans, packaging controls) and non-price measures (regulations, education, public health policy) to resist and reduce the influence of tobacco manufacturers around the world. These measures are designed to do the following:

- Protect people from exposure to tobacco smoke
- Regulate the contents of tobacco products
- Regulate packaging, labeling, and disclosure of tobacco products
- Educate and train public officials about adverse effects of smoking and the need for tobacco advertisement control
- Increase public awareness about the dangers of smoking, and
- Regulate tobacco advertisement and sponsorship

These policy measures, interventions, and regulations, are particularly important for Africa, which will account for more than 60% of total tobacco consumers in the coming decades due to the rapid population growth rate (Kale et al., 2012).

Smoking and Health Behaviors

Although the effects of smoking are well documented in relation to lung cancer, cardiovascular diseases, and multiple medical conditions, it is surprising how people perceive smoking risks. For example, smokers may comprehend short-term risks (such as body odor) and

direct risks (such as lung cancer), but not associated risks such as delayed healing from other medical conditions and poor treatment outcomes for common medical conditions like diabetes and hypertension (Prabhat & Peto, 2014; Schmidt, 2014). Long-term smokers poorly understand associated risks such as diminished healing and recovery from other medical conditions. These chronic tobacco users tend to rationalize their smoking habit, or minimize potential complications associated with smoking (Abrams, 2014).

Health behaviors vary in relation to smoking risk perceptions (Song et al., 2013). Cultural and gender differences influence risk perceptions, actual smoking rates, and the implementation of smoking cessation interventions (Song et al.,2013). For example, in the United States, 15.3 percent of females and 20.4 percent of males smoke. Meanwhile in Nigeria, only 1.2 percent of females and 12 percent of males smoke (Center for Disease Control [CDC], 2013). Due to a rise in first time smokers amongst Nigerian teens, the number of female smokers is trending upwards (Makinde & Aluko, 2012).

Most people initiate smoking during their teenage years (Song et al., 2013). In this demography, increased smoking risk perceptions are associated with reduced smoking initiation. Song et al. (2013) found that adolescents with limited smoking risk perceptions were 3.64 times more likely to initiate smoking. Adolescents who attribute smoking to growing up, social inclusivity, and looking cool were 3.31 times more likely to initiate smoking (Song et al.). Worth noting amongst adolescents are false misconceptions about the harmful effects of light and intermittent smoking (Amrock & Weitzman, 2015). For instance, in the United States, despite knowing that heavy smoking is associated with adverse health conditions, as much as one quarter of adolescents (more males, younger age, Hispanics, and non-Hispanic blacks) believe that intermittent smoking has little or no harmful effects. Intermittent smokers tend not to call

themselves ‘smokers’ and disregard potential consequences associated with tobacco; unfortunately, the group of intermittent smokers is growing (Schane, Ling, & Glantz, 2010).

Smokers, while downplaying the importance of personal risks, consistently accept that cigarette use increases health risk but estimate the nature of the risks as low when compared to non-smokers (Network of African Science Academies, 2014). Smoking risk perceptions have been empirically linked to the initiation, continuation, and cessation of smoking. Overall, people who perceive smoking as risky are less likely to initiate smoking or continue to smoke and more likely to quit smoking. Those who continue smoking do so even though the dangers associated with tobacco are well understood (Song et al., 2009).

In the face of mounting and undeniable evidence that tobacco is related to multiple health problems, some smokers have relied on self-rationalization, logic, and indeed, pitiful comparisons to justify their use of tobacco (Abrams, 2014). For example, someone who smokes one pack of cigarettes a day feels healthier than his colleague smoking two or more packs a day. Other individuals falsely believe that different brands of cigarette have lesser risk than others (Nitcher, 2015). The media, especially in low and middle-income countries, influences such perceptions.

In most developing nations, the media remains the main source of health information and has few restrictions on the kind and type of advertisement by tobacco manufacturers (Jha, Phil, & Peto, 2014). Although efforts are being made by some governments, for example South Africa and Ghana, to mandate disclosure and safety product labeling by tobacco companies, other nations, like Cameroon and Nigeria, are handicapped by poor legislative structures (Chiepman & Nield, 2012). Recently, a campaign by the WHO (2010) would mandate tobacco producers, through state government, to implement special cigarette package labeling (such as an

image of oral cancer lesions or lung cancer). This is intended to influence perceptions about smoking, hence inhibit initiation and enhance the progression from pre-contemplation to contemplation stage of change for those who want to quit (Norcross, Krebbs, & Prochaska, 2011). To understand health behaviors related to smoking, it is important to explore why people smoke, how people get addicted to nicotine, and smoking cessation interventions that are currently being used.

Why People Smoke

Smokers describe a pleasurable sensation and relaxed mood after smoking (Rosenthall, Weitzman, & Benowitz, 2011). Some people smoke as a means to relieve stress, but others use tobacco and alcohol as a psychological reward. In teenagers, smoking is used as a means to express maturity and a sense of belonging or fitting in (Amrock & Weitzman, 2015). Peer pressure plays a significant role in smoking initiation in this group. Unlike men, some women use nicotine as a means to help prevent weight gain (Tweed, Hsia, & Friedman, 2012). Due to the addictive nature of nicotine, some people find it difficult to quit smoking despite their intentions to do so, and they may have difficulties functioning without smoking (Rosenthal et al., 2011).

Addictive Nature of Tobacco

There is universal consensus about the damaging effects of smoking (Bernowitz & Henningfield, 2012); however, this knowledge itself does not result in smoking cessation. The reason why knowing the dangers of smoking does not directly lead to smoking cessation is because of the addictive nature of nicotine. During smoking, nicotine gets rapidly absorbed through the airway and soft mucosa lining the airways into the blood stream (Rosenthal et al., 2011). Estimates are that it takes as little as 10 seconds for nicotine to get absorbed. Next, the

absorbed nicotine is rapidly transmitted to the brain where nicotine receptors are found. The binding of nicotine to nicotine-receptors in the brain leads to the release of adrenaline. Adrenaline creates a sensation of pleasure and energy lasting approximately 10 minutes, which is equivalent to the distribution half-life of nicotine in the brain (Bernowitz & Henningfield, 2012).

As the pleasurable feeling fades away, the smoker feels the need to light up another cigarette to sustain the cigarette-derived pleasure. Increased frequency of smoking leads to an increase in the amount of nicotine delivered to the brain, which in turn increases nicotine tolerance and nicotine addiction (Bernowitz & Henningfield, 2012). When nicotine receptors become accustomed to high amounts of nicotine, the absence or diminished supply of nicotine causes withdrawal symptoms such as headache, anxiety, irritability, and difficulty focusing (National Institutes of Health [NIH], 2012). Adolescents are more sensitive to nicotine, making them more likely to become addicted. The constant up and down feeling from smoking and the need to avoid withdrawal symptoms are what make people continue lighting up even after deciding to quit (U.S. Department of Health & Human Services, 2014).

Why and How People Stop Smoking

There are numerous reasons why people consider quitting tobacco use. Some people come to the realization that smoking does nothing but harm, both mentally and physically, and decide to avoid future health problems (Polosa1, Rodu, Caponnetto, Maglia, & Racitil, 2013). Others quit because they have been diagnosed with a chronic medical condition like chronic obstructive pulmonary disease (COPD), diabetes, peripheral vascular disease, or any kind of cancer, all of which have a bad prognosis with cigarette use. For some people, socio economic reasons such as lack of access to cigarettes, relationship pressures, and increasing cigarette prices are their reasons for quitting (Jha et al., 2014). Women frequently refer to pregnancy and

childbirth as the reason they stopped smoking. No matter the reason for intending to quit smoking, several approaches are being employed in cessation programs (Centers for Disease Control, 2014).

Smoking Cessation

Smoking cessation interventions fall under three broad categories: pharmacological therapy (nicotine replacement therapies), behavioral resources, and brief physician reminders (Larzelere & Williams, 2012). Pharmacological treatments currently used include nicotine patches, wellbutrin, and chantix. These medications are composed of chemical molecules that bind to nicotine-receptor sites in the brain, thereby reducing cravings and the psychological need for nicotine (Larzelere & Williams, 2012).

Behavioral resources that increase quit attempts are telephone counseling, group therapy, and exercise. People smoke as part of a routine or ritual at specific times of the day (for example, after eating). This means that strategies employed in stopping other human behaviors and addictions, when applied in smoking cessation programs, produce desired outcomes. Group therapy and telephone counseling help in cessation programs as a way to encourage and keep a smoker focused on quitting. Exercise is used as routine replacement for smoking (Ussher, Taylor, & Faulkner, 2014). Constant reminder by health care professionals about the adverse effects of smoking also influences some people's decision to consider quitting (Lazalere & Williams, 2012). Behavioral resources alone or in combination with nicotine replacement therapy have better outcomes (Ussher at al., 2014).

Smoking cessation success varies based on type of cessation method employed, individual determination to quit, and physiological tolerability (Stead et al., 2012). Even though quitting smoking is beneficial at any age, the mortality rate of people who quit by age 35 is similar to those who never smoked, despite concerns about relapsing (CDC, 2010). On the other

hand, relapses are very common. Despite the difficulties associated with smoking cessation, some people actually succeed, usually after several attempts (Lazalere & Williams, 2012). This means that more comprehensive strategies and research are needed to help in this effort. In 2011, members of a United Nations high-level meeting on non-communicable diseases suggested a reduction in the amount of nicotine found in cigarette (Beaglehole, Bonita, Yach, Mackay, & Reddy, 2015). This reduction, according to expert's estimate, would reduce smokers worldwide to less than 5% by 2040. It would account for a drop in non-communicable disease death rates by 2% per year and have an annual implementation budget of about $9 billion dollars globally (Beaglehole et al., 2011).

Smoking Behavior in Nigeria and Cameroon

Smokers in Nigeria comprehend direct risks but have a lesser understanding of associated risks such as the role of smoking in other medical conditions other than cancer and heart disease (Oluwole et al., 2012). Unlike in developed nations, Nigerian and Cameroonian females are less likely than males to initiate smoking. Although the percentage of smoking among females is generally low (less than 2%, and males about 12.5%), smoking prevalence varies in different sub groups. For example, smoking is higher among younger girls and in particular occupational groups such as female sex workers, with rates as high as 20.8% (Odukoya, 2013). Culturally, smoking is still considered unusual for females, especially in rural areas. In recent decades, urbanization and the incorporation of western values by Nigerian and Cameroonian youth has resulted in a more liberal view of female smokers (Raj, 2014).

Membership in the FCTC authored by WHO (2006) has resulted in a more engaged Nigerian federal government (Tumwine, 2011). New laws, such as increased sales taxes, have been enacted to help curb the rising smoking trend in Nigeria. Recommendations of the FCTC

are being implemented which requires full safety disclosure about the dangers of smoking. Marketing by tobacco manufacturers is being restricted, and increasing educational campaigns have heightened awareness about the consequences of smoking while encouraging cessation (Agaku et al., 2012).

A poor healthcare system in Africa and continued fixation on communicable diseases has led to scarcity of funding for smoking cessation programs (Ogundari & Abdula, 2014). There are no centralized call lines dedicated to assist people who want to stop smoking. For those who quit, the effort is mostly personal with little or no professional support. Of all three categories of smoking cessation, physician reminders are the most prevalent in both countries. Public media campaigns are also used to increase awareness about the dangers of tobacco (Agaku et al., 2012).

Few studies have been conducted to explore why Nigerians and Cameroonians smoke. In one study in Nigeria, rationales for smoking ranged from stress relief and relaxation, to peer expectation and the need to fit in (Odeyemi, Osibogun, Akinsete, & Sadiq, 2009). In Nigeria, very few studies have been conducted to find out the effectiveness of smoking cessation programs or smoking prevention initiative (Perl et al., 2014; Yunusa, Abdullahi, Oliagba, Sanni, & Umma, 2014) whereas in Cameroon, no studies were found. Demographic changes and smoking trends are easily identified in Nigeria because it is the most populous country in Africa, and fourth in the world, meanwhile similar changes go mostly unnoticed in Cameroon and other smaller developing countries.

Smoking prevention is the best intervention to alter the current trajectory of tobacco use in low and middle-income nations such as Nigeria and Cameroon (Farmer et al., 2010). For smokers, smoking cessation programs have been shown to help reduce the number of quit attempts for people who want to stop smoking (NIH, 2012). To design and implement smoking

cessation programs, understanding people's perceptions and beliefs about smoking is necessary. This represents an important gap in knowledge about smoking in Cameroon that when bridged, would help researchers to develop more precise and targeted smoking cessation programs.

Summary

The adverse effects of smoking have been well established (Bierut et al., 2014). Smoking rates in developed countries spiked about six decades ago and are now declining. In Africa and other low and middle-income countries, the reverse is true. Even more concerning is the fact that Africa will experience an exponential population growth in the coming decades. One in every five children will be living in Africa (UNICEF, 2014). Cigarette manufacturers are determined to make use of this opportunity to increase their consumption base (Savell et al., 2014), which also creates a unique opportunity for health care professionals to prevent an impending healthcare catastrophe in Africa.

In developed countries, several smoking cessation approaches are employed to help people quit smoking (Ussher et al., 2011). Because of other healthcare priorities, these approaches are nonexistent or rarely used in Africa. For example, in Nigeria, there are few structural programs by local health departments for smoking prevention or cessation. In Cameroon, there is no documented smoking cessation program. Even though participating in, and implementing recommendations of the FCTC is beginning to make a difference (Tumwine, 2011), more research is necessary to enable the development of smoking prevention and smoking cessation programs in Nigeria and Cameroon.

CHAPTER 3

Methodology

The purpose of this study was to describe smoking knowledge and perceptions among adult Cameroonian men who smoke cigarettes. Secondly, to determine if there was a relationship between the demographic variables of age, education level, years of smoking, and number of quit attempts and the four subscales in the Smoking Consequences Questionnaire (S-SCQ). This information is important because there are currently no smoking cessation programs in Cameroon, despite the growing population and a rising rate of smoking. Understanding smoking habits, knowledge, and perceptions of male smokers will be important for developing anti-smoking public health campaigns and smoking cessation programs in the future. This chapter contains the following sections: (a) research design, (b) population, (c) sample and recruitment, (d) Institutional Review Board and ethics, (e) instrumentation, (f) data collection, (g) data analysis, and (h) assumptions and limitations.

Research Design

A descriptive, correlational design was used for this study. In descriptive studies, information is collected without changing or manipulating the environment, thus, it describes the state of a given problem at a given time (Matthie & Mcmillan, 2014; Office of Human Research Development, 2014). In new areas of research where there has been limited scientific inquiry, descriptive studies are important in showing trends and helping to better understand a phenomenon of interest. Descriptive study designs illuminate areas where future research is needed (William, Hwo, Kobayashi, & Oguru, 2013). In this study, a descriptive design reflected current smoking knowledge and risk perceptions among adult Cameroonian men. Additionally,

correlations were computed between smoking perceptions and the demographic variables of age, education level, years of smoking, and number of quit attempts.

Population

Cameroon has a population of 23 million people; 64% females and 36% males (Central Intelligence Agency, 2015). Cameroon is divided into ten regions. Eight of the ten regions utilize French as the official language while two regions use English. There are approximately 250 different ethnic groups in Cameroon with about 270 ethnic languages (National Geographic, 2015). In Cameroon, about 12% of males but only 2.1 % of females smoke cigarettes. For this reason, the study focused on men only.

The study was conducted in the cities of Buea, Muea, and Mutengene located in the South West Region of Cameroon. This region is one of the two English-speaking regions. Buea is a vibrant city less than an hour's drive from Mutengene, Tiko, Limbe, and Muea, which are cities with high economic activities. The presence of a university in Buea increased the opportunity of enrolling subjects from all ten regions of the country. In order to control the sample from being mostly university students, half of those enrolled did not have a college education.

Sample and Recruitment

The sample was a purposive, convenience sample of adult Cameroonian men who smoked cigarettes. Subjects were older than 18 years of age, and able to speak and write in English. Men with any form of cognitive impairment were to be excluded from participating in the study since they would not be able to accurately complete the survey. This was done by verbally asking any interested participant whether he had, or had ever been told of, a history of memory, speech, or developmental problem. Fortunately, no one was excluded for having

cognitive limitations. Purposive sampling included equal numbers of university adult students and non-university adults given that recruitment was in a city where a university was located.

In descriptive studies, generalizability of findings is the focus; and a larger sample would be a better representation of the study population (Bagilkar & Savadatti, 2015; Kaur & Gill, 2015). Recruiting subjects in Buea made the sample more diverse and representative of Cameroon. The sample comprised of 200 subjects (100 university students and 100 non-university adults).

Recruitment was done locally through distribution of a one-page flyer, and by a radio announcement (See Appendix D for the recruitment text). Buea, Muea, and Mutengene are cities with high levels of community and social activities. Recruitment was also done in local community centers, coffee shops, and restaurants. These locations are found around the university campus in Buea where 50% of the subjects (students) were enrolled.

Post Hoc Power Analysis

A power analysis was performed using G-Power 3.1.9.2 to determine the minimum sample size needed for this study. For a medium effect size of 0.50 and an alpha level = 0.05, the minimum sample size needed to achieve an 80% power was 29.

The G-power output

Exact - Correlation: Bivariate normal model

Options: exact distribution

Analysis: A priori: Compute required sample size

Input: Tail(s) = Two

Correlation ρ H1 = 0.5

α err prob = 0.05

Power (1-β err prob) = 0.80

Correlation ρ H0 = 0

Output: Lower critical r = -0.3672777

Upper critical r = 0.3672777

Total sample size = 29

Actual power =0.8139420

Institutional Review Board and Ethics

Following standard practice and guidelines provided by the University of Texas at Arlington Institutional Review Board (IRB), the researcher developed a consent form that outlined the purpose and description of the study. Research subject's rights and confidentiality procedures were explained and every subject was able to contact the researcher. Each research subject read the consent form and was provided the opportunity to ask questions, without coercion. Each subject then signed the consent form without indicating their name or any information that could link the subject to the study (see Appendix E). Six participants declined to take part in the study after arriving at the data collection site.

Subjects were also informed of their ability to refuse to take part in the study without fear of recrimination, as participation was voluntary. Research subjects were not rewarded for taking part in the study, and there was no direct benefit to them. However, potential benefits of the study for society include; (1) improving our understanding of smoking patterns and demographics in Cameroon, (2) developing targeted interventions to prevent smoking initiation, and (3) providing a basis for further studies which could potentially save lives and improve other health outcomes.

Instrumentation

The Smoking Consequences Questionnaire (SCQ; Brandon & Baker, 1991) was used to assess smoking knowledge and perceptions in this population (See Appendix C). The SCQ was developed to assess smoking expectancies, referred to as subjective expected utility in college students. The initial instrument was comprised of 50 items divided into four subscales. In later studies, refinement of items and factor analysis led to the development of a short form, the S-SCQ. The new instrument is a 21-item self-reported measure using a 10-point Likert scale. The items are grouped into four subscales that were part of the original SCQ (Myers, McCarthy, MacPherson, & Brown, 2003). At the end of the questionnaire, participants were asked to provide demographic information (See appendix F).

The subscales and number of items within each subscale in the S-SCQ are as follows:

- Negative consequences (4 items): 11, 15, 18, and 21;
- Negative reinforcement (7 items): 3, 5, 7, 12, 14, 19, and 20;
- Positive reinforcement (5 items): 1, 4, 8, 9, and 10;
- Appetite/ weight control (5 items): 2, 6, 13, 16, and 17.

Administration: The S-SCQ was self-administered using a pencil or pen and paper

Scoring

The numeric value of each subscale was obtained by a summation of each item score on that subscale. The higher the sub-scale score, the stronger the subject's expectancy or perception of that consequence/reinforcement. The lower the subscale score, the weaker the expectancy or perception of the items on that sub-scale. For example, a smoker with a numeric score of 80 on the negative consequences scale has an overall higher perception of the adverse effects of smoking than a smoker who scores 60 on the same subscale.

Psychometrics Properties of the Smoking Consequences Questionnaire

In cross validating the S- SCQ between adults and adolescents, researchers found strong internal consistencies of the subscales as follows: negative consequences scale (Cronbach alpha of 0.84), negative reinforcement scale (Cronbach's alpha of 0.92), positive reinforcement scale (Cronbach alpha of .95), and appetite/weight control scale (Cronbach's alpha of 0.93; Myers, McCarthy, MacPherson, & Brown, 2003). Confirmatory factor analysis of all four factors showed good fit. Finally, both concurrent and predictive validities have been found in association with cigarettes smoking quantity; r =0.50 in adults and 0.32 in adolescents, and smoking frequency; r =0.42 in adults and 0.32 in adolescents (Myers et al., 2003).

For this dissertation study, 20 subjects were interviewed about their ease of use and understanding of the SCQ because Cameroon has a different culture from populations (samples) in which the questionnaire had been used. These interviews showed that participants understood the questions and answered them accordingly, which established face validity of the S-SCQ as a measure of smoking perceptions among adult Cameroonian men who smoked cigarettes.

Cronbach's coefficient alpha was used to determine the internal consistency of items in each of the subscales in the S-SCQ to gauge the reliability. The general guidelines for alpha values are: 0.90 to 1.0 are excellent, 0.80 to 0.89 are good, 0.70 to 0.79 are acceptable, 0.60 to 0.69 are questionable, 0.50 to 0.59 are poor, and below 0.50 are unacceptable (Cronbach, 1951) The results below (Table 2) indicate that the reliability of the survey instrument was acceptable.

Table 2: Reliability of S-SCQ for study

Subscale in the S-SCQ	**Cronbach's alpha**	**Interpretation**
Negative consequences	0.784	Acceptable

Negative reinforcement	0.860	Good
Positive consequences	0.852	Good
Appetite/Weight control	0.737	Acceptable

Setting and Data collection

With permission from the owner of a community activity center, a room in the center's main building was used for administering the questionnaire. A time was allocated for subjects to arrive and be ready to answer survey questions. No special mode of transportation was provided. Subjects arrived at the location by different means; most students lived around the university campus where the center was located. The cities of Muea and Mutengene were also used for recruiting non-students during their traditional weekend and quarter meetings. A quarter meeting is a spontaneous or planned gathering of people within specific communities, usually on weekends, to socialize and discuss issues affecting their community.

When individuals who were willing to participate in the study came to the activity center, the principal researcher explained the process and rationale for the study to them. All research subjects were given a chance to ask questions. After verbally consenting to take part in the study, the questionnaire was distributed to the subjects in the form of a paper and pencil/pen instrument. Data collection took about 20 minutes. All completed questionnaires and demographics sheets were collected before participants left the data collection site.

Data Coding and Analysis

Data analysis was done using the Statistical Package for the Social Science (SPSS) 22.0. The data were coded as follows: demographics questions (D1-D8) and S-SCQ (21 questions: Q1-Q21)

D1: How old are you (in years)?

D2: How old were you when you started smoking (in years)?

D3: On average, how many cigarettes do you smoke a day?

D4: Do you have a parent who smokes? Yes=1 or No=2

D5: What is your highest level of education?

Primary=1, secondary=2, or college=3

D6: At what age did you first know about the dangers of smoking?

D7: Have you ever attempted to stop smoking? Yes=1 or No=2

D7_1: If yes, how many times have you attempted to stop smoking?

D8: Are you married? Married=1 or single=2

The S-SCQ: 21 items, responses rating from 0-9, with 0=completely unlikely to 9=completely likely.

Descriptive statistics was used to report the mean, mode, median, standard deviations, and relationships between variables in a data set without inferring causation (Matthie & Mcmillan, 2014). In addition to descriptive statistics, correlations between the demographic variables of age, education level, years of smoking, and number of quit attempts, and concepts in the HPM were analyzed using Spearman's correlation coefficient and Kruskal-Wallis tests.

The Spearman's correlation coefficient and the Kruskal-Wallis tests were used because the data were not normally distributed. In order to use Pearson's product-moment correlation coefficient (r) for data analysis, the data must meet two assumptions. The two variables should be measured in ordinal, interval, or ratio scale, and both variables have to show a monotonic relationship. In a monotonic relationship, either variables increase or decrease together, or as one variable increases, the second variable decreases (Laerd Statistics, 2015). All three

assumptions for using Spearman's correlation where not met. Scatterplots and regression lines were also used to highlight the relationship between the study variables.

Three concepts in the HPM were operationalized in this study using the Smoking Consequences Questionnaire (S-SCQ). The three concepts were perceived benefits of action, perceived barriers to action, and activity related affect. Below is an illustration to show how the three concepts were measured using subscales in the S-SQC.

Concept: Perceived benefits of action measured using items in the negative consequences sub-scale.

1. Smoking is taking years off my life.
2. Smoking is hazardous to my health.
3. The more I smoke, the more I risk my health.
4. By smoking I risk heart disease and lung cancer.

Concept: Perceived barriers to action measured using items in the negative reinforcement sub-scale.

1. When I'm angry a cigarette can calm me down.
2. Cigarettes help me deal with anger.
3. Cigarettes help me deal with anxiety or worry.
4. Smoking calms me down when I feel nervous.
5. Smoking helps me deal with depression.
6. Cigarettes help me reduce or handle tension.
7. When I'm upset with someone, a cigarette helps me cope.

Concept: Activity related affect control measured using items in the appetite-weight control sub-scale.

1. Smoking helps me control my weight.
2. Smoking keeps my weight down.

3. Cigarettes keep me from eating more than I should.
4. Smoking controls my appetite.
5. Cigarettes keep me from overeating.

Positive reinforcement sub-scale: Items in the positive reinforcement subscale were included in data analysis for descriptive purposes. No correlations were anticipated with items in the positive reinforcement subscale and any demographic variable. The items include:

1. Cigarettes taste good.
2. I enjoy the taste sensations while smoking.
3. When I smoke, the taste is pleasant.
4. I will enjoy the flavor of a cigarette.
5. I enjoy feeling a cigarette on my tongue and lips.

Table 3: Demographics and study variables: Scale of measurement with the SCQ

Demographic variables	**Study variables**
Education (ordinal data)	Perceived benefits of action (ordinal/interval data)
Age (ratio/interval data)	Perceived barriers to action (ordinal/interval data)
Years of smoking (ratio/interval data)	Perceived barriers to action (ordinal/interval data)
Number of quit attempts (ratio/interval data)	Activity related affect and perceived benefits of action (ordinal/interval data)

Main Assumption

The main assumption for this study was that subjects would report truthfully about their smoking risk perceptions and smoking habits.

Summary

In this chapter, the study design (descriptive/correlational) was introduced and the rationale for using a descriptive method was addressed. The sample recruitment method was

explained highlighting both inclusion and exclusion criteria. Instrumentation, IRB concerns, data collection, data analysis, and the main assumption of the study were also explained.

CHAPTER 4

Findings

The purpose of this study was twofold: to describe smoking perceptions among adult Cameroonian men, and to determine if there was a relationship between the four subscales of S-SCQ and the demographic variables of age, education level, years of smoking (computed as age minus age starting smoking), and number of quit attempts. The health promotion model was used as the theoretical model for this study. The table below shows how concepts in the HPM were operationalized using subscales of the S-SCQ.

Operationalizing Concepts in the HPM

Concepts	Sub-scale in the SCQ
Perceived benefits of action	Negative consequences subscale (4 items)
Perceived barriers to action	Negative reinforcement subscale (7 items)
Activity related affect	Appetite /weight control subscale (5 items)

The short form of the Smoking Consequences Questionnaire (S-SCQ) contains twenty one 10-point Likert scale items that can be used to assess smoking knowledge and perceptions. The items can be grouped into four subscales as listed in the table. The composite scores of each subscale were obtained by summing the ratings of the corresponding items on that subscale. Higher scores indicated stronger expectancy or perception of that consequence/reinforcement. Demographics such as age, number of cigarettes smoked a day, parent with habit of smoking, age of smoking onset, education level, age knowing the dangers of smoking, number of quit attempts, and marital status, were also collected.

Anticipated correlations prior to the study

- Educational level and number of quit attempts will be positively correlated with perceived benefits of smoking cessation (Negative consequences subscale).
- Age and number of years of smoking will be positively correlated with perceived barriers to smoking cessation (Negative reinforcement subscale).
- Number of quit attempts will be negatively correlated with activity related affect (Appetite/ weight control subscale).

Analysis Methods

Frequency tables (for categorical variables) and descriptive statistics (for continuous variables) were used to demonstrate the demographics of the participants. Descriptive statistics were used to summarize the study variables; the four subscales of the S-SCQ. Normality of the data was examined via skewness, kurtosis, and Shapiro-Wilk tests. As the data were not normally distributed, Spearman's correlation coefficients, rather than Pearson's correlation coefficients, were used to determine if there was a relationship between the four subscales of S-SCQ and the three continuous demographic variable, including age, age starting smoking, and number of quit attempts. Kruskal–Wallis tests were used to determine if there was a relationship between the four subscales of S-SCQ and the categorical demographic variable, education level. A p-value less than 0.05 indicated significance. All data analyses were conducted using SPSS version 22.

Findings

The sample size was 200. Due to a radio announcement about the study, there were more volunteers than needed. A total of 238 persons filled out the questionnaire, but only 200 fully completed questionnaires were used.

Demographics

Tables 4 and 5 show the demographics of the participants. Participants were 18 to 55 years old. The average age was 27.8 years. On average, participants started to smoke at 19 years old, had smoked for 8.8 years, and smoked 10 cigarettes a day. In general, participants knew the dangers of smoking at 16 years old. Nearly one quarter of the participants (39%) had a parent with a smoking habit. Half of the participants had a college degree. Seventy one percent (71%) of the participants had attempted to quit smoking with an average of five attempts. A majority of the participants (75%) were single.

Table 4: Description of the sample: Means and ranges

	Mean (SD)	**Min**	**Max**
Age	27.8 years (7.4)	18	55
Age starting smoking	19.0 years (4.0)	10	40
Years of smoking	8.8 years (6.7)	1	31
Number of cigarettes smoked a day	10.0 cigarettes (8.3)	1	46
Age knowing the dangers of smoking	16.8 years (5.8)	6	39
Number of quit attempts among those who had attempted to quit (n=142)	5.2 attempts (4.5)	1	20

Table 5: Description of the sample: Frequency table

		Frequency (%)
Parent with habit of smoking	Yes	79 (39%)
	No	121 (61%)

Level of education	Primary education	24 (12%)
	Secondary/high school	76 (38%)
	College education	100 (50%)
Attempted quitting	Yes	142 (71%)
	No	58 (29%)
Marital status	Married	51 (25%)
	Single	149 (75%)

Purpose 1: Smoking perceptions among adult Cameroonian men

The minimum age of smoking initiation was ten years old. This means that some Cameroonians smoked for an average of six years before their first exposure to knowledge about the dangers of smoking. Four subjects recorded smoking 40 cigarettes a day, the highest recorded number among non-college subjects. More than 50% of those smoking between 20-30 cigarettes a day were college students. These numbers suggest a link between education and the number of cigarettes smoked. Subjects with secondary education (38%) and primary education (12%) perceived the taste, smell, and flavor of cigarettes as good (questions 1, 4, 8, 9, and 10 of the S-SCQ), also suggesting an influence of education on individual affect related to smoking.

A majority of smokers (61%) reported having parents who did not smoke, implying little or no behavioral family predisposition to smoking. On average, subjects had smoked for eight years. Those who had smoked longer did not show any more knowledge about the negative effects of smoking such as the link between smoking and heart disease or lung cancer (questions 11, 15, 18, and 21) than their peers who had smoked for a lesser period of time. Older subjects believed that cigarettes helped them deal with anger and depression (questions 3,5,7,12,14,19,

and 20). Those with more quit attempts thought that cigarettes helped them control their appetite and weight (questions 2,6,13,16, and 17).

Table 6 shows the descriptive statistics of the four subscales of S-SCQ. The results of the Shapiro-Wilk tests suggested that the data were not from normal distributions.

Table 6: Descriptive statistics of the S-SCQ four subscales

Subscale in the S-SCQ	**Mean (SD)**	**Median**	**(Min, Max)**	**Skewness**	**Kurtosis**	**SW**
Negative consequences	23.2 (9.3)	24.0	(0, 36)	-0.55	-0.41	0.000*
Negative reinforcement	38.3 (14.9)	41.0	(0, 63)	-0.59	-0.34	0.000*
Positive reinforcement	23.9 (12.1)	24.5	(0, 45)	-0.39	-0.14	0.005*
Appetite/ weight control	24.6 (10.3)	26.0	(0, 45)	-0.15	-0.93	0.000*

*Note: SD = standard deviation. SW = p-value of the Shapiro-Wilk test. * indicates significance at the 0.05 level.*

Purpose 2: The relationship between age, number of quit attempts, years of smoking, and education with subscales in the S-SCQ

Table 7 shows the results of Spearman's correlation coefficients for the four subscales of S-SCQ and age, years of smoking, and number of quit attempts. Figures 2-12 displays the scatter plots of the four subscales of S-SCQ, and age, years of smoking, and number of quit attempts.

Table 7: Spearman's correlation coefficients

S-SCQ Subscale	Age Coefficient (p)	Years of smoking Coefficient (p)	Number of quit attempts Coefficient (p)
Negative consequences	0.058 (0.413)	0.102 (0.151)	0.087 (0.305)

Negative reinforcement	0.140 (0.048)*	0.108 (0.127)	0.075 (0.373)
Positive reinforcement	0.091 (0.202)	0.124 (0.081)	0.023 (0.789)
Appetite/weight control	0.163 (0.021)*	0.119 (0.094)	0.180 (0.032)*

*Note: * indicates significance at the 0.05 level.*

There was a statistically significant correlation between age and negative reinforcement ($rs = 0.140$, $p = 0.048$), age and appetite/weight control ($rs = 0.163$, $p = 0.021$), and number of quit attempts and appetite/weight control ($rs = 0.180$, $p = 0.032$). In other words, older participants appeared to have stronger perceptions of appetite/weight control and perceived barriers to smoking cessation, such as the belief that smoking cigarettes helps to control stress and anger. Participants who had more quit attempts had stronger perceptions about the use of cigarettes in weight management.

This means that as smokers get older, they perceive cigarettes more as a way of dealing with anxiety (question 3 in the SCQ), depression (question 5), anger (questions 7 and 20), tension (question 12), and nervousness (question 19). Age and number of quit attempts were also statistically significantly correlated with appetite and weight control. This means that older smokers developed stronger perceptions about the role of cigarettes in controlling weight and appetite. Surprisingly, the number of quit attempts was positively correlated with activity related affect (appetite and weight control subscale); implying that those who had more quit attempts also had stronger perceptions about the use of cigarettes in weight loss or appetite control.

Negative consequences and positive reinforcement were not statistically significantly correlated with any of the three demographic variables. Negative reinforcement was not significantly correlated with years of smoking and number of quit attempts. Appetite/weight

control was not significantly correlated with years of smoking. The reason why items in the negative consequences subscale (perceived benefits of smoking cessation; questions 11, 15, 18, and 21) were not correlated with age or years of smoking can be explained by the lack of public awareness about the dangers of smoking. For example, despite policy recommendations from the United Nations regarding limiting advertisement of cigarettes and promoting programs that highlight the dangers of smoking, Cameroon does not have a comprehensive plan on how to implement such policies.

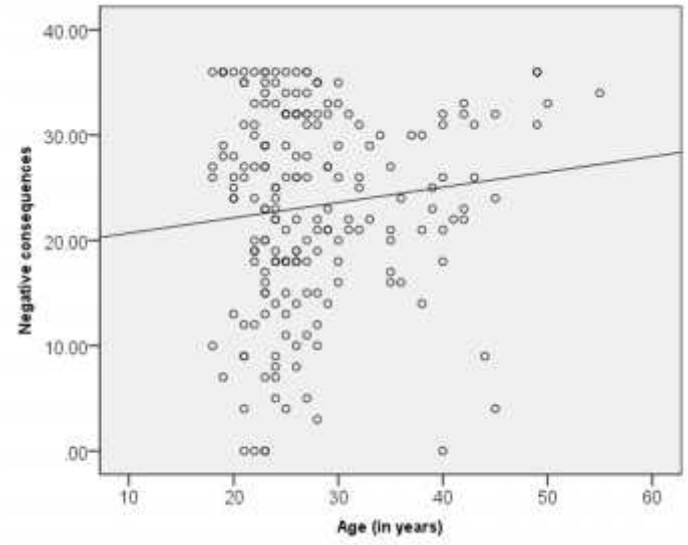


Figure 2: Scatter plot of age and negative consequences, regression line: y = 19.24 + 0.15x

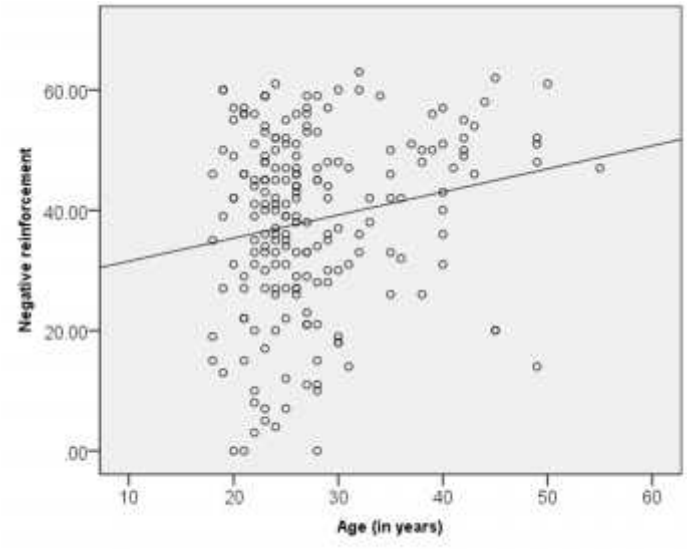


Figure 3: Scatter plot of age and negative reinforcement, regression line: y = 27.68 + 0.38x

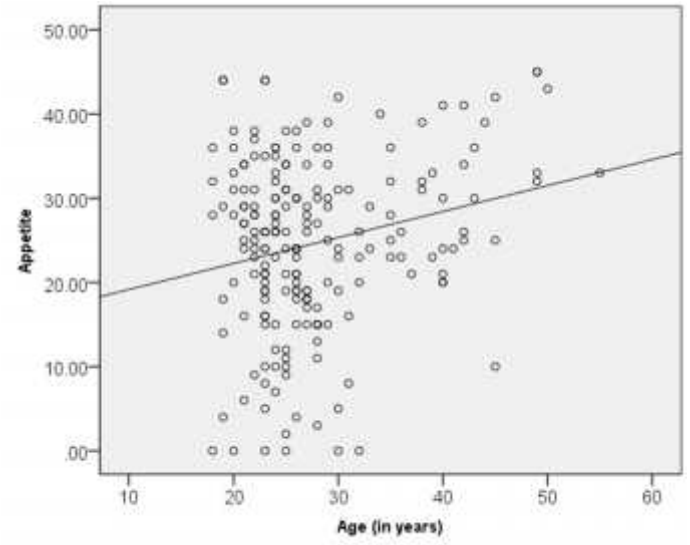


Figure 4: Scatter plot of age and appetite/weight control, regression line: y = 16.07 + 0.31x

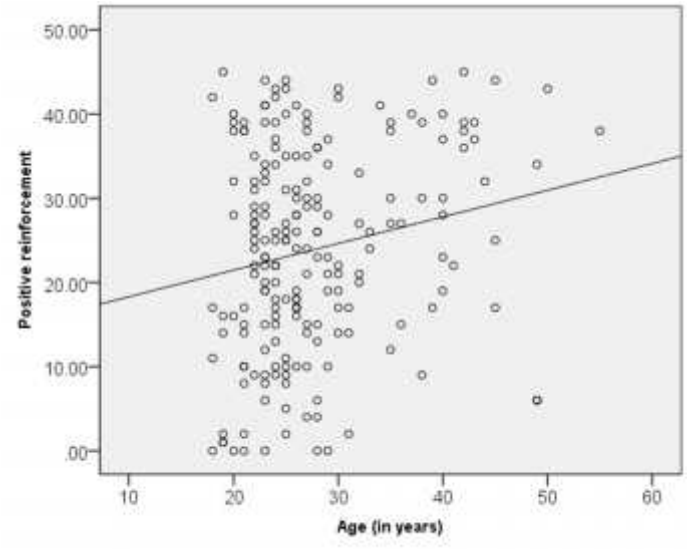


Figure 5: Scatter plot of age and positive reinforcement, regression line: y = 15.13 + 0.32x

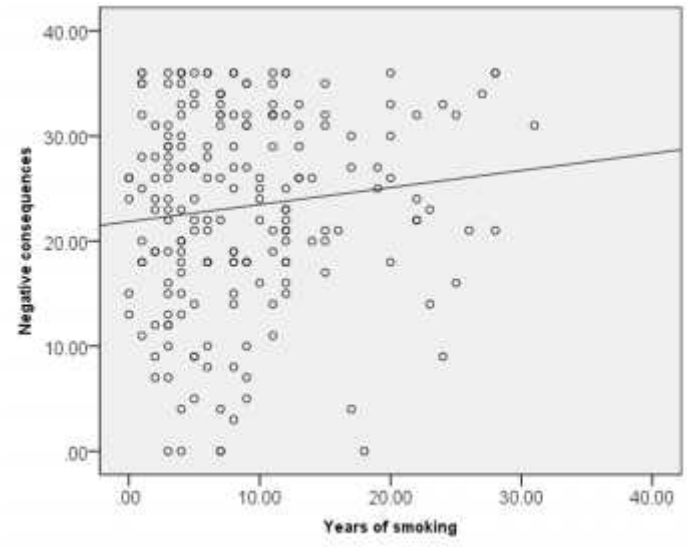


Figure 6: Scatter plot of years of smoking and negative consequences, regression line: y = 21.86 + 0.16x

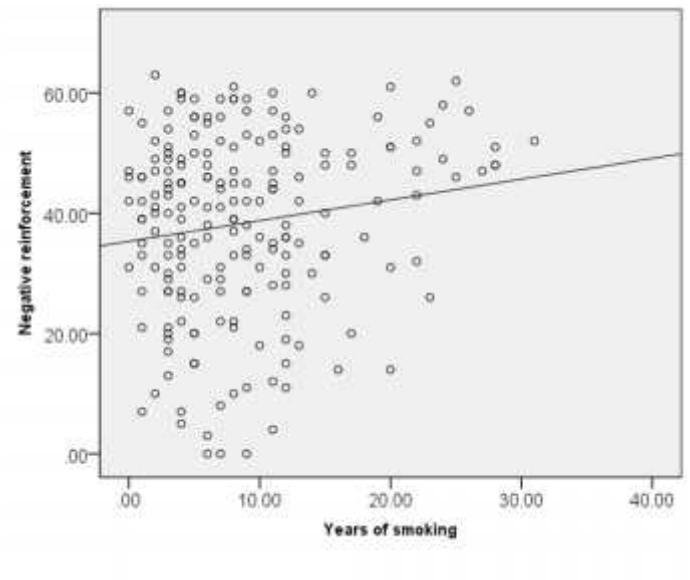


Figure 7: Scatter plot of years of smoking and negative reinforcement, regression line: y = 35.33 + 0.35x

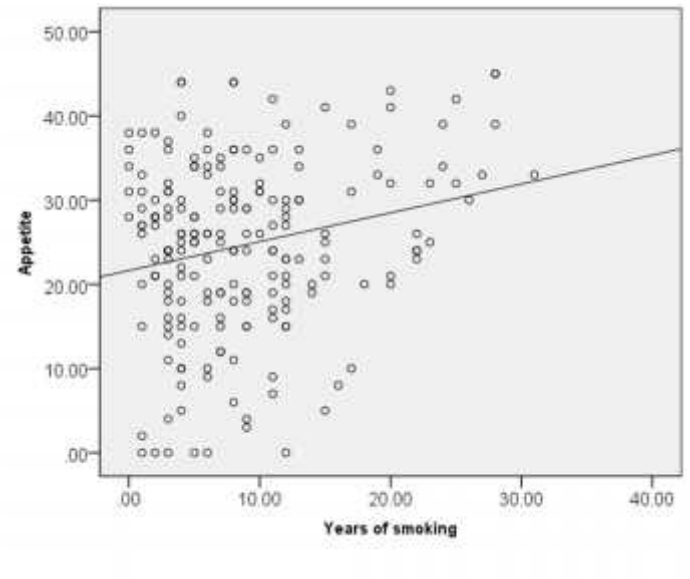


Figure 8: Scatter plot of years of smoking and appetite/weight control, regression line: y = 21.64 + 0.34x

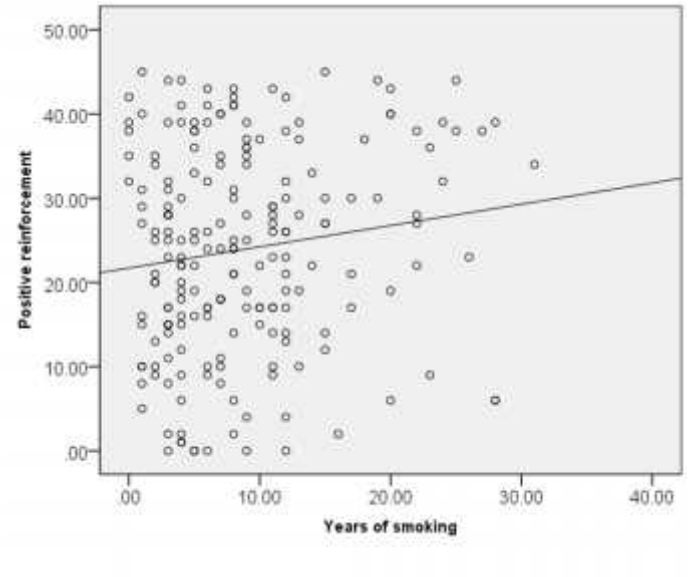


Figure 9: Scatter plot of years of smoking and positive reinforcement, regression line: y = 21.71 + 0.25x

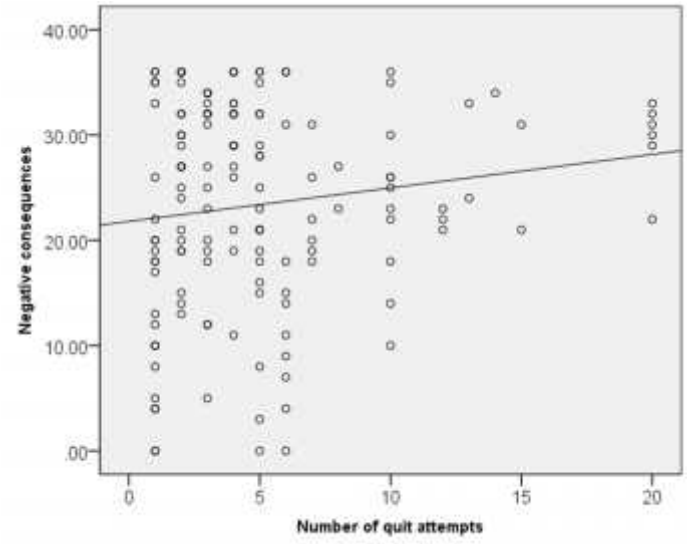


Figure 10: Scatter plot of number of quit attempts and negative consequences, regression line: y = 21.80 + 0.32x

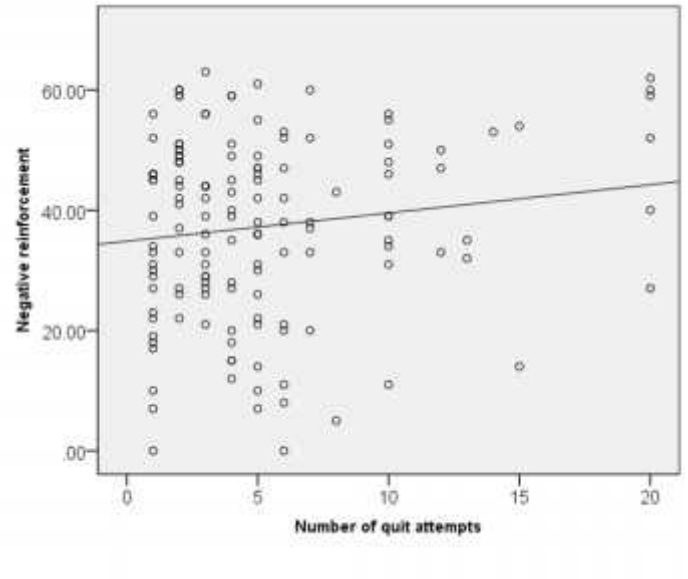


Figure 11: Scatter plot of number of quit attempts and negative reinforcement, regression line: y= 34.86 + 0.47x

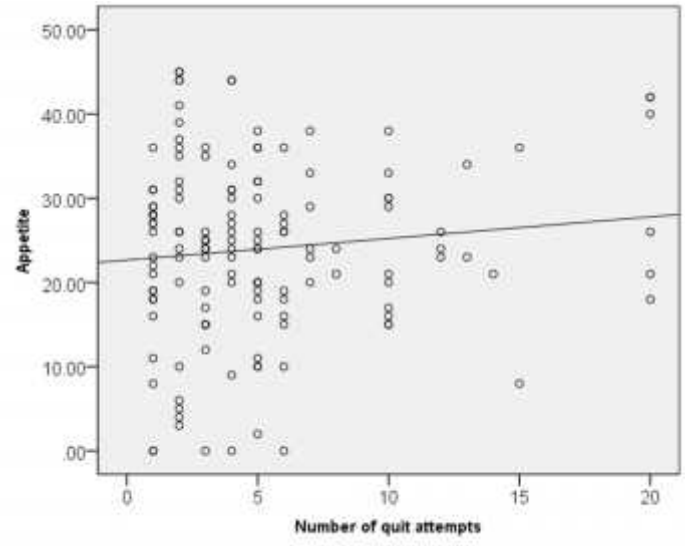


Figure 12: Scatter plot of number of quit attempts and appetite/weight loss, regression line: y = 22.66 + 0.26x

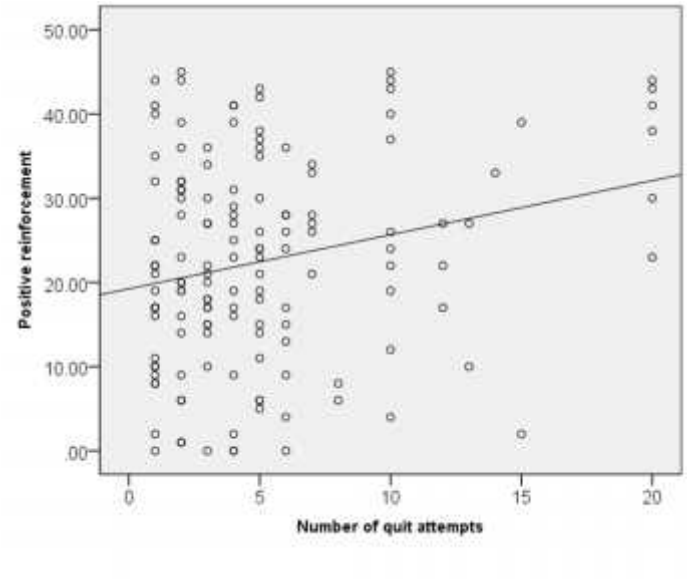


Figure 13: Scatter plot of number of quit attempts and positive reinforcement, regression line: y = 19.24 + 0.64x

Table 8 shows the descriptive statistics of the four subscales of S-SCQ by education level. The results of the Kruskal–Wallis tests showed that there was no statistically significant difference in any of the four subscales of S-SCQ according to participants' education level. This could be explained by the lack of education about the health risks associated with smoking.

Table 8: Descriptive statistics of the 4 subscales of S-SCQ, by education level

	Primary education		**Secondary/high school**		**College education**		
	Mean(SD)	**Median**	**Mean(SD)**	**Median**	**Mean(SD)**	**Median**	**p**
Negative consequences	23.8 (8.7)	24.5	23.6 (8.8)	24.0	22.9 (10.0)	25.0	0.943
Negative reinforcement	44.0 (11.0)	46.5	38.4 (15.6)	41.0	37.0 (15.1)	39.2	0.164
Positive reinforcement	25.3 (9.4)	25.5	25.6 (13.2)	26.5	22.4 (11.9)	21.5	0.437
Appetite/weight	24.6 (8.7)	24.5	26.0 (11.1)	27.0	23.7 (10.1)	25.0	0.136

control							

Note: p = p-value of the Kruskal–Wallis test.

Summary

In this chapter, data analysis was presented in the form of descriptive tables, scatter plots, and outputs from Spearman's correlation. The first purpose of the study; a description of smoking perceptions among adult Cameroonian men was presented . Statistically significant and non-significant correlations were explained which addressed the second purpose of the study. Finally, possible reasons for unexpected findings were suggested, including the role of culture in influencing smoking perceptions and behaviors.

CHAPTER 5

Discussion

This descriptive correlational study examined smoking knowledge and perceptions among adult Cameroonian men who smoke cigarettes. The relationship between subject's age, educational level, number of years of smoking, and number of quit attempts, and the subjects' perceived benefits and barriers to smoking cessation were examined. The number of quit attempts was also examined in relation to the subjects activity related affect. This chapter includes a discussion of the study findings, clinical implications, limitations, and recommendations for future research.

Interpretation of Findings

Descriptive findings

Overall, these Cameroonian men had limited knowledge about the adverse effects of smoking (negative consequences subscale), and started to smoke as early as 10 years of age. Despite the knowledge deficit about the negative health consequences of smoking, 71% of subjects had made an average of five quit attempts. This suggests that implementing early education about the dangers of smoking would likely aid in preventing smoking initiation or enhance discontinuation. These findings reflect conclusions from studies conducted among smokers who admitted that more knowledge about the dangers of smoking would have been influential in their decision-making about smoking initiation (Doran, et al., 2013; Pierce, White, & Emery, 2012; Veeranki, Mamudu, Anderson, & Zheng, 2014). It also supports outcomes from numerous studies, which showed that a plurality of smokers are willing to, or have thought about quitting smoking (CDC, 2014; Hughes et al., 2014; USDHHS, 2014).

Correlations

Of the five anticipated correlations, only two were significant. The relationship between age and perceived barriers to smoking cessation was positively correlated, meaning that older men had stronger beliefs about the barriers to smoking cessation compared to younger men. This can be explained by the addiction model (Garrett, 2012), which suggests that addicts rationalize their behavior to give themselves a reason for their actions. In this case, older smokers become addicted to smoking and rationalize their actions by relating smoking to reduced depression and anger.

Number of quit attempts was significantly positively correlated with appetite and weight control, implying that subjects with more quit attempts believed that cigarettes were a good product for use in appetite and weight control. This finding was unexpected because only men were in this study and men, unlike women, have typically not shown interest in weight management and dieting (Garawi, Devries, Thorogood, & Uauy, 2014).

Level of education was not significantly correlated with perceived benefits of smoking cessation. This finding was also unexpected because researchers believe that more education should relate to better knowledge about the dangers of smoking (Stewart et al., 2013). The absence of a correlation between education and perceived benefits of smoking cessation could be explained by the inability of Cameroonian men in this study with higher education to understand the relationship between smoking and poor health outcomes. Alternatively, the minimization of risks associated with smoking, a psychological coping mechanism by individuals who compulsively engage in unhealthy behaviors may also explain this finding (Prabhat & Peto, 2014; Schmidt, 2014).

Number of quit attempts was not associated with the perceived benefits of smoking cessation. This could be explained by the culture of Cameroon. Often, teenagers who smoke cigarettes are considered 'troubled' and those who are not succeeding well in school. This means that smokers, particularly those between the ages of 18 and 30 years old, may want to quit smoking to avoid this cultural stereotype, even though they lack knowledge about the dangers of smoking.

Number of years smoking was not related to perceived barriers to smoking cessation. This was another surprising finding because it was anticipated that subjects who had smoked longer would have strong perceptions that hindered smoking cessation such as smoking to "calm down" or smoking to reduce depression and anger. This may be attributed to the variety of reasons why Cameroonian men smoke. Some Cameroonian men smoke for social reasons (especially college students), while others, such as taxi drivers and laborers, may smoke because of a culture of smoking when drinking among their peers. These individuals would not associate smoking with barriers that were measured using items in the smoking consequence subscale such as anger and depression.

Support for the Theory of Health Promotion

The goal of the health promotion model (HPM) is positive health outcomes that result from behavioral changes. These behavioral changes are affected by past experiences, perceptions, and competing demands (Alkhalaieh et al., 2011). The findings of this study support the health promotion model because perceptions of adult Cameroonian men influenced their smoking attitudes and quitting decisions. Older smokers had stronger perceptions about the effects of smoking, which in turn, influenced their smoking behavior. According to the HPM, despite the influence of individual characteristics and beliefs, individuals more often than not,

would strive for healthier and better choices in life. Positive beliefs about healthier choices by individuals are supported by the findings of this study, which showed that 71% of the sampled Cameroonian men were willing to quit smoking, and had made several attempts.

Clinical Implications

Study findings have important healthcare implications in Cameroon and other West African nations. In Cameroon, as in other Sub-Saharan countries, the rate of smoking is gradually rising among men and women (Blecher & Ross, 2012).

According to findings from this study, more than half of the subjects (71%) had attempted to quit smoking. This suggests that with better support, smoking cessation programs might be effective in helping those who are willing to quit. Additionally, since older men perceive more barriers to quitting, some cessation programs need to be designed specifically for older men, while different strategies might work for younger men.

The mean age of smoking onset was 19, and the average age at which subjects learned about poor health outcomes associated with smoking was 16 years. This implies that increasing youth sensitization about health risks associated with smoking might be helpful in preventing smoking initiation. Such sensitization campaigns can be implemented at primary schools, usually when pupils are between the ages of eight and 12 years old. For example, having a compulsory health class where a trained teacher educates pupils about the dangers of smoking might be beneficial. Each school district could have one teacher who coordinates these efforts for all primary schools within that school district.

Smoking anti-initiation and cessation programs will require coordination and approval from the provincial department of public health and the ministry of health. A devoted support center, along with coordination with provincial hospitals and private clinics, would be necessary for the success of smoking programs. Funding from the World Health Organization, National

Institutes of Health (NIH), and the International Monetary Fund (IMF) could be very helpful with finances for research, public education about smoking risks, and anti-tobacco advertisement campaigns. Finally, a more coordinated effort within Central and West African countries may yield promising results as most of these countries operate in one economic and financial zone using the same currency.

Recommendations for Future Research

Future studies should be designed to include both men and women. Understanding gender differences in smoking perceptions would be important in developing smoking cessation programs. Socio economic status should also be considered as a variable in future studies because it has been shown to influence self-esteem and perceptions about health (Conner et al., 2013; Jha et al., 2014). A more diverse and inclusive sample size that is representative of Cameroon should be considered in future studies, including Christians and Muslims, in both French and English.

Researchers should also consider studies designed to test smoking cessation interventions for smokers and anti-initiation programs for young men. A longitudinal study designed to measure outcomes after educational interventions about the risks of smoking at primary schools may help generate knowledge about the success of such interventional programs over time. Random sampling rather than convenience sampling of Cameroonians would increase the generalizability of future studies.

Study Limitations

The sample in this study was a convenience sample of both university and non-university adult Cameroonian men. Convenience sampling limits potential generalizability of the study (Tsang, 2014). The study was limited to men even though the rate of smoking among women is also increasing (Agaku, Ayo-Yusuf, Vardavas, & Connolly, 2011). Cameroon is a diverse

country with ten provinces consisting of English and French speaking Christians and Muslim populations. Data collection was done in an English-speaking, mostly Christian dominated region. Representation of French-speaking Cameroonians and Muslim subjects would have provided richer data for the study. The sample for this study comprised of 200 subjects, a larger sample size with more geographical representation would have provided data that reflected smoking perceptions of adult Cameroonian men nationwide.

Conclusion

This chapter included a discussion of the findings of this study. The findings were compared and contrasted with other studies related to smoking perceptions. The study limitations and implications were described. Finally, recommendations for future research studies were presented.

References

Abrams, B. D. (2014). The health consequences of smoking: 50 years of progress. T*he Schroeder Institute for Tobacco Research and Policy Studies*. Retrieved from http://www.legacyforhealth.org/content/download/4428/62627/file/Abrams.SurGenReport.50thAnniv.2.5.14.FIN.pdf

Abraham, M. R. (2009). Importance of a theoretical framework for research. *ACS Symposium series,* 976. doi:10.1021/bk-2008-0976.ch005

Agaku, I., Akinyela, A., & Oluwafemi, A. (2012). Tobacco control in Nigeria: Policy recommendations. *Tobacco Induced Diseases, 10*(8). doi:10.1186/1617-9625-10-8

Agaku, T. I., Ayo-Yusuf, A. O., Vardavas, I. C., & Connolly, G. (2012). Predictors and patterns of cigarettes and smokeless tobacco use among adolescents in 32 countries. *Journal of Adolescent Health, 54*(1), 47-53. doi: http://dx.doi.org/10.1016/j.jadohealth.2013.07.037

Alkhalaileh, M. A., Khaled, H. B., Baker, O. G., & Bond, E. A. (2011). Pender's health promotion model. An integrative literature review. *Middle East Journal of Nursing, 5*(5), 12-22. Retrieved from http://www.me-jn.com/index_home.htm

Amrock, S. M., & Weitzman, M. (2015). Adolescents interpretation of light and intermittent smoking in the United States. *Pediatrics, 135*, 246-254. doi: 10.1542/peds.2014-2502

Asadzandi, M., Sekarifard, M., Ebadi, A., Abad, M., & Salari, M. (2015). Effects of anger management training based on Health Promotion Model on soldiers engaged in risky behavior. *Iranian Journal of Psychiatric Nursing, 2*(4), 68-79. Retrieved from http://ijpn.ir/index.php?slc_lang=en&sid=1

Bandura, A. (2012). Social cognitve theory. In Van Lange, A. M., Kruglanski, W. A., & Higgins, T. E. (Eds.). *Handbook of theories of social psychology* (pp. 349-373). Thousand Oaks, CA; Sage.

Bagilkar, V. V., & Savadatti, B. B. (2015). A descriptive study of malnutrition. *Asian Journal of Nursing Education and Research, 5* (1), 72-77. doi: 10.5958/2349-2996.2015.00016.6

Beaglehole, R., Bonito, R., Mackay, J., Yach, D., & Reddy, K. S. (2015). A tobacco-free world: A call to action to phase out the sale of tobacco products by 2040. *The Lancet, 385*(9972), 1011-1018. doi:10.1016/S0140-6736(15)60133-7

Bernowitz, N. L., & Henningfield, J. E. (2012). Reducing the nicotine content to make cigarettes less addictive. *Tobacco Control, 22*, 14-17. doi:10.1136/tobaccocontrol-2012-050860

Bierut, L. J., Johnson, E. O., & Sacconne, N. L. (2014). A glimpse into the future personalized medicine for smoking cessation. *Neuropharmacology, 76*, 592-599. doi: 10.1016/j.neuropharm.2013.09.009

Blecher, E., & Ross, H. (2012). *Tobacco use in Africa: Tobacco control through prevention*. Retrieved from http://www.cancer.org/acs/groups/content/@internationalaffairs/documents/document/acspc-041294.pdf

Brandon, T. H., & Baker, T. B. (1991). The Smoking Consequences Questionnaire: The subjective expected utility of smoking in college students. *Journal of Consulting and Clinical Psychology,* 3, 484-491. doi:10.1037/1040-3590.3.3.484

Brodwin, E. (2013). *Tobacco companies still target youth despite a global treaty.* Retrieved from http://www.scientificamerican.com/article/tobacco-companies-still-

target-youth/

Centers for Disease Control and Prevention. (2011). Quitting smoking among adults in the United States, 2001-2010.*MMWR Morb Mortal Wkly Rep. 60*, 1513-519.

Centers for Disease Control. (2013). *Current cigarette smoking amongst adults in the United States*. Retrieved from http://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/

Centers for Disease Control. (2014). *Quitting smoking*. Retrieved from http://www.cdc.gov/tobacco/data_statistics/fact_sheets/cessation/quitting/

Centers for Disease Control (2014). *Smoking and tobacco use.* Retrieved from http://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/

Central Intelligence Agency (2015). *The world factbook*. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/cm.html

Chipman, A., & Nield, R. (2012, December 14). The future of healthcare in Africa. *The Economist.* Retrieved from http://www.economistinsights.com/sites/default/files/downloads/EIU-Janssen_HealthcareAfrica_Report_Web.pdf

Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.

Conner, M., McEachan, R., Jackson, C., McMillan, B., Woolridge, M., & Lawton, R. (2013). Moderating effect of socio economic status on the relationship between health cognitions and behaviors. *Anals of Behavioral Medicine, 46*(1), 19-30. doi:10.1007/s12160-013-9481-y

Cyr, A., Dunnagan, A. T., & Haynes, G. (2010). Efficacy of the Health Belief Model for predicting intention to pursue genetic testing for colorectal cancer. *Journal of*

Genetic Counselling, 19, 174-186. doi:10.1007/s10897-009-9271-7.

Dalal, S., Buenza, J. J., Volmink, J., Adebamowo, C., Barjunirwe, F., Njelekela, M., Mozaffarian, D.,….Holes, D. M. (2011). Non communicable diseases in sub Saharan Africa: What we know now. *International Journal of Epidemiology, 40*(4), 885-901. doi: 10.1093/ije/dyr050

Doran, N., Khodam, R., Sanders, P., Schweizer, A., Trim, R., & Myers, M. (2013). A prospective study of the acquired preparedness model: The effects of impulsivity and expectancies on smoking initiation in college students. *Psychology of Addictive Behaviors, 27(3), 714-722*. doi: http://dx.doi.org/10.1037/a0028988

Erikson, M., Mackay, J., & Ross, H. (2012). *The Tobacco Atlas*. Atlanta, GA: American Cancer Society. Retrieved fromhttp://www.tobaccoatlas.org/

Farmer, P., Frenk, J., Knaul, M. F., Shulman, N. L., Alleyne, G., Amstrong, L., Atun, R….Seffrin, J. (2010). Expansion of cancer care and control in countries of low and middle income: A call to action. *The Lancet, 376, (*9747), 1186-1193. doi: http://dx.doi.org/10.1016/S0140-6736(10)61152-X

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160.

Freedman, K. S., Nelson, N. M., & Feldman, L. L. (2011). Smoking initiation among young adults in the United States and Canada, 1988-2010: A systematic review. *Preventing Chronic Diseases, 9*(5). Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3277388/

Gallagher, M. R., Gill, S., & Reifsnider, E. (2008). Child health promotion and protection among Mexican mothers. *Western Journal of Nursing Research, 30*, 588-

605. doi:10.1177/0193945907309752

Garawi, F., Devries, K., Thorogood, N., & Uauy, R. (2014). Global differences between women and men in the prevalence of obesity: is there an association with gender inequality? *European Journal of Clinical Nutrition 68,* 1101–1106. doi:10.1038/ejcn.2014.86

Garrett, P. F. (2012). *Addiction and its mechanisms of defense.* Retrieved from http://www.bma-wellness.com/papers/Addiction_Defenses.html

Gentina, E., Butori, R., Rose, G., & Bakir, A. (2014). How national cultures impact teenage shopping behavior:Comparing French and American consumers. *Journal of Business Research, 67*(4), 464-470. doi:10.1016/j.jbusres.2013.03.033

Guengant, J. P., & May, J. (2014). African demography: The dividend is delayed. *The Economist*. Retrieved from http://www.economist.com/news/middle-east-and-africa/21598646-hopes-africas-dramatic-population-bulge-may-create-prosperity-seem-have

Henrich, J. (2015). Culture and social behavior. *Current Opinion in Behavioral Science*, 3, 84-89. Retrieved from http://www.sciencedirect.com/science/article/pii/S235215461500025X

Ho, A. Y., Berggren, I., & Darlborg-Lyckhage, E. (2010). Diabetes empowerment related to Pender's Health Promotion Model: A meta-synthesis. *Nursing and Health Science, 12,* 259-267. doi:10.1111/j.1442-2018.2010.00517.x.

Hollander, M. and Wolfe, D. (1999). *Nonparametric statistical methods*. New York: John Wiley and Sons, Inc.

Hughes, R. J., Solomon, J. L., Naud, S., Fingar, R. J., Helzer, E. J., & Callas, W. P. (2014). *Nicotin & Tobacco Research*. doi:10.1093/ntr/ntu052

IBM Corp. Released 2013. *IBM SPSS Statistics for Windows, Version 22.0.* Armonk, NY: IBM Corp.

Jemal, A., Bray, F., Center, M. M., Ferlay, J., Ward, E., & Forman, D. (2011). Global cancer statistics. *Cancer Journal for Clinicians, 61*(2), 69-90. doi:10.3322/caac.20107

Jha, P., Ramasundarahettige, C., Landsman, V., Thun, M., Anderson, R. N., & Peta, R. (2013). 21st century hazards of smoking and benefits of cessation in the United States. *New England Journal of Medicine, 368*(4), 341-350. doi:10.1056/NEJMsa1211128

Jha, P., Phil, D., & Peto, R. (2014). Global effects of smoking, of quitting, and of taxing tobacco. *The New England Journal of Medicine, 370,* 60-68. doi: 10.1056/NEJMra1308383

Kale, Y., Olarewaju, I., Usoro, A., Ilori, E., Ogbonna, N., Ramanandraibe, N., & Musa, E. (2012). *Global adult tobacco survey: Country report 2012.* Retrieved from http://www.who.int/tobacco/surveillance/survey/gats/nigeria_country_report.pdf

Kaur, S. P., & Gill, V. (2015). A descriptive study to assess the prevalent use of alcohol in selected community area in Punjab. *International Journal of Nursing Education, 7 (1),* 262-267. doi:10.5958/0974-9357.2015.00053.7

Keegan, J. P., Chan, F., Ditchman, N., & Chiu, C. (2012). Predictive ability of Pender's Health Promotion Model for physical activity and exercise in people with spinal cord injuries: A hierarchical regression analysis. *Rehabilitation Counseling Bulletin, 56*(1), 34-47. doi:10.1177/0034355212440732

Kluger, J. (2009). *Big tobacco sets its eye on Africa.* Retrieved from http://content.time.com/time/health/article/0,8599,1911796,00.html

Larzelere, M. M., & Williams, E. D. (2012). Promoting smoking cessation. *American Family*

Physician, 85(6), 591-598. Retrieved from http://www.aafp.org/afp/2012/0315/p591.html

Madkour, S. A., Ledford, E. C., Anderson, L., & Johnson, C. C. (2014). Tobacco advertising/promotions and adolescents smoking risks in Northern Africa. *Tobacco Control, 23*(3), 244-252. doi:10.1136/tobaccocontrol-2012-050593

Makinde, T., & Aluko, B. (2012). *Nigeria tobacco control bill: Smoking a growing problem for Nigerian girls*. Retrieved from http://www.nigeriatobaccocontrol.com/2012/04/smoking-growing-pastime-for-nigerian.html

Marquez, P. V., & Farrington, J. (2012). *Ending the communicable and non communicable disease divide in Africa*. Retrieved from http://blogs.worldbank.org/africacan/ending-the-communicable-and-non-communicable-disease-divide-in-africa

Matthie, N., & Mcmillan, S. (2014). Pain: A descriptive study of people with cancer. *Clinical Journal of Oncology Nursing, 18*(2), 205-210. doi:10.1188/14.CJON.205-210

Munhall, P. (2000). *Nursing research. A qualitative perspective (5th ed.).* Miami, FL: Jones & Bartlett Learning.

Myers, M. G., McCarthy, D. M., MacPherson, L., & Brown, S. A. (2003). Constructing a short form of the Smoking Consequences Questionnaire with adolescents and young adults. *Psychological Assessment Assess, 15*(2), 163-72. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1855290/

National Geographic (2015). *Cameroon Facts.* Retrieved from http://travel.nationalgeographic.com/travel/countries/cameroon-facts/

National Institutes of Health (2012). *The Science of drug addiction*. Retrieved from

http://www.drugabuse.gov/publications/research-reports/tobacco/nicotine-addictive

Network of African Science Academies. (2014). *Preventing a tobacco epidemic in Africa: A call for effective action to support health, social, and economic development.* Retrieved from http://www.nationalacademies.org/asadi/Africa%20Tobacco%20Control-FINAL.pdf

Nitcher, M. (2015*). Lighting up: The rise of social smoking in college campuses.* New York, NY: New York University Press

Norcross, J. C., Krebbs, P. M., & Prochaska, J. O. (2011). Adapting psychotherapy to the individual patient. *Journal of Clinical Psychology, 67*(2), 143-154.

Odeyemi, K., Osibogun, A., Akinsete, A., & Sadiq, L. (2009). The prevalence and predictors of cigarette smoking among secondary school students in Nigeria. *Nigerian Post Graduate Medical Journal, 16*(1), 40-45. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19305437

Ogundari, K., & Abdula, A. (2014). Determinants of household's education and healthcare spending in Nigeria: Evidence from survey data. *African Development Review, 26*(1), 1-14. doi:10.1111/1467-8268.12060

Oluwole, A. B., Olumid, A. O., Damilola, A. A., Owen, O.,Charles, O., & Juwon, A (2012). Smoking prevalence, willingness to quit and factors influencing smoking cessation among university students in a western Nigerian state. *Asian Social Science, 8*(7). doi:10.5539/ass.v8n7p149

Padden, D. L., Connors, P., Posey, S. M., Ricciardi, R., & Agazio, J. G. (2013). Factors influencing health-promoting lifestyles in spouses of active duty military. *Health Care for Women International, 34,*674–693. doi:10.1080/07399332.2012.736572

Pender, N. (1996). *Health promotion in nursing practice.* Stamford, CT: Appleton & Lange

Pender, N. (2009). *Health promotion model*. University of Michigan. Retrieved from http://sitemaker.umich.edu/pender.health.promotion.model/home

Pender, N. (2011). *Health promotion model manual*. Retrieved from http://deepblue.lib.umich.edu/bitstream/handle/2027.42/85350/HEALTH_PROMOTION_MANUAL_Rev_5-2011.pdf?sequence=1&isAllowed=y

Pender, N., Murdaugh, C. L., & Parsons, M. A. (2011). *Health promotion in nursing practice* (6th Ed.). Upper Saddle River, NJ: Prentice Hall.

Perl, R., Murukutla, N., Occleston, J., Bayly, M., Lien, M., Wakefield, M., & Mullin, S. (2014). Responses to antismoking radio and television advertisements among adult smokers and non-smokers across Africa: Message-testing results from Senegal, Nigeria and Kenya. *Tobacco Control,* doi:10.1136/tobaccocontrol-2014-051682

Pierce, J., P., White, V. M., & Emery, S. L. (2012). What public health strategies are needed to reduce smoking initiation? *Tobacco Control, 21*(2), 258-264. doi: 10.1136/tobaccocontrol-2011-050359

Polosa1, R., Rodu, B., Caponnetto1, P., Maglial, M., &, Racitil, C. (2013). A fresh look at tobacco harm reduction: The case for electronic cigarettes. *Harm Reduction Journal, 10,* 19. Retrieved from http://www.harmreductionjournal.com/content/10/1/19

Prabhat, J., & Peto, R. (2014). Global effects of smoking, of quitting, and of taxing tobacco. *New England Journal of Medicine, 370,* 60-68. doi:10.1056/NEJMra1308383

Raj, K. (2014). “A woman is not supposed to smoke”; Exploring gendered stereotypes in smoking patterns in Nigerian settings. *Journal of Psychology, 5*(1), 1-7. Retrieved from

http://www.researchgate.net/publication/264251911_A_woman_is_not_supposed_to_smoke_Exploring_gendered_stereotypes_in_smoking_patterns_in_a_Nigerian_setting

Raingruber, B. (2003). *Health promotion theories*. Burlington, MA: Jones & Bartlett Learning.http://samples.jbpub.com/9781449697211/28123_CH03_Pass2.pdf

Rosenthal, D. G., Weitzman, M., & Benowitz, N. L. (2011). Nicotine addiction. Mechanisms and consequences. *International Journal of Mental Health, 40*(1), *22-38.* doi:10.2753/IMH0020-7411400102

Roschenthaler, U. *(2015).* The dissemination of associations in the cross-river region of Nigeria and Cameroon. *Journal of African History, 56*(1), 183-184. doi: 10.1017/S0021853714000838

Samiye, M., Kerziban, Y., Tokat,K., Alus, M. T., & Pinar, S. (2013). Effects of vaginal douching education on Turkish women's vaginal douching practice. *Research & Theory for Nursing Practice, 26* (1), 41-53. doi:10.1891/1541-6577.26.1.41

Savell, E., Gilmore, B. A., & Fooks, G. (2014). How does the tobacco industry attempt to influence marketing regulations. *Plos One, 9*(2), *e87389.* doi: 10.1371/journal.pone.0087389

Schane, R. E., Ling, P. M., & Glantz, S. A. (2010). Contemporary reviews in cardiovascular medicine: Health effects of light and intermittent smoking. *Circulation, 121*, 1518-1522. doi:10.1161/CIRCULATIONAHA.109.904235

Schmidt, L. (2014). The path to smoking addiction starts at very young ages. *Campaign for tobacco-free kids*. Retrieved from http://www.tobaccofreekids.org/research/factsheets/pdf/0127.pdf

Shin, K. R., Kang, Y., Park, H. J., Cho, M. O., & Heitkemper, M. (2008). Testing and

developing the health promotion model in low income, Korean elderly women. *Nursing Science Quaterly, 21*(2), 173-178. doi: 10.1177/0894318408314698

Simmons-Morton, B., McLeroy, K. R., & Wendel, M. L. (2012). *Behavioral theory in health promotion, practice and research*. Burlington, MA: Jones & Barlett Learning.

Smith, K. E., Savell, E., & Gillmore, A. B. (2013). What is known about tobacco industry effort to influence tobacco tax? A systematic review of empirical studies. *Tobacco Control, 22*, 144-153. doi:10.1136/tobaccocontrol-2011-050098

Song, A. V., Morell, H. E., Cornell, J. L., Ramos, M. E., Biehl, M., Kropp, R., & Halper-Felsher, L. B. (2009). Perceptions of smoking related benefits as predictors of adolescent smoking initiation. *American Journal of Public health, 99*(3), 487-492. doi:10.2105/AJPH.2008.137679

Stead, L. F., Perera, R., Bullen, C., Mant, D., Hartmann-Boyce, J., Cahill, K., & Lancaster, T. (2012). Nicotine replacement therapy for smoking cessation. *Tobacco Addiction Group.* doi:1002/14651858.CD000146.pub4 Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000146.pub4/full

Stewart, W. D., Adams, E. C., Cano, A. M., Correa-Fernández, V., Li Y., Waters, J.A., Wetter, W. D., & Vidrine, I.J. (2013). Associations between health literacy and established predictors of smoking cessation. *American Journal of Public Health, 103*(7), e43-e49. doi: 10.2105/AJPH.2012.301062

Teerarungsikul, N., Phuphaibul, R., Loveland-Cherry, C. J., Pookboonmee, R., Kijboonchoo, K., & Nityasuddhi, D. (2012). Effectiveness of a physical activity

promotion program on perceived self-efficacy, physical activity and physical fitness among Thai adolescent girls. *Thai Journal of Nursing Research, 13*(2), 81-93. Retrieved from http://thailand.digitaljournals.org/index.php/TJNR

The Economist (2014). *Africa's population: Can it survive such speedy growth*? Retrieved from http://www.economist.com/news/middle-east-and-africa/21613349-end-century-almost-half-worlds-children-may-be-african-can-it

Thun, M. J., Delancey, J. O., Center, M. M., Jemal, A., & Ward, E. M. (2010). The global burden of cancer: priorities for prevention. *Carcinogenesis, 31*(1), 100-110. doi:10.1093/carcin/bgp263

Tsang, W. E. (2014). Generalizing research findings. The merits of case studies. International *Journal of Management Reviews, 16*(4), 369-383. doi:10.1111/ijmr.12024

Tweed, J. O., Hsia, S. H., & Friedman, T. C. (2012). The endocrine effects of nicotine and cigarette smoke. *Trends in Endocrinology and Metabolism, 43*(7), 334-342. doi: 10.1016/j.tem.2012.03.006

Tumwine, J. (2011). Implementation of the framework convention on tobacco control in Africa. Current status of legislation. *International Journal of Environmental Research and Public Health, 8*(11), 4312-4331. doi:10.3390/ijerph8114312#sthash.z0fsDxlS.dpuf

United Nations International Children's Emergency Fund. (2014). *Generation 2030: Africa.* Retrieved from http://www.unicef.org/publications/files/UNICEF_Africa_Generation_2030_en_11Aug.pdf

Ussher, M. H., Taylor, A. H., & Faulkner, G. E. (2014). Exercise interventions for smoking cessation. *Cochrane Database Systematic Review, 29,* 8. doi: 10.1002/14651858.CD002295.pub5.

U.S. Department of Health and Human Services (USDHHS, 2014). The health consequences of smoking-50 years in progress. *A report of the Surgeon General.* Retrieved from http://www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf

Van Lange, P. A. M., Kruglsnaski, A. W., & Higgins, E. T. (2012). *The handbook of theories in social psychology*. Thousand Oaks, CA: Sage.

Veeranki, P. S., Mamudu, M. H., Anderson, L. J., & Zheng, S. (2014). Worldwide never-smoking youth susceptibility to smoking. *Journal of Adolescent Health, 54*(2), 144-150. doi:10.1016/j.jadohealth.2013.07.036

Williams, A. B., Hwo, P., Kobayashi, N., & Oguru, E. (2013). Obesity in hospitalized type 2 diabetes patients: A descriptive study. *Medical Science Monitor,* 19, 259-365. Retrieved from http://travel.nationalgeographic.com/travel/countries/cameroon-facts/

World Bank. (2014). *Total fertility rates.* Retrieved from http://data.worldbank.org/indicator/SP.DYN.TFRT.IN/countries?order=wbapi_data_value_1984%20wbapi_data_value%20wbapi_data_value-last&sort=asc

World Health Organization. (2012). *Tobacco Free Initiative: Overview of tobacco in Africa.* Retrieved from http://www.who.int/tobacco/control/capacity_building/africa/background/overview/en/

World Health Organization. (2013). *Report on global tobacco epidemic*. Retrieved from http://www.who.int/tobacco/global_report/2013/en/

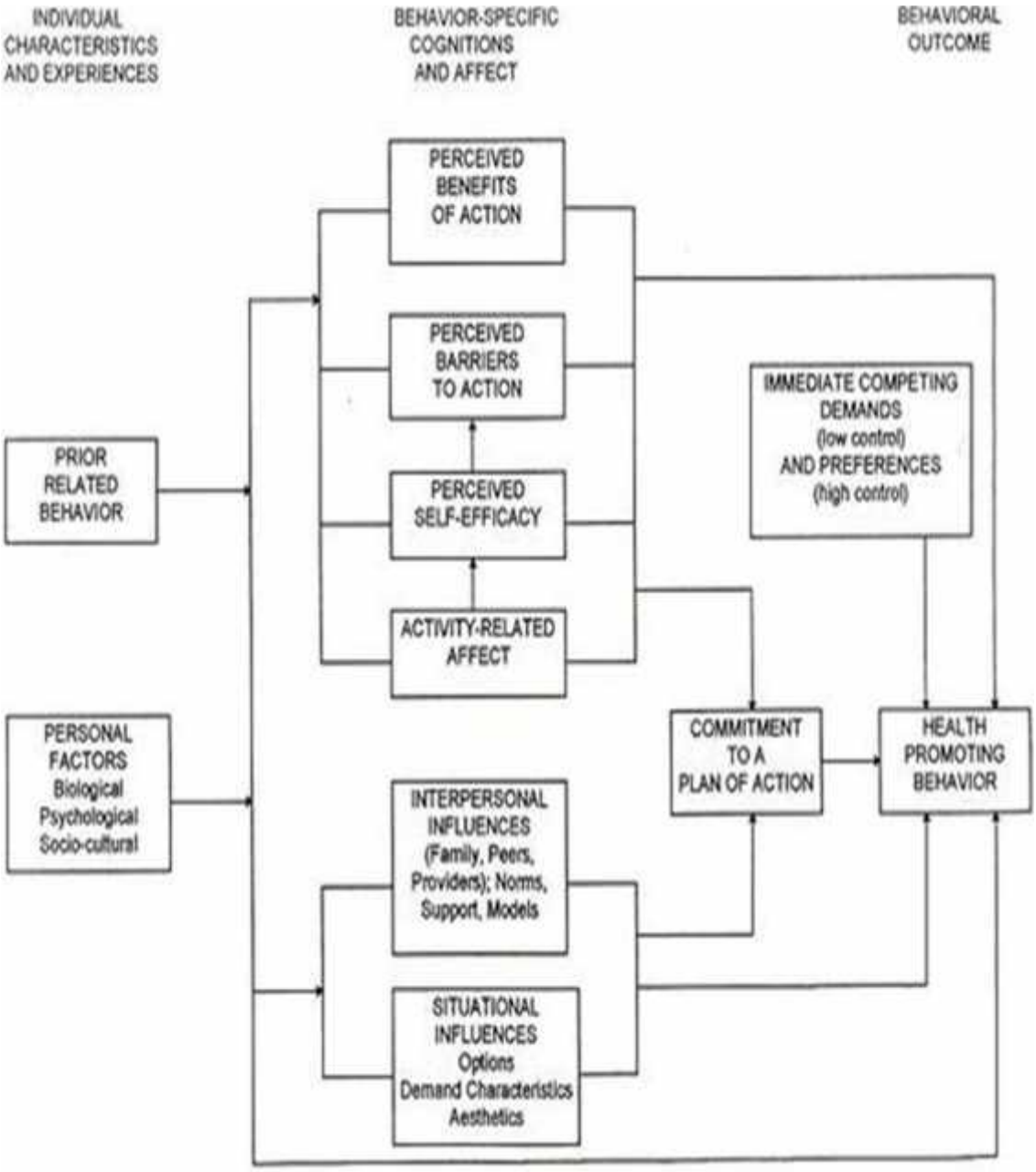
World Health Organization (WHO). (2014). *Overview of tobacco control in Africa.* Retrieved

From http://www.who.int/tobacco/control/capacity_building/africa/background/overview/en/index2.html

Yunusa, U., Abdullahi, M. I., Oliagba, O., Sanni, S., & Umma, A. (2014). The effect of cognitive restructuring intervention on tobacco smoking among adolescents in senior secondary school in zariakaduna state, Nigeria. *European Scientific Journal, 10*, 5. Retrieved from http://eujournal.org/index.php/esj/article/view/2728

Appendix A

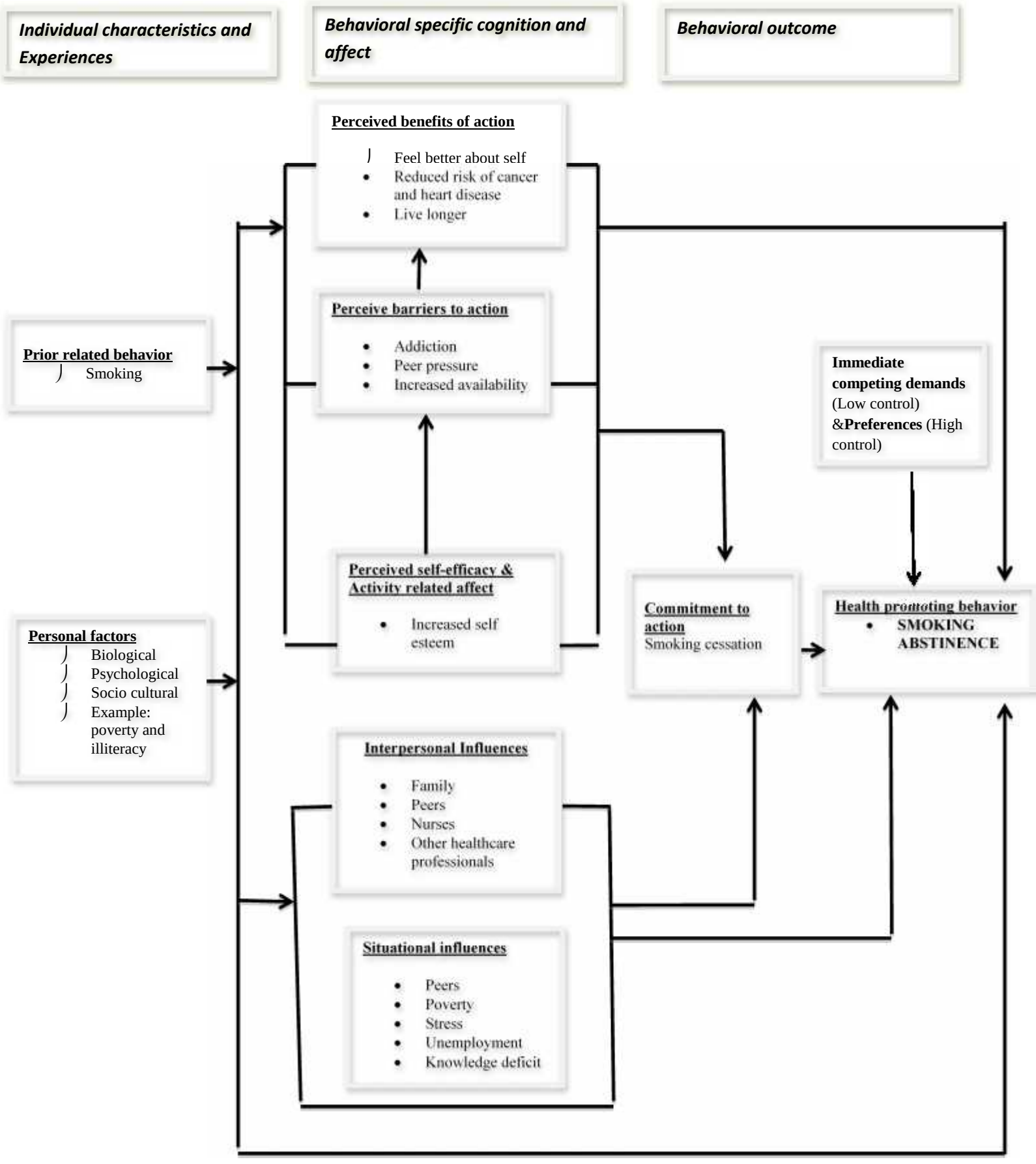
Health Promotion Model



Pender's revised health promotion model. From *Health promotion in nursing practice* (3rd Ed., p. 67), by N.J. Pender, 1996, Stamford, CT: Appleton & Lange

Appendix B

Adaptation of Health Promotion Model for Smoking Cessation


Individual characteristics and Experiences
Behavioral specific cognition and affect
Behavioral outcome
Perceived benefits of action
Feel better about self
Reduced risk of cancer and heart disease
Live longer
Perceive barriers to action
Addiction
Peer pressure
Increased availability
Prior related behavior
Smoking
Immediate competing demands (Low control) &Preferences (High control)
Perceived self-efficacy & Activity related affect
Increased self esteem
Commitment to action
Smoking cessation
Health promoting behavior
SMOKING ABSTINENCE
Personal factors
Biological
Psychological
Socio cultural
Example: poverty and illiteracy
Interpersonal Influences
Family
Peers
Nurses
Other healthcare professionals
Situational influences
Peers
Poverty
Stress
Unemployment
Knowledge deficit

Appendix C

Smoking Consequences Questionnaire

Below is a list of statements about smoking. Each statement contains a possible consequence of smoking. For each of the statements below, please rate how LIKELY or UNLIKELY you believe each consequence is for you when you smoke. **If you have never smoked**, you are to answer according to your personal beliefs about the consequences when smoking, regardless of what other people might think.

If the consequence seems UNLIKELY to you, circle a number from 0 to 4. If the consequence seems LIKELY to you, circle a number from 5 to 9. That is, if you believe that a consequence would never happen, circle 0; if you believe a consequence would happen every time you smoke, circle 9. Use the guide below to aid you further. For example, if a consequence seems completely likely to you, you would circle 9. If it seems a little unlikely to you, you would circle 4.

Please circle your answer to each question using the scale below.

0 1 2 3 4 5 6 7 8 9
Completely Extremely Very Somewhat A Little A Little Somewhat Very Extremely Completely
<----------UNLIKELY----------><----------LIKELY---------->

1.	Cigarettes taste good.	0 1 2 3 4 5 6 7 8 9
2.	Smoking controls my appetite.	0 1 2 3 4 5 6 7 8 9
3.	Cigarettes help me deal with anxiety or worry.	0 1 2 3 4 5 6 7 8 9
4.	I enjoy the taste sensations while smoking.	0 1 2 3 4 5 6 7 8 9
5.	Smoking helps me deal with depression.	0 1 2 3 4 5 6 7 8 9
6.	Cigarettes keep me from overeating.	0 1 2 3 4 5 6 7 8 9
7.	Cigarettes help me deal with anger.	0 1 2 3 4 5 6 7 8 9
8.	When I smoke the taste is pleasant.	0 1 2 3 4 5 6 7 8 9
9.	I will enjoy the flavor of a cigarette.	0 1 2 3 4 5 6 7 8 9

Please circle your answer to each question using the scale below.

0 1 2 3 4 5 6 7 8 9

Completely Extremely Very Somewhat A Little A Little Somewhat Very Extremely Completely

<----------UNLIKELY----------><----------LIKELY---------->

10.	I will enjoy feeling a cigarette on my tongue and lips.	0 1 2 3 4 5 6 7 8 9
11.	By smoking I risk heart disease and lung cancer.	0 1 2 3 4 5 6 7 8 9
12.	Cigarettes help me reduce or handle tension.	0 1 2 3 4 5 6 7 8 9
13.	Smoking helps me control my weight.	0 1 2 3 4 5 6 7 8 9
14.	When I'm upset with someone, a cigarette helps me cope.	0 1 2 3 4 5 6 7 8 9
15.	The more I smoke, the more I risk my health.	0 1 2 3 4 5 6 7 8 9
16.	Cigarettes keep me from eating more than I should.	0 1 2 3 4 5 6 7 8 9
17.	Smoking keeps my weight down.	0 1 2 3 4 5 6 7 8 9
18.	Smoking is hazardous to my health.	0 1 2 3 4 5 6 7 8 9
19.	Smoking calms me down when I feel nervous.	0 1 2 3 4 5 6 7 8 9
20.	When I'm angry a cigarette can calm me down.	0 1 2 3 4 5 6 7 8 9
21.	Smoking is taking years off my life.	0 1 2 3 4 5 6 7 8 9

Appendix D

Radio Announcement

A doctoral student from the University of Texas at Arlington in the United States is conducting a study related to smoking and risk perceptions associated with smoking here in Buea. Only smokers can take part in this study. You will be given a survey with questions for you to answer. The location will be at the Larkhall Community Center Molyko-Buea. Only men age 18 and older who can read and write in English can participate in this study. Please call the number 99999999 if you are interested in participating. If you have any questions about the study, call 999999999 or send an email to bueasmokingstudy@yahoo.com

Appendix E

Consent Form

PRINCIPAL INVESTIGATOR
Elvis Ngyia
Phone number: 214-277-3305 (999-999-9999-Cameroon contact)
Email: smokingstudy@yahoo.com

FACULTY ADVISOR
Dr. Donelle M. Barnes
University of Texas at Arlington College of Nursing & Health Innovation.
Email: donelle@uta.edu

TITLE OF PROJECT
Smoking perceptions amongst adult Cameroonian men who smoke cigarettes.

INTRODUCTION
You are being asked to participate in a research study about smoking. Your participation is voluntary. Refusal to participate or discontinuing your participation at any time will involve no penalty. Please ask questions if there is anything you do not understand.

PURPOSE
The purpose of this research study is to understand your perceptions and beliefs about smoking. This will help researchers understanding why Cameroonian men smoke. It will also help in the development of smoking cessation programs in Cameroon.

DURATION
Completion of the survey for this study will last approximately 25 minutes.
Also, you will be asked to answer questions such as your age, education, and employment.

NUMBER OF PARTICIPANTS
The number of anticipated participants in this research study is 200 people.

PROCEDURES
You will be asked to answer the questions in a quiet room. We want you to answer truthfully. After you finish answering the questions, the questionnaire will be collected to analyze everybody's answers.

POSSIBLE BENEFITS
Possible benefits from this study include:
(1) Help in the development of smoking cessation programs
(2) Help in preventing young Cameroonians from starting to smoke
(3) Help understanding beliefs that are associated with smoking so that targeted antismoking campaigns can be more effective.

POSSIBLE RISKS/DISCOMFORTS
There are no perceived risks or discomforts for participating in this study. Should you experience any discomfort, please inform the researcher, you have the right to quit this study at any time at no consequence to you.

COMPENSATION
There will be no compensation offered for your participation in this study.

ALTERNATIVE PROCEDURES
There are no alternative procedures offered for this study.

VOLUNTARY PARTICIPATION
Participation in this research study is voluntary. You have the right to decline participation in this study. Should you choose not to complete the questionnaire, you may still leave without any penalty.

CONFIDENTIALITY
Every attempt will be made to see that your study results are kept confidential. A copy of this signed consent form and all data collected from this study will be stored in the University of Texas Arlington College of Nursing & Health Innovation building for at least three (3) years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a participant. Additional research studies could evolve from the information you have provided, but your information will not be linked to you in anyway; it will be anonymous. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the UTA Institutional Review Board (IRB), and personnel particular to this research have access to the study records. Your records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above. The IRB at UTA has reviewed and approved this study and the information within this consent form. If in the unlikely event it becomes necessary for the Institutional Review Board to review your research records, the University of Texas at Arlington will protect the confidentiality of those records to the extent permitted by law.

CONTACT FOR QUESTIONS
Questions about this study may be directed to Elvis Ngyia. Any questions you may have about your rights as a research participant or a research-related injury may be directed to the Office of Research Administration, Regulatory Services at 817-272-2105 or regulatoryservices@uta.edu.

As a representative of this study, I have explained the purpose, the procedures, and the potential benefits of this study to the subject:

_____
Signature and printed name of principal investigator or person obtaining consent
Date

CONSENT

By signing below, you confirm that you are 18 years of age or older and have read or had this document read to you. You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other

questions at any time.

You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits, to which you are otherwise entitled.

_____

SIGNATURE OF VOLUNTEER DATE

Appendix F

Demographics/Other Relevant Questions

- How old are you now (in years)?
- How old were you when you started smoking?
- On average, how many cigarettes do you smoke a day?
- Do you have a parent who smokes?

  ☐ Yes ☐ No

- What is your highest level of education?

  ☐ Primary education ☐ secondary/high school ☐ college education

- At what age did you first know about the dangers of smoking?
- Have you ever attempted to stop smoking?

  ☐ Yes ☐ No

- If yes, how many times have you attempted to stop smoking?
- Are you married or single? [Circle one]