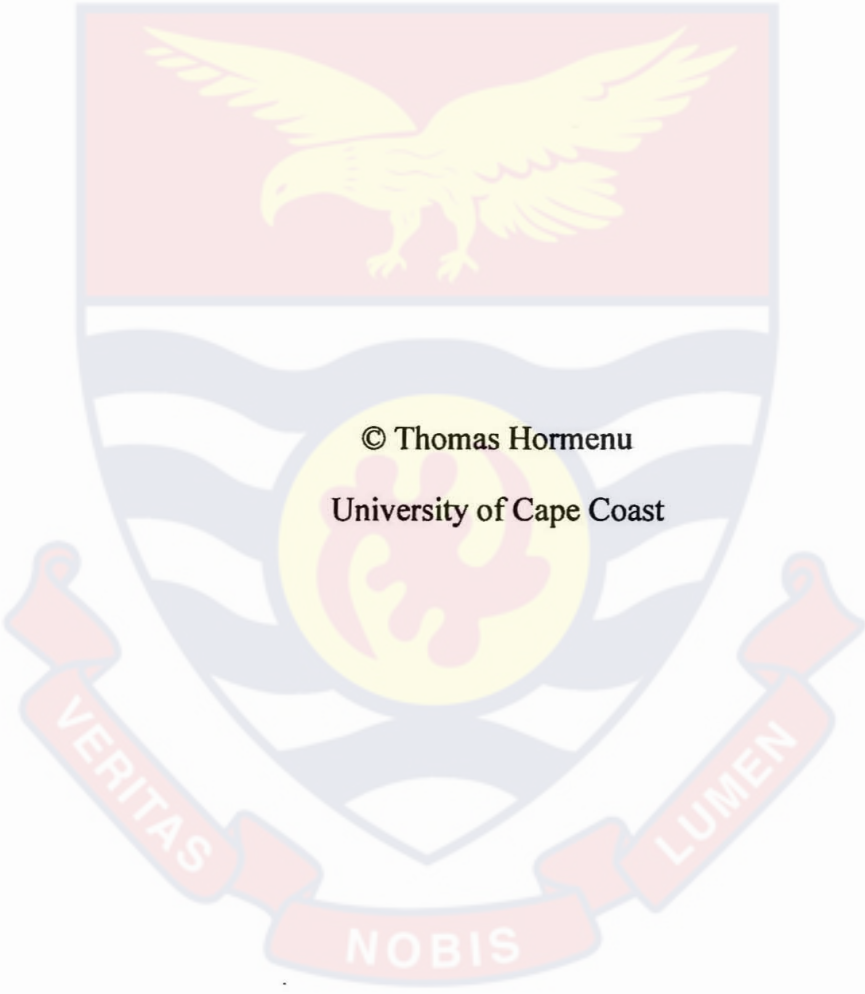


UNIVERSITY OF CAPE COAST

DETERMINANTS OF HEALTH RELATED BEHAVIOURS AMONG SCHOOL GOING ADOLESCENTS IN THE CENTRAL REGION OF GHANA

BY

THOMAS HORMENU

Thesis submitted to the Department of Health, Physical Education and Recreation, Faculty of Science and Technology Education of the College of Education Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Doctor of Philosophy degree in Health Promotion (Maternal and Child Health)

MARCH 2017

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature ..... Date 20-10-17.....

Name: Thomas Hormenu

Supervisors' Declaration

We hereby declare that the preparation and the presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature ..... Date 25/10/17

Name: Professor Joseph Kwesi Ogah

Co-Supervisor's Signature ..... Date 20/10/17

Name: Dr. Charles Domfeh

ABSTRACT

The study was conducted to determine the prevalence of health related behaviours among school going adolescents in the Central Region of Ghana, and explore factors influencing these behaviours. A descriptive cross-sectional design with multistage sampling procedures was used to sample 1,311 school going adolescents. Binary logistic regression was computed to examine the influence of some socio-demographic characteristics of respondents on the prevalence of the health related behaviours. The findings from the study revealed prevalence of the following health related behaviours: cannabis use (9%, n = 122), sexual intercourse (26%, n = 342), cigarette smoking (9%, n = 120), alcohol drinking (42%, n = 554), healthy dietary practices (50%, n = 654), physical inactivity (52%, n = 675) among school going adolescents in the region. The findings also showed geographical location as a significant determinant of alcohol drinking (OR = 0.69, p = 0.013). In the same vein, gender (OR = 1.36, p = 0.007), academic performance (OR = 2.19, p = 0.001) and geographical location (OR = 1.79, p = 0.001) were significant determinants of healthy dietary practices in the region. Also, age (OR = 1.483, p = .017), gender (OR = 0.65, p = 0.001) and parental communication (OR = 0.69, p = 0.006) were significant determinants of lifetime sexual intercourse. Gender (OR = 0.52, p = 0.001), religious affiliation (OR = 1.76, p = 0.034), socioeconomic backgrounds (OR = 0.52, p = 0.004) and geographical location (OR = 0.53, p = 0.016) were significant determinants of cannabis usage in the region. Similarly, religious affiliation (OR = 1.70, p = 0.043) and socioeconomic backgrounds (OR = 0.53, p = 0.007) were significant determinants of cigarette smoking among school adolescents. It was concluded that multiple factors were responsible for health related behaviours in the region. It was therefore recommended that distinctive public health education should focus on both individual and environmental factors of susceptibility and resilience in the region.

KEY WORDS

Adolescent

Adolescent health

Health related behaviour

Determinants of health related behaviours

School going adolescents

Junior High Schools

Central region

Logistic regression

Bioecological model

Health enhancing behaviours

Health compromising behaviours

Cannabis use

Dietary practices

Physical activity

Sexual intercourse

Alcohol drinking

Cigarette smoking

Socio-demographic variables

ACKNOWLEDGEMENTS

First and foremost I would like to express my warmest heartfelt gratitude to my Principal Supervisor, Professor Joseph Kwesi Ogah (Academic Mentor), and Co-Supervisor, Dr. Charles Domfeh (Head of Department-Health, Physical Education and Recreation), for their tiredless efforts, and time spent supervising, making useful suggestions, advising and reading through the document. I express my profound gratitude to the University of Cape Coast for awarding me a research grant in the conduct of this study. I also appreciate the support and contribution of Professor Joseph Kwame Mintah for his advice in the analysis of the data. My thanks also go to my wife, Mrs Comfort Kofinti Hormenu, for her support and encouragement. My appreciation also goes to all heads of JHSs in the region and directors of the districts in the Central Region, where data was collected. I would also like to recognise all pupils who participated in the study, for their excellent cooperation and good behaviour. Furthermore, I would like to acknowledge Mrs Nancy Ebu Enyan and Mr Albert Kofi Bonney for their support in pushing me all the time to continue to write. I also want to appreciate the support of my mother Justine Tuina Atisu and Brothers (Prosper Kwaku Combey and Silvanus Hormenu), and the rest of my siblings for their supports f rom primary school to this level. Finally, I would like to thank Dr. Moses Teye for editing this work and all those who have assisted me in one way or the other.

DEDICATION

To my children, Klenam Prudence Hormenu and Selorm T. Hormenu Jr.

TABLE OF CONTENTS

LIST OF TABLES

LIST FIGURES

CHAPTER ONE

INTRODUCTION

Background to the Study

Health is one of the essential requirements for adolescent development. It is therefore necessary for health and school authorities of various countries to develop policies that aim at setting up good environments for the development of good health behaviours. Adolescence is one of the critical periods for the adoption of health behaviours, relating to substance use and alcohol, sexual intercourse, diet and physical activity. The formation of these behaviours are shaped by social, economic, and cultural forces, and are major determinants of ill health and health inequalities across the life course (Doyle, Mavedzenge, Plummer & Ross, 2012; Ralph, Diclemente, Santelli & Crosby, 2009; Mackenbach, Stirbu & Roskam, 2008). Day in day out school going adolescents face multiple stresses of health challenges, behaviour formation and academic requirements. However, young people grow to adulthood within complex web of family, peer, community, schools, and cultural influences that affect their present and future health and wellbeing. These young ones spend much of their daily life in school settings. Through school setting, the children interact with their peers and school environment and these interactions influence the acquisition of health sustaining behaviours or health compromising behaviours (Mukoma & Flisher, 2004)

Earlier developmental theorists have identified adolescence as a crucial period of psychological and biological change, second only to early childhood, in the rate and breadth of developmental changes (Erikson, 1998; Ralph et al., 2009). During adolescence, rapid development of the central nervous system (CNS) and other biological systems interact with social development to emit new behaviours

and allow many transitions important for an individual to function as a productive adult. Interventions to problems in adolescent health have moved beyond traditional risk-factor reduction focused on the individual to emphasise the importance of enhancing protective factors in young people's lives. Such resiliency based approaches have focused on family and peer factors as important in protecting young people from harm and enhancing successful and healthy transition to adulthood for positive social and emotional development through avoiding drugs, violence, or sexual risk behaviour (Catalano, Hawkins, Berglund, Pollard & Arthur, 2002).

According to Erikson (1998) and Ralph et al. (2009), development of humans continuously transcends through a gradual process of growth and change (cephalocaudal and proximodistal directions). Humans grow at relatively even pace, acquiring more complex cognitive, linguistic, social, emotional and behavioural skills in a linear fashion. Some human developments are stage-specific, where individuals experience rapid change when transmitting from stage to stage. This means that the patterns of children's' development and formation of new behaviours occur at every stage of development from early childhood, adolescent, puberty, to young adult and adulthood. For the development of healthy behaviours, conducive environment needs to be created at each stage of development, because through healthy and sufficient interaction at early stages of life, elicit healthy behaviours. The interactions from the family, peers, media and the school, play critical roles in the development of healthy behaviours in adolescence.

Furthermore, early adolescence is a crucial developmental period and at this stage, individuals must cope with the biological challenges associated with

puberty, the psychological challenges of increased identity differentiation (Erikson, 1998; Schickedanz, Schickedanz, Forsyth & Forsyth, 2001), and the scholastic challenges arising from transitions across school types (Roeser, Eccles & Sameroff, 2000; Roeser, Midgley &Urdan, 1996). Adolescents encounter these challenges in a variety of different ways. While some adolescents have great difficulty coping, many others experience relatively little destabilization (Berk & Levin, 2003; Kuperminc, Leadbeater & Blatt, 2001; Steinberg & Morris, 2001). Unsuccessful coping, however, can lead to the emergence of maladaptive symptoms and psychosomatic complaints (Murray & Greenberg, 2000).

Again, during the adolescent stage, school becomes a crucial socio-psychological context for development (Hoge, Smit & Hanson, 1990; Kuperminc et al., 2001; Samdal, Nutbeam, Wold & Kannas, 1998; Veronneau & Dishion, 2011). Not only do adolescents spend a considerable portion of their wake hours in school (Kasen, Johnson & Cohen, 1990), but is also prominent in their out of school time. For example, through homework, clubs and sports; relationships and friendships are developed and established from the school setting. The school environment is also a potential source of stress for early adolescents, for instance the pressures of school work and social school climate, shaped by teachers and peers influence behaviours (Torsheim, Aaroe & Wold, 2001; Torsheim & Wold, 2001). Positive perceptions of school social climate of classrooms or of the school as a whole are associated with fewer emotional and behavioural problems (Bradshaw & Keung, 2011; Kuperminc et al., 1997).

The World Health Organisation (WHO) Commission on Social Determinants of Health, identified two main levels at which determinants operate: structural and proximal (Commission on Social Determinants of Health, 2008).

Structural determinants are the fundamental structures that generate social stratification, such as global and national policies and systems. The interactions of the young adolescents with the structural systems have effects on health behaviour building. Proximal; (also called intermediate), determinants are the circumstances of daily life. These include the quality of the family environment, peer relationships, availability of food, housing, recreation, and access to education. Proximal determinants are generated by the social stratification that result from structural determinants, and also through cultural, religious, and community factors. These proximal determinants establish individual differences in exposure and vulnerability to health compromising factors that generate health or ill health (Commission on Social Determinants of Health, 2008). These levels closely correspond to environmental spheres of influence affecting a young person, from family and peer group, to school, to neighbourhood, and to wider society (Irwin, Siddiqi & Hertzman, 2007).

An increasing body of research reinforces contention that experiences at school have a profound influence on the social and emotional development of young people. In particular, adolescent health behaviours and their perception have been shown to be related to their life in school (Bradshaw & Keung, 2011). For many young people, sc hool is a richly satisfying experience. A positive attitude towards school is constantly reinforced by teachers' recognition of students' achievement and by their involvement in the social life that centres around the school.

In recent years, the learning potential of a significant number of children and young people in the developing world is compromised (UNESCO, 2001). Hunger, malnutrition, micronutrient deficiencies, parasite infections, drug and

alcohol abuse, violence and injury limit the health of the youth. Early and unintended pregnancy, infection with HIV and other sexually transmitted infections also compromise the health and lives of children and youth.

In Ghana, the majority of the youthful years are spent in school, and this puts schools in appropriate position to affect the life of children. There is a body of evidence from studies that completion of senior high school (SHS) provides great benefits for adolescents (Kravdal, 2002). Kravdal further posited that completion of SHS improves health and wellbeing, increases capacity of adolescence and motivation to prevent teenage pregnancy, empower youth to take responsibility for their own lives and for improving the lives of others. Education also improves survival of children (Gakidou, Cowling, Lozano & Murray, 2010).

Skills-based health education has been shown to make significant contributions to the healthy development of children and adolescents, and can have a positive impact on health behaviours (Samdal, et al., 1998; Sparrow, 2010). At appropriate developmental levels, from pre-school through early adulthood, young people can engage in learning experiences that help them prevent disease and injury and foster healthy relationships. The young ones can acquire knowledge and skills they need to practise basic hygiene and sanitation; negotiate and make healthy decisions about drug use, physical activity, diet, sexual and reproductive health choices; or listen and communicate well in relationships. As they grow into young adults, these children can play leadership roles in creating healthy environments, advocating for tobacco-free school or community. Schools have an important role to play in equipping children with the knowledge, attitudes, and skills they need to protect and promote their health (Samdal, et al.; Sparrow; WHO, 2003a).

Ensuring that children are healthy and able to learn is an essential part of an effective educational system. Education and health are inseparable. A child's nutritional status affects cognitive performance and test scores (Vince-Whitman, Aldinger, Levinger & Birdthistle, 2001). However, structures and conditions of the learning environment are essential in ensuring healthy behaviour. Children cannot attend school and concentrate if they are emotionally upset or are in fear of violence. On the other hand, children who complete more years of schooling tend to enjoy better health and have access to more opportunities in life. Vince-Whitman et al. further explain that equipping young people with knowledge, attitudes, and skills through education is analogous to providing a vaccination against health threats.

Furthermore, according to Vince-Whitman et al. (2001), skill development has always been included in health education. Psychosocial and interpersonal skills are central in school health education and include communication, decision-making and problem solving, coping and self-management, and the avoidance of health-compromising behaviours. As health education and life skills have evolved during the past decade (Vince-Whitman et al.), there is growing recognition of and evidence for the role of psychosocial and interpersonal skills in the development of young people, from their earliest years through childhood, adolescence, and into young adulthood. These skills have an effect on the ability of young people to protect themselves from health threats, build competencies to adopt positive behaviours, and foster healthy relationships. Life skills have been tied to specific health choices, such as choosing not to use tobacco, eating a healthy diet, or making safer and informed choices about relationships (Green,

Kreuter, Deeds & Partridge, 1980; Joint Committee on National Health Education Standards, 2007).

Young people aged between 10 and 15 years face many pressures and challenges, including growing academic expectations, changing social relationships with family and peers and the physical and emotional changes associated with maturation (Health Behaviour of School Aged Child [HBSC], 2012). These years mark a period of increased autonomy in which independent decision-making that may influence their health and health related behaviour develops. Behaviours established during this transition period can continue into adulthood, affecting issues such as mental health, the development of health complaints, tobacco use, diet, physical activity, sex and reproduction, and drug use. Family communication and school environment play critical roles in shaping the life of these young ones. Parental communication is one of the key ways in which the family can act as a protective health asset, promoting pro-social values that equip young people to deal with stressful situations or buffer them against adverse influences.

Knowledge about young people's attitudes, behaviours, physical and psychological well-being, and the factors that influence them are essential for the development of effective health education and school health promotion policy, programmes, and practice. To gain knowledge into adolescent behaviour, there is a need for an ongoing research to identify indicators of health related behaviours among school going adolescents.

Statement of the Problem

All over the world, societal shifts and behavioural patterns, exacerbated by unique developmental vulnerabilities of adolescents, create a confluence of

factors that place adolesents at heightened risks for poor health outcomes. The health of adolescents and young adults is therefore affected by social factors at personal, familial, community, national and global levels (Viner et al., 2012). Over the past two decades, theorists have argued that understanding and enhancing health of young ones need serious focus, from an individual's risk or protective factors to the social patterns and structures that shape people's chances to a healthy childhood (HBSC, 2012). Adolescence as a crucial stage in life, sets the foundation for the formation of behaviours for adulthood, whether healthy or health compromising. This makes adolescents population a special group for guidance and counselling on behaviours related to nutrition, sexual intercourse, drug use, alcohol drinking, physical activity and cigarette smoking. Driessnack defined adolescence as "the psychosocial, emotional, cognitive, and moral transition from childhood to young adulthood" (2006, p. 502). This time of life represents a great share of the founding of future health and health behaviour patterns biologically, psychologically and behaviourally (Steinberg (2008). Owing to this, studies have shown that health behaviour in adolescence often follows the person into adulthood (Pentz, 2009). Besides, longitudinal studies found that unhealthy dietary and sexual intercourse, drug and alcohol use in this period increase the risk of severe diseases and maladjusted behaviour in adulthood (Pentz, 2009; Thee, Suchindsran, North, Popkin & Gordon-Larsen, 2010), depression and anxiety disorders (Anderson, Cohen, Naumova, Jaques & Must, 2007), some types of cancer (Fuemmeler, Pendzich & Tercyak, 2009) and cardiovascular risk symptoms (Reilly & Kelly, 2010; Ford, Nonnemaker & Wirth, 2008).

Unfortunately, these health inequalities emerge or worsen during adolescence, and may translate into lasting inequalities in adulthood; if for instance, academic potential is not achieved (Viner et al., 2012). In addition, health-compromising behaviour increases during this stage through adventure and experimentations of certain lifestyles. Similarly, early sexual activity is an important marker for poor sexual health in adulthood, as well as other risk behaviour in adolescence. HBSC (2012) reported that on average, 26% of 15-year-olds in England, Finland, Norway and sub-Saharan Africa are sexually active and health enhancing behaviours such as eating breakfast, fruit and vegetables had declined among school age children.

Emergence of these inequalities exacerbates the health status of adolescents, hence, health and well-being of adolescents need to be well explored for evidence based policies and approaches towards improving their health (Currie et al., 2008). The health and well-being of these youth are influenced positively and negatively by many factors which pose physical and emotional health risks with serious implications for public health (Tremblay, Inman & Willms, 2000).

Studies have reported many risky health behaviours associated with adolescents; physical inactivity (Tremblay et al., 2000), unhealthy eating, smoking, illicit drug use, alcohol drinking (Doku, 2012a), casual sex (Glover et al., 2003), bullying and negative peer influences (Viner et al., 2012). Moreover, these young ones are prone to the psychosocial environment of the school and neighbourhood, family background including socioeconomic status and the complication of relationships (Moreno et al., 2010).

In Ghana, most adolescents are involved in diverse poor health related behaviours such as early and casual sex (Afenyadu & Goparaju, 2003; Kumi-Kyereme, Awusabo-Asare, Biddlecom & Tanle, 2007), smoking and illicit drug use, alcohol use (Adu-Mireku, 2003; Doku, Koivusilta, Raisamo & Rimpela, 2011), poor eating habits (Amos, Intiful & Boateng, 2012), physical inactivity, high injury rate and poor peer influences (Global School Health Survey [GSHS], 2008; Townsend, Flisher, Gilreath, & King, 2006), hygiene practices, loneliness, lack of parental love and care and malaria attack (GSHS, 2008). These behaviours are formed through environmental interactions. The interaction with the proximal or distal social and environmental factors lead to new sets of behaviours and capabilities that enable transitions among family, peer, and educational domains. Regular checking of these trends is essential for development.

According to the WHO (2002), since the adolescent stage is characterised by many turmoil and uncertainties leading to health compromising behaviours, there is the need for regular profiling of health behaviours among adolescents for differentiation. Although several studies have been conducted in Ghana on adolescents' health related behaviour (Assabil, 2010; Cofie, 2010; Doku, 2012a), little is known about health related behaviours of school going adolescents in the Central Region of Ghana. Significantly, little is known about the extent of differentiation of adolescents in terms of socio-demographic variables and their health related behaviours in the region. This differentiation provides a more nuanced picture of the dramatically changing health profiles across the adolescent years, as well as their adult years, while also enabling greater national and international comparison of the trends alongside modifying childhood trajectories towards health and wellbeing.

Purpose of the Study

The purpose of this study was to determine the prevalence of health-related behaviours among school going adolescents in the Central Region of Ghana, and explore factors influencing these behaviours.

Research Questions

To achieve this purpose, the study was guided by the following research questions.

1. What is the prevalence of health related behaviours among school going adolescents in the Central Region?
2. What socio-demographic variables predict health related behaviours among school going adolescents in the Central Region of Ghana?

Hypotheses

In order to answer research question two, the following hypotheses have been formulated based on the socio-demographic variables and health related behaviours: It was hypothesized that Socio-demographic factors predict:

1. alcohol drinking behaviour among school going adolescents in the Central Region.
2. healthy dietary practices among school going adolescents in the Central Region.
3. sexual intercourse among school going adolescents in the Central Region.
4. cannabis use among school going adolescents in the Central Region.
5. cigarette smoking among school going adolescents in the Central Region.
6. physical activity among school going adolescents in the Central Region.

Significance of the Study

Inequalities in the child and adolescent health call for international and national policy formulation on adolescents that integrates interventions at the individual, school, and family level, with a focus on opportunities and action to give all young people the opportunity to maximize their current and future health and well-being. Health promotion programmes particularly in schools should be sensitive to age, gender and socioeconomic differences, and should aim to create a fair situation for all young people. In addition, health-compromising behaviours increase during the adolescent years and this has put schools at appropriate place with resources to lead the life of these young ones in adaptation of healthy behaviours. The findings could also help in guiding adolescents in schools to adopt healthy behaviours while minimising health compromising behaviours.

The findings of the study would help to understand prevalence of health behaviours of school going adolescents and identify factors that influence these behaviours. Also, the identification of factors would aid in the formulation of health policies that would equip adolescents in the schools with necessary knowledge and skills to develop healthy behaviours. Similarly, the findings will give policy-makers an opportunity to act, to secure the health of the next generation. The findings would again be beneficial to the Ghana Education Service (GES) in enhancing adolescent health through the school health education programme. In addition, it would also assist GES, Ghana Health Service (GHS), WHO, Non-Governmental Organisations and their allies in planning health programmes to promote adolescent health in the schools and in Ghana as a whole. The outcome of the study would also serve as a foundation for conducting health behaviour studies of school age children across the country. The study would

provide valuable insights and materials on the needs, strengths, and challenges facing school children. The study also envisions a world where families, schools, and communities work together to promote children's success in school and life, and to support the healthy development of all children. It will also add up to the pool of literature on adolescence health in Ghana and serve as a reference material for students in health behaviour research.

Delimitation

The study was delimited to school going adolescents in the JHS between the ages of 10 and 15 years in the Central Region of Ghana. The constructs under consideration are dietary practices (fruits and vegetables, soft drinks and junk foods), alcohol use, physical activity, cannabis use, cigarette smoking, and sexual behaviour (vaginal and anal sex). The study also focused on these socio-demographic variables; academic performance, parental communication, geographical location, socio-economic status of parents, religion, gender and age as influence of health related behaviours.

Limitations

Seasonal differences in the timing of the data collection may affect particular variables, such as diet and physical activity. Timing of data collection was done during the lean season where rainfall was low and this could also affect the consumption of fruits and vegetables since they would be costly. Again, classification of school going adolescents by gender became difficult, since some schools had far more girls than boys. Older students above 15 years might have also answered the questionnaire and their responses could have influenced the outcomes. It was difficult to determine those students who were between ages 10-15. Sensitive nature of some questions could also have affected the responses of

the respondents leading to unreporting of the phinomena. The cross sectional design used for the study made some of the findings inclusive, particularly some socio-demographic variables, smoking and cannabis use. Academic performance causal relationships cannot be established as an etiological conclusion with a snap shot studies. There was possibility of 'Hawthorne effect' (merely because the subjects knew they were being studied, they might have responded to the questions differently).

Definition of Terms

School going adolescents: They consist of children in schools between the ages of 10-15 years and are found in Junior High School

Health enhancing behaviour: Consists of engaging in healthy behaviours or not engaging in health compromising behaviours

Substance use: This consists of all forms of cannabis usage (smoking, chewing, drinking and eating cannabis related substance)

Sexual behaviour: The act of engaging in sexual activities such as penile, vaginal penetration, kissing, fondling, anal and oral sex

Organisation of the Study

This study is organised into five chapters. Chapter one presents the background to study, the statement of the problem as well as the questions and hypotheses guiding the study. Chapter two discusses theories of adolescents' behaviours, concepts of health related behaviours and the determinants of these behaviours. Chapter three explains the methods and philosophical underpinnings of the study, description of the population and sampling methods as well as instrument for data collection and analysis. Chapters four and five elucidate the

presentation of the results and findings, discussing and making of inferences with literature, as well as conclusions and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

The purpose of this study was to determine the prevalence of some key health-related behaviour and explore the socio-demographic trends of these health-related behaviours among school going adolescents in the Central Region of Ghana. For these purposes, books, magazines, journals and articles from primary and secondary sources were perused and literature reviewed under the following subheadings; Concepts of Health Behaviour, Prevalence of Health Related Behaviours, Determinants of Health Related Behaviours, Measurement of health related behaviour, Theories of Health Behaviour and Conceptual Framework.

Adolescence is an age of transition between childhood and adulthood. During this critical time, health habits and behaviours are established that affect health not only during adolescence but throughout the lifespan. According to WHO (2004) the developmental stage of adolescence is understood as the period from 10 to 19 years of age, acknowledging that characteristics of this stage may extend up to age 24. Moreover, Ralph et al. (2009) described adolescence as a period of rapid and transformative physical, intellectual, psychological, socio-cultural and cognitive development. To Ralph and colleagues, physical changes of puberty including growth and maturation of multiple organ systems such as the reproductive organs and brain lay biological and physiological foundations for the other developmental changes. The development of the brain in the adolescents lead to maturation of cognitive abilities as new cognitive abilities and are

combined with life experiences resulting in the development of social judgment, including judgment about risk and safety.

Ralph et al. (2009) further explained that adolescence is also marked by critical transformation in the relationship of a young person to the world, as the social circles of peers and the adult worlds of work, pleasure, and social responsibility become more central and the family circle becomes somewhat less prominent at least temporarily. Adolescents then learn to deal with an expanding social universe and develop the social skills to find friendship, romance, employment, and social standing within multiple social spheres. The development of this skills lead to a critical task of adolescence in the establishment of a stable sense of identity and the development of autonomy or agency. This development of identity often occurs only after a period of exploration, of trial and error in social roles and social behaviours. Although most adolescents navigate often through turbulent course from childhood to adulthood to become healthy adults and productive citizens, many more may fail in the development healthy behaviours, hence leading to maladjustment. Many maladjusted adolescents may fall prey to social and behaviour morbidities and mortality, and many fail to achieve their full potential as workers, parents, and individuals in the future.

Between the ages of 10 and 19, observation is made on the initiation of myriad health risk behaviours, such as alcohol and drug use, smoking, sexual behaviours, physical inactivity, delinquency, and poor dieting behaviours leading to intentional and unintentional injuries all of which can adversely influence health of the adolescents in the short and long term. Research has shown, alcohol and drug use are the proximate causes of unintentional injuries during adolescence; they also can lead to adult addiction and social and health

impairment (Doku, 2012a). This means that early identification of the determinants that influence school going adolescent health related behaviour in Ghana is paramount for onwards direction of schools in helping promote the health of these young ones. Sexual behaviours often result in unplanned pregnancy and sexually transmitted diseases, including HIV infection. Physical inactivity and unhealthy dietary practices have also been observed to lead to adolescents' obesity and other cardiovascular diseases (Ralph et al., 2009). Social and cultural factors such as family instability, poverty, and social class also seem to drive adolescent risk -taking behaviours. Others are adolescent's new identification with peers and the desire to attain adult status. Recent attempts to understand adolescent resiliency and the positive health impact of school and community connectedness can be seen as reciprocal processes such that adolescents with greater social capital or with greater identification with society's benefits and values may be more likely to eschew risk behaviours.

WHO (2009) evidence based report alarmed that non communicable diseases (NCDs) and the Human Immuno Deficiency Virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS) are by far the leading causes of death in the world today, and their impact is steadily growing. According to WHO, in 2005, 35 million people died from NCDs, which represents 60% of the total number of global deaths in that year. Moreover, between 2005 and 2015, deaths due to NCDs are projected to increase by 17%. This largely invisible epidemic is more serious in low- and middle-income countries, where 80% of all NCD deaths occur. The main causes of NCDs are known. A small set of common risk factors is responsible for most of the major NCDs and HIV/AIDS: unhealthy diet, physical inactivity, cannabis use, alcohol drinking, cigarette smoking, and

unprotected sexual intercourse. Elimination of these modifiable risk factors early among school going adolescents would prevent 80% of premature heart disease, 80% of premature stroke, 80% of type 2 diabetes and 40% of cancer in our society.

Concept of Health Behaviour

Health behaviour has been defined in various ways. Conner and Norman (1996) define it as any activity undertaken for the purpose of preventing or detecting disease or for improving health and wellbeing. Gochman (1997) also defines health behaviour as "behaviour patterns, actions and habits that relate to health maintenance, to health restoration and to health improvement" (p . 3). Sutton (2004) also defines health behaviour or health related behaviour as any behaviour that may affect an individual's physical health or any behaviour that an individual believes may affect their physical health. According to Sutton, a great distinction must be made in the classification of health behaviours as positive and negative. Positive healthful or health enhancing behaviours are taking regular exercise, going for annual health checks, eating at least five portions of fruit and vegetables a day, and using a condom with a new sexual partner. Negative, unhealthy, risky, health-compromising or health-impairing behaviours would include, for example, cigarette smoking, alcohol drinking, unprotected casual sexual intercourse and eating a diet high in saturated fat. In otherwise health behaviours can be thought of as dichotomous that have a positive alternative and a negative alternative, thus for instance going for annual health checks versus not going for annual health checks, or smoking versus not smoking.

According to Conner (2002), Schwarzer and Luszczynska (2008), to describe health behaviour, it is essential to distinguish between health enhancing

from health compromising behaviours. Health impairing behaviours have harmful effects on health or otherwise predispose individuals to disease. Such behaviours include smoking, excessive alcohol consumption, physical inactivity and high dietary fat consumption. In contrast, engagement in health enhancing behaviours conveys health benefits or otherwise protects individuals from disease. Such behaviours include physical activity, healthy dietary practices in terms fruit and vegetable consumption, protective sexual intercourse, non-use of drugs and avoidance of smoking and drinking of alcohol. Many major health problems in the world today are attributable to risk behaviours such as problem drinking, substance use, smoking, reckless driving, overeating, or unprotected sexual intercourse. Health behaviour change refers to the motivational, volitional, and actionable processes of abandoning such health-compromising behaviours in favour of adopting and maintaining health-enhancing behaviours.

Prevalence of Health related Behaviours

Prevalence of key health related behaviours (cigarette smoking, diet, physical activity, sexual intercourse, drug use and alcohol use) among adolescents have si gnificant relationship to morbidity and mortality. The use of tobacco, alcohol, and other substances during adolescence is sometimes regarded as non-normative and anti-social behaviour (Shakib et al., 2005). Yet adolescents' desire for independence and their curiosity to discover the world around them contribute to initial experimental use of tobacco, alcohol, and cannabis. Many do not venture beyond the experimentation phase, but others continue to be involved in a lifestyle that predisposes them to various health risks (Hanson & Chen, 2007). Engaging in health risk behaviours influences the morbidity and mortality of adolescents adversely (Sells & Blum, 1996). These behaviours tend to reoccur

together in youth, creating a health compromising lifestyle with consequences for physical health (Pickett, Boyce, Garner & King, 2002).

Drug use

Prevalence of health-risky behaviours associated with adolescent drug use has attracted growing international recognition (Nkyi, 2014). Especially in southern Africa, unsafe sexual behaviours may have significantly untoward consequences, considering the high HIV prevalence estimates from the region (Ferrand, Luethy, Bwakura, Mujuru, Miller & Corbett, 2007). Unfortunately, adolescents and youth may underrate the harmful effects of unhealthy life styles (McMaster & Keshav, 1994). Other studies believe that drug use among adolescents is associated with poor academic performance and may be a risk factor for cigarette smoking and unsafe sexual behaviours (Doku, 2012a; Kliewer & Murrelle, 2007; Morojele, Brook & Kachieng'a, 2006).

In a study conducted by Peltzer (2009a) on the prevalence and correlates of substance use among 20,765 students from six African countries aged between 13 to 15 years from six African countries including Ghana. Using two-stage cluster sample design, he selected participants in grades 6-10 from each country where he adopted GSHS questionnaire, including various domains of health behaviour. Peltzer found a prevalence of 12.6% tobacco use among students in the past month, 6.6% risky alcohol use (two or more per day for at least 20 days or more in the past month), and 10.5% of illicit drug use (three or more times ever) in school-going adolescents. A further analysis revealed school truancy, loneliness, sleeping problems, sadness, suicidal ideation, suicide plans, and poverty as correlates associated with substance use. School attendance and parental supervision and connectedness were protective factors for substance use,

and peer support protective for tobacco use (Ahamad, DeBeck, Feng, Sakakibara, Kerr & Wood, 2014). The study concluded that substance use were prevalent and highly associated with school truancy, mental distress, and lack of parental and peer support among adolescent African school children. Similar study by using similar methodology by Cofie (2010) found 17% prevalence of substance use among JHS students in Dangme West District with age of onset at 11 years with place of residency and fathers religion influencing substance use.

The initiation of smoking and alcohol in adolescence is largely influenced by social, cultural, and environmental factors including reciprocal social interactions among peers (Coleman & Carter, 2003; Foxcroft & Lowe, 1999; Schmid, ter Bogt, Godeau, Hublet, Dias & Fotiou, 2003; Sharp & Lowe, 1989) and naming ceremonies (Duker, 2006). There is a strong link between early age of alcohol use and misuse or abuse in adulthood (Grant, 1998). Alcohol-related accidents are the leading cause of death among young people aged 15-25 years (Facy, 2000). Substance use could be seen as a gateway for indulging in other health damaging behaviours, particularly risky sexual behaviour (Hadland et al., 2011).

Cigarette smoking

Smoking behaviour is undeniably established in adolescence. Most adult smokers in the developed or developing world (nearly 90%) reported lighting their first cigarette or being already addicted to nicotine, before the age of 18 (Canadian Tobacco Usage Monitoring Survey [CTUMS], 2003). The trends of cigarette smoking prevalence among adolescents in Ghana has fluctuated during the past years and decade. Several studies have indicated that a considerable amount of adolescents smoking cigarette Ghana (GDHS, 2003; GYTS, 2006;

WHO, 2013). Reports indicated 9% smoking prevalence in Ghana among school going adolescents, with regional variations reaching as high as 17.7% in the Northern region and 15.3% in Upper East region (Ghana Demographic and Health Survey [GDHS], 2003). In 2006, Global Youth Tobacco Survey (GYTS) in Ghana reported 8.7% prevalence rate of cigarette smoking among school going adolescents in Ghana. Slight drop of the prevalence was observed in 2006 over 2003 demographic health survey. However, cigarette smoking prevalence reported by Owusu-Dabo, Lewis, McNeill, Gilmore and Britton (2009), indicated higher prevalence of 9.7% smoking among school going adolescents aged 10-19 years in Ghana over what was recorded by GDHS (2003) and GYTS (2006).

WHO (2012) report on Ghana's smoking prevalence among school children below age 15 was 12.5%. A trend, WHO described as an increased smoking prevalence among school aged children from 2005-2010. Nevertheless, several other studies in the same year 2012 revealed different trends of cigarette smoking prevalence among school going adolescents in Ghana. Doku, Darteh and Kumi-Kyereme (2013) reported smoking prevalence of 6.6%, GSHS (2012) reported 8.3% prevalence among JHS students aged 13-17 years. WHO (2013) reported 12.5% prevalence in its World Health Statistics Report for Ghana and 16.0% for Africa for children aged 10-15 years.

Similarly, Hadii, Sreenivas and Rijo (2013) in their study on tobacco use among school-going adolescents (11-17years) in Ghana, found 11.5% prevalence of cigarette smoking with male and female variations pegged at (6.7% males and 4.4% females). The possible reasons for this disparity in the prevalence rates among studies could be the different number of the participants used for the studies. Observation of the prevalence revealed a stable prevalence over the years

as posited by Doku (2012b) in his study on socioeconomic influences of tobacco use among adolescents in Ghana and Finland.

Alcohol use

Alcohol is posited as a primary factor in motor-vehicle crashes, smoking, illegal drug use (Johnston, O' Malley & Bachman, 2002), and risky sexual behaviour (Cooper, 2002; Johnston et al., 2002). Trends of alcohol usage in Ghana among school going adolescents have indicated a gradual increase over the years. In a research study by Adu-Mireku (2003) to assess the prevalence and the association between alcohol, cigarette, and marijuana use among Senior Secondary School students in Accra, Ghana where he sampled 894 students (56.9% girls, 43.1% boys; mean age = 17.4 years) and used a modified version of the Youth Risk Behavior Survey questionnaire. Adu- Mireku reported overall lifetime alcohol use prevalence as 25.1% for the Accra. Among lifetime users, current alcohol use was 46.2%; current cigarette use was 44.6%; and current marijuana use was 58.3%. Boys were significantly more likely than girls to be lifetime users of all three drugs, but not as current users.

In another study in the same year by Dogbe (2003), using a case study of Tema Secondary School, he investigated substance use pattern among students. Dogbe recorded higher prevalence of substance use among school going adolescents in the secondary school. The findings revealed that substances most often used included alcohol (85%), tobacco (72.9%), marijuana (32.4%), valium (16.7%) and libruim (7.1%). Among substances ever taken, 4.8% had taken cocaine, 2.3% heroine and 1.4% opium. Furthermore, 49% of participants were introduced to drugs by friends who were not students and 17.6% were introduced by student friends and 16.2% introduced by parents.

However, in a Master of Science dissertation research conducted by Assabil (2010), in 13 selected first and second cycle schools in the Bosomtwi and Atwima Kwanwoma Districts of Ashanti Region to ascertain the effects of increased abuse of psychotropic substances on the academic performances of 600 students, alcohol prevalence was reported to be higher than what Adu-Mireku found in 2003 but lower than Dogbe's finding in Tema. He found lifetime 41.6% alcohol prevalence among school going adolescents aged 12-17 years. He further indicated that 51% of the students who consumed alcohol were males, although females constitute 45% of the population in these schools. The 2007 GSHS also reported 30.6% of current alcohol usage among school going adolescents in the JHS 1-3.

In 2011, Ghana's alcohol prevalence was reported in a study conducted by Doku, Koiusilta and Rimpela (2011) on the socioeconomic differences in alcohol and drug use among Ghanaian adolescents in a school-based cross-sectional survey of a representative sample of 12-18-year-olds (N =1195, response rate = 89.7%) to be 39.3%. GSHS (2012) also reported 78.9% alcohol drinking prevalence among a sample of 1,648 JHS 1-3 students aged 13-17 years in GSHS. GSHS report also indicated that, current drinking prevalence among students 13-17 years within the past 30 days was 15.8%; with those who were drunk so much that they could not walk prevalence pegged at 9.9%. These prevalence rates of alcohol drinking among school going adolescents in the country means there is the need to enforce Public Health Act on adolescents' access to alcohol (Andoh, 2014).

A recent study conducted by Kanyoni, Gishoma and Ndahindwa (2015) in a cross-sectional home survey carried out with 2,479 Rwandan youth ranging

from 14-19 years from 20 out of the 30 districts in Rwanda, found a prevalence of 50.6% of alcohol usage, 10.6% for tobacco smoking, 4.4% for cannabis and 0.2% for glue. Also, other studies in US also reported high prevalence of 54.7%-60% alcohol usage among adolescent with gender, age, academics, peers, religion, geographical location, and parental attachment as factors that influence drinking among school adolescents (Alvarez-Aguirre, Alonso-Castillo & Zanetti, 2014; Kafuko & Bukuluki, 2008; Patrick & Schulenberg, 2010; 2014).

Physical activity

According to WHO, physical activity is any bodily movement produced by skeletal muscles that requires energy expenditure including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits. Physical activity should not be confused with exercise, which is a subcategory of physical activity that is planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness (WHO, 2003a).

Active living has been described as an integrated lifestyle that brings about a general state of physical, mental, spiritual, and emotional well-being (Frankish, Milligan & Reid, 1998), whereby individuals interact with their environment through relatively unstructured physical activities, for example, playing outdoors; football, netball, ampe, bicycling and other recreational games (Stewart, 1995). Physical activity among young people may be compromised as a result of increased time spent in passive leisure activities, such as watching television or playing video games. Physical inactivity in adolescence is linked with a number of emotional and behavioural problems (Kantomaa, Tammelin, Ebeling & Taanila, 2008).

Among young children, active play at recess is initially intense and then markedly decreases (McKenzie, Sallis, Elder, Berry, Hoy & Nader, 1997) and this may contribute to observed negative associations between increased recess duration and physical activity due to children becoming fatigued and bored more quickly (Cardon, Van Cauwenberghe, Labarque, Haerens & De Bourdeaudhuij, 2008). However, adolescents may have more stamina and be able to focus on activities for longer durations. In addition to the school day, Van Sluijs, Fearne, Mattocks, Riddoch, Griffin and Ness (2009) report that active travel to and from school can contribute up to half of a young person's overall physical activity. A number of previous studies and systematic reviews (Faulkner, Buliung, Flora & Fusco, 2009; Schoeppe, Duncan, Badland, Oliver & Curtis, 2013) also demonstrate that a significant volume of young people's overall physical activity can be attributed to active school transport. Fewer studies have examined associations between active travel to school and sedentary behaviours, with no clear evidence in either direction to date (Schoeppe et al.). Hence, whilst promotion of active travel to school remains a popular mechanism for promoting young people's physical activity, less is known about its potential to influence young people's sedentary behaviours outside of school.

There are continual recommendations and guidelines specifically stipulated for youth physical activity, and also there is continuing debate over the amount and types of activity needed for health benefits. Recommendations tend to emphasize daily physical activity and encourage young people to accumulate 30 to 60 minutes physical activity a day (Sallis, 1994) ranging up to several hours per day (Corbin & Pangrazi, 1998). Because sustained moderate to vigorous physical activity has been associated with specific health benefits, this pattern of activity

has also been recommended (Corbin & Pangrazi). Engaging in adequate physical activity throughout the life span and maintaining normal weight and positive body image are the most effective ways of preventing many chronic diseases, including cardiovascular disease and diabetes in life (WHO, 2002).

Regular physical activity is associated with a healthier and longer life. However, most adolescents and children in the world are not physically active enough for health benefits. Several studies have also shown the clustering of risky behaviours such as physical inactivity and unhealthy diet intake among adolescents (Colley, Garriguet, Janssen, Craig, Clarke & Tremblay, 2011). Physical activity has been defined both in terms of organized sports and pursuits, as well as unstructured activities related to active living. A systematic review of a large body of research suggests that regular and sustained physical activity among children and youth are associated with the promotion of skeletal health and fitness (Chan et al., 2003), and a decrease in cardiovascular risk factors (Kemper et al., 2000). Regular physical activity can also benefit adolescents in other ways through improved self-concept and self-esteem and decreased anxiety and depression (Strong et al., 2005).

According to WHOHBSC (2006), physical activity has a number of positive effects on child and adolescent health, with good evidence for beneficial effects on adiposity in normal-weight and overweight children and young people. The prevalence of chronic heart or cardiovascular diseases among adolescent of the world is increasing globally (Pinhas-Hamiel & Zeitler, 2005). Further, prevalence of obesity which used to be a disease of affluence is currently among adolescent of communities particularly in the Greater Accra Region of Ghana (16.1%), while it appears to be non-existent in the Upper East and Upper West

Regions. This could be due to structural organization of houses and communities in modern Ghana, where majority of estates and residential houses do not have spaces provided for children to play. Traditionally, Ghanaian communities have centres located under trees where young ones gather and engage in physical activity. But modern ways of life and technology have turned these centres to residential area and some to video and game centres. This means that for children to develop physical activity behaviour in our communities, schools, parents, community leaders and district assemblies who are principal drivers of development at the community levels to make available gardens, parks, community centres for the young ones to establish physical activity behaviour early in life. Physical activity acquired during childhood and adolescence are more likely to be maintained throughout the life span, thus sedentary behaviour adopted at a young age is likely to persist (WHO, 2003b).

Physical inactivity has been estimated to cause 1.9 million deaths worldwide annually, according to World Health Report 2002. Globally, it is estimated to cause about 10-16% of cases each of breast cancer, colon cancers, and diabetes, and about 22% of ischaemic heart disease (WHO, 2003a). Estimated attributable fractions are similar in men and women. However, a recent review of several studies noted that highly active men had a 22% lower risk of all-cause mortality compared to mildly active men (Löllgen, Böckenhoff & Knapp, 2009). The corresponding figure in women was 31% lower all-cause mortality. Regular physical activity over longer time is strongly associated with a reduction in all-cause mortality in active subjects compared to sedentary persons. Numerous randomized clinical trials support that accumulating at least 30 min/day of moderate intensity physical activity on at least 5 days of the week has a beneficial

effect on numerous physiological and clinical variables (US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996). Moderate activity, such as brisk walking for 30 to 60 minutes a day most days of the week, is associated with significant reductions in the incidence and mortality of cardiovascular disease.

A GSHS (2008) report on the physical activity level among students in Ghana, reported a low physical activity with only 18.7% of the entire population meeting the recommendation of 60 minutes of physical activity per day. This means that close to 80% of the young ones are sedentary. They recommended that because physical activity has important health benefits in youth, and many young people are not meeting established guidelines, improving the physical activity levels of youth is an important public health challenge.

In another study, HBSC 2001/2002 reported 34% prevalence of 60 minutes at moderate intensity physical activity on 3 or more days in a week among school going adolescents aged 11-15 year-old. Interestingly, the level of sedentary behaviour among this population was high (26%). HBSC 2001/2002 study also reported high level less than 4 hours a day of television watching every weekday, rising to 45% during weekends. The result means that young people watched more television during weekends than they did on weekdays. Also, more boys than girls reported high levels (≥3 hours or more) of computer use both on weekdays (21% boys and 7% girls) and during weekends (35% boys and 15% girls). This could mean that girls are more into domestic affairs than boys and will not be able to have much time watching television or playing computer games.

International data on Physical Activity Series by Hallal, et al. (2012) reported that 80% of 12-15 year olds do not meet the current physical activity recommendations of 60 minutes of moderate to vigorous physical activity per day, and this revelation highlights the need for more physical activity surveillance data from Africa. The prevalence of physical inactivity, as defined as doing no or very little physical activity at work, home, for transport or during discretionary time, has been estimated to be 43%-49% among South Africans aged 15 years of age and older, and it has been reported from other African countries that less than 50% of adolescents between 13 and 15 years of age are physically active for at least 60 minutes a day on at least 3 days a week (Peltzer, 2009b; WHO, 2006).

In another study conducted by Micklesfield et al. (2014) to examine physical activity patterns, and to explore the association between socio-ecological factors (individual, maternal, household and community), and time spent in sedentary behaviour, informal, ambulatory and organized physical activity, in a sample of young adolescents living in rural South Africa. It was reported tah a greater socioeconomic background is associated with more time spent in sedentary behaviours such as watching television and reading, less time walking as a means of transport, and more time participating in moderate to vigorous involved in school and club sports. However, a study from the US and Europe has also shown a higher socioeconomic status to be associated with higher levels of moderate to vigorous activity (Manios, et al., 2010). This finding was in contrast to Micklesfield et al. findings, they have shown that increased SES is associated with more self-reported walking and less time spent in sedentary behaviour's such as television-viewing.

Furthermore, in a study conducted by GSHS (2007) among Ghanaian Junior High School students aged 13-15 years as part of a global school health survey in 2007, only 13.1% reported that they were physically active for a total of at least 60 minutes per day on all 7 days during the past 7 days (boys – 13.8%, girls 12.6%). In contrast, 27.4% of the students reported spending three or more hours per day during a typical or usual day sitting and watching television, playing computer games, talking with friends, or doing other sitting activities.

Currently, a study has shown that 84.1% of schools going adolescents between the ages of 15-19years were physically inactive such that females (94.7%) were more physically inactive than their male counterpart [70.5%] (Afrifa-Anane, Agyemang, Codjoe, Ogedegbe & de-Graft Aikins, 2015). They also posited that urbanisation is the major contribution factor for increasing prevalence of physical inactivity among adolescents in Ghana. Again, in the same year, another study by Asare and Danquah (2015) viewed the relationship between physical activity, sedentary behaviour and mental health among adolescents in Ghana. Sampling 296 participants, they assessed their physical activity level. They found 57% prevalence of physical activity among Ghanaian adolescents.

In addition, results from Ghana's 2014 report card on physical activity for children and youth by Ocansey, Aryeetey, Sofo, Badasu, Pambo and Nyawornota (2014) found that 12-34% of the participants were physically active with only 20% of 13- to 15-year-old Ghanaian youth reported getting at least 60 minutes of daily moderate-vigorous physical activity. Similarly, Nyawornota, Aryeetey, Bosomprah and Aikins (2013) also in their exploratory study on physical activity and overweight in two senior high schools in the Accra metropolis using 444

students between the ages of 15-19 years, they found low prevalence 33.3% physical activity level among the students, with 17% classified as engaging in low level physical activity, 49% in moderate activity, and 34% in high level of physical activity. However, most of boys' physical activities were found to be recreational activities while girls' physical activities were found to be domestic chores. This result could mean that physical activity level increases with age as in relation with the global survey in Ghana on JHS students (13.6%).

WHO (2003) report that at least 60% of the global population fails to achieve the minimum recommendation of 30 minutes moderate intensity physical activity daily. Similar finding was reported in WHO (2010) international survey across African countries that revealed that physical activity levels among young African people (aged 12 to 20 years) had decreased.

The low physical activity level of school adolescents was described by previous studies as predisposing factor for cardiopulmonary diseases (Asare & Danquah, 2015). Ghanaian's physical activity level has been highly influenced by the affluent living. Previously, young people walked to school (Arthur, 2003) which enabled them to achieve desirable levels of physical activity. These days parents with high socioeconomic status drive their children to and from school. Also, adolescents from Ghana now perceive walking to school as an indication of poverty (Progression Life Center, 2010). Adolescents have reduced participation in active pursuits and increased their sedentary behaviours as a result of technological advances (Witt, Massman & Jackson. 2011). Modern environments and technological advancements have radically altered the way we live our lives. Communication technologies have resulted in internet addiction among the youth

and high prevalence of addiction to computer, phones and games are responsible for high prevalence of sedentary lifestyle of adolescents (Acier & Kern. 2011).

In a review by Sallis, Prochaska and Taylor (2000) on correlates of physical activity of children and adolescents, they tried to understand the factors that influence physical activity and how it can aid the design of more effective interventions among adolescents. They did a comprehensive review of correlates of physical activity, and semi-quantitative results were summarized separately for children (ages 3–12) and adolescents (ages 13–18). The results showed that about 60% of all reported associations with physical activity were statistically significant. Variables that were consistently associated with adolescents' physical activity were sex (male), ethnicity (white), age (inverse), perceived activity competence, intentions, depression (inverse), previous physical activity, community sports, sensation seeking, sedentary after school and on weekends (inverse), parent support, support from others, sibling physical activity, direct help from parents, and opportunities to exercise.

Furthermore, according HBSC (2012), physical activity is essential for long- and short-term physical and mental health and may improve academic and cognitive performance. Moreover, physical activity is associated with increased musculoskeletal and cardiovascular health and reduced anxiety and depression among children and adolescents. Adoption of good physical activity habits established in childhood and adolescence are likely to be carried through into adulthood, while lower levels are associated with obesity. The result showed that girls in particular are less likely to participate in physical activity as they grow older, with activity levels dropping by more than 10% in more than a quarter of the countries surveyed. This therefore suggests that there is an opportunity to

increase female participation by adapting activities to attract more girls into physical activities through more gender sensitive programmes. Also, there is the need for environmental policies and strategies such as access to safe places for physical activity, provision of pedestrian's walkway, increase supervision of physical education and physical activity in schools and child care settings, and street-scale and community-scale design policy to help increase physical activity behaviour among all Ghanaians. In contrast, sedentary behaviour is significantly higher among 15-year olds. While boys are more likely to report watching television, the gender differences are not large.

Based on this report, CDC (2014) posited that environmental and policy strategies implementations with state support of physical activity, identifying opportunities to improve access to environmental supports such as sidewalks or walking paths place can encourage physical activity. According to CDC, to improve physical activity behaviours among adolescents, health departments, other state and local government agencies, and their partners can work together to implement the community preventive services task force's recommended environmental and policy strategies for increasing physical activity. These policies are creating or enhancing access to safe places for physical activity, enhancing physical education and physical activity in schools and child care settings; and supporting street-scale and community-scale design policy.

To curtail the alarming predicaments of chronic NCDs and as means to reduce the impact of major risk factors associated with NCDs such as unhealthy diet and physical inactivity, the World Health Assembly adopted the Global Strategy on Diet, Physical Activity and Health in May 2004. In this, multi-sectorial policies are to be emanated such that national and local governments

should frame policies and provide incentives to ensure that walking. cycling and other forms of physical activity are accessible and safe. Transport policies include non-motorized modes of transportation, and sport and recreation facilities embody the concept of sport for all. Based on this, CDC and WHO developed recommended physical activity guidelines from which Ghana had developed recommended physical activity guidelines for children and adolescents.

Children and adolescents should do 60 minutes or more of physical activity daily.

1. **Aerobic:** Most of the 60 or more minutes a day should be either moderate- or vigorous-intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week.
2. **Muscle-strengthening:** As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week.
3. **Bone-strengthening:** As part of their 60 or more minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days of the week.

It is important to encourage young people to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety. These activities are in the form of ampe and tutumantu.

MOH recommends that children engage in physical activity for about one hour on most days of the week. The NCD Policy will therefore advocate for physical education sessions in Basic and Senior High Schools to be less theoretical and more heavily practical with outdoor and indoor-games. According to MOH (2009) dietary and physical activity guidelines for Ghana, the following

have been posited as ways or guidelines for adolescents one hour or more of moderate or vigorous aerobic physical activity a day, including vigorous intensity physical activity at least 3 days a week. Examples of moderate intensity aerobic activities include hiking, bicycle riding and brisk walking. Vigorous intensity aerobic activities include bicycle riding, jumping rope, running and sports such as soccer, basketball and field hockey. Children and adolescents should incorporate muscle-strengthening activities, such as rope climbing, sit-ups, and tug-of war, 3 days a week. Bone-strengthening activities, such as jumping rope, running and skipping, are recommended three days a week. Children and adolescents of school going age should be held accountable on fitness standards. Thus compulsory physical education should be added in the school curriculum for at least 120 minutes a week. To MOH, the Dietary and Physical Activity Guidelines are a standard guide to the development of learning materials and health education messages for the general public as well as for teaching. The extent to which this policy guideline is in use a question we need to ask. This means that guideline alone is not enough for participation in physical activity rather other aspects such education, resources, programmes are essential in development of exercise behaviour among the adolescents. Even though, the policy alluded to the essence human resource, and shortage of staff, further emphasis was made that existing personnel will be trained for multi-task.

Dietary practices

Nutritional needs during adolescent age are increased due to the increased growth rate and changes in body composition associated with puberty (Jenkins & Horner, 2005; Spear, 2002). The dramatic increase in energy and nutrient requirements coincides with other factors that may affect adolescents' food

choices and nutrient intake and thus, nutritional status. These factors, including the quest for independence and acceptance by peers, increased mobility, greater time spent at school and/or work activities, and preoccupation with self-image, contribute to the erratic and unhealthy eating behaviours that are common during adolescence (Siega-Riz, Carson & Popkin, 1998; Spear, 2002). To help prevent diet-related chronic diseases, studies have posited that healthy eating behaviours should be established in childhood and maintained during adolescence (McNaughton, Ball, Mishra & Crawford, 2008; Uauy & Solomons, 2005).

In other part of the of the world, national and population-based surveys have found that adolescents often fail to meet dietary recommendations for overall nutritional status and for specific nutrient intakes (Ambrosini, Oddy & Robinson, 2009; Cavadini, Siega-Riz & Popkin, 2000; Kann, Kinchen & Shanklin, 2014). According to these studies, greater number of adolescents receives a higher proportion of energy from fat and/or added sugar and have a lower intake of a vitamin A, folic acid, fiber, iron, calcium, and zinc than is recommended. Iron deficiency can impair cognitive function and physical performance, and inadequate calcium intake may increase fracture risk during adolescence and the risk of developing osteoporosis in later life (Greer, Krebs & American Academy of Pediatrics Committee on Nutrition, 2006).

Eating habits vary widely between individual adolescents, and also display some general trends over time, reflecting sociocultural trends in food availability and nutritional goals. As an example, data from a survey showed that total energy intake among our adolescents increased through 2004, then decreased through 2010 (Slining, Mathias & Popkin, 2013). Intake of full-fat milk, meats, ready-to-eat cereals, burgers, fried potatoes, fruit juice, and vegetables decreased, whereas

non-fat milk, poultry, sweet snacks and candies, and tortilla- and corn-based dishes increased through 2010 (Slining et al.).

Recent figures showed alarming numbers of obese and overweight children and young people (Jotangi, Moody, Stamatakis & Wardle, 2005). In another study conducted by Intiful and Lartey (2014) on school children aged 6-19 breakfast intake in Manya Krobo district in the Eastern region of Ghana found high breakfast consumption among adolescents with boys more likely to eat breakfast than girls. However, availability of toffees and soft drinks on the school compounds as well as participants' communities could contribute to high intake of soft drinks and toffees in the region (Amos et al., 2012).

Also, a study conducted by Buxton (2014) in the Central Region on Ghanaian JHSs adolescents dietary practices and food preferences and its implications for public health concern. Data was collected on the frequency of meals consumption, frequency of snacking between meals, type of snacks usually consumed, and frequency of eating outside the home and food preferences of respondents. Her findings showed majority 515(62.8%) of the respondents usually skipping breakfast before going to school and preferred a soft drink for snack during the day. She concluded that Junior High School students do not have healthy eating patterns and habits as they usually skip breakfast and prefer high sugar and fat content food products as snack among other dietary habits.

In light of the growing awareness of the possible connection between the diets of children, adolescents and diseases of adulthood, the diets of young people have recently received increased attention. Traditionally, hunger and lack of food resources is referred to as poverty, but during the last decades, lots of attention has been paid to the negative consequences of food surplus. The dietary habits of

most societies have changed considerably during a short period of time due to great economic development, with unhealthy food becoming more accessible and also cheaper than healthy food in schools and communities. This have led to great increase in consumption of this type of food, and, in turn, a lot of undesirable health consequences causing a strong and growing concern from health governments and medical specialists (Brannon & Feist 2007, WHO 2004). Inadequate intake of calcium from dietary sources during childhood and adolescence may affect the achievement of bone mass, hence increase the risk of osteoporosis in adult age (Gillespie 2006). Dietary habits also have great implications for the dental health among adolescents, and the increase in consumption of sugar-sweetened drinks during the last decades has led to a raise of dental problems (Owusu, Murdock & Weatherby, 2007).

Although, healthy eating is necessary during the period of adolescence, studies have shown that as the individual enters adolescence, the dietary habits often get unhealthier (Rasmussen, 2006, Vereecken, Inchley, Subramanian, Hublet & Maes, 2005). In Europe, U.S., Africa and Ghana, the consumption of soft drink, fast food and sugar has increased, while the consumption of fruits and vegetables has decreased among adolescents during the last few years (Moreno et al., 2010). Furthermore, other studies reported high intake of added sugar and the low intake of grains, fruits and vegetables (Bere, Andersen & Klepp, 2009; Oellingrath & Nærum, 2006, Øverbye & Andersen, 2000).

For children and young people, healthy eating is particularly important for healthy growth and cognitive development. Eating behaviours adopted during this period are likely to be maintained into adulthood, underscoring the importance of encouraging healthy eating as early as possible (Krebs-Smith, Heimendinger,

Patterson, Subar & Kessler, et al., 1995). Guidelines recommend consumption of at least five portions of fruit and vegetables a day, reduced intakes of saturated fat and salt and increased consumption of complex carbohydrates (Department for Education and Skills, 2005; Department of Health, 2005).

Again, Kotecha, Patel, Baxi, Mazumdar, Shobha, et al. (2013) on dietary pattern of school going adolescents in urban Baroda, India using qualitative and quantitative method, nearly 80% of adolescents had consumed regular food, like rice, beans, millets, fruits and vegetables, including green leafy vegetables. Nearly 50% of them had consumed chocolates, and about one-third consumed fast foods. Nearly 60% of adolescents had their breakfast daily while the remaining missed taking breakfast daily. Nearly one-third of adolescents were missing a meal once or twice a week. A large majority had consumed regular foods. However, more than half of them had consumed chocolates, soft drinks, and over one-third had taken fast foods.

The increase in prevalence of obesity in children and adolescents is of major public health concern (Bundred, Kitchiner & Buchan, 2001; Giskes, Turrel, Patterson & Newman, 2002; Ogden, Flegal & Carroll, 2002). Obesity in childhood is associated with medical and psychosocial complications (Ebbeling, Pawlak, & Ludwig, 2002) and is likely to track into adulthood (Dietz, 2004; Guo & Chumlea, 1999). Prevention and intervention programmes for children have focused on family- and school-based initiatives, but long-term weight loss is difficult to achieve when adverse environmental factors overwhelm behavioural and educational techniques designed to modify diet and increase participation in physical activity (Ebbeling, et al. 2002).

In light of the obesity epidemic, it is perhaps not surprising that dieting is such a prevalent behaviour among children (Crow, Eisenberg & Story, 2006) some of whom employ healthy dieting strategies to lose weight (Eaton, Kann & Kinchen, 2008). Self-reports of 'dieting' can, however, include unhealthy dietary practices and restrictive eating (Neumark-Sztainer, Hannan & Story, 2004), with negative impacts on nutrient intakes and dieting often clusters with other risk behaviours (Crow, et al., 2006). There are also psychosocial risks associated with dieting, such as low self-esteem and depressive symptoms (Canpolat, Orsel & Akdemir, 2005).

Eating habits acquired during childhood and adolescence continue into adulthood where the association between diet, disease morbidity, and mortality is well recognized (Vereecken, 2005). Healthy eating habits contribute to the physical and emotional health and well-being of youth. However, psychosocial changes during adolescence (associated with a need for increased independence), environmental factors (advertising, peer pressure, spending more time away from home), and consuming greater quantities of fast foods and snacks have a combined effect on adolescents' eating patterns and food choices. These factors may put adolescents at increased risk for unhealthy eating habits, resulting in poor nutritional health (Neumark-Sztainer, Story, Perry & Casey, 1998; Neumark-Sztainer, Wall, Story & Fulkerson, 2003). In addition, dieting behaviours may have a bearing on the health status of adolescents as there is widespread concern about excessive dieting among young girls in North American society, especially given that dieting occurs most frequently in young women of normal weight (French, Story, Downes, Resnick & Blum, 1995). The dietary habits have changed considerably during a short period of time due to great economical

development, with unhealthy food becoming more accessible and also cheaper than healthy food. This have lead to a great increase in consumption of this type of food, and, in turn, a lot of undesirable health consequences causing a strong and growing concern from health governments and medical specialists (Brannon & Feist, 2007; WHO, 2004).

Sexual behaviours

In most regions of the world, the proportion of adolescents who have had sexual intercourse before marriage is high (Bearinger, Sieving, Ferguson, & Sharma, 2007). This could be equated to the fact that currently, adolescents in Ghana are known to be sexually experienced and many believe their intimate friends are sexually active as well (Asampong, Osafo, Bingenheimer & Ahiadeke, 2013). Due to their active state, most adolescents engage in all sorts of sexual behaviours that can be ascribed to changing social, cultural and economic status of adolescents occurring in Ghana and the sub-Saharan Africa regions. It is an undeniable fact that the emergence of HIV and AIDS epidemic has completely changed the perception of the world towards sex, but chunk of adolescents continue to engage in risky sexual behaviours (Bankole, Biddlecom, Guiella, Singh & Zulu, 2007).

Risky sexual behaviours, including early sexual intercourse, unprotected sex, multiple sexual partners and non-contraception use can expose adolescents to sexually transmitted infections STIs and early pregnancy (Akwara, Fosu, Govindasamy, Alayón & Hyslop, 2005). Traditionally, sex education by families is given to only girls, usually by their mothers or an elderly woman in the family during puberty rites (Hathazi, Lankenau, Sanders & Bloom, 2009). Furthermore, sex is regarded as sacred and sexual issues and is hardly discussed in public.

Adolescents' decisions to engage in sexual activity and protecting themselves from pregnancy and (STIs) are influenced by many factors (Guttmacher & Institute, 2004).

Sexual health is part of adolescents' general, social, and personal well-being (Kayembe, et al., 2008). The key public health concerns around young people's sexual health include teenage pregnancy and sexually transmitted infections (STIs). Teenage pregnancies and STIs can lead to significant health, social, and economic problems among young people, and are largely preventable through the co-ordinated efforts of families, schools, health and education agencies, and community organisations (Habtamu & Adamu, 2013). Identifying young people's age at first intercourse in the school aged children health behaviour survey is important because those who engage in intercourse early are thought to be at greater risk for unplanned, unprotected sex and, therefore, unintended pregnancy and exposure to STIs, at least around the time of their first intercourse. Early first intercourse is also associated with other modes of risk-taking such as alcohol and drug use, as it is more likely to be unintended and unprotected (Godeau, Nic Gabhainn & Ross, 2005).

Data from Ghana demographic health survey (GDHS) in the 1993, 1998, 2003, 2008 and 2014 indicated that Ghanaian adolescents are sexually active. Report in 1998 research showed that among 15–19-year-olds, 38% of females and 19% of males had had sexual intercourse. The proportion of females having sexual intercourse of the same age in the 1993 GDHS was 59%. An observation indicated a substantial decline of the proportion of female adolescents who have had sex within that age group (Ghana Statistical Service, 1994). While among adolescent men, 33% had ever had sex in 1993 and 19% had ever had sex in 1998,

indicating a substantial decline during the 1990s (Singh, 2000). However, in a 1991 study of 400 single females aged 18–25 in Cape Coast, 86% of the respondents had ever had sexual intercourse, and 42% of these had had sex before age 16 (Ankomah & Ford, 1993).

Similarly, a study carried out in 2000 in Accra, Kumasi and Agomanya have reported median ages of 18, 17 and 16 among single female youth and 17 among males in Accra and Kumasi (Family Health International and Research International, 2001). In the same way, a survey of 1,038 students (471 females and 567 males) aged 13–18 in nine senior secondary schools, 50% of the adolescents considered chastity as an ideal to attain and thought that it was realistically attainable (Adomako, 1991). Yet 42% of the male students and 15% of the female students surveyed had had sexual intercourse. The average age at first sexual experience was 15 (the youngest was 8, a case of defilement; the oldest was 23). Half of the sexually experienced students had their first sexual experience between ages 14 and 17, and 25% had their first sexual experience at age 13 or younger. Reasons given for engaging in sexual intercourse included pressure from peers, deception by partners, experimentation, and satisfaction of sexual desires.

Furthermore, in a study conducted in some selected districts, Sallar sampled 1,415 males and females aged 10–19 in Ketu South, Upper Denkyira and Offinso electoral constituencies. Sallar observed that the median age of first sexual intercourse for males and females aged 10–19 in these three areas in Ghana was 16 (Sallar, 2001). However, at age 15, 47% of the males and 38% of the females had ever had sex. Among adolescents aged 12–20 studied in Kumasi and Accra, it was observed that the median age at first sexual experience was 16 for

both boys and girls in the sample (Nabila & Fayorsey, 1996). In a study of 1,782 unmarried young people aged 15–19 in the Greater Accra and Eastern Regions, Agyei and others found that 67% of males and 78% of females had ever had sex, and the mean age at sexual debut among those who had ever had sexual intercourse was 15.5 for males and 16.2 for females (Agyei, 2000). This means that from late 1990s to early 2000s, the age at first sex was stable over the years around 15 and 16years.

In 2003 GDHS, the result showed that the median age at first sexual intercourse for women age 25-49 years is 18.2 years and for men age 25-59 years it is 20.2 years, However, 9% of women and 4% of men reported having sexual intercourse by age 15. By age 18, almost half of women (48%) and one-fourth of men (25%) have had sexual intercourse. Sixty-one percent of women and 80% of men age 15-19 have never had sex which in effect revealed that 39% of girls and 20% boys had experienced sex. This means there was an increment on sexual activeness of adolescents in 2003 report, however, age at first debut has not increased. In the GDHS 2008 report, 8% of women and 5% of men reported having sexual intercourse by age 15. By age 18, more than two-fifths of women (44%) and 26% of men have had sexual intercourse (GSS/GHS & ICF Macro, 2009). However, as 2008, 22% boys and 37% girls had experienced sexual intercourse. This outcome has shown an increased in the percentage of boys having sex and decreased in percentage of girls having sex within age 15-19 over the 2003 report.

Moreover, the result also showed that urban girls experience sexual intercourse for the first time about one year after their rural counterparts, but there is no difference in age at first sexual intercourse between urban and rural men.

Nevertheless, girls and boys living in the Upper West Region experience first sexual intercourse at a later age than their counterparts in the other regions (Coughlin, 2016). Educated women and men with highest wealth quintile are also seen to initiate sexual intercourse at a later age than women and men with little or no education and women in the other wealth quintiles. In contrast, there is little difference in the age at first sexual intercourse among men and women by wealth quintile.

In addition, data over the years on sexual partnerships revealed sexual networking among adolescent in Ghana. According to 1998 GDHS data, 17% of sexually experienced 15–19-year-old males had had two or more partners in the 12 months prior to the survey. In another 1998 national study, Tweedie and Witte reported that 79% of females and 68% of males aged 12–24 in the 1998 Ghana Youth Reproductive Health Survey (GYRHS) had one current sexual partner while 3% of females and 10% of males reported having had two or more sexual partners within the three months prior to the survey (Tweedie & Witte, 2000). Among those who had ever had sex, 60% of females and 39% of males reported one lifetime sexual partner, 38% of females and 53% of males had two to three lifetime partners, and 1% of females and 5% of males reported four or more lifetime sexual partners. Although the time periods and samples for the two studies are different, the results point to a fairly high level of multiple partnerships among young men in Ghana (Awusabo et al., 2004).

Over the years, sexual behaviour of school going adolescents has increased substantially as reported in researches. In a study by Afenyadu and Goparaju (2003) on sexual and reproductive health status of in school and out-of-school adolescents in Dodowa using 400 JHS and SHS students and 12

students focus group discussion, using both quantitative and qualitative method, they found that 55% of the adolescents interviewed reported having ever had sex. Out of which the in-school students 65% of the males and 44% of the females had ever had sex. Out these adolescents, their sexual partners include their peers, teachers and "sugar daddies." Again, both female and male adolescents reported in the study of being forced to have sex. Three in five adolescents both female and male use condoms, but use is selective and inconsistent. Nevertheless, the result showed that males refuse to use condoms with their regular partners while female adolescents do not insist on condom use because they are afraid of losing their boy lovers, or need monetary support from older partners. Some teachers use their position to force female students to have sex with them. Afenaynu and Goparaju posited that the main determinants of adolescents' engagement in sexual activities were money, sexual pleasure and peer pressure.

In another study by Peltzer (2010) on early sexual debut and associated factors among in-school adolescents in eight African countries, Peltzer examined early sexual debut (<age 15) among 15-year-old in-school adolescents in eight African countries. Using a sample size of 10, 070 school children aged 15 years from nationally representative samples from the countries, he found that 27.3% adolescents had had sexual before age 15, with a prevalence of 38.1% among boys and 15.8% among girls. Boys and girls with sexual debut at less than age 15 were more likely to report alcohol, tobacco and drug use, truancy, poor parental or guardian connectedness, sedentary behaviour, while for girls, mental distress and poor economic status and poor parental supervision were associated with early coital debut. Using multivariable analysis, he reported that early sexual debut among boys was associated with currently smoking and truancy and, among girls,

associated with lower education, ever drunk, having no close friends and poor parental connectedness.

Similarly, another data posited by GSS (2011) on sexual activeness of adolescents ages 15-19 in Ghana, showed that 54% of young girls and 32% of young men had had sex within the past 12 months. The highest percentages of sexually active young girls were reported to be in Western (65%), Eastern (58%) and Volta (58%) regions, while the highest percentages of sexually active young boys can be found in the Eastern region (44%). Nevertheless, the data also reported that intergenerational sex is relatively high among young women aged 15-24 years. In the data, 12% of young women had sex with a man at least 10 years older in the 12 months preceding the survey. This situation may partly account for the high numbers of poverty in our country particularly slams and rural Ghana. Among the young men aged 15-24 years who had sex in the 12 months preceding the survey, virtually none had sex with a woman 10 or more years older.

Even though Ghanaian adolescents are becoming so sophisticated in their sexual exploits, with the emergence of HIV/AIDS and other STIs, which means the country future could be jeopardised if prevention measures are not put in place (Mann & Tarantola, 1996). On the other hand, improving young people's sense of self-efficacy provides hope for meeting these challenges. For example, a study in Ghana on factors associated with risk and protective behaviours among adolescents showed a strong relationship between perceived self-efficacy and lower numbers of lifetime sex partners and current sex partners (Karim, 2003).

Also, a study of street youth in Accra aged 8–19 showed that although 83% of the respondents knew about condoms, only 28% of the sample had ever

used condoms and 21% had used condoms in the three months prior to the survey (Anarfi, 1997). An earlier study by Anarfi and Antwi (1995) found that 90% of 10–24-year-olds knew of condoms but 34% had ever used them. All those who used condoms reported that they were used to prevent STIs, and 4% specifically mentioned HIV/AIDS. Thirty-three percent of the respondents did not use condoms because they did not like the method and another 11% felt that condoms did not give any protection. In a study in Yilo-Krobo District among males aged 15–24 who had ever had sex, 65% had used condoms at least once and 21% used the condom at last intercourse (Adih & Alexander, 1999). Young males who perceived themselves to be at high risk were more likely to use condoms at their last sexual encounter than those who did not perceive themselves to be at high risk. In a study in three districts in Ghana, 68% of the respondents aged 10– 19 and who had ever had sex indicated that condoms could be used for protection against STIs but only 41% had ever used condoms (Sallar, 2001). Of those who had ever used condoms (137 males and 87 females), 28% reported that they used them to prevent pregnancy, 6% to prevent STIs and 12% for HIV prevention; the remainder used them to prevent two or more of these outcomes (Adomako, 1991). Adomako identified condoms as the most preferred method of contraception and for protection against STIs among secondary school students in Ghana.

Other studies on adolescent sexual partnership in Ghana also revealed same sex sexual intercourse among Ghanaian adolescents. The study showed that some young people engaged in same-sex as well as heterosexual sexual relationships: About 1% of males and females aged 12–24 reported that they had ever had sex with same sex partner (Tweedie & Witte, 2000). Sallar (2001) also observed that among those who have ever had sex, 67% of them were males and

55% were females aged 14–19. In 1998 GYRHS, most first time sex partners were boyfriends or girlfriends of the young people. About four out of every five adolescents who had ever had sexual intercourse, reported that they had their first sexual intercourse with a boyfriend or girlfriend.

Based on 29 case studies in Accra of 13– 19-year-old females who had experienced at least one unintended pregnancy, Henry and Fayorsey found that obtaining financial support and affection were the main reasons for starting a relationship (Henry & Fayorsey, 2002). The financial support from boyfriends was an integral part of a relationship and was used for daily needs, including food, medical expenses, school fees and clothing. Adolescents' reasons for having sexual intercourse range from pleasure to peer pressure to financial reasons.

A study of adolescent traders in Accra revealed that 2% of males and 12% of females reported that the first time they had sex they were forced; moreover, 8% of males and 25% of females who had ever had sex reported having been coerced to have sex at some point in time (Awusabo-Asare et al., 2004). Awusabo-Asare and others in a study among young people aged 12–24 in junior secondary, senior secondary and university in the Central Region, observed that among 415 adolescents who had had sex with their boyfriend or girlfriend, 19% reported that they were forced; of the 211 who had had sex with schoolmates, 13% reported being forced; of the 234 who had had sex with neighbours, 13% said they were forced; and of the 101 who had had sex with teachers, 6% reported that they were forced (Awusabo-Asare et al.). A qualitative study in urban Accra based on 29 case studies of girls aged 13–19 found that about one-third of the girls described their first sexual experiences as involving force, deception or rape (Henry & Fayorsey, 2002).

A previous study on factors influencing students' aged 13 to 18 sexual behaviour reported that non-initiation of sex was associated with having a two-parent family and higher socioeconomic status, residing in a rural area, performing better in school, feeling greater religiosity, not having suicidal thoughts, and believing parents care and hold high expectations for their children (Cohen et al., 2010).

In another study conducted by Doku (2012b) on substance use and risky sexual behaviours among sexually experienced Ghanaian youth, he posited that sexual debut was relatively high among adolescents in Ghana particularly those from Eastern, Greater Accra and Volta regions. There was also a high number of heterosexual behaviours among those sexually active.

Contraceptive use was low and age at first sexual intercourse was positively associated with the number of sexual partners in the sense that older children having more multiple partners than younger ones. Again, to Doku, age at sexual debut was lower than those reported in the previous study. Likewise the prevalence of sexual debut before the age of 15 years was higher compared to those found among 15-year-olds in thirty European countries (Nic Gabhainn, Baban, Boyce & Godeau, 2009) and in eight countries in Eastern and Central Africa (Liang & Ma, 2004). Despite the age differences between the studies subjects, this study found that the age at sexual debut increases suggesting that adolescents are initiating sexual intercourse at earlier age. Older age, male gender and rural residency all increased the likelihood of sexual debut and having one or multiple sexual partners among adolescents. Doku (2012b) also opined that with regards to the differences in sexual debut and number of sexual partners between rural and urban adolescents, the higher probability among rural compared to urban

residents is likely to be explained by the generally poor education and health services in the rural compared to urban settings.

According to Doku more adolescent boys are sexually experienced. frequent engagement in sexual intercourse and having heterosexual partners than their female counterparts (Esantsi et al., 2015). He further explained that one of the striking issues his study had found is that all the other risky health behaviours studied (tobacco use, drunkenness, marijuana use and other drug uses) were associated with sexual debut and the number of sexual partners. Doku's findings confirm evidence found elsewhere (Li, Huang, Cai, Xu, Huang & Shen, 2009; Liang & Ma, 2004). In many countries, particularly in the developing world, including Ghana, societal sexual expectation for boys and girls varies (Marston & King, 2006). In addition, another study reported that adolescents being highly satisfied with their relationship with parents were 2.7 times less likely to engage in sex than teens who had little satisfaction with their parental relationships (Connolly, Furman & Konarksi, 2000).

Similarly, another research finding by Chi, Yu and Winter (2012) also found gender as a significant predictor of sexual behaviours in university students: males reported more sexual behaviours including sexual fantasy, heterosexual intercourse, masturbation, viewing pornography and talking about sex with friends. However, Chi et al. (2012) reported age as not a significant predictor of sexual behaviour among school adolescents.

Another study conducted by Wu, Xiong and Shi (2007) among high school teenagers in China found academic performance as a predictor of sexual activity among teenagers with teenagers with poor school achievements more likely to have already lost their virginity and engage in more sexual activities than

those who achieved high academic success. Another study revealed students with lower grades, compared to those with higher grades, were more likely to have sexual intercourse experience in high school (Ma et al., 2006).

In another study, relationship satisfaction with parents was associated with a lower probability of engaging in sex. Indeed the notion that parents have significant influence on the sexual and reproductive health of their children cannot be overemphasized (Asampong, et al., 2013). It has been speculated for example that adolescents who are close to their parents may engage in less sexual activity because parent–child closeness increases opportunities for prosocial development (DiIorio, Pluhar & Belcher, 2003). There is also evidence that parent-adolescent communication about sex plays an important role in predicting adolescent sexual behaviour (Abruquah & Bio, 2008; GSS, 2010; Dittus & Jaccard, 2000). Besides, parental supervision and monitoring is said to be an effective way of controlling adolescents' sexual behaviours. It is however important to note that the period of adolescence is characterized by shifts in influence, where peers become more influential than parents (Glover et al., 2003). This situation is worsened by the tendency for parents to allow their adolescent children the freedom to spend increased unsupervised time with peers (Kaplan, 2004). Furthermore, adolescents seek to acquire more insights into life skill-based sex education which is usually absent unlike parents who become more interested in moral education for their adolescent children (Lammers, 2000).

Determinants of Health Related Behaviours

Adolescents develop within a social context of complex and environmental influences which have interdependent relationship on the formation of individuals' behaviour. The child interact with the physical and

social environment on daily basis throughout his/her life depending on the gravity and verity of the interactions can either lead to health enhancing behaviour or health compromising behaviour.

Family

The family is the pre-eminent social system in a young person's development. Although adolescence is typically a time when young people begin to challenge parental controls and to be influenced by their peers, the family can be an integral source of support through the school years. Currie, Todd and Platt (1997); Holstein, Hansen and Due (2004) suggest that while both family and peers are both important in young people's lives, the influence each exerts depends on the health outcome, or health behaviour in question. and on the age and developmental stage of the child. For example, substance use, which is part of youth culture, is more influenced by peer factors; in contrast, physical activity, food habits, and educational aspirations are more influenced, at least in early adolescence, by parents (Inchley, Todd, Bryce & Currie, 2001; Mazur, Scheidt, Overpeck, Harel & Molcho, 2001). Parent-child communication is a potentially modifiable protective factor of adolescents' substance use (Devore & Ginsburg, 2005).

Substantial literature also indicates that greater frequency and quality of general parent-child communication are negatively associated with adolescent substance use (Kafka & London, 1991; Stoker & Swadi, 1990). For instance, Ackard, Neumark-Sztainer, Story and Perry (2006) found that perceived difficulty talking to parents about problems is associated with increased risk of substance use in boys and girls.

Moreover, connectedness to one's parents and having parents who set firm limits and who are empathetic and nurturing contributes to young people's social development, self-esteem, and health (Baumrind, 1991; United Nations Office on Drugs and Crime [UNODC], 2016). Support from parents remains vital to the positive development of adolescents. Therefore, it is important to examine the home setting to better understand its relationship to health behaviours in school-aged children. When parents are indifferent, exhibit inappropriate role modelling, or are inconsistent in setting standards of behaviour for their children, there is a much greater likelihood of problem behaviour and psychological problems. Adolescents who do not feel close to their parents or who are living in single-parent families are more likely to suffer from problems with self-esteem, depression and engage in risk behaviours such as smoking and drug use. Again, researches by (Kendler, Schmitt, Aggen & Prescott, 2008; Rebellon, 2002) have demonstrated that alcohol use in early adolescence is strongly influenced by social and familial environmental factors such that parental bonding, strength of communication and adherence to prosocial norms playing critical roles in determining the onset of alcohol consumption and other hard substances among adolescents (Fulkerson et al., 2010). This means that, the degree of parental supervision, the quality of communication between parents and their children, how much time parents and children spend together, parents' knowledge of children's friends, and issues regarding trust affect risky behaviours among adolescents (Agnew, 1991; Miller, Esbensen, & Freng, 1999).

Other studies have also indicated that the degree to which parents are aware of their child's whereabouts is associated with lessened risky behaviours of drinking and delinquency (Clark, Kirisci, Mezzich & Chung, 2008; Soenens,

Vansteenkiste, Luyckx, & Goossens, 2006). Similarly, familial socioeconomic (FSE) status has also been described as highly associated with marijuana or cannabis usage among adolescents in Europe with lower FSE influencing the frequency of cannabis usage among French adolescents (Legleye, Beck, Khlat, Peretti-Watel & Chau, 2012). Although Humensky (2010) finding agreed with Legleye and colleagues, she differed which level of FSE were at more risks and posited that late adolescents with higher FSE have the propensity to use marijuana than adolescents from the lower FSE background. The difference in their findings was due to the sample and the characteristics of the adolescents used for the study.

A positive and supportive family environment is a key factor for children's well-being. Positive parenting styles for instance authoritative (warm and nurturing, setting firm limits, engaging with children in decision-making) as opposed to permissive or authoritarian can have a considerable impact on children's behaviour. A supportive home environment is important to both the physical and mental development of young people. Children's relationships with their parents and parent–child communication will evolve and change as they move through the middle years and adolescence. Ease of communication with parents is considered an indicator of both social support from parents and family connectedness. Data in adolescence show that where gender differences exist, they are small and favour boys with respect to ease of communication with their mothers (Currie et al, 2008).

Similarly, in a study conducted by Xin, Qing-Min, Yan-Jun, Jun and Li-Ming (2015) on family influence in a child's physical activity. Using self- reported questionnaire, they found only 9.0% of the students participated in MVPA at least

60 minutes/day; 63.9% spent no more than 2 hours/day in sedentary behaviours. The involvement of family and supports in the children's activity in most days of the week was associated with both higher level of MVPA and less leisure-time sedentary behaviours. They concluded that less than 10.0% of urban Chinese adolescents engaged in MVPA at least 60 minutes/day. This means that urbanization with its modernity hinders physical activity among adolescents; hence, parental guidance will be pivotal in enhancing physical activity of adolescents. Xin et al. affirmed that family involving themselves in the children's activity exerted the most significant influence on children's behaviours as compared with verbally encouraging and observing children's activity. Any type of familial support including verbally encouraging, watching, and involving had effects on reducing leisure-time sedentary behaviours.

Examining the relationship between parental socioeconomic backgrounds and TV watching, it was found that school adolescents from the lowest SES group were more likely to spend more time in front of the TV compared to higher SES groups (Strong, 2005). However, Inchley (2005) found that Scottish children from low SES backgrounds reported lower levels of physical activity compared to those from higher SES backgrounds, but the same study indicated that gender was also an enhancing factor, with girls from higher- SES groups reporting lower levels of physical activity than boys from low-SES groups. Individual-level SES measures (low material wealth and perception of family wealth) were associated with physical inactivity in the study of Canadian schoolchildren but this was not the case for area-level SES.

Furthermore, studies have postulated that children who live with both biological parents tend to have less health related problems than their counterparts

who do not live and interacts with both biological parents (Amato & Keith, 1991; Bjarnason et al., 2003; Jablonska & Lindberg, 2007). Again, Children who have experienced parental separation may suffer from emotional distress and loss of regular contact with the non-residential parent (Amato, 2001; Kelly, 2007). Children living in single mother households are also more likely to suffer from economic deprivation and less effective guardianship (Amato, 2000).

Although the involvement of the non-residential fathers may influence the level of financial support of their children (Bartfeld, 2000), poor emotional adjustment (King & Sobolewski, 2006) and more involvement in risk behaviours such drug use, alcohol abuse and early sexual intercourse and teenage pregnancy is warranted (Coley & Medeiros, 2007). However, some other studies found adolescents in stepfamilies to be similarly well adjusted as adolescents in intact families, while other studies find them to be more similar to adolescents in single-parent families (Amato, 2000; Langenkamp & Frisco, 2008). Other studies have also found that children living with single fathers have nevertheless found them to have less access to health services, poorer educational outcomes and greater risk of delinquency and substance use than their counterparts living with single mothers (Eitle, 2006; Heard, 2007). Also, according to Frisher, Crome, Macleod, Bloor and Hickman (2007) parental discipline, family cohesion and parental monitoring predict drug use among young people. They further explained other family structures such as large family size and low parental age are also linked to adolescent drug use. There is also extensive evidence on parental substance use, although some studies report no association while others indicate that the association is attenuated by strong family cohesion.

Again, Spooner, Mattick and Noffs (2000) reported parental modelling factors (e.g. parental drug use, parental attitude to drugs) in her review have less influence than the quality of the parent-child relationship and parental management techniques. She further opined that being in a single parent family seems to be significant, but the effect disappears after adjustment for other factors. Once adolescents begin to use, parental attempts to control can be ineffective. Associating with peers is one of the strongest predictors, but the influence is not simple. Spooner interprets the literature as saying that drug use is often preceded by the individual being rejected by prosocial peers. The influence of peers increases as the influence of the family decreases.

Furthermore, Xie, Gilliland, Li and Rockett (2003) state that persons with higher education may not only be more likely to adopt healthy dietary habits themselves, but may also affect their children. Several studies have also concluded that parental social positions and education are the strongest determinant for healthy dietary habits (Nilsen, Krokstad, Holmen & Westin, 2009). Blaxter (1990) also posited difference in socio-economic status of parents and ethnic group to be apparent for behaviours such as diet, exercise, alcohol consumption and smoking (Adler & Matthews, 1994).

Again, per the developmental stages of school going adolescents, socio-economic status of children could be measured based on parental status (Doku, 2012a; Costa, Jessor & Turbin, 2007). Through this, Henningsen (2011) reported differences in dietary habits where she reported that in Norwegian cities, children with low socio-economic position having a higher consumption of soft drink and fast food than the high socio-economic position group, and a lower consumption of fruits/vegetables. Furthermore, another research has also shown social

inequality in health. For instance, in terms of nutrition and its consequences for health and disease, there is an evident that portrays distinction between the socio-economic layers in society favouring the high socio-economic position group, also in adolescence (Fahlman, McCaughtry, Martin & Shen, 2010). In otherwise, adolescents of lower socio-economic position have a higher consumption of soft drink (Vereecken, et al., 2005) and a lower consumption of fruits and vegetables than adolescents of high socio-economic position.

Differences in consumption of soft drink, fast food and fruits/vegetables were identified across socio-economic position, indicating that high parental education is related to healthier dietary habits (Henningsen, 2011). The same results have been found for both soft drink consumption (Bere et al., 2006; Vereecken et al., 2005) and fast food consumption (Fahlman et al., 2010; French et al., 2001), as well as fruit and vegetable consumption (Fahlman et al., 2010). Furthermore, MacFarlane, Crawford, Ball, Savage and Worsley (2007) found home and school food environment and food availability to explain a great share of the variation in adolescent fruit and vegetable intake across socio-economic position. Moreover, Fahlman et al. (2010) also found significant differences in knowledge of healthy food and self-efficacy between the socio-economic groups, favouring the group of high position. In a study conducted Neumark-Sztainer et al. (1998) found that adolescents on diet had an inadequate intake of fruit, but not of vegetables. Also, Henningsen (2011) further posited that socioeconomic position, expressed by parental education, was associated with physical activity, with students of low socioeconomic position exercising less than students of high socioeconomic position.

Peers

The peer group appears to have the strongest influence on drug use among adolescents. Peers shape norms, attitudes, and values around drug use. particularly marijuana, and also provide opportunities and support for its use. While early drug use could be associated with dropping out of school and involvement in delinquent activity, it is not necessarily drug use per se that causes these problems. Rather, it could be that young substance abusers, even before they start misusing alcohol and drugs, are more likely to have mental health and emotional problems, being generally less confident, less self-reliant, less sociable, and less likely to plan ahead (ter Bogt & Nic Gabhainn, 2005). Also, Frisher, et al. (2007) and Villanti, Boulay and Juon (2011) affirmed that there is consistent evidence linking peer drug use and drug availability to adolescent drug use.

Children rely on their peers to listen to them, to accept them and to understand their frustrations, challenges and concerns associated with growing-up. Peer modelling according to (Bere, Brug & Klepp, 2007) is a determinant of dietary practices among adolescents. Again, in developed countries like Norway peer influence, sense of belongingness, low self esteem in terms of body image, weight concerns and dieting have shown to predict dietary habits in terms of lower fat and energy intake and higher intake of fruits and vegetables among adolescents (Barker, Robinson, Wilman & Barker, 2000, Nowak, 1998) soft drink consumption (Bere, Glomnes, te Velde & Klepp, 2006) and fast food consumption since most behaviour modelling emanate from friends (Bauer, Larson, Nelson, Story & Neumark-Sztainer, 2008). Self-esteem has also shown to be closely related to bodily appearance among adolescents (Barker et al., 2000; Abell & Richards, 1996), and it is possible that self-esteem increases as a result of using healthy eating as a weight control strategy. However, these results should

not be emphasized too much, since the correlations are so weak that there are likely to be other factors that are stronger associated with dietary habits in adolescence.

School

Through school years children acquire fundamental of academic skills such as reading and arithmetic (Selman, 1980). However, life skills are also developed at school and experiences there can influence the social and emotional development of young people and formation of behaviours (Nutbeam et al, 1993). Supportive school environment is essential to development of social skills and positive behaviours (Murray & Greenberg, 2000). Supportive environment such as school play fields, school avenues of trees, parks, gardens and health promising psychosocial environment or climate of teacher-teacher relationship, teacher-pupil and pupil-pupil relationship; where every member feel welcoming can make school compounds a home away from home.

Research, primarily on older school children, illustrates that higher satisfaction with school is positively related to academic achievement, as well as the students' quality of life at school (Samdal et al., 2000). Conversely, low satisfaction with school is related to health-compromising behaviours, such as smoking and alcohol use in particular. Low student autonomy is thought to contribute to reduced satisfaction with school, such as not having a say in the making of the school rules, which in turn increases the likelihood of withdrawing from school and engaging in risk behaviours (Sandal et al., 2000). Researchers have used attachment theory as a basis for understanding child–teacher relationship patterns. Indeed, studies have shown that student–teacher relationships predict academic performance and school involvement (Birch &

Ladd, 1997). Thus, being happy at school, feeling connected to school and experiencing reasonable expectations, both from parents and teachers, are important factors for a child's school experience and development of healthy health behaviours.

Other studies have also shown that dietary practices of adolescent are influenced by adolescents' preferences (Granner et al. 2004), availability of unhealthy food and drinks at places where adolescents spend most of their time (Ball, MacFarlane, Crawford & Savige, 2009; French, Story, Neumark-Sztainer, Fulkerson & Hannan, 2001).

Preference is a personal factor that social cognitive theory may predict individual behaviour (Bandura, 1986). This means that knowledge may be a greater attention to availability and price of healthy food in schools and areas where adolescents spend their leisure time. However, to Rose (2003) where education is provided universally, schools provide access to the vast majority of young people the opportunity and the potential to improve health at the school level. Also, the school environment itself can influence young people's health in various positive and negative ways (Bonell, Farah, Harden, Wells, Parry & Fletcher, 2013).

Academic performance

The health status of children and adolescents, and the potential impact of health behaviours on the academic achievement of the adolescents, are of growing interest to social scientists, public health authorities, and educational policy makers. Studies have identified correlational evidence in support of a positive relationship between good health status, good health habits, and good academic performance (Sigfúsdóttir, Kristjánsson & Allegrante, 2007). Similarly, Falkner et

al. (2001) conducted a cross-sectional study of a population-based sample of 4742 male and 5201 female public school students enrolled in the basic 7, basic 9, and SHS Form 1 in order to examine the social, educational, and psychological correlates of weight status. They reported that both obese girls and boys were significantly more likely to report being held back a grade and more likely to consider themselves poor students than their average- weight counterparts.

Again, other studies have shown that sedentary lifestyle of school adolescents is associated with greater levels of BMI and academic performance (Hardy, Dobbins & Booth, 2006; Forshee, Andersonv & Storey, 2004) and physical inactivity (Koezuka, Koo & Allison, 2006), although other studies have revealed TV viewing is a common proxy measure for sedentary lifestyle and to be unrelated with physical activity (Biddle, Gorely & Stensel, 2004). Other studies have suggested that sedentary lifestyle is positively associated with unhealthy dietary behaviours (Utter, Neumark-Sztainer & Jeffrey, 2002), and that adolescents' perceptions of higher academic rank or expectations predict greater levels of physical activity and lesser amount of sedentary lifestyle behaviours (Schmitz, Lytle & Phillips, 2002). Conclusion therefore could be made that school-based physical activity increases concentration, boosts self-discipline, and improves academic skills, including reading and writing abilities and physical activity has also been shown to be positively associated with higher levels of self-esteem (Tremblay et al., 2000).

In a study of Icelandic adolescents, ages 14-15 years, the authors found that body mass index, dietary behaviour, and physical activity explained up to 24% of the variance in academic achievement when controlling for gender, parental education, family structure, and school absenteeism. Because the school

is central to the lives of the vast majority of adolescents and is an institutional mediating structure that provides young people with sentiments of obligation and commitment and a set of common goals (Seroczynski, Cole & Maxwell, 1997). It is plausible that contentment with school may help to explain the relationship between health behaviour indicators and academic performance. Another study has shown that adolescents who feel good in the school environment are less likely to suffer from emotional problems and more likely to partake in activities and commit to school related issues (Sigfúsdóttir, et al., 2007). Again, study has shown that malnourished children or children who eat unhealthy diets, for example, manifest a number of behaviours that can interfere with learning and academic performance (American School Food Service Association, 1989; Parker, 1989).

Furthermore, according to CDC (2009) National Youth Risk Behaviour Survey (YRBS), their findings show a negative association between health-risk behaviours and academic achievement among high school students after controlling for sex, race/ethnicity, and grade level. This means that students with higher grades are less likely to engage in health-risk behaviours than their classmates with lower grades, and students who do not engage in health-risk behaviours receive higher grades than their classmates who do engage in health-risk behaviours. These associations do not prove causation, hence, further research is needed to determine whether low grades lead to health-risk behaviours, health-risk behaviours lead to low grades, or some other factors lead to both of these problems (Gill, 2002; Loveland-Cherry, 2005; Saltz & Elandt, 1989; Sullivan &Wodarski, 2004) hence, academic performance is inclusive in its association with risky behaviours.

CDC (2009) further posited that students with higher grades are significantly less likely to have engaged in behaviours such as current cigarette use, current alcohol use and being currently sexually active. Also, healthy dietary patterns and an active lifestyle have been found in a study to play an important role in academic performance (Taras, 2005; 2005a). Although Taras findings were backed by more limited evidence, sleep duration and sedentary behaviour should also be taken into consideration (Johnson, Cohen, Kasen & Brook, 2007; Taras & Potts-Datema, 2005). Nutrition, physical activity, sleep and sedentarism patterns should therefore be among the targets of efforts made to improve academic performance.

Other studies elsewhere found significant differences between adolescents' academic performance and parental communication where weak family bonding increased likelihood of smoking and low academic performance influenced ones cigarette smoking desires (O'Loughlin, Karp, Koulis, Paradis & Difranza, 2009; Oetting & Donnermeyer 1998). The interaction between the individuals in such groups and their environment, mediated through the cognitive processes (Bandura 1986), may influence their behaviours e.g. smoking initiation, continuous use or cessation (Turner et al., 2004).

Age

Age is an essential determinant of behaviour. This is elucidated by Espnes and Smedslund (2001) that as adolescents grow older, their knowledge of healthy nutrition increases, and so would their consumption of healthy food. Blaxter (1990) then reported curvilinear relationship between many health behaviours and age, with high incidences of many health risking behaviours such as smoking in young adults and much lower incidences in children and older adults.

Studies have shown that age may determine dietary habits, in terms of younger adolescents eating healthier than older (Ranjit, Evans, Byrd-Williams, Evans & Hoelscher, 2010). Nevertheless, other studies posited that fruit and vegetable consumption is positively correlated with age (Pearson, Atkin, Biddle, Gorely & Edwardson, 2009) and that age has no effect on this type of consumption (Granner et al., 2004). In otherwise fruit and vegetable consumption decrease with age, but still, there were other studies that were not able to find any correlation with age. This means that as adolescents grow older, they experience increased opportunities to buy their own food outside home and in school, and they may also spend more time with friends, as well as having more freedom and taste to places where unhealthy food is more available.

Further, According to Frisher, et al. (2007) age is strongly associated with prevalence of drug use among young people reflecting a range of factors including drug availability, peer relationships and reduced parental monitoring (Pokhrel, Unger, Wagner, Ritt-Olson & Sussman, 2008). There is limited evidence suggesting that genetic factors account for a significant proportion of the variance in liability to use cannabis, however this interpretation has been criticised by other writers. There is a similar level of evidence linking self-esteem and hedonism to drug use. The available evidence indicates that higher levels of drug use are strongly associated with young people's reasons for using drugs after controlling for risk factors (Frisher, et al.).

Furthermore, a study conducted in Norway on adolescent soft drink consumption among students in primary and lower secondary school found that SHS students had the highest consumption of soft drink weekly, also compared to students in JHS (Bere et al., 2006). Also a similar study on fast food consumption

found that the frequency of visiting fast food restaurants was higher among students in JHS and SHS (age 15-18) than students in primary school (age 12-14) (French et al., 2001).

Age has also been found to be a significant predictor alcohol use among adolescents (Donnermeyer, 1992; Maggs & Schulenberg, 2005; Saltz & Elandt, 1986; Zeigler, Wang, Yoast, Dickinson, McCaffree & Robinowitz, 2005) that the age of the adolescents have high predictive influence on alcohol consumption such that the that children who are introduced to alcohol before the age of 6 years are more than twice as likely to report frequent, heavy or problematic drinking at age 15 compared to children who were not exposed before the age of 13 years. The earlier children are exposed to drinking the more likely they are to engage in our risky behaviours. However, other researches conducted by (Boyd, McCabe & Morales, 2005; Rehm, Room, Monteiro, Gmel, Graham & Rehn, 2003; Saunders & Baily, 1993) found that age has no influence on the predictability of alcohol consumption among adolescents in college in USA. They concluded that age is just a modest predictor alcohol usage in the later years.

In another study to find the prevalence of recommended physical activity levels (RPALs) and examine the correlates of achieving RPALs in rural South Asian children and analyse its association with anthropometric outcomes, the study found gender, age, household education and geographical location significantly predictors of PA among children in South Asia (Shridhar, Millett, Laverty, Alam, Dias, Williams & Dhillon, 2016).

Gender

Gender is another aspect that has been shown to represent a distinction, with girls eating healthier than boys. Fruit and vegetable intake is often higher in

girls (Bere, et al., 2007), while the fast food and soft drink intake is lower compared to boys (Bauer et al., 2008). The gender differences as elucidated by researchers was due to different taste preferences across genders, in terms of girls liking the taste of healthy food better than unhealthy food. This has been found in both studies investigating fruit and vegetable consumption (Bere et al., 2007) and fast food consumption (Bauer et al., 2008).

In another study conducted by Henningsen (2011) on dietary habits in adolescence related to socio-demographic factors, physical activity and self-esteem, the boys in the sample had a higher consumption of fast food and soft drink than girls, and a lower consumption of fruits/vegetables. On the issue of physical activity level of students, Henningsen (2011) reported in her study that gender seemed to be associated with physical activity, in terms of boys being more physically active than girls. GSHS (2008) also reported that male adolescent (21.2%) engaged in physical activity than their female (15.6%). Also, a study conducted by Rudatsikira, Maposa, Mukandavire, Adamson and Siziya (2009) in Harare, Zimbabwe on prevalence and predictors of illicit drug use among school-going adolescents, they found out that males were more likely to have used marijuana or glue than females. They further posited that the use of marijuana was positively associated with cigarette smoking, alcohol drinking and sexual intercourse among school children in Harare. Gender difference was also reported in a study by (Waldron, 1988) with females being generally less likely to smoke, consume large amounts of alcohol, engage in regular exercise, but more likely to monitor their diet, take vitamins and engage in dental care. A recent secondary analysis of the 2009 GYTS by Ribeiro Sarmento and Yehadji (2016) concluded with a reported 51% current smoking prevalence among in-school adolescents

(13-15 years). They further concluded that age, gender are significant predictors of among adolescents in the Timor-Leste in Europe.

Similarly, a recent study conducted by Layade and Adeoye (2014) on fruits and vegetable consumption among students in Nigeria found sex, socioeconomic status of students as predictors of fruits and vegetable consumption among students. The study further posited that male students were more likely to consume fruits and vegetable than females. Availability of fruits and vegetables was also statistically found to be significant at 1% to determine fruits and vegetables consumption among respondents. Availability and access to most of fruits and vegetables depends on their seasons and this determines the quantity and variety of fruit and vegetables available to students. The finding of Layade and Adeoye was supported by Mette et al. (2006) and Othman, Abdul, Karim, Adzhan, Abdul and Osman (2012) that availability and seasonality of fruits and vegetables increases adolescents' consumption.

Again, research conducted by Kpodo, Mensah and Dzah (2015) on fruits and vegetable consumption and preferences among Ho Polytechnic students reported gender differences for the consumption of fruits and vegetables where females were observed to show more favourable attitudes and greater perceived behaviour control regarding fruit and vegetable consumption than males. Their finding supported Emanuel, McCully, Gallagher and Updegraff (2012) research finding that gender and age were significant determinants of healthy dietary practices with younger females eating healthier in terms fruits and vegetable consumption than males. Similarly, other studies have shown that boys tend to have higher intakes of energy, fat and protein, while girls are more likely to meet the recommended number of servings of fruits and vegetables (Xie et al., 2003).

Again, in a study conducted in Norway on adolescents, Bere et al. (2007) and Nilsen et al. (2009) found that girls were eating healthier meal than boys. This was especially remarkable when comparing the prevalence of daily soft drink consumption, and intake of fruits and vegetables. Two studies one U.S. (Ranjit et al. 2010, Harnack et al. 1999) and the other in European countries (Vereecken et al. 2005) also confirmed that girls eat healthier than boys. It is also found that boys eat significantly more fast food than girls (French et al 2001). However, regarding calcium and dairy product intakes, another study found that the intake decreased with age for both genders, girls in all age groups had been found to be higher consumers of these products than boys (Larson, Story, Wall & Neumark-Sztainer 2006).

Geographical location

Previous studies have reported inconsistent results regarding the association between place of residence and adolescent tobacco use behaviour (Fatoye 2003; Fatoye & Morakinyo 2002; Flisher & Chalton, 2001; Lutfiyya et al. 2008; Plotnikoff , Bercovitz & Loucaides, 2004; Unger, Shakib, Cruz, Hoffman, Pitney & Rohrbach, 2003; Völzke at al. 2006). Some studies reported that adolescents from rural districts were more likely to utilize marijuana than those from districts sharing boundaries with regional capitals (Flisher & Chalton 2001; Aloise-Young, Wayman & Edwards, 2002; Plotnikoff et al. 2004; Doescher, Jackson, Jerant & Hart, 2006; Lutfiyya et al.2008). This causal relationship was not found in other studies (Luk, Farhat, Iannotti & Simon-Morton, 2010; Unger et al. 2003; Shakib et al. 2005) while similar studies found higher probability of tobacco use among those of urban districts dwellers compared to those of rural districts (Fatoye & Morakinyo 2002; Fatoye 2003; Völke et al. 2006).

The incongruities in the findings could be partly due to differences in the definition of rural/urban and the differences in sample sizes. The mechanism through which a place of residence impacts on substance use is not clearly understood (Doku, 2012a). Living in urban districts may be more stressful than living in rural areas and, consequently, urban population may engage in health compromising behaviours, including smoking as a way of coping (Colby et al., 1994). Moreso, adolescents in urban districts are posited to be more likely to be exposed to marijuana utilization. Also marijuana use is likely to be more socially acceptable behaviour in urban settings than in rural districts. On the other hand, higher prevalence among rural folks is likely to be explained by less exposure to health education on the dangers of tobacco use than those in urban cities. Also, in tobacco producing countries, the product may be more accessible to rural folks who are most likely to live in cultivation regions compared to those in urban districts (Smith, Tingen & Waller, 2005; Doescher et al. 2006).

Another study conducted by Doyle et al. (2012), on the sexual behaviour of adolescents in sub-Saharan Africa; patterns and trends from national surveys, the results showed that early sexual debut and childbearing were more common among the least educated and / or rural females. Reporting of multiple sexual partnerships was more common among males than among females, but decreases over time were more common among males. Urban males and females with higher education, were more likely to report multiple partnerships. Urban youth and those with higher education also reported more condom use. Other researches have also postulated that personal parameters (e.g. emotional distress) and interpersonal parameters (peer influence, family beliefs, family meals, family practices and geographical environment) are significant factors influencing

adolescents' health related lifestyle patterns (Baker, Little & Brownell, 2003; Lazarou, Kalavana & Leda-Matalas, 2008; Van Kooten, De Ridder, Vollebergh & Van Dorsselaer, 2007).

Nevertheless, Shucksmith, Glendinning and Hendry (1997) showed that supportive community was related to lower prevalence of alcohol consumption in adolescents; whereas unsupportive family environment, including extreme parental control was associated with higher levels of alcohol consumption (Reboussin, Preisser, Song & Wolfson, 2010). Again, in another study conducted by Bergier, Bergier and Paprzycki (2014) to discover the level of PA among Polish adolescents aged 16–18, and the factors which condition this level. They found gender as highly associated with PA as larger number boys are more likely to engage in PA than girls. However, they found inconsistency in the place of residence as not a significant predictor of PA among school adolescents. Similarly, in a study by Mynarski, Nawrocka, Rozpara and Garbaciak (2012), they found gender and place of resident as significant predictors PA among high school students with students in the cities at more risks of physical inactivity.

Furthermore, the report of Currie et al. (2008) for HBSC posited that the engagement in health behaviours patterned geographical differences hence the explanation that certain health behaviours depict certain patterns across geographical locations. This means that health outcomes show the pattern of life, culture, traditions and weather conditions of the geographical zones of people.

Religion

Religious affiliation of adolescnets has been reported to have causal relationship with engagement in health related behaviour. In a review of the literature examining the relationship between religiosity and smoking, 96% of the

studies reported less smoking by more religious participants (Koenig, McCullough, & Larson, 2001). This inverse relationship appears to hold true across different religions and is independent of age (Kendler, Gardner, & Prescott, 1997; Oleckno & Blacconiere, 1991). In addition to being less likely to ever begin smoking, regular church attendees are more likely to have quit smoking after developing the habit (Gmur & Tschopp, 1987). Using regression modeling, Kendler et al. (1997) also reported that personal religious devotion (importance of religion, religious seeking/prayer), religious conservatism (literal belief of the Bible and belief that God rewards and punishes), and institutional conservatism (religious denomination) were inversely related to cigarette smoking. However, Kendler and colleagues did not assess individuals' religious beliefs about smoking or their perception of their church's position on cigarette smoking. In addition (Doku et al., 2013) postulated that religion predict smoking among adolescents and adults with traditionalist and muslims more likely to smoke than Christians.

In a study on problem drinking behaviour by Cahalan and Room (1972), they found that protestant religious affiliation and attendance at religious services were associated with fewer drinking problems. Their results also indicated that there were few abstainers and a greater percentage of heavy drinkers among Catholics and liberal protestants compared to conservative protestants. Koenig (1994) also in his examination of frequency of Bible reading, prayer, church attendance, time spent watching or listening to religious television/radio, importance of religion, religious denomination and identification as .born again., as they related to alcohol use and dependence. In this study, recent alcohol problems were significantly less common among frequent Bible readers, those

who frequently prayed in private, born-again Christians, and frequent church attendees.

Also, Oleckno and Blacconiere (1991) reported that highly religious college students were more likely to engage in regular exercise than low religious students. Also, McIntosh and Spilka (1990) reported that intrinsic religiosity (the internalization of beliefs and practices that are independent of social pressure or personal consequences); was inversely related to exercise (Larson & Larson, 1994). By comparison McIntosh and Spilka showed, in the same study, that intrinsic religiosity was negatively correlated with alcohol use and cigarette smoking.

The impact of religious affiliation on diet has also not been studied extensively. However, some religious denominations have various prescriptions or proscriptions related to ingestive behaviours. For example, a potentially positive impact of religious denomination on eating habits is evident in Mormons and Seventh-Day Adventists. Mormons have lower rates of cancer and heart disease than the general public, which is likely related to the Mormon health code encouraging consumption of whole grains, fruits, and vegetables (Enstrom, 1989). Seventh-Day Adventists often avoid meat, eating a diet low in saturated fat and high in nutrient density (Hunt, Murphy, & Henderson 1988). In addition to the paucity of data related to church affiliation and eating styles, little is also known about the association between personal religious beliefs and diet. One study reported that a positive relationship existed between extrinsic religiosity (socially motivated) and low-fat dietary intake (Hart, Tinker, Bowen, Satia-About, & McLerran, 2004).

Evidence based programmes to enhance Healthy Adolescents' Behaviours

Through environmental engineering, modifications and policies, governments have succeeded in improving physical activity levels of their citizenry and these programmes are worth emulating in our part of the world. Others have been posited to decrease drug use among adolescents. These programmes and interventions have been practised in some developed and developing countries with evidence of their successes in delaying or changing behaviour among adolescents.

Personal and social skills education

According to United Nations Office on Drugs and Crime [UNODC] (2015), personal and social skills education programmes are effective in curbing drug related issues among adolescents. During these programmes, teachers are trained to engage school children in interactive activities to give them the opportunity to learn and practise a range of personal and social skills. These programmes are classically delivered to all children via a series of structured sessions. The programmes provide opportunities to learn skills for coping with difficult situations in daily life in a safe and healthy way. The trained teachers support the development of general social competencies, including mental and emotional well-being, and also address social norms and attitudes. These programmes are designed targeting children who have been exposed to substances such as cigarette, cannabis and alcohol. According to UNODC (2015, 2016), supporting the development of personal and social skills in a classroom setting can prevent later drug use and alcohol abuse. Such programmes also influence substance abuse related risk factors, such as commitment to school, academic performance, self-esteem and mental well-being, resistance skills and other social

skills. Moreover, according to UNODC programmes focusing on improving self-control delivered to children at the age of or younger than 10 reduce general problem behaviours.

School policies and culture

According to WHO (2009) policies and interventions that modify the physical environment are crucial to making changes to the diet and physical activity patterns of the population. A total of 23 interventions were summarized, with three targeting disadvantaged communities and two in low- or middle-income countries were assessed. These categories are policies that change the composition of staple foods and that have a direct influence on the nutrient intake of the population. Environmental changes have also been demonstrated in the way stores and restaurants have used point-of-purchase prompts and messaging to encourage shoppers to select healthier food. Further, vending machines have been used to sell healthier snacks and beverages. From a physical activity perspective, environmental policies that impact on people's mode of transport or that increase public space for recreational activities, can also provide health benefits.

In evidence based intervention on physical activity promotion in Columbia, Gomez, Mateus and Cabrera (2004) used an environmental intervention, targeting the built environment and a multi-targeted approach to encourage healthier commuting. Results show that women who usually participate in the programme are 7 times more likely to be physically active. Another result showed an improvement in public transport, and the prevalence of persons travelling by car has dropped from 17% to 12% during peak times (Wright & Montezuma, 2004).

Also, Bauman and Bull (2007) in their review of reviews undertaken to identify evidence on the strength of association between environmental factors and physical activity for both children and adults in 2000 papers from Medline Cinhal, ERIC, Psychlit and Sportsdiscus databases as well as hand searches of reference lists and selected key journals. The review showed that key environmental factors show consistent and statistical association with physical activity behaviour in adults. The evidence and results across the reviews revealed reasonably consistent associations between access to physical activity facilities, convenient and proximate access to destinations, high residential density, land use and urban 'walkability' scores. There were also reasonably consistent associations between perceived safety, exercise equipment, pavement ('sidewalks') and physical activity participation.

In the same vain, Bauman and Bull (2007) reported that most consistent associations were found in evidence on the environmental correlates of physical activity in children, 33 primary studies. These correlates were provision of pavements ('sidewalks'), destinations to walk to, few intersections to cross and low road traffic hazards. Aspects of the recreation infrastructures were also found to be strongly associated with increased levels of activity, these included proximity to, and availability of parks, playgrounds, and recreation areas. Also, physical activity patterns were also found to be associated with age, sex and ethnicity.

School policies on substance abuse mandate that substances should not be used on school premises or during school functions and activities by either students or staff. Policies also create transparent and non-punitive mechanisms to address incidents of use transforming them into an educational and health

promoting opportunities. Furthermore, school policies and school practices may enhance student participation, positive bonding and commitment to school. These interventions and policies are universal, but may also include selective components such as cessation support and referral. They are typically implemented jointly with other prevention interventions, such as skills-based education or supporting parenting skills and parental involvement. According to UNODC (2015), substance abuse policies in schools may prevent smoking. Moreover, altering the school environment to increase commitment to school, student participation, and positive social relationships and discourage negative behaviours may reduce drug use and other risky behaviours. In colleges and universities, addressing school policies and culture among older students during adolescence and adulthood can reduce alcohol abuse. One acceptable randomized control trial reported findings with regard to this component and reported no significant reductions in drug and alcohol use.

Mentoring

Regular mentoring in the relationships and interactions between children/adolescents and non-related adults such as teachers, coaches and community leaders has been found to be linked to reduced rates for substance abuse and violence UNODC (2015). These programmes match youth, especially from marginalized circumstances (selective prevention), with adults who commit to arrange activities and spend some of their free time with the young people on a regular basis. Mentoring may prevent alcohol and drug use among high risk youth with results sustained one year after intervention (UNODC).

Community-based multi-component initiatives

At the community level, mobilization efforts to create partnerships, task forces, coalitions, action groups, etc. bring together different actors in a community to address substance abuse. Some community partnerships are spontaneous. However, the existence of community partnerships on a large scale is normally the product of a special programme providing financial and technical support to communities to deliver and sustain evidence-based prevention interventions and policies over time. Community-based initiatives are normally multi- multi-component, taking place in different settings such as schools, families and media, enforcement.

Complete streets initiatives

The Michigan Department of Community Health partnered with Healthy Kids, Healthy Michigan supported urban design that increased access to places to be physically active by implementing its Complete Streets Initiative. Community Health's Complete Streets Initiative included statewide efforts to educate and promote the need for local Complete Streets ordinances. Through legislation, the Michigan Department of Transportation will consider all legal users of the roads, from public transportation riders and motorists, to bicyclists and pedestrians when considering transportation design. This programme shows that with environmental modifications and provisions of facilities with education and legislation is essential in building exercise behaviour. Complete streets initiatives according to CDC (2014) were found to be successful in improving PA participation of adolescents in USA. This idea in USA is in support of Government of Ghana National policy for the prevention and control of chronic

NCDs in Ghana. MOH (2011) policy document stipulated that the prevention and control of NCDs be mainstreamed into regional and district level activities.

In line with the Disease Control Strategic Plan 2010-2014, regional focal persons will liaise between the Regional Director of Health Services and the national NCD Control Programme. The policy recognises that favourable sector-wide public policies in areas such as trade, urban planning, transport, agriculture, education, finance and social services are essential. The policy therefore mandate and invoke urban planning policy that cities planners should encourage the provision of safe open spaces such as well-lit recreational and leisure parks, dedicated bicycle lanes and paved areas for jogging, walking or relaxation. In this regard, whole-of government approach across all sectors would be adopted. However, since the emanation of this policies, some road constructions have seen the provision of bicycle lanes and pedestrians walkway for physical activity but majority do not have but provision of these facilities is not sufficient increasing physical activity level of the communities hence education is key to change behaviour.

Again (MOH, 2011) also affirmed the provision and establishment of wellness programmes and supported in clinics, communities, schools and workplaces. But observation showed, it has not taken place yet. This in essence shows that policy guidelines are not enough but education and provision of resources aid the success of programmes.

Bike-to-school programme

The programme provides opportunities for community members to safely ride bikes for transportation. The programme also encourages residents and adolescents to bike to farmers' markets and schools. The programme bridged

observational, and biological. They further explain that self-reported methods are the most common mode for collecting data about adolescent health behaviours are methods in which young people provide a direct report of their behaviours. Self-report methods include interviews, surveys, diaries, and momentary sampling methods. Turner, Mermelsten and Flay (1998) further opined that the major considerations with self - report methods are the sensitivity of specific information and the level of privacy associated with a given method, because adolescents ' perceptions of privacy can dramatically affect their reporting of sensitive, stigmatized, and illicit behaviours. However, for sensitive issues to be investigated, interviews may pose a privacy threat to respondents who may underestimate or deny certain sensitive behaviours because of fear of embarrassment or disclosure, hence self-reported questionnaire is appropriate for sensitive topics. But respondents may be reluctant to disclose sensitive behaviours if they are not assured that their responses will be held in confidence by the interviewer.

Furthermore, Ralph et al. (2009) posited that surveys self - reported assessments of behaviour over some retrospective time period (such as the past three months) are a mainstay of research on adolescent health behaviour. In group situations, surveys are perhaps the most economical self - report method. Compared to interviews, self - report surveys provide a more private and less threatening means of reporting sensitive behaviours such as sexual activity, violence, and drug use (Turner et al., 1998). To Ralph et al. the most common form of self - report surveys is the paper - and - pencil questionnaire with forced - choice response items. Adolescents' ability to read and comprehend questions is

critical to the effectiveness of self - administered paper - and - pencil questionnaires (SAQs).

Ralph et al. have posited some limitations of self-reported method of questionnaire that SAQs are problematic with groups who have limited literacy, including those for whom English may be a second language. In addition to problems related to correct administration, problems with data quality can arise with SAQs. Certain types of questions (such as questions about sexual orientation or sexual abuse and or drug use or smoking) are often associated with high rates of refusing to answer. In addition, youth may answer every question, but their answers may be logically inconsistent. Again, survey methods, which rely on retrospective self - reports, have limitations related to accurate measurement of adolescent health behaviours. The accuracy of self - reports may be compromised in part, because some health - related behaviours are difficult to recall. Asking adolescents to recall behaviours over longer versus shorter periods of time and asking them to recall the frequency of commonly occurring behaviours increases the inaccuracy of their reports. Questions about age of initiation of health risk behaviours (such as alcohol and tobacco use or sex) tend to elicit inaccurate responses, which is partly a function of forgetting over time (Brener, Billy & Grady, 2003). With some behaviours, the accuracy of adolescents' self - reports may also be compromised by situational factors. Certain health - related behaviours are so sensitive that respondents may elect not to report them on a survey. In addition, adolescents may purposely underreport or over report certain behaviours on surveys because they believe engaging in these behaviours is either socially undesirable or desirable (Brener, et al., 2003).

According to Ralph et al. (2009), another way of measuring health related behaviours of adolescents is through daily diaries. Daily diaries are an unobtrusive method for obtaining data on behaviours for which more distal recall may prove problematic. Specific behaviours or mood states that occur frequently may be difficult to recollect at a later date when numerous occasions of similar events have occurred in the interval between the event of interest and the assessment. It may also be challenging to remember specifics of an infrequent behaviour if much time has elapsed since the behaviour occurred. With interviews or surveys, cognitive errors such as forgetting, minimizing, exaggerating, or averaging behaviours introduce recall bias into reporting. These errors are reduced with daily diaries because no more than twenty - four hours will have passed since the most recent behaviour event. Because the time interval between reports is short, daily diaries are better able to assess event - specific details than interviews or surveys, which require recall over longer time periods and collect aggregate information on behaviours (Fortenberry, Cecil, & Zimet, 1997). To Ralph et al., diaries have some strengths; format gives the impression of privacy and is therefore well suited for reporting on sensitive behaviours. Because diaries are completed in a respondent's natural environment, there may be fewer problems with reactivity bias than with data collected in research settings. Some adolescents prefer diaries to interviews or surveys (McLaws, Oldenburg, Ross & Cooper 1990; Shrier, Shih & Hacker & Moor 2005). Repeated assessments of behaviours through daily diary reports permit within - person analyses of associations with behaviours. For example, an eight – week daily diary study examining drinking and sexual intercourse among 112 youth found no within - person differences in the proportion of times condoms were used when drinking

occurred before sex compared to when it did not (Morrison et al., 2003). Although, diaries have some strength, it has some limitations. As with self - report methods, youth may exaggerate or minimize certain behaviours. Keeping daily diaries requires effort and may involve recording sensitive information, as a result, diary study participants may self - select and not represent a population of interest.

The other method of measuring health behaviours among adolescents is observation. According to Ralph et al. (2009), observations can provide extensive information that may be more accurate than self - report, they may be time - consuming, expensive, and inappropriate for certain behaviours such as drug use or sexual behaviour. Despite these drawbacks, researchers still use observational methods to collect interesting data, particularly in areas of health behaviour where self - report is limited. Intervention studies focused on changing health behaviours often employ observations to assess fidelity to interventions (DiIorio, 2005). Various types of behaviours have been observed systematically, including conversations and interactions (Fredman, Chambless, & Steketee, 2004; Underwood, 2005), body movement and physical activity (Sirard & Pate, 2001), and facial expressions and responses. Observation can be used to document emotions such as aggression and empathy; quality and tone of verbal statements; and personal space between respondents. For the selected behaviour, observers identify and code the presence or absence of the behaviour, its frequency and/or its intensity.

Furthermore, Ralph et al. (2009) has also postulated biological methods. Biological measures consist of a variety of physical measures used to assess health behaviours and its related outcomes and are often deemed the golden

standard in validation studies of self - report measures because they are considered more objective and less susceptible to bias than other types of measures. For instance, a teenager may deny tobacco use on a survey, but a serum cotinine test may show evidence of recent use. Blood tests have been used to assess diabetes and other chronic disease management behaviours; blood, urine, and saliva biomarkers have been used to assess alcohol, tobacco, and other substance use; doubly labelled water techniques have been used to validate self - reports of food intake and physical activity; mechanical and electronic devices including accelerometers and heart rate monitors have been used to validate reports of physical activity; heart rate monitors and salivary cortisol levels have been used to assess adolescents ' response to stress; biomarkers for pregnancy and sexually transmitted diseases including HIV have been used to corroborate self - reports of sexual behaviour and contraceptive use. Reviews by Brener, et al. (2003), Cone (1997), Kohl, Fulton, and Casperson (2000), and McPherson, Hoelscher, Alexander, Scanlon and Serdula (2000) provide detailed descriptions of strengths and limitations of using biomarkers to assess various adolescent health behaviours.

Nevertheless, because there is no perfect measure of health behaviour, optimal measurement may involve a combination of approaches to address the weaknesses of a single approach. Hence, using a combination of self - report and accelerometry to measure physical activity allows an investigator to understand both specific types of activities performed and total energy expenditure. Self-report measures are the most efficient, feasible, and commonly used mode for collecting data about adolescents' health behaviours. Research on measurement of adolescent health risk behaviours by Brener et al. (2003) concludes that

adolescents' self-reports related to various domains of health behaviour s are affected by both cognitive and situational factors. However, these factors do not threaten the validity of self-reports within each behaviour domain equally. Furthermore, domains of behaviour differ in the extent to which they can be validated by biological measures. Researchers and programme evaluators should familiarize themselves with particular threats to obtaining reliable and accurate measures of adolescent behaviours of particular interest and design measurement approaches that minimize these threats as much as possible.

According to Kristjánsson, Sigfúsdóttir and Allegrante (2008), in order to estimate the level of academic achievement in relation to health related behaviour, respondents were asked to self-report their average grades in the core academic subjects of JHS in Ghana, which are Mathematics, English, Social Studies and Integrated Science. These subjects are the so-called unitary subjects that every student in the 9th grades in Ghana must complete satisfactorily in order to complete JHS and enter into secondary school. The grade range in Ghana in these subjects are 1-9 with which academic performance was assessed through the response rate of Mostly grade 1-3, Mostly grade 4-5, Mostly grade 6-8 and Mostly grade 9.

However, Martínez-Gómez et al. (2012) in their study of gender-specific influence of health behaviours on academic performance in Spanish adolescents, proposed that a 5-point ordinal scale of grade [A, B, C, D, E] with the minimum pass grade being D and failure being E be used to assess the academic performance of adolescents on health related behaviour. Although, this mode of measurement is prudent, this study would make use of the grading system of 1-9. Nevertheless, Doku (2012b) in his study asked students recall their academic

performance in the last end of term examination in the categories of above average (excellent, very good), average (good), and below average (average, poor). Qualitatively, students would be able to recall their school performance in terms of excellent, very good, good, average and poor, hence this research adopted Doku's way of assessing academic performance of students.

Theories of Health Behaviours

Theories are sets of interrelated concepts, definitions, and propositions that explain or predict events or situations by specifying relations among variables (Ralph et al., 2009). Theoretical models fundamentally guide both the current and future understanding of health behaviours, as well as providing direction for this research and intervention development. As a metaphor, each model or theory provides a different roadmap of the health behaviour territory. Hence, theories and models of health behaviours which explain adolescents' development and behaviour formation and their predisposal factors are viewed. This was done with inspiration from the propositions of Cummings, Becker and Maile (1980) that theories which integrate ideas from other competing theories provide more explanatory power. Weinstein (1993) also outlines that theoretical predictions are critical in understanding health behaviours.

Social cognitive theory

Social cognitive theory (SCT), the cognitive formulation of social learning theory was articulated by Bandura (1977) that human behaviour is influenced by personal and environmental predispositions. He explained that human behaviour was best described in terms of a three-ways, dynamic, reciprocal model in which personal factors, environmental influences, and behaviour continually interact. This means that humans or adolescents behaviours are influenced by changing

systems at personal, environmental and social levels. SCT synthesizes concepts and processes from cognitive, behaviouristic, and emotional models of behaviour change. The basic premise of SCT is that people learn not only through their own experiences, but also by observing the actions of others and the results of those actions. This means that social and environmental influences and modelling have a high precursor of eliciting behaviour therefore healthy guidance is essential during adolescence. Some elements of behaviour modification based on SCT constructs are self-control, reinforcement, and self-efficacy including goal-setting, self-monitoring and behavioural contracting. Goal-setting and self-monitoring seem to be particularly useful components of effective interventions. Self-efficacy, or a person's confidence in his or her ability to take action and to persist in that action despite obstacles or challenges, is especially important for influencing health behaviour change efforts. SCT construct also have a key element; reciprocal determinism which means that a person can be both an agent for change and a responder to change. Thus, changes in the environment, for instance presence of role models or mentors, modifications and reinforcements can be used to promote healthier behaviour.

Kohlberg's theory of moral development

Alienation and imitation of foreign cultures among the youth of today deprived the youth of respect of social norms. The theory of moral development espoused that children must obey rules of their society, act fairly, treat friends kindly, tell the truth and respect their elders" (Damon, 2004, p. 12). This moral development unfolds in stages and is heavily reliant on the aggregate of familial, community, and social exposures to standards of right and wrong. Furthermore, according to Damon, from a study of children's moral development, he indicates

that moral identity is the key source of moral commitment throughout life and it is fostered by multiple social influences that guide a child in the same general direction. Children must hear the message enough for it to stick. This explains that in the practice of healthy behaviours, children need to be exposed to these behaviours so as it becomes part and parcel of their life. Hence, the intensification of school health education programmes to instil healthy behaviours in the adolescents should form part of the total education of the child as well school parental collaboration.

Kohlberg's theory of moral development (Colby, Kohlberg, Gibbs & Lieberman, 1987; Colby, Kohlberg, Gibbs & Lieberman, 1983, Colby, Linsky & Straus, 1994) describes six stages of moral development, grouped into three levels.

Pre-conventional: Rooted in a self-centered perspective, individuals at this stage follow rules to avoid punishment. This level is applicable to the majority of children younger than nine years, many adolescents, and adult criminals. The presence of punishment in terms of performance of certain risky behaviour such as smoking and drug will prevent the adolescent from indulging in unhealthy behaviours.

Conventional: As children mature into adolescence, moral thinking tends to be guided by interpersonal relationships and social roles. Others' perspectives are taken into account, and moral actions are affected by social role expectations and the need to be seen as "a good person." Cognitive development such as abstract thinking, taking others' perspectives and feeling concern over how one is viewed by peers) is necessary but not sufficient for progression to the conventional level. Most adolescents and adults remain in the conventional level of moral maturity.

Post-conventional: The minority of people who progress to the more principle-based post-conventional level do so after the age of 20 years.

Theory of reasoned action/planned behaviour

The theory of reasoned action (TRA) is a theory widely use in behavioural prediction which represents a social-psychological approach to understanding and predicting the determinants of health-behaviour (Ajzen & Fishbein, 1980; Montaño, Kasprzyk & Taplin, 1997). The TRA states that the intention to perform a particular behaviour is strongly related to the actual performance of that behaviour. Two basic assumptions that underlie the TRA are: behaviour is under volitional control, and people are rational beings. According to the propositions of the TRA, humans behave in a certain way because they choose to do so and use a rational decision-making process in choosing and planning our actions. This means that knowledge of health consequences of a behaviour and willingness determines a person's behaviour. To shield away from early sex, alcohol drinking and drug use is about ones willingness in making those decisions and these decisions are influenced by knowledge. According to Fishbein, Bandura, Triandis, Kanfer, Becker and Middlestadt (1991), the TRA was designed to predict behaviour from intention, and proposes quasi-mathematical relationships between beliefs, attitudes, intentions, and behaviour. For TRA, intentions to perform a behaviour is determined by attitudes towards the behaviour and subjective norms. Attitudes towards the behaviour refer to people's positive or negative evaluation of their performing the behaviour (e.g. engaging in physical activity or eating fruits and vegetables regularly would be wise/foolish'). Subjective norms refer to people's perceptions of approval or disapproval from significant others for performing the behaviour in which most people who are important to me think

that I should shield away from smoking, sexual intercourse, and go for regular physical activity.

A modified version of TRA includes the addition of perceived control over the behaviour referred to as the Theory of Planned Behaviour (TPB). Predicting behaviour is the ultimate goal of the TRA. According to the TRA, behavioural intention is influenced by three major variables: subjective norms, attitudes, and self-efficacy. Subjective norms involve an individual's perception of what significant others believe about his or her ability to perform the behaviour. The theory of planned behaviour postulates an additional determinant of intentions: perceived behavioural control. Perceived behavioural control refers to people's appraisals of their ability to perform a behaviour such as delay of sexual intercourse would be easy/difficult) and is closely related to Bandura's (1977, 1986) concept of self-efficacy. The more positive people's attitudes and subjective norms are regarding the behaviour and the greater their perceived behavioural control, the more likely it is that people will intend to perform the behaviour.

Theory of Planned Behaviour (TPB) according to Ajzen (2011) is designed to predict human behaviour. It is one of the models which is widely adopted in predicting physical activity behaviour (Brickell, Chatzisarantis & Pretty, 2006; Chatzisarantis, Hagger, Biddle & Karageorghis, 2002). A number of studies reported that TPB model had a high validity in predicting physical activity intention and behaviour (Armitage & Conner, 2001; Hausenblas, Carron & Mack, 1997). TPB is a model generated from the TRA (Ajzen, 2011) which assumes that the specific behaviour is determined by intention to perform it (Fishbein & Ajzen, 2010). The model extended the TRA by supplementing the perceived behavioural control (PBC) because TRA experiences difficulty in explaining behaviours in

which a person does not have volitional control over it. Basically, there are three antecedents of behavioural intention, which are attitude, subjective norm and PBC.

Behavioural intention measures an individual's willingness to perform a desired behaviour. Based on the rationale of TPB model, behavioural intention is a proximal predictor of behaviour (Ajzen, 2011). The higher behavioural intention is towards a specific behaviour, the more likely is that the person engaged in that behaviour. Attitude measures the salient behavioural beliefs. It is the function of an individual who perceived the likelihood of outcome due to performing a behaviour and individual's evaluation of that outcome (Conner & Sparks, 2005). Fishbein and Ajzen (2010) suggested that attitude could be classified into affective such as unpleasant/pleasant and instrumental elements; harmful/ beneficial. Subjective norm measures the effect of social influence exerted on individuals. It is the perception that individuals perceived the pressure whether they perform or not a specific behaviour (Ajzen, 2011).

Some studies suggested that subjective norm in predicting physical activity, healthy diet and healthy sexual activity was a rather weak predictor. Subjective norm was less significant in predicting physical activity in adults. However, teenagers were more subject to significant others such as peer and parents (Godin & Shephard, 1986). PBC measures 'people's perception of the ease and difficulty of performing the behaviour of interest' (Ajzen, 2011, p. 1116).The extent that individuals could successfully transform their behavioural intention into actual behaviour greatly depends on their volitional control over that behaviour. Because of the higher control on behaviour, the intention on

performing behaviour would be higher (Fishbein & Ajzen (2010). Measures of PBC reflected an individual's control over a specific behaviour.

Several studies revealed that the factor of past behaviour played a significant role in prediction of future behaviour (Amireault, Godin, Vohl & Perusse, 2008). Past behaviour and future behaviour were closely related. The addition of past behaviour could significantly enhance the prediction of variance in future behaviour (Bandura, 1991). Hagger et al. suggested that the addition of past behaviour would influence attitude, subjective norm, PBC and behaviour significantly (Hagger, Chatzisarantis & Biddle, 2002). In addition, there is an attenuation effect on attitude to behavioural intention, and on behavioural intention to behaviour. One study suggested that routine physical activity in a consistent environment would develop into habits (Ouellette & Wood, 1998). The habits strength would be stronger with increasing frequency of past behaviour. Strong habit strength would attenuate behaviour-intention relationship (Bruijn & Rhodes, 2011).

Although TPB is widely used over the world, the application for predicting physical activity behaviour among teenagers in Ghana is not common. As the behavioural intention and behaviour are affected by age, gender, cultural, ethical and educational factors (Ajzen, 2011), the factors relating to attitude, subjective norm and PBC may be different in predicting physical activity behaviour in Ghana.

Attitudes social influence self-efficacy model

The attitudes social influence self-efficacy (ASE) model has its origins in the TRA (Fishbein and Ajzen, 1975) and Bandura's SCT (Bandura, 1976), and is closely related to the TPB (Ajzen, 1991). ASE behaviour model is said to predict

various health related behaviours. It states that ASE determinants (advantages, disadvantages, social acceptance, social norms, modelling, perceived pressure and self-efficacy) directly influence behavioural intention. External factors (country, ethnicity and gender) indirectly influence intention by influencing ASE determinants (Amooti-Kaguna & Nuwaha, 2000).

There are three main psycho-social factors which have been identified that predict behavioural intention: attitudes, social influences and self-efficacy. According to the ASE model, future health related behaviour is a function of current behavioural intention. Current behaviour, on the other hand, is determined by past behavioural intention (Markham, Aveyard, Hywel, Charlton, Lopez & De Vries, 2004). Further behavioural intention regarding behaviour in the future according to Markham et al. is solely determined by three types of psychosocial mediating factors: attitudes, social influences and self-efficacy. Attitudes refer to expected outcomes of taking up the behaviour, subdivided into advantages and disadvantages of smoking, having sex, eating unhealthy diets and engaging in PA.

Social acceptance is a distinct subgroup of advantages and focuses on the perceived ability of smoking to facilitate social interactions. Social influences are comprised of social norms, modelling and perceived pressure. Social norms are participants' perceived expectations of important others regarding the uptake of smoking by the participant. Modelling refers to perceived prevalence of smoking among influential people. For instance, perceived pressure is experienced of direct pressure to smoke. Thus, social influences may be direct (social norms, perceived pressure) or indirect (modelling). Self-efficacy is a person's beliefs in her/his ability to behave in the way that she/he wishes to behave in respect of smoking, physical activity, healthy eating and engaging in healthy sexual behaviour. The

components of the psychosocial mediating factors are known as the ASE determinants. In total, then, there are seven ASE determinants that directly influence behavioural intention regarding future behaviour: advantages, disadvantages, social acceptance, social norms, modelling, perceived pressure and self-efficacy. The ASE model postulates that other variables, such as country of residence, socioeconomic and demographic characteristics, are external to the theoretical model.

These external factors only influence the seven types of ASE determinants, and, consequently, have an indirect rather than a direct influence on adolescent smoking intention and, thus, future behaviour. Amooti-Kaguna and Nuwaha (2000) maintain that these external factors only serve to characterize individuals and may therefore be classified as descriptive variables. The descriptive variables are, consequently, distinguishable from the ASE determinants.

Biopsychosocial model

A variety of factors, including biological, psychological, and environmental, have been found to be associated with adolescent risk - taking behaviours. However, many theories of risk taking behaviour are unidimensional and focus predominantly on one domain of factors whether biological, psychological, or environmental as they affect risk taking. To provide a more comprehensive framework for examining the range of factors thought to influence the likelihood of adolescents engaging in risk taking behaviour, a theory or model must simultaneously take into account the roles of biology, psychosocial influences, and the environment, hence, biopsychosocial model (Ralph et al., 2009). According to Working Group of the NIH Advisory Committee (2004)

basic behavioural and social sciences have prioritized the need for a better understanding of the interaction among biology, environment, and behaviour and emphasizes the utility of such an approach for advancing understanding of behaviour, particularly behaviours which place one at risk.

Biopsychosocial model postulates that individual behaviour has influences that focus on broader and multiple factors such as biology, psychosocial and environmental that may influence behaviour. Research has shown that familial nature of health risk behaviours has led some to speculate about the role of genetic predispositions in risk taking behaviours. Evidence from family studies demonstrates that risk taking behaviours tend to cluster within families. Many studies have demonstrated that children of alcoholics are more likely than children of non-alcoholics to abuse alcohol (Adger, 1991; Marlatt, Baer, Donovan, & Kivlahan, 1988). A comparative adoption studies have indicated that the association is more than the product of shared environment or learned behaviours, as children of alcoholic biological parents show a greater predisposition toward alcohol abuse even when raised by non-alcoholic adoptive parents (Cloninger, 1987). This means that genetics play a key role in behaviour formation. For instance, in terms of alcohol use, genetic studies support the Al allele of the D2 dopamine receptor gene (DRD2) as a risk marker for alcoholism and substance use disorders. According to Conner Noble, Berman, Ozkaragoz, Ritchie, Antolin and Sheen (2005) hormonal presence and changes have been postulated to play a role in the onset of adolescent risk taking behaviour, both directly and indirectly, through their role in pubertal development. This was evidence in Udry, Billy, Morris, Groff and Raj (1985) proposition that the rise in testosterone levels during adolescence was related to male coital debut. However,

female coital initiation was related to social controls and pubertal development (Udry, Talbert, & Morris, 1986). Also, adolescents who appear physically mature may be more apt to engage in "adult" behaviours such as smoking, drinking, and sexual intercourse (Brooks-Gunn, 1988). This early onset of risky behaviours could be the product of associating with an older peer group in which these behaviours may be more normative. Research indicates that early maturing females are more likely to initiate sexual intercourse at younger ages (Phinney, Jensen, Olsen, & Cundick, 1990). Younger age at sexual debut is associated with less consistent contraception and increased numbers of lifetime sex partners, resulting in an increased risk for pregnancy and STDs (Kaestle, Halpern, Miller, & Ford, 2005; Ford et al., 2005; Manning, Longmore, & Giordano, 2000).

Furthermore, from a developmental neuroscience perspective, the slow maturation of the cognitive control system in the brain, which regulates impulse control, makes adolescence a time of heightened vulnerability for risk taking behaviour (Steinberg, 2004). According to Steinberg (2007), adolescent risk taking is the product of both logical reasoning and psychosocial factors. Logical reasoning abilities are mostly fully developed by the age of 15 years, but psychosocial capacities (impulse control, emotion regulation, delay of gratification, and resistance to peer influence) that facilitate decision making and moderate risk taking are guided by the cognitive - control systems in the brain, which continues to mature well into young adulthood (Steinberg, 2004; 2007). The cognitive control system, which consists of outer regions of the brain such as the lateral prefrontal and parietal cortices and portions of the anterior cingulated cortex, is involved in executive function tasks like planning, thinking ahead, impulse control, and self - regulation (Giedd, 2008). Laboratory - based research

by Gardner and Steinberg (2005) found that the presence of peers more than doubled the number of risks teenagers took in a video driving game and increased risk taking by 50% in college students, but had no effect among adults.

Moreover, biological models are expanded to include environmental variables and the combined effects of biological (hormonal) and environmental (social) factors explain more of the variation in problem behaviours (smoking cigarettes or marijuana, drinking alcohol, becoming physical inactive, eating unhealthy diet or having sex) than either of these factors alone.

Nevertheless, environmental and social aspects of biopsychosocial model could be called ecological. Ecological models of health behaviour also focus on individual influences as well as on social and environmental factors that may facilitate or inhibit individual behaviour (Sallis & Owen, 1997). Ecological models posit that multiple levels of influence determine individual behaviour (Spence & Lee, 2003). In an effort to classify the multiple levels of intervening influences within, between, and external to individuals that can change human development, Bronfenbrenner (1977) differentiated the external influences into levels of settings with the most proximal setting being the microsystem (influences close to the child) and the most distal setting to the individual being the macrosystem (influences far away from the child but decisions can indirectly influence the behaviour of the child). Levels of influence and intervention in ecological models can be broadly divided into intra-individual (person) and extra-individual (environment) (Spence & Lee, 2003; Ralph et al., 2009). Intra-individual influences might include individual attributes, beliefs, attitudes, and behaviours, while extra-individual influences might include environmental topography, social and cultural context and policies. For example, change at an

intra-individual level of influence might include improving attitudes toward physical activity, shielding from unprotected sex, smoking, alcohol and drug use thereby increasing the probability of the occurrence of health enhancing behaviour. Change at an extra-individual level of influence might include providing safe spaces to do physical activity, education on drug use, provision of policies could also increase the probability that physical activity, healthy eating and abstinence from sex also might occur. Working within an ecological model requires that measurement and assessment take place at more than one of these levels.

Several researches have expatiated on ecological models of health behaviour, as well as numbers of typologies of ecological variables have been identified (Cohen, Scribner & Farley, 2000; McLeroy, Bibeau, Steckler & Glanz, 1988; Ralph et al., 2009; Richard, Potvin, Kishchuk, Prlic & Green, 1996; Stokols, 1996). However, until recently, little discussion existed on how ecological models could apply specifically to physical activity (Dzewaltowski, 1997; Gauvin, Levesque, & Richard, 2001; Owen, Leslie, Salmon, & Fotheringham, 2000; Sallis, Bauman, & Pratt, 1998; Welk, 1999). One challenging issue for employing ecological models to the study of physical activity and dietary practices is the definition of a theoretical and conceptual framework to study the putative relationships between extra-individual causal mechanisms and behaviour (Sallis et al., 1998). Further, of the ecological models that have either been applied (Gauvin et al., 2001) or developed in the physical activity domain, little consideration has been given to the role that biological factors may play in determining behaviour.

Theoretical underpinnings of ecological models

A growing body of rhetoric and research argues that there may be synergy between individuals and environments that may exert influence on individuals beyond individual characteristics (Susser & Susser, 1996). Ecological models posit that this synergy is born out of a good "fit" between the individual and environment (Kelly, 1990). A good fit refers to a matching of intra-individual attributes with environmental (extra-individual) attributes that produces positive human health behaviour beyond the summation of the intra- plus extra-individual environment. Similarly, a poor individual environment fit is a mismatch between individuals and environments that leads to poor health and disease. A good individual environment fit can be improved by enhancing either side. the individual or the environment. In the case of a poor fit, ecological models posit that it is more efficient to enhance environment rather than change individuals, because enhancing one environment can have implications for many individuals (Spence & Lee, 2003).

Because improvements in the individual environment fit can be achieved from changes at either the intra-individual or extra-individual level, there are multiple levels of influence and points of intervention. Ecological models have been described as typologies of individual, social, and environmental features (Sallis & Owen, 1997), reflecting and building upon the work of Bronfenbrenner (1977). Others have depicted aggregate, contagion, environmental and structural features (Blakely & Woodward, 2000) that operationalize extra-individual influences in terms of strategies of measurement and methods of impact on human health. Others classify ecological influences in terms of resource availability,

physical structures, social structures and cultural and media messages (Cohen et al., 2000).

Regardless of which typology is employed, ecological models posit that constituents (intra- and extra-individual) are interdependent (Kelly, 1990) and can exert direct effects on each other. If a change is made at one level of influence, all other levels may be affected. For example, a national public health campaign to promote physical activity, alcohol non-use, safe sex, and or adolescent healthy behaviour could stimulate a municipality to build a park in a low-SES neighbourhood, pedestrian walk way, ban alcohol advertisement and public smoking which, in turn, may encourage the local residents to be more active and living a healthy life. The increase in resident activity might give feed back to the municipal leaders via community empowerment, spawning more community resources.

Since all levels of ecological models are interdependent, it follows that available resources cycle among the levels of influence have the ability to influence the other levels (Kelly, 1990).The interdependence of levels in the ecological system provides health promoters with novel points of intervention (Gauvin et al., 2001; Richard et al., 1996; Stokols, 1996). Interventions made at either intra- or extra-individual points will have implications for all other parts of the system. Therefore, extra-individual (i.e., environment change) interventions could influence the individual behaviour of all members of that environment. Because persons are interdependent with their environments, extra-individual influences can directly constrain some behaviours and facilitate others. Barker (1968) proposed that behaviours occur in consistent patterns of regularly encountered environments that are called behaviour settings. In behaviourist

terms, the behaviour setting represents the discriminate stimulus (Skinner, 1954) that elicits predictable human behaviour. The "behaviour" of the environment that mandates specific human behaviour is independent from the people in the environment in the sense that settings (environments) themselves generate forces necessary for their own maintenance and survival. However, individuals have the capacity to change their environments, leading back to the interdependence of intra-and extra-individual levels.

The group with the more favourable conditions is likely to dominate in terms of power and influence and may show more favourable health behaviours, For instance, despite individual demographic characteristics (e.g., age, gender, social class, income) merely residing in a more affluent neighbourhood will likely increase individual physical activity (Ecob & Macintyre, 2000, Gauvin, Richard, Potvin, Craig, Spence, Quinney & Dassa, 2001; Yen & Kaplan, 1998) and decrease smoking (Diez-Roux et al., 1997). These studies show that something about the neighbourhood of residence influences individual behaviour beyond individual demographic characteristics. Sampson, Raudenbush and Earls (1997) noted that social and organizational characteristics of neighbourhoods are associated with variations in individual behaviour that are not explained by individual characteristics alone. Perhaps extra-individual environments (e.g., neighbourhoods) generate common values and qualities that influence residents beyond individual characteristics (Sampson et al., 1997).

A critical implication of the temporal nature of ecological influences is that environmental effects may be subtle and only observable after years of exposure, while at the same time, effects may be dramatic, resulting in rapid behaviour changes (e.g., smoking bans and reductions in smoking rates).

Understanding the physical activity choices of contemporary humans, then there should not be ignorance of changing cultural and environmental forces (Frankish, Milligan, & Reid, 1998; Treloar et al., 1999). The corrupting influences of modernization and urbanisation have significant influence on physical activity and fitness, early sexual intercourse of adolescents, alcohol use and smoking behaviours (Spence & Lee, 2003). As a result of acculturation (e.g., introduction of vehicles, televisions, computers and video games) most adolescents are experiencing dramatic decreases in physical fitness (Rode & Shephard, 1994) as well as generational shifts in preferences from traditional cooperative games and activities to more competitive pursuits (Glassford, 1976).

The model acknowledges the role of advocacy or coalition groups such as public health, sport and fitness industry and, agencies such as park and recreation departments, schools, media, medical, policies, and environments (supportive settings, facilities, and programmes). However, because of its macro focus, this model does not suggest how the home environment may influence physical activity behaviour. Moreover, it implies that environmental and policy interventions only have direct effects on physical activity, and it avoids discussion of interpretation of these influences on the part of the individual. Lastly, Sallis et al. (1998) have given little consideration to how cultural factors should be included in macro-level interventions.

Based upon ecological systems theory (Bronfenbrenner, 1989), Wachs (1992) have outlined a model for understanding the role of the environment in children's development. In this model, environmental factors are categorized in a hierarchical, multilevel, and multidimensional fashion. This model describes a dynamic system that operates across space and time. At the most proximal level

of the model is the microsystem. This is the immediate setting within which individuals interact. It can consist of both social; verbal support) and physical; the presence of a safe playground characteristics. Examples of microsystems are workplaces, schools, homes, and parks which the child interacts with on daily basis. It is likely that more than one microsystem plays a role in understanding the health behaviour constructs understudy.

Encompassing the microsystem is the mesosystem, in which two or more microsystems may interact to exert influence on physical activity, sexual, dietary practices, drug and alcohol use behaviour. The most important features at this and all subsequent levels are the "linkages and processes" occurring between settings. Thus, it is not just the presence of positive facets (e.g., walking trail) in the setting but also the quality of the interaction that takes place within and between settings. For instance, a child's physical activity level may be influenced by both the verbal support received in the home microenvironment and the physical and social microenvironments at school.

Other microsystems, external to the individual, also exert influence on behaviour. Exosystem dimensions are composed of the linkages and processes between two or more microsystems, at least one of which does not include the physically active/inactive person. An example of an exosystem dimension is the relationship between a parent's workplace (e.g., existence of a health promotion programmes) and a child's physical activity and health promotion in school. The fourth, and most distal, level consists of macrosystem dimensions.

The macrosystem encompasses the micro, meso, and exosystems with particular reference to the developmentally instigated belief systems, resources, hazards, lifestyles, opportunity structures, life course options and patterns of

social interchange that are embedded in each of these systems (Bronfenbrenner, 1989). The finding that childhood SES is strongly related to subsequent adult participation in physical activity (Lynch, Kaplan, & Salonen, 1997) could be construed as an example of a macrosystem dimension. Other constructs of the model are physical ecology, pressure for macrosystem change, and higher level mediators. Physical ecology (e.g., climate, topology) and pressure for macrosystem change are thought to influence behaviour through the macrosystem. Wachs (1992) does not explain what the "higher level mediators" are in his model but it could be assumed that they are the individual dispositions of the developing person. Therefore, the environment in the model influences behaviour indirectly through these higher level mediators.

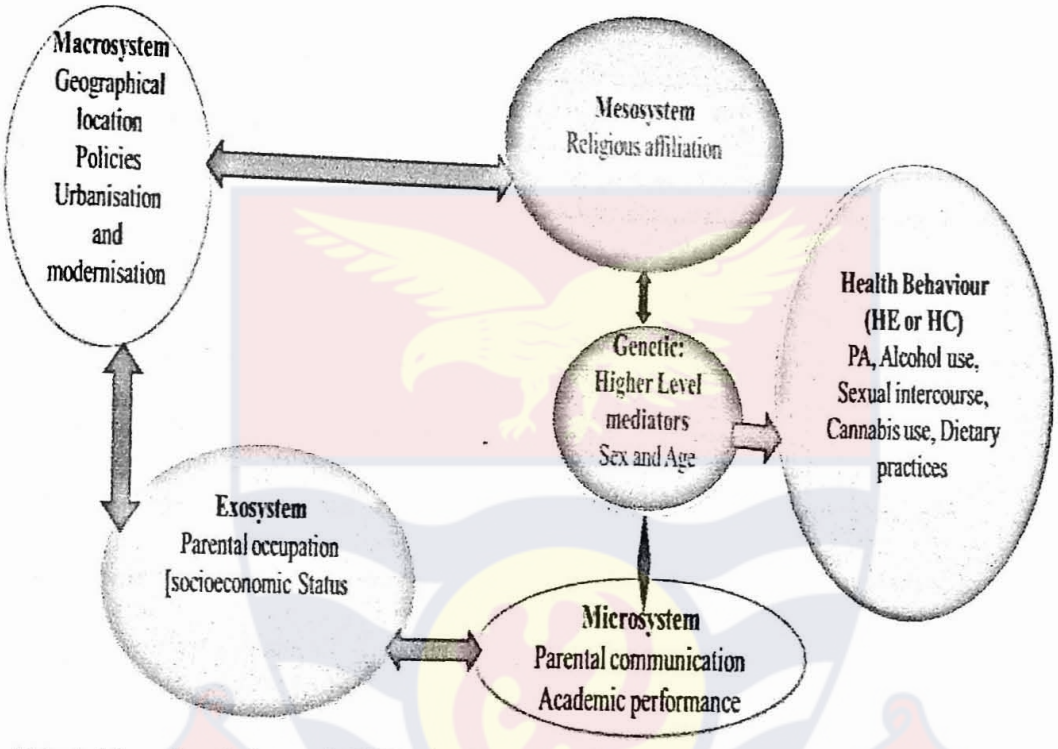
Nature of the structural model of the environment

The distal the levels in the factors are from the individual, the greater the influence over behaviour. Therefore, upstream interventions (Orleans, 2000) that target population-level changes in behaviour incorporate macrosystem dimensions, whereas downstream interventions target the mesosystem or microsystem levels. Distal processes can modify the pattern of relationships between environment and individual behaviour occurring at levels that are more proximal (Spence & Lee, 2003). For example, the provision of quality physical education and school health education programme in the school (mesosystem influence) can strengthen or reduce the effect of parental support for a child's participation in physical activity and exhibition of other health behaviours at home (microsystem).

Because of the bidirectional nature of the model, processes at the more proximal levels of the environment can influence distal levels. Wachs (1999)

maintains that the more proximal the dimension to the individual, the more influential it will be to immediate behaviour. Thus, supportive proximal environments, such as parental support for physical activity and active school programmes, can buffer detrimental macrosystem influences (e.g., low SES).

Conceptual Framework



(Adapted from Bronfenbrenner's (1977) Bioecological Model)

Figure 1: Bioecological Conceptual Framework

This framework postulates that behaviour formation is influenced by multiple factors. The model postulates that child's development occurs within the context of the four systems of relationships that form his or her environment. The model defines complex "layers" of environmental interactions where each has an effect on a child's development. The child's genetic makeup is a primary environment fueling her development and serves as mediating factors for behaviour formulation. The interaction between factors in the child's maturing biology, his immediate family/community environment, and the societal

landscape fuels and policies steers his development. Changes or conflict in any one layer will ripple throughout other layers. The extent of positive and negative interaction in the systems (environments) will lead to health enhancing or health comprising behaviours.

Summary of the Literature Review

Adolescence is a key period for the adoption of health behaviours relating to substance use, sex, diet, physical activity and alcohol usage. The period is characterised by heightened physical growth and rapid changes in height, weight, body shape, and genital development leading to experimentation of life in the environment. The adolescent decision to smoke cigarette, engage in physical activity or eat fruit and vegetables, have sexual intercourse, drink alchol or use cannabis is dependent on the environmental conditions thus nature nurture. The review indicated 17% prevalence of cannabis use among school going adolescents in Ghana. Also, Ghana's current cigarette smoking prevalence reported in literature is 12.5%. Alcohol drinking prevalence among school going adolescents reported in literature is 39.3%. The review also indicated that physical activity levels and dietary practices of school adolescents are always around 50% of the population. The review showed that adolescent's health behaviours are influenced by multiple factors. Some of these factors are proximal and distal to the individuals and are critical in influencing behaviour. The extent of the adolescents' interactions with these factors and the strength of protective and mediating factors determine whether child's behaviour would be healthy or health compromising. The review also 115 ted that school and family related programmes as well as policies are effective ways of shaping adolescents' behaviour. Ther were some inclusiveness of cross sectional studies, hence,

landscape fuels and policies steers his development. Changes or conflict in any one layer will ripple throughout other layers. The extent of positive and negative interaction in the systems (environments) will lead to health enhancing or health comprising behaviours.

Summary of the Literature Review

Adolescence is a key period for the adoption of health behaviours relating to substance use, sex, diet, physical activity and alcohol usage. The period is characterised by heightened physical growth and rapid changes in height, weight, body shape, and genital development leading to experimentation of life in the environment. The adolescent decision to smoke cigarette, engage in physical activity or eat fruit and vegetables, have sexual intercourse, drink alchol or use cannabis is dependent on the environmental conditions thus nature nurture. The review indicated 17% prevalence of cannabis use among school going adolescents in Ghana. Also, Ghana's current cigarette smoking prevalence reported in literature is 12.5%. Alcohol drinking prevalence among school going adolescents reported in literature is 39.3%. The review also indicated that physical activity levels and dietary practices of school adolescents are always around 50% of the population. The review showed that adolescent's health behaviours are influenced by multiple factors. Some of these factors are proximal and distal to the individuals and are critical in influencing behaviour. The extent of the adolescents' interactions with these factors and the strength of protective and mediating factors determine whether child's behaviour would be healthy or health compromising. The review also 115 ted that school and family related programmes as well as policies are effective ways of shaping adolescents' behaviour. Ther were some inclusiveness of cross sectional studies, hence,

longitudinal studies are needed in determining causal relationship of the variables in relation to health related behaviours. Also, national prevalence of the health related behaviours is silent in literature; hence, there is the need for national studies to set up data base.

CHAPTER THREE

RESEARCH METHODS

The purpose of this study was to determine the prevalence of health-related behaviours among school going adolescents in the Central Region of Ghana, and explore factors influencing these behaviours. This chapter discussed methods employed in the conduct of the study. The chapter was organised around the following areas: research design, population, sample and sampling procedure, instrument, data collection procedure and data analysis.

Research Design

Quantitative cross-sectional design was employed in this study. The choice of this design was influenced by the purpose of the study as to provide information by describing the current health related behaviours and their determinants characteristics of adolescents in basic schools in the Central Region of Ghana. The choice of the design was guided by the assertion of Ogah's (2013) that cross-sectional descriptive design is used to obtain information which is a picture or snapshot of the current status of phenomena. In this case, the phenomenon under study was the prevalence of health related behaviours of school going adolescents in the Central Region of Ghana and socio-demographic factors that determined these behaviours among the school going adolescents. Descriptive design as quantitative research has undergirding philosophy that phenomena have an independent existence which can be discovered via research, and this knowledge from positivists' perspective exists independently out there, and should be discovered using objective process (Ogah, 2013). Besides, the choice of quantitative design was inspired by the philosophical assumptions prescribed by Cohen, Manion and Morrison (2007) that events or behaviours have

causes (determinants factors) and that behaviours are determined by other circumstances; and science proceeds on the belief that these causal links can eventually be uncovered and understood, that the events are explicable in terms of their antecedents.

In addition, Creswell (2009) and Cohen et al. (2007) proposed that to explain relationships and attempt to explain causes that influence outcome, quantitative research method is appropriate and assist to formulate laws, thus yielding a basis for prediction and generalization. Creswell and Cohen further explained that quantitative research produces verifiable knowledge via direct experience and observation. In addition, Cohen described quantitative research methodology as value neutral, thus the knowledge generated is value neutral. Furthermore, knowledge by quantitative research is tentative; hypotheses are not proved but simply not rejected (Creswell, 2009). The scientific paradigm seeks predictions and generalizations, thus, methods often generate quantitative data. Examples include standardized tests, closed ended questionnaires and descriptions of phenomena using standardized observation tools (Pring, 2000). Analysis involves descriptive and inferential statistics. Inferential statistics allows sample results to be generalized to populations.

Moreover, strength wise, quantitative cross-sectional design is less expensive and produces findings more quickly, hence, data is less likely to suffer from control effects and the researcher is more likely to secure the cooperation of respondents on a 'one off' basis (Cohen, et al., 2007). It also enables researchers to identify the proportions of people in particular groups or states using large representative samples which also enable inferential statistics to be used such as to compare subgroups within the sample. The design also enhances charts

aggregated patterns and also useful for charting population-wide features at one or more single points in time.

Despite these strengths, quantitative cross-sectional study is a less effective method for the researcher who is concerned to identify individual variations in growth or to establish causal relationships between variables. Also, sampling in the cross-sectional study is complicated because different subjects are involved at each age level and may not be comparable. Nevertheless, cross-sectional studies require attention to be given to sampling to ensure that the information on which the sample was based is comprehensive (Lietz & Keeves, 1997). Further, there is the risk of some potential participants declining to take part, thereby weakening the sample, or some respondents may not answer specific questions wittingly or unwittingly, or probably give incorrect answers. Measurement error may also occur if the instrument is faulty, for example, choosing inappropriate metrics or scales. However, steps had been taken to guard against these weaknesses through explanation of the purpose of the research to the respondents and the use of multi-stage sampling procedures.

Population

The target population consisted of all students in the basic schools in the Central Region of Ghana. However, the accessible population consisted of all school going adolescents in the JHS within the age of 10-15 years. The choice of these age groups was warranted by the discussion of HBSC (2012) as being representative of critical periods of adolescent development. The children at this level of education aged between 10-15 years and per this study are classified into three groups; 10-11, 12-13, and 14-15 years (HBSC, 2012). It is estimated that a total of 7,465,208 students formed basic school population across the country at

the end of 2014/2015 academic year, of which 1,452,585 students are found in the JHS across the country (MOE, 2014). Out of this, a total of 383, 924 students were found in 20 districts in the Central Region of Ghana, comprising 112,952 students in 1,127 Junior High Schools in the Central Region of Ghana. From this, a sample was selected for the study. These groups of students are enrolled in schools that have been established by the government of Ghana and private individuals with the aim of changing and shaping behaviour.

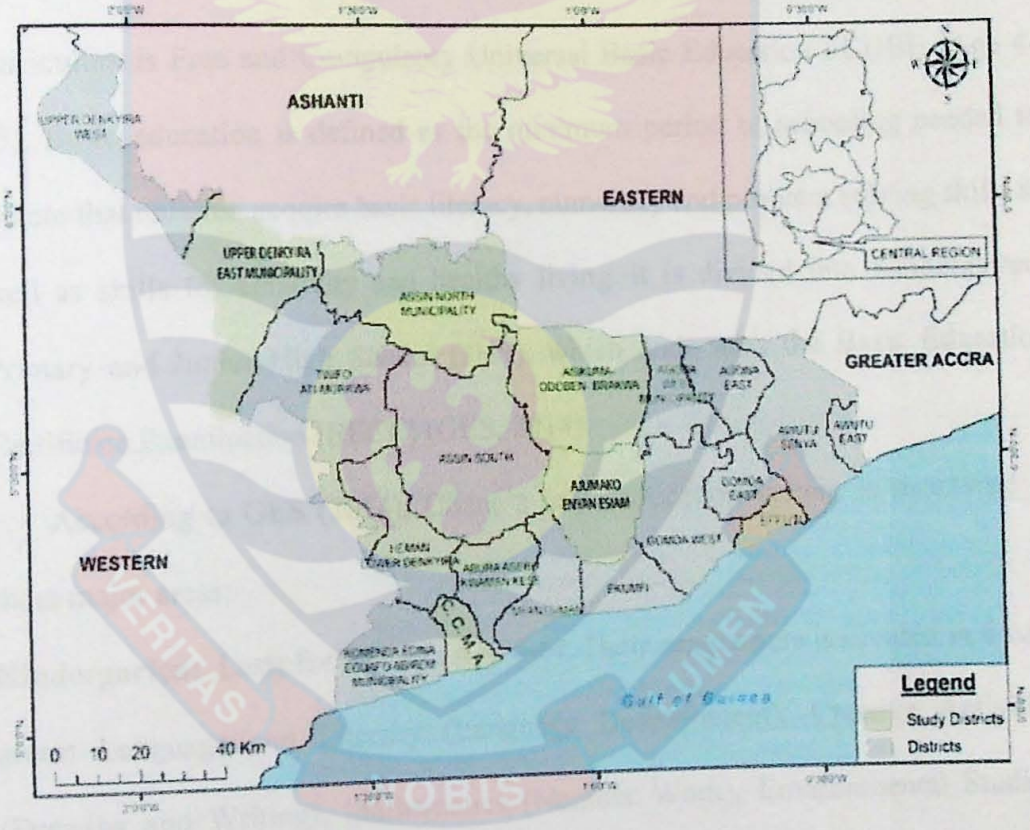


Figure 2: Map of Central Region (Geography Department, UCC, 2016)

Central Region is one of the coastal regions among the 10 regions of Ghana. The region is endowed with the best educational facilities. It is bounded to the East by the Greater Accra region, Western region to the West and Ashanti region to the North. The region is of made up 20 Districts, Municipal and Metropolitan

assemblies. These districts are Twifo-Ati Mokwa, Twifo Heman Lower Denkyira, Upper Denkyira East, Upper Denkyira West, Assin North and Assin South districts. Others are Agona East, Agona West, Ajumako Enyan Essiam, Asikuma Odoben Brakwa, Gomoa East, Gomoa West and Ekumfi district. The rest are Komenda Edina Eguafo Abrem, Cape Coast metropolis, Abura Asebu Kwamankese, Mfantsiman, Efutu, Awutu Senya, Awutu Senya East districts. Each of these districts has basic schools under it.

Basic education in Ghana lasts for 11 years (GES, 2014). Basic education curriculum is Free and Compulsory Universal Basic Education FCUBE (Age 4-15). Basic education is defined as the minimum period of schooling needed to ensure that children acquire basic literacy, numeracy and problem solving skills as well as skills for creativity and healthy living. It is divided into Kindergarten, Primary and Junior High School (JHS), which ends with the Basic Education Certificate Examination [BECE] (GES, 2014).

According to GES (2014), Ghana's basic education system is structured in three major areas:

Kindergarten: Lasts for 2 years (Age 4-6). Their programme is divided in 6 core areas: Language and Literacy (Language Development), Creative Activities (Drawing and Writing), Mathematics (Number Work), Environmental Studies, Movement and Drama (Music and Dance), and Physical Development (Physical Education [PE])

Primary school: Lasts for 6 years (Age 6-11). This level is divided into two; lower primary and upper primary. In the upper primary, the students are taught English, Ghanaian Language [fante] and Ghanaian culture, ICT, Mathematics,

Integrated Science, RME, and PE. There is no certificate of completion at the end of primary school.

Junior Secondary School: Lasts for 3 years (Age 12-15). The Junior High School whose products are expected to obtain Basic Education Certificate (BECE), which covers the following subjects: English Language, Ghanaian Language and Culture, Social Studies, Integrated Science, Mathematics, Basic Design and Technology, ICT, French (optional) and RME with the exception of PE.

Students at this level of education go to school as early as 7:00 o'clock in the morning and return home around 2:00 o'clock in the afternoon. Through interaction with the school environment, peers and teachers, all kinds of behaviours are formed. This means that the school is pro position of promoting the health of these children (GES, 2014). Also the age category of these students makes them more vulnerable to all kinds of health problems such as decisions on reproductive health, drug and alcohol use, physical activity and nutrition (Doku, Raisamo & Wiium, 2012; Fishbein & Ajzen, 2010; Micklesfield, et al., 2014). They also depend on their teachers, parents and peers for physical, psychological, nutritional, social and emotional health needs. Appropriate facilities and programmes in the schools and communities can facilitate healthy health behaviours among them.

Sampling Procedure

A sample size of 1,400 participants was used for the study. The sample size was obtained using Cohen 'G' power with effect size of .40, confidence level of 95% and confidence interval of .05. The Cohen 'G' power yielded a non-centrality parameter sample size of 395 which is representative enough for

generalisation of the results (Cohen et al., 2007). The sample size was also supported by Ogah's (2013) assertion, that in conducting a study in a population of over 100,000, a sample size of 383 was appropriate for generalizability of the results. However, the sample size was increased to 1,400 participants in order to enhance practicability of the theoretical sample size. This was done to make provision for unanswered or non-returnability of some of the questionnaires. This was also based on the proposition of Cohen that when the sample size is larger, it increases the generalizability of the results.

In order to have access to the participants, multistage stratified random sampling procedure was used to select participants for the study.

Stage one; cluster sampling was used to put the districts into three geographical zones (southern, central and northern zones). The choice of this method was because of the variables under consideration which might differ in terms of geographical location. The choice of cluster sampling was in support of Ogah's (2013) prescription that when the population is dispersed over a wide geographical area, cluster sampling is used to subdivide the population into mutually exclusive groups. This would make groups to be well defined so as to maintain the homogeneity of the population. And it is the researcher's goal to establish clusters that are representative of the population as a whole, although in practice this may be difficult to achieve.

The northern zone consists of six districts (Twifo-Ati Mokwa, Twifo Heman Lower Denkyira, Upper Denkyira East, Upper Denkyira West, Assin North and Assin South). The central zone has seven districts (Agona East, Agona West, Ajumako Enyan Essiam, Asikuma Odoben Brakwa, Gomoa East, Gomoa West and Ekumfi district). The southern zone consists of seven districts

(Komenda Edina Eguafo Abrem, Cape Coast, Abura Asebu Kwamankese, Mfantsiman, Efutu, Awutu Senya, Awutu Senya East)

At the second stage, purposive sampling procedure was used to select two districts from each of the zones; Northern zone (Twifo Hema Lower Denkyira [867 students] in 42 Junior High Schools (JHS) and Assin North [8,314 students] in 78 public JHS, Southern zone; (Efutu [3,407 students] in 18 JHS and Cape Coast [6,529 students] in 60 JHS) and Central zone (Gomoa West [6,968] in 62 JHS and Ajumako Enyan Essiam [6,943] in 78 JHS). The choice of purposive sampling technique was influenced by the decision to make judgements about typicality of behaviours that could be different and on the basis of heterogeneity of the districts. This according to Ogah (2013) was done not only for selection of participants, but also to take care of population setting, incidents, events and activities for data collection.

At the third stage, proportionate simple random sampling was used to select 10% of schools from each of the two districts selected from each of the zones. The 10% of schools was influenced by Ogah (2013) assertion that selecting 10-15% sample size from the population is enough for generalization. The proportionate sampling yielded Northern zone (12 schools) [400 participants], Central zone (14 schools) [500 participants] and Southern zone (8 schools) [500 participants].This was done in order to have a proportionate representative of all schools and to give chance to each school to be selected. In the fourth stage, convenient sampling technique was used to select proportionately 10% (40) students with at least 15 students from each class from each of the 34 schools, with equal representation of boys and girls. This summed up to a sample size of 1400 students out of the accessible population 33, 028 students.

Data Collection Instrument

Questionnaire was used for the study. The GSHS (2012) questionnaire was adapted and modified to suit the context of this study. GSHS questionnaire contained 84 items posted on unintentional and intentional injuries, tobacco use, alcohol and other drug use, high risk sexual behaviours, dietary behaviours and physical activity among adolescents. However, the modification reduced the items to 42.

According to Zullig et al. (2006), the GSHS is systematic epidemiologic surveillance system prepared by WHO in collaboration with United Nation (UN), UNESCO, UNAID; and with technical assistance from CDC for the purpose of monitoring youth risk behaviours. It focuses on risk behaviours that develop during youth and will result in mortality, morbidity, complications and behavioural problems in youth and adulthood. These behaviours include tobacco use, alcohol and other drug use, high risk sexual behaviours that lead to HIV infection, other sexually transmitted infections (STIs) and unintended pregnancies, dietary behaviours and physical activity. Questions relating to dietary practices, exercising behaviour, alcohol and drug use behaviours, and sexual behaviours were modified (See Appendix A).

Validity and reliability of the instrument

The drafted questionnaire was given to colleague PhD students to proof read the items and make suggestions on the face, content and construct validity as well as the grammatical constructions of the items. After their correction, the questionnaire was given to my supervisors to check on the face, content and the construct validity. They worked on technical accuracy, instructions, and arrangement of the items. In order to ensure readability of the questionnaire, the

questionnaire was given to five JHSs students in Duakor and Apewosika to read through the items and indicate readability and understandability of the instrument since these students share similar characteristics of students from urban and rural settings. Students' comments were also factored into the questionnaire to make it readable for the population. The purpose of validity was to improve the construct and content validity as well as remove all ambiguities and poor constructions from the questions, and also make the items appropriate for the students to answer (Ogah, 2013).

Although, the instrument had established reliability of Kuder and Richardson Formula 20 (KR20) coefficient of .96 (Kuder & Richardson, 1937), the reliability of the current instrument was also determined. This was done through a pre-testing of the instrument on 100 students conveniently selected from two basic schools in KEEA Municipality. The KR 20 coefficient was used to indicate the internal consistency of the instrument. The choice of KR20 was influenced by the assumption of Kuder and Richardson, that the appropriate reliability coefficient to use to determine homogeneity of a norminal scale questionnaire items is KR20 coefficient. The pretested instrument yielded a reliability coefficient of 0.80. However, the main work yielded a reliability coefficient of 0.84. According to Kuder and Richardson, KR20 values range from 0 to 1. A high value indicates reliability; while too high a value (in excess of .90) indicates a homogeneous test.

Data Collection Procedures

An introductory letter was obtained from the Head of Department, Health, Physical Education and Recreation (HPER), UCC to Institutional Review Board (IRB) for ethical clearance. The ethical clearance was obtained from UCC IRB

[UCCIRB/CES/2016/04] (Appendix B). The choice of obtaining ethical clearance was influenced by the prescription of Ogah (2013) that in order not to violate the right of human subjects, there is the need for ethics committee to certify that a research, research instrument and data collection processes are acceptable and respect the right of subjects. Hence, the ethical clearance and the introductory letter obtained from UCC and the Department of HPER were used to obtain permission for entrance into the districts and schools from the regional GES office.

For ethical consideration of the participants, the purpose and benefits of the research to the participants was explained and they were assured of anonymity and asked them to sign the informed consent form although they were mature minors. This ethical consideration was informed by the proposition of Santelli's (1997) document on human subjects and parental permission in adolescent health research that parental permission can be waived off when conducting research on sensitive issues on active mature minors. This waiver, he posited helped in obtaining real information from the participants because parental and teacher involvements in these research can affect the truthfulness and participants' participation. Similarly, WHO Scientific and Ethical Review Group propounded that there are no clear ethical justifications for excluding from research adolescent subjects below the age of legal majority (WHO, 2015). WHO further expounded that if there are reproductive health problems that are restricted to, or occur in adolescents which cannot be solved with existing knowledge, there is an ethical duty of beneficence and justice to conduct appropriate research to address these problems. In such cases where adolescents are sexually active, investigator commit no legal offence in undertaking research that promises a favourable

benefit-risk ratio. However, where the law specifically denies decision-making authority to mature or competent adolescents below a given age, that provision must be respected. WHO further explained that capacity to consent is related to the nature and complexity of the research, if adolescents are mature enough to understand the purpose of the proposed study and the involvement requested, then they are mature enough to consent.

Having been informed by WHO (2015) and Santelli (1997) proportions on ethical issues, Four research assistants (RAs) from UCC and six district physical education coordinators were employed to assist in the data collection. The RAs were trained to visit the schools in the selected districts, explained the purpose of the study and aided in the distributions and collections of questionnaire. Data collection took place during school hours and the participants (students) were captured as captive audience in their classrooms after obtaining permission from the headmaster. To promote anonymity of the respondents, boxes were placed in front of the classrooms for the students to deposit their answered questionnaire. The data collection in the selected districts lasted for six weeks.

Data Processing and Analysis

The questionnaires were coded and data entered into SPSS Version 16. After coding, data was screened visually and statistically to ascertain the accuracy of data collected and also to deal with missing or incomplete data, assess extreme values or outliers and also to assess the adequacy of the fit between the data and the assumptions of the specific procedures. Having, screened the data of missing values, data was then analysed research question by research question, and also tested the hypotheses.

Research question 1 was analysed using simple frequencies and percentages to report on frequency of the adolescents' involvement in the health related behaviours. To determine the prevalence of health compromising behaviours and health enhancing behaviours among the adolescents in the JHS in the Central Region of Ghana, frequency and percentage counts were employed to explain the prevalence of health related behaviours of students in the JHS. The choice of these statistical tools was to report on the proportions of health compromising behaviour and health enhancing behaviour among the school going adolescents in the JHS in the Central Region.

The independent variables considered in this study were gender, age, socio-economic status, religion, parental communication, geographical locations and academic performance. Gender was measured on nominal scale and categorised into two dichotomy of boys and girls. For this study, gender was coded as boys (1) and girls (0). Besides gender, age was measured on continuous or interval scale, but for easy analysis of the data set, age was categorised into two; 12-13 and 14-15 years respectively. The categorisation of age transformed the scale measurement from interval to nominal scale and was coded as 12-13 (0) and 14-15 years (1). Nevertheless, occupations of the parents of the participants were measured on nominal, but categorised as high and low socio-economic status. This was done by categorising parental occupations from civil servants to menial jobs into high (1) and low socio-economic status (0). Also, parental communication was measured quantitatively in the interval scale of very easy, easy, difficult and very difficult. However, parental communication was categorised as easy and difficulty and was coded as difficult (0) and easy (1) putting it on nominal scale. Again, academic performance of participants was also

coded below average (0), average (1), and above average (2). This was to enable easy analysis of the data sets. Similarly, geographical locations of the participants which was considered as one of the factors that could influence health related behaviours among the school going adolescents was categorised into southern, middle and northern zones. The categorisation set the data as dichotomous and on nominal scale for which urban was coded as southern (0), middle (1) and northern zones (2). Finally, adolescents' religious affiliation was categorised as Christian (0), Moslems (1) and others (2).

Furthermore, the dependent variables (health related behaviours) were all measured on nominal scale and were dichotomous in nature. Health related behaviours of sexual intercourse, alcohol, cigarette smoking and drug use were measured on the nominal scale of YES/NO. This made the response of Yes indicating the presence of the behaviour, and NO as absence of the behaviour in issues relating to sexual, smoking, alcohol and drug use. For easy analysis of the data set, Yes and No were coded as (1) and (0) respectively indicating dichotomy of the dependent variables. However, physical activity and dietary practices were measured quantitatively. The number of times school going adolescents eat fruits and vegetables were categorised into healthy and unhealthy dietary practices. Similarly, number of days school going adolescents exercise at least 60 minutes, were categorised in dichotomous variables of physically active (1) and physically inactive (0)

Research question 2 tried to find which socio-demographic variables explained causal relationships of the dependent variables. In order to answer research question two, six hypotheses were formulated and guided the work. The hypotheses were tested against significance value of 0.0 to aid in whether to reject

or fail to reject null hypothesis. The criterion for rejecting the null hypothesis was pegged at $p = .05$. According to Schuler, if the null hypothesis is true, the computed $\chi 2$ statistic should be close to zero, because the squared difference between what is actually observed in each cell, observed frequency (*fo*), and what is theoretically expected, expected frequency (*fe*), should be very small. If *H*0 is false, then there are differences in the population proportions and the computed $\chi 2$ statistic is expected to be large. However, what constitutes a large difference in a cell is relative. The same actual difference between *fo* and *fe* from a cell with a small number of expected frequencies contributes more to the $\chi 2$ test statistic than a cell with a large number of expected frequencies. This assumption was used for the hypotheses.

Logistic regression analysis was used for multivariate analysis to determine causal relationship between the socio-demographic factors and each of the key health related behaviours. Hypothesis 1-6 sought to find out which socio-demographic variables predict health related behaviours among school going adolescents in the Central Region. Logistic regression does not make any assumptions for normality, linearity, and homogeneity of variance for the independent variables, but rather prefer the dependent variable to be dichotomous and the independent variable to be metric and dichotomous. Again, logistic regression tries to find the probability value between 0 and 1, data was coded as such. since, the data met these criteria, logistic regression was used to determine which socio-demographic factors (age, geographical locations, gender, religion, socio-economic, parental communication and academic performance) predict health related behaviours (alcohol drinking, cigarette smoking, cannabis usage, PA, sexual intercourse behaviour and dietary practices). This choice of logistic

regression was influenced by the propositions of Ofori and Dampson (2011) and Schuyler (2008), that finding causal relationships among variables with one variable being the dependent variable (outcome or response) that is binary or dichotomous in nature while other(s) is/are the independent (predictor/explanatory) variables which are either continuous or categorical in nature, the appropriate tool for analysis that help to explain relationship or prediction logistic regression. Based on the propositions of Ofori and Dampson, and Schuyler, binary logistic regression was deemed appropriate for testing hypotheses 1-6. The results of the binary logistic regression were presented in tables indicating cross tabulations, Beta (β), Wald statistics, Alpha value (p-value), Odds Ratio (OR) and Confidence Interval (CI). The use of the logistic regression test statistics of Beta, Wald, p-value, OR and CI were influenced by the propositions of Ofori and Dampson (2011) that to report on the logistic regression analysis, the test statistics to report are Beta, Wald, p-value, OR and CI. Reporting these test statistics was also confirmed by Nicol and Pexman (2005) assertion that Beta, Wald, OR, Sig value and CI are appropriate logistic regression test statistic to use when predicting group memberships and explaining causal relationships.

Logistic regression test statistic of Beta (β) was used to report on the percentage contribution of each independent variable to the health related behaviour. Besides, Wald statistics which represent the total Chi Square value was also used to report on the data. The higher or greater the Wald value is, the significant the alpha value. Also, Odds (Exp(B) ratio was used to report on how many times more likely, the factors or independent variables influenced the dependent variables. Finally, in order to determine whether the factors predict health related behaviours, the Nagelkerke R-square (R^2), an adjusted version Cox

& Snell R-square was used because according to Ofori and Dampson (2011) and Schuyler (2008), Nagelkerke R-square adjust the scale of statistic to cover the full range from 0-1 (which is a limitation of Cox & Snell's R-square). Nagelkerke R-square value of the model in the propositions of Ofori and Dampson and Schuler. would suggest the percentage predictions of the IVs to the dependent variables

CHAPTER FOUR

RESULTS AND DISCUSSION

The purpose of this study was to determine the prevalence of health related behaviours among school going adolescents in the Central Region of Ghana and explore factors influencing these behaviours. This chapter presents the results in the form of frequency, proportions and logistic regression test statistics. The chapter also utilises tables and charts to represent the data as well as the utilisation of previous literature to discuss the findings and make inferences. The results are presented according to research questions as well as reporting on the hypotheses formulated. The analysis was based on 94% (N = 1311) of completed questionnaires.

Research Question 1: What is the Prevalence of Health Related Behaviours among School Going Adolescents in the Central Region?

This question sought to find out the prevalence of health related behaviours among school going adolescents in the Central Region. To find answers to this question, a series of questions were posed on six key health related behaviours, and the responses aggregated into proportions. The responses of the participants are presented in Figures 3-8.

Figure 3 depicts an overall cigarette smoking prevalence of 9.2% (n = 120) among school going adolescents. This outcome indicated a lifetime cigarette smoking prevalence among school going adolescents in the Central Region. Out of the respondents that smoked, 62% (n = 74) started smoking at the JHS while 38% (n = 46) initiated smoking behaviour at primary school level. This result meant that the level of education at which most respondents' started smoking was the primary school. Age of first smoking occurred predominantly at age 11 years

with the majority 59% (n = 71) of smokers initiating smoking at 14years. Furthermore, the result indicated that the majority of participants 63% (n = 75) who ever smoked received the first cigarette stick from a friend and 38% (n = 45) picked cigarette pieces from the ground. Again, out of those who ever smoked, 53% (n = 64) are still smoking.

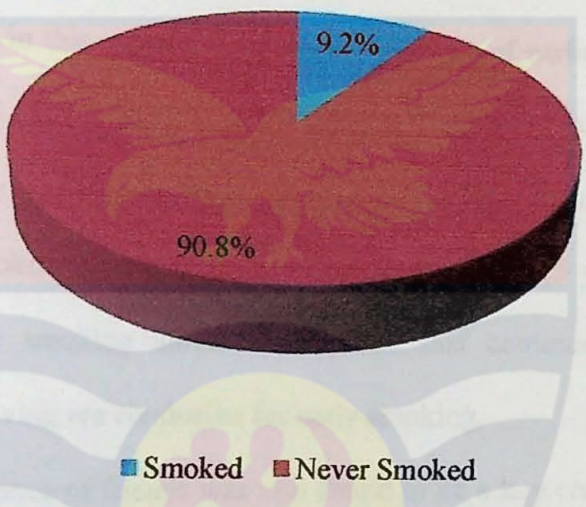


Figure 3: Prevalence of smoking among school going adolescents
Source: Field survey 2016

The prevalence of 9% lifetime cigarette smoking in this study is similar to previous findings (Doku, 2012a; GSHS, 2012). They also found overall cigarette smoking prevalence of 9.1% among JHS students aged 13-17years in Ghana. The possible reason for the similarities in the findings could be attributable to the similarities in the behavioural characteristies of the adolescents. A similar prevalence of 10% was found in the Ashanti Region (Owusu et al., 2009). However, cigarette smoking prevalence found in the Central Region among school going adolescents could be described as low compared to 13% and 17% prevalence reported among adolescents for Ghana and Africa, respectively

(WHO, 2013). Similarly, Hadii et al. (2012) reported 12% of smoking prevalence among school adolescents in Ghana. Furthermore, the smoking prevalence could be described as low compared to Africa's smoking prevalence of 13% among school adolescents as reported by Peltzer (2009a) in six African countries including Ghana. The possible reason for the low prevalence of cigarette smoking in the region could be due to Hadii et al. explanation that Ghana is a country with the lowest adult tobacco smoking in the world. The age of onset of smoking behaviour found in this study fell within the findings of earlier studies (Assabil, 2010; Doku et al., 2011; HBSC, 2012; Ralph et al., 2009). Assabil found 11.5 as the mean age for smoking initiation in Ashanti Region. Doku et al. and HBSC reported that smoking starts early and picks up at age 14-15 years. The possible reason for early smoking initiation could be that communities where these adolescents are living are conducive for early smoking.

The influence of friends was also found to be a key contributing factor to cigarette smoking among school adolescents in the Central Region. The finding was consistent with previous research findings (Cofie, 2010; Frisher, et al., 2007; Sarmento & Yehadji, 2016). They postulated that having close friends who smoke can be a significant factor to influence smoking initiation among adolescents. The possible reason could be that at this stage of development, adolescents tend to listen more to friends than their parents. Amooti-Kaguna and Nuwaha (2000) and Markham et al. (2004) posited that social acceptance, social norms, modelling, and perceived pressure influence adolescents behaviour. Also, having friends smoking and adults sending young ones to buy cigarette could be responsible for higher acceptability of smoking among minors, and may influence their initiation of smoking. Coordinated public health measures for the region are needed so as to

tackle this canker at the very onset before it escalates to epidemic stage where its control would be more resource consuming and the health consequences devastating. This should include evidence based health interventions to identify and assist student smokers to quit. Government should also task the law enforcers like Food and Drug Authority, Ministries of Health and Education to implement the Act to regulate and control the circulation of cigarettes across the systems to young ones. Reducing children's access to cigarette will be an effective strategy to lower smoking prevalence and consumption among under age people in the region. In addition, the number of under aged school adolescents' who ever smoked in the Central Region posts a great public health challenge to the health of the youth in the region as well as their education and the region's future (Doku, 2012a), hence, the need for school health strategies.

Again, the study also sought to find out the prevalence of alcohol drinking among school going adolescents in the Central Region of Ghana. Participants' responses are represented in Figure 4. The result revealed an overall alcohol consumption prevalence of 42.3% (n = 554) among school going adolescents in the region. Furthermore, the result also showed that adolescents who had taken alcohol, 54% (n = 297) has been drunk once, 9% (n = 53) has been drunk twice and 10% (n = 55) had been drunk several times. This outcome means that in totality there is a high prevalence of drunkenness (73%, n = 405) among school adolescents in the region. In addition, the finding showed that 24% (n = 132) of alcohol consumption happens at the lower primary school, 28% (n = 154) at the upper primary and the majority at the JHS 48% (n = 268). The outcome meant that alcohol drinking increases with the students' level of education. Similarly, the result indicated that the majority of the participants 45% (n = 247) who had taken

alcohol were exposed to alcohol by friends, 37% (n = 205) by parents and 18% (n = 102) by elders in the community. The finding meant that the influence of other people is critical in the drinking behaviour initiation among school going adolescents in the region. Also, the result showed that the key reasons for the onset of alcohol drinking are taking alcohol as medicine (48%, n = 268), community festival (20%, n = 109), pleasing friends (20%, n =108) and 12% (n = 69) wanted to be stronger.

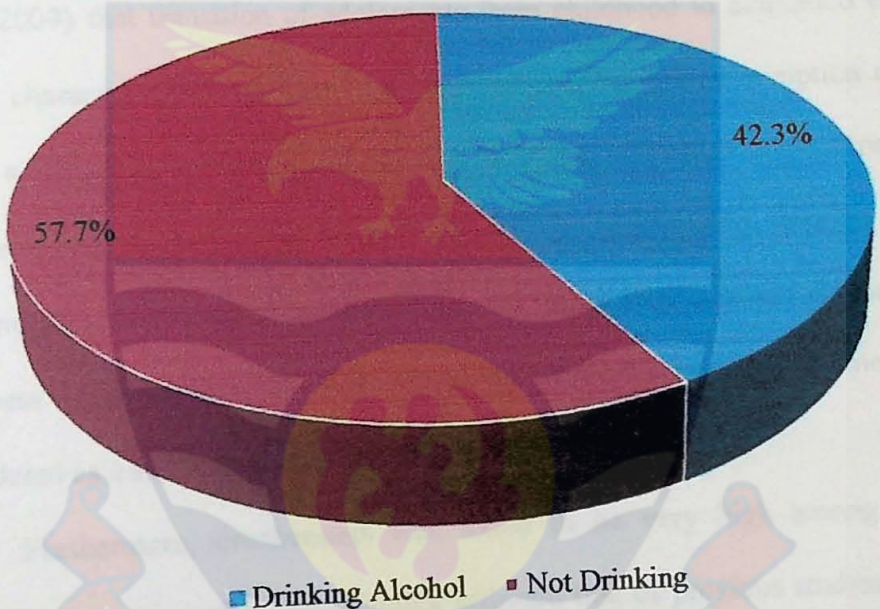


Figure 4: Prevalence of alcohol use among school going adolescents
Source: Field survey 2016

A further question was asked to find out how school going adolescents perceived alcohol consumption among their peers. Majority 56% (n = 738) perceived that none of their peers had been drinking alcohol, however, 44 % (n = 573) perceived that some of their friends consumed alcohol. This outcome also confirmed the prevalence of drinking behaviour among school adolescents as reported earlier.

A lifetime alcohol prevalence of 42% was found among school going adolescents in the Central Region. The finding is consistent with Assabil's (2010) findings of 42% alcohol usage among school adolescents aged 12-17 years in the Bosomtwi and Atwima Kwanwoma Districts in the Ashanti Region. A similar finding of 39% was reported by Doku et al. (2011) in their research among school going adolescents aged 12-18 years from three regions in Ghana. The possible reason for this similarity in the findings could be due to the proposition of Ralph et al. (2009) that transition of adolescents from childhood to adulthood exhibit similar characteristics. However, the prevalence of alcohol consumption among school adolescents in the Central Region could be described as low compared to the prevalence of 54.3% found by Cofie (2010) among JHS students in the Dangme West District. The possible reason for this difference could be due to the closeness of the Dangme West District to the national capital where smoking is considered as a social behaviour.

Furthermore, drunkenness was found to be very high among school adolescents in the region. This finding affirmed that of previous studies (Cofie, 2010; Doku et al., 2011; GSHS, 2008; Ralph et al., 2009). They found an increase in the number of drunkenness among school adolescents. The possible reason for this adolescents' drunkenness might be due to high proliferation of served alcohol at social gatherings: festivals, weddings and funerals in the region (Kanyoni et al., 2015). Doku (2012a) also explained that high presence of alcohol advertisements with hidden message in both the electronic, print and social media could be responsible for drunkenness among school adolescents.

Again, the result showed that the majority of school going adolescents' first time of alcohol drinking was in the form of medicine. This outcome meant,

misconception from advertisements in both print and electronic media on some bitters as treatment drugs could be misleading parents. Alcohol, according to Ralph et al. (2009) is a depressant and early initiation can lead to addiction and physical damage. Similarly, the influence of friends and parental alcohol usage of alcohol as a medicine for children were observed to be the point of initial alcohol consumption among school children in the Central region. This finding was consolidated by the proposition of (Coleman & Carter, 2003; Resnick et al., 1998; Sharp & Lowe, 1989) that most young people were introduced to alcohol by their parents at the age of 8-12years and at 13-19 years by friends (Frisher, et al., 2007; ter Bogt & Nic Gabhainn, 2005). Currie et al. (2008) and GSHS (2008) also explained further that when parents are indifferent, exhibit inappropriate role modelling, or are inconsistent in setting standards of behaviour for their children, there was a much greater likelihood of problem behaviour and psychological problems. Parental usage of alcohol as a form of drug for treatment of illness could be responsible for this high prevalence of alcohol usage among adolescents in the region. Also, the study found early alcohol consumption among school adolescents with age of onset at primary school level (6-15 years). The finding confirmed the proposition of Sharp and Lowe that most young people were introduced to alcohol by their parents at the age of 8-12years (Coleman & Carter, 2003; Sharp & Lowe, 1989) and the majority of young people have had an alcoholic beverage before the age of 16 (Foxcroft & Lowe, 1999). Drinking at home under parental supervision often begins in childhood (Frisher, et al., 2007; GSHS, 2012) and this could be responsible for the early adolescents' consumption of alcohol. There is the need for improvements in the individual environment fit either at the intra-individual or extra-individual levels as points of interventions

with changes in social norms, physical and political structures so as to increase the age of alcohol consumption onset in the region (Cohen et al., 2000; Sallis & Owen, 1997).

Furthermore, the usage of cannabis was also assessed among school going adolescents in the region. Figure 5 showed lifetime cannabis prevalence of 9.3% (n = 122) among school going adolescents in the Central Region of Ghana. This outcome meant quite a number of school adolescents are being introduced to cannabis.

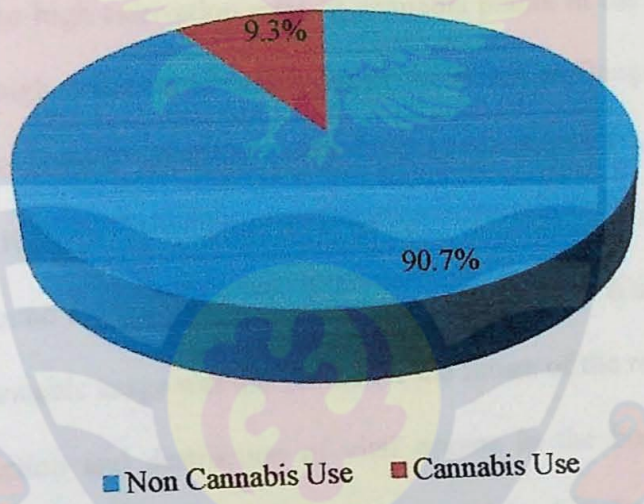


Figure 5: Prevalence of cannabis use among school going adolescents
Source: Field survey 2016

Out of the number of students who had ever used cannabis, 48% (n = 57) used it because of group membership, 29% (n = 36) to study and 24% (n = 29) to be powerful. Again, the result revealed that 58% (n = 71) of the cannabis users' level of education at first usage was at the JHS while the rest 42% (n = 51) were in primary school. On the source of first usage of cannabis, 52% (n = 63) of the respondents received the cannabis from friends and 48% (n = 59) was sent to buy

it. This meant that cannabis usage among adolescents in the region is through peer and community influence.

The overall prevalence of cannabis use among school going adolescents in the Central Region was 9%. This prevalence was lower compared to previous findings of Assabil (2010) of 40% of cannabis usage among JHS students at Bosomtwi and Atwima-Kwanwoma Districts in Ashanti Region of Ghana, as well as 17% by Cofie (2010) in her research finding among JHS students in Dangme East District. The possible reason for the difference in the prevalence rates could be attributable to high cultivation rates of cannabis plants in the Assabil area of study and the high presence of 'cities gettos' or slums at Dangme East (Cofie, 2010). The age at first substance usage was 11 years. This affirmed Assabil (2010) and WHO/MOH (2003) findings that drug use picked up among Ghanaian adolescents around the age of 14-19 years with extremities at 6 and 23 years. The early age of cannabis usage was dangerous for the future of the region as users are prone to addiction and destruction of vital organs in the body (Assabil). To promote the health of school children who are at risk of early cannabis use, the most effective interventions for minimising drug use are keeping cannabis out of neighbourhoods and schools, and providing a safe and secure environment (Ralph et al., 2009) and the implementation of Public Health Act (Doku, 2012a).

The key reasons for the use of cannabis among school adolescents in the region were group membership and enhancement of learning. This finding is consistent with previous research findings (Assabil, 2010; Cofie, 2010; Doku et al., 2011; MOH/WHO, 2003; Ralph et al., 2009). They posited that perceived benefits, such as enabling students to study, to do hard work, to get rid of shyness,

and to forget about problems, curiosity, fun and peer pressure are enabling factors of cannabis use.

Despite this observation, cannabis use in the region could be described as low, compared to other regions; however, the number of school going adolescents using cannabis in the region could pose public health problems. Cannabis use had the potential of causing structural brain abnormalities and altered neural activity among adolescents and subsequently leading to higher impulsivity (Ralph et al., 2009). Evidence based intervention posited protective factors such as enhancing family bonding, i.e. the attachment between parents and children and taking a more active role in children's lives, e.g., monitoring their activities and friendships, and being involved in their learning and education mitigate the major influence of peers in influencing behaviours (Doku, 2012a; UNODC, 2016).

Moreso, the prevalence of sexual intercourse among school going adolescents in the Central Region was assessed and the responses are presented in Figure 6. The result in Figure 6 revealed a lifetime sexual intercourse prevalence of 26.1% (n = 342) among school going adolescents in the region. The result also showed that the age of first sexual intercourse is between 11-13 years where 37% (n = 127) of the participants were in primary school. However, 63% (n = 215) of school going adolescents initiated sexual intercourse in the JHS at age 14-15 years. Those who had sex in the primary school level could have been raped or forced into sex as they responded that the reason for their first sexual intercourse was that they were forced to do it (21%; n = 75).

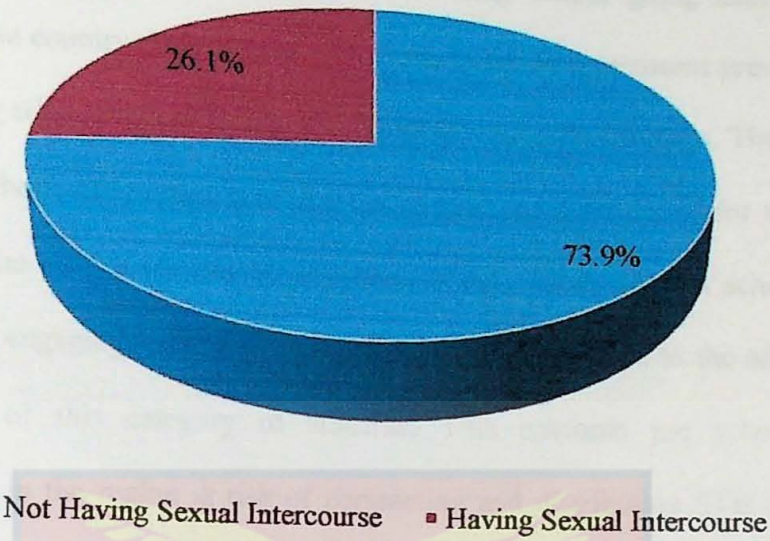


Figure 6: Prevalence of sexual intercourse behaviour
Source: Field Survey 2016

The result further revealed that sizeable a number of school going adolescents were engaging in multiple sexual relationships as 31% (n = 106) had had sexual intercourse with more than two persons while the rest 69% (n = 236) had sexual relations with one partner. Again, 61% (n = 207) of school going adolescents engaged in unprotected sex with only 39% (n = 135) practising condom protection.

The study found 26% lifetime sexual intercourse prevalence among school going adolescents in the region. This prevalence is consistent with 25% sexual intercourse prevalence reported by Doku's (2012b). The possible reason was the similarities in behaviour charateristics of the sample population used for the two studies. However, the current prevalence could be described as low compared to sexual intercourse prevalence reported for other regions by previous studies. Similarly, Abruquah and Bio (2008) also reported 33.9% sexual intercourse prevalence among school adolescents in Kwaebibrem District, Eastern region. GSS, GHS, and ICF Macro (2009) found 37% prevalence and GSHS (2012) also

found 32% sexual intercourse prevalence among school going adolescent in regions in the country. Esantsi et al. (2015) found sexual intercourse prevalence of 33% among adolescents in Brong Ahafo and Greater Accra regions. The possible reason for these differences could be the sample population used for the study. Although, the prevalence can be described as low, the number of school going adolescents engaging in early sexual intercourse is dangerous to the educational attainment of this category of students. This outcome put school going adolescents in the region at risk of contracting and distributing STIs especially HIV. The outcome could also be responsible for high prevalence of teenage pregnancy in the region particularly among BECE candidates (Coughlin, 2016; Esantsi et al.; Guttmacher Institute, 2004).

Risky sexual behaviours and early sexual debut among school going adolescents in the Central Region has social, health and economic consequences for the region and the country (Akwara et al., 2005). These behaviours are preventable through the coordinated efforts of schools, health and education ministries, agencies, and community organisations (Godeau et al., 2005).

Dietary practices of regular consumption of fruits and vegetables were also assessed. The responses were aggregated into healthy and unhealthy dietary practices. Figure 7 showed that 49.9% (n = 654) of school going adolescents regularly consumed fruits and vegetables. The finding also showed high consumption of toffees and soft drinks among school going adolescents as, 90% (n = 1183) of the participants regularly consumed toffees with 93% (n = 1220) consumption of soft drinks. The result also revealed 57% (n = 749) of participants had never taken breakfast before going to school with only 43% (n = 562) eating their breakfast. Early school attendance could be responsible for this outcome.

(2014) research reports where they found high breakfast consumption among SHS adolescents. The possible reason for this difference, could be that the students sampled in the previous study were borders where breakfast is compulsory. Another reason for low breakfast consumption in the region could be due to poverty (Intiful & Lartey, 2014). Breakfast is essential for students' concentration in class. Students who skipped breakfast lack essential nutrients for the brain since good breakfast gives students physical energy as well as boosts their mental capacity; improvement in the assimilation of learning and academic performance (Instiful & Lartey). With this, it beholds on parents to ensure that their wards eat healthy breakfast every day in order to improve their concentration in class as well as academic performances.

In addition, prevalence of physical activity level of school going adolescents in the region was assessed and the result is presented in Figure 8. From Figure 8, approproximately 52% (n = 675) of the school going adolescents were physically inactive. Result on sedentary behaviour showed that 38% (n = 491) of the participants were sedentary as they engage in hours of watching television or playing video games. The result meant that a third of school going adolescents are living sedentary life and this behaviour predisposes them to the development of cardiovascular diseases, which is a leading cause of death in developing countries such as Ghana.

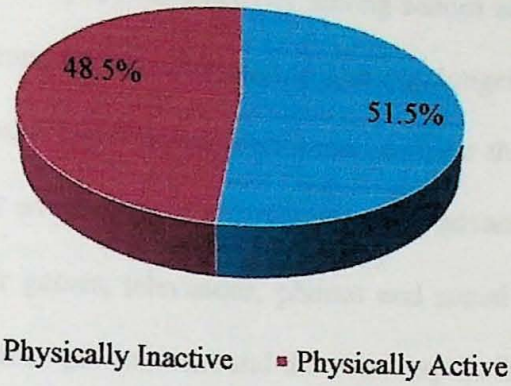


Figure 8: Prevalence of physical activity
Source: Field Survey 2016

The study found that half of schools going adolescents did not meet recommended number of days and hours for physical activity in the region. The finding was consistent with a previous study conducted by Ocansey et al. (2014) that found most Ghanaian adolescent to be physically inactive. Also, the finding corroborated with the findings of Asare and Danquah (2015) and Peltzer (2009b) that 44% of adolescents in the JHS aged 13-19 were physical active and less than 50% school adolescents in sub-Saharan African were physically active. Again, the outcome was consistent with previous findings (CDC, 2014; MOH, 2009; WHO, 2003b; 2006). They found that most adolescents are meeting the recommended guidelines of 60 minutes of physical activity on most days of the week. However, there was higher prevalence of physical activity among school going adolescents in the region compared to previous findings. Afrifa-Anane et al. (2015) reported physical activity prevalence of 19%, Ocansey et al. (2014) 20%, Nyawornota et al. (2013) 33%, 19% and 13% by GSHS (2008) and (2007) respectively. The possible reason for the differences in the prevalence could be the population settings and the characteristics of the participants used for the study. The previous studies also used more samples from the general population. Again, another

reason attributable for the physical inactivity among school adolescents could be what Arthur (2003) proposed that Ghanaian children no longer walk to schools as majority of parents with high socioeconomic status drive their children to and from school. Modern environments and technological advancements leading to addiction to computer games, televisions, phones and social media making our communities obesogenic environment and this was responsible for low physical activity among school going adolescents in the regions (Acier & Kern, 2011).

The finding meant that half of the population understudied will either become obese or overweight leading to the development of NCD such as diabetes, cardiopulmonary diseases and cancer. It seemed Physical Education lesson and environmental modifications could be better intervention in covering up the physical activity deficit among school going adolescents (Bonell et al., 2013, Rose, 2003). Also, the duration for the second or lunch break period can be increased so to allow more time for students to engage in physical activity since research findings had shown school adolescents physical activity participation increased during lunch time break (Cardon et al., 2008; McKenzie et al., 1997, Tremblay et al., 2000). In addition, active travel to and from the school has been a precursor for effective active adolescent lifestyle (Schoeppe et al., 2013; Van Sluijs et al., 2009) hence parental guidance and supports in this line was warranted.

Research Question 2: What Socio-Demographic Factors Predict Health Related Behaviours among School Going Adolescents in the Central Region of Ghana?

To find out which factors predict health related behaviours among school going adolescents in the Central Region of Ghana, six hypotheses were formulated and tested using binary logistic regression analysis.

Hypothesis 1: Socio-demographic factors predict alcohol drinking behaviour among school going adolescents

Binary logistic regression was conducted to predict alcohol usage among school going adolescents considering age, gender, religion, socioeconomic status, parental communication, academic performance and geographical location. The results in Table 1 revealed that the overall logistic regression model was significant (-2LogL = 1755.6, $\chi^2 = 30.210$, $p = 0.001$) as Nagelkerke R^2 of 0.031 explains 3.1% of variance in the risk to consume alcohol among school going adolescents. With this percentage contribution to the entire model, the result showed the whole model significantly predicted drinking behaviour among students. In Table 1, statiscally significant variations were found in the odds of drinking alcohol with geographical location. School going adolescents in the northern part of the Central Region are less likely to drink alcohol than those in the south (OR = 0.69, 95% CI = 0.52-0.93, $p = 0.013$). However, no statistical significant variations were found in the odds of drinking alcohol within age (OR = 1.13, 95% CI = 0.86-1.48, $p = 0.370$), gender (OR = .81, 95% CI = 0.65-1.01, $p = 0.06$), religious affiliation (OR = 1.33, 95% CI = 0.94-1.89, $p = 0.10$), parental communication (OR = .86, 95% CI = 0.66-1.06, $p = .13$), academic performance (OR = 1.07, 95% CI = 0.79-1.45, $p = 0.05$) and socioeconomic status (OR = 1.20,

95% CI = 0.95-1.53, p = 0.12). The results therefore meant that consumption of alcohol by school going adolescents of the Central region of Ghana is not dependent on their age, gender, religion, academic performance, parental communication and socioeconomic status, but depends on their geographical location.

Table 1:
Binary Logistic Regression of Socio-Demographic Predictors of Alcohol Drinking among School Going Adolescents

	N	*%*	*B*	*Wald*	*OR*	*95%CI*	*Sig.*
Age							
12-13 years (ref)	119	25.5					
14-15 years	435	78.5	.0123	.805	1.13	0.86-1.48	0.370
Gender							
Boys (ref)	284	51.3					
Girls	270	48.7	-0.214	3.52	.808	0.65-1.00	0.061
Religious Affiliation							
Christian (ref)	480	86.6					
Muslims	74	13.4	0.288	2.66	1.33	0.94-1.88	0.103
Parental Com.							
Difficult (ref)	217	39.2					
Easy	337	60.8	-0.179	2.28	0.836	0.66-1.06	0.131
Socioeconomic							
Low (ref)	353	63.7					
High	201	36.3	0.186	2.32	1.20	0.95-1.53	0.127
Academic P.				5.894			0.052
Below average (ref)	110	19.9					
Average	293	52.8	0.068	0.197	1.07	0.79-1.45	0.657
Above average	151	27.3	-0.250	2.126	0.779	0.56-1.09	0.145
Geo. Location				9.454			0.009
Southern (ref)	199	35.9					
Central	214	38.6	0.045	0.109	1.046	0.80-1.37	0.742
Northern	141	25.5	0-.362	6.20	.696	0.53-93	0.013
Constant			0-.148	0.506	.863		0.477

Source: Field Survey 2016

Logistic regression model indicated that geographical location as a factor predicted drinking behaviour among school adolescents in the region. The finding

meant that students from southern part of the Central Region were at greater risk of drinking alcohol than those from the northern part of the region. This finding is consistent with the previous research findings of (Lazarou et al., 2008; Van Kooten et al., 2007; Baker et al., 2003; Patrick & Schulenberg, 2010; 2014; Shucksmith et al., 1997) that geographical location significantly influences alcohol consumption among school adolescents, where it was reported that supportive geographical location such as weather and abundance of alcoholic beverages in the area influenced adolescents' alcohol consumption level. In addition, current finding affirmed the research report of Currie et al. (2008) that engagement in health behaviours patterned geographical differences, hence, the explanation that certain health behaviours depict certain patterns across geographical locations. It can be inferred that children's easy access to drinking spots in the southern part of the region which is scarcely at the northern part due to the rural nature of the districts could be responsible for this difference. Therefore, adolescents living in these areas are at higher risk of drinking alcohol than those in the rural parts where there is less number of drinking spots (Kafuko & Bukuluki, 2008).

This outcome means that efforts to control adolescents drinking behaviour should be enforced in the southern part of the region. This finding also affirms Bandura's (1977) SCT,. Bronfenbrenner's (1977) bioecological model and Markham et al. (2004) ASE theory propositions that human behaviours are influenced by environmental predispositions either proximal or distal to the child. This means that social acceptance of alcohol as a norm of socialisation could be a plausible explanation for alcohol consumption among adolescents in the southern part of the Central Region. This outcome means that environmental modification

is an essential tool of eliciting healthy behaviour among adolescents. Also, behaviour modification based on SCT constructs such as self-control, reinforcement, and self-efficacy including goal-setting, self-monitoring and behavioural contracting could be an effective intervention for practicing healthy behaviour among school going adolescents in the region (Doku. 2012a). Goal-setting and self-monitoring seem to be particularly useful components of effective interventions. Also, reciprocal determinism can also be used as an intervention where those drinking can be both an agent for change and a responder to change. Similarly, role models or mentors, modifications and reinforcements can be used to promote healthier behaviour.

Nevertheless, gender as a factor was not found to be a predictor of alcohol consumption in the region. The finding affirms Cofie (2010) research finding in the Dangme West District that gender is not a significant predictor of alcohol use among school going adolescents. Although alcohol consumption had been considered as behaviour of masculinity, modernity seemed to be narrowing the gap between boys and girls as posited by (Doku, 2012a) and this could be responsible for gender not being a predictor of alcohol usage in the region. From the description, there is an increase in the number of girls drinking alcohol. This increase in the number of girls drinking alcohol was described by Cofie (2010) as precursor for other risky behaviours such as early sexual debut and unwanted pregnancy among these adolescents. However, this finding is in contrast with the previous findings of (Ahamad, et al., 2014; Alvarez-Aguirre et al., 2014; Habtamu & Adamu, 2013; Hadland, et al., 2011; Hathazi et al., 2009; Kayembe, 2008) that gender is a significant predictor of drinking behaviour among adolescents with male more likely to drink alcoholic beverages than female adolescents. The

possible reason attributable to this difference could be that their studies were conducted among street connected children, and in the general population. This finding indicates that there is the likelihood of alcohol epidemics among girls in the region, hence, there is the need for school-based interventions and strategies to curb this menace at an early stage before it turns into an epidemic.

Similarly, academic performance did not predict alcohol usage. This outcome meant that there is a narrowing gap between adolescents with low academic performance and high academic performance and it is occurring fast among students with high academic performance. The finding contravened previous studies (CDC, 2009; O'Loughlin et al., 2009; Oetting & Donnermeyer, 1998; Turner, et al., 2004) that academic performance as a factor was associated with alcohol usage among adolescents. However, the finding affirmed previous study conducted in Western Europe (Loveland-Cherry, 2005) that academic performance is not a predictor of alcohol drinking behaviour. The possible reason for this outcome was explained by Sullivan and Wodarski (2004) that among adolescents, educational performance is not associated with alcohol drinking and that majority of evidence points to the fact that the association between academic performance and drinking is inconclusive. They expatiated that the methodological limitations of studies of cross sectional survey could be responsible and that more research evidence is required particularly longitudinal study before the question of whether or not alcohol is associated with academic performance can be answered (Gill, 2002).

Again, age did not predict alcohol usage among school going adolescents in the region. The possible reason for this outcome could be the decrease in the age of onset of alcohol consumption among adolescents (Doku, 2011). This

finding corroborated the findings of previous studies (Assabil, 2010; Boyd et al., 2005; Rehm et al., 2003; Saunders & Baily, 1993). These studies reported that age was not a significant factor in drinking alcohol among adolescent but could be a modest predictor in the later years. Although alcohol consumption is socio-culturally reserved to adulthood, the result meant younger adolescents were consuming alcohol in the region and this could account for the inability of age to predict alcohol consumption in the region. Nevertheless, other research findings (Alvarez-Aguirre et al., 2014; Donnermeyer, 1992; Maggs & Schulenberg, 2005; Saltz & Elandt, 1986; Zeigler et al., 2005) found age as a predictor of alcohol consumption among adolescents with older adolescents at higher risks of drinking than the younger adolescents. The possible reason for this difference could be the population characteristics where the previous studies sampled more from the general population.

Although previous researches (Kendler et al., 2008; Rebellon, 2002) reported parental communication as a significant predictor of drinking behaviour among adolescents such that parental bonding, supervision, strength of communication and adherence to prosocial norms are protective factors in hindering early alcohol consumption (Fulkerson et al., 2010; White & Halliwell, 2010), the current research found otherwise. Decrease in the degree to which parents are not aware of the whereabouts of their children in the region could be responsible for the differences in the findings (Clark et al., 2008; Soenens et al., 2006).

Furthermore, socioeconomic status also did not predict alcohol usage in the region. This research finding was in contrast with previous research findings of Adler and Matthews (1994), Blaxter (1990) and Doku (2012b) that

socioeconomic status of school going adolescents was a predictor of drinking behaviour. The plausible explanation for this difference could be the widened gap between adolescents of low and high socioeconomic status in terms of engagement in deviant behaviours is being narrowed. Also, availability of alcohol in the form of sachets and easy to buy alcohol in the region could be attributed to this outcome. Similar attributable reason for this finding could be that young people are growing up in a society where alcohol exists in abundance (Kafuko & Bukuluki, 2008). Also, the outcome could be largely attributable to the increase in risk taking, sensation seeking, and erratic behaviour that follows the onset of puberty (Ralph et al., 2009).

Although age, gender, religion, socioeconomic, academic performance and the state of parental communication did not predict alcohol consumption among school going adolescents in the region, the increasing number of school going adolescents' alcohol drinking in the region presented a significant challenge for public and school health education and alcohol control in the region. Nevertheless, there are still opportunities that exist to regulate the proliferation and advertisement of alcohol and the utilization of alcohol at public gatherings in the region, especially the southern parts of the region. School health interventions with serious environmental modifications and enforcement of Public Health Act 851 legislations can decrease alcohol drinking and prevent the devastating effects of drinking on health, and educational attainments should be focussed on school going adolescent in the southern part of the region.

Hypothesis 2: Socio-demographic factors predict healthy dietary practices among school going adolescents.

A binary logistic regression was conducted to find out which socio-demographic factors predicted healthy dietary practices among school going adolescents in the region. The result in Table 2 showed that the whole model significantly predicted dietary practices among school going adolescents (-2LogL =1747.5, χ^2 = 69.83, p = 0.001). Overall, socio-demographic characteristics of school going adolescents explained 6.9% of variance in healthy dietary practices in the region as Nagelkerke R^2 indicated a variance of 0.069.

Results from Table 2 showed statistically significant variations in the odds of eating fruits and vegetables within gender, academic performance and geographical location. The result revealed that girls were 1.4 times more likely to eat fruits and vegetables than boys (OR = 1.36, 95% CI = 1.08-1.70, p = 0.007). This meant that boys are at more risks of not eating healthy than girls. Similarly, students with above average academic performance were 2.2 times more likely to engage in healthy dietary practices than those whose performances were below average (OR = 2.19, 95% CI = 1.56-3.08, p = 0.001). Also, students with average academic performance were also 1.6 times more likely to eat fruit and vegetables than those with below average performance (OR = 1.59, 95% CI = 1.16-2.16. p = 0.004). Again, students in the central part of the region were 1.8 times more likely to practice healthy dieting than those from the southern part (OR = 1.79, 95% CI = 1.37-2.35, p = 0.001). In addition, the odds of adolescents from northern part of the region were found to be insignificant to consume fruits and vegetables than those from the southern part of the region (OR = 1.06, 95% CI = 0.97-1.56. p = 0.690). However, no statistically significant variations were found in the odds of

eating fruits and vegetables within age (OR = 0.79, 95% CI = 0.60-1.03, p = 0.076), religious affiliation (OR = 1.10, 95% CI = 0.77-1.57, p = 0.592), parental communication (OR = 1.23, 95% CI = 0.98-1.56, p = 0.078) and socioeconomic status (OR = 1.12, 95% CI = 0.88-1.42, p = 0.358).

Table 2:
Binary Logistic Regression of Socio-Demographic Predictors of Healthy Dietary Practices among School Going Adolescents

Predictors	*N*	*%*	*B*	*Wald*	*OR*	*95% CI*	*Sig.*
Age							
12-13years (ref)	171	26.1					
14-15years	483	73.9	0.243	3.153	.785	.60-1.03	0.076
Gender							
Boys (ref)	287	43.8					
Girls	367	56.2	0.309	7.30	1.36	1.1-1.70	0.007
Religious Affiliation							
Christian (ref)	574	87.8					
Muslims	80	12.2	0.960	0.288	1.10	0.77-1.56	0.592
Parental Communication							
Difficult (ref)	215	32.9					
Easy	439	67.1	0.210	3.09	1.23	0.97-1.56	0.078
Socioeconomic Status							
Low (ref)	414	63.3					
High	240	36.7	0.112	.843	1.11	0.88-1.42	0.358
Academic Performance				20.52			0.001
Below average (ref)	92	14.1					
Average	322	49.2	0.460	8.502	1.59	1.2-2.16	0.004
Above average	240	36.7	0.784	20.42	2.19	1.6-3.08	0.001
Geographical Location				21.64			0.001
Southern (ref)	188	28.7					
Central	278	42.5	0.583	17.65	1.79		0.001
Northern	188	28.7	0.057	.159	1.06		0.690
Constant			0.864	16.43	.422		0.001

Source: Field Survey 2016

Gender was a significant predictor of healthy dietary practices among school going adolescents in the Central Region with boys at more risk of practising unhealthy dietary practices. This outcome corroborated with previous research findings (Bauer et al., 2008; Bere et al., 2007; French et al., 2001; Larson et al., 2006; Kpodo et al., 2015; Nilsen et al., 2009; Roos et al., 2001; Turrell, 1997; Wansink et al., 2003; Xie et al., 2003). These studies reported that girls were more likely to engage in healthy dietary practices of eating fruits and vegetables than boys. The plausible explanation to these similarities could be that girls prefered to eat at home than boys (Kpodo et al., 2015). Although Layade and Adeoye (2014) also found gender as a predictor of healthy dietary practices, they posited that males were more likely to consume fruits and vegetables than females. The possible reason for this difference in the finding could be due to the fact that the current study sampled JHS students while the previous study sampled tertiary students. The outcome of this research meant that boys would lack essential nutrients from fruits and vegetables and their related consequences. This meant that there is the need to promote fruits and vegetable eating among boys.

Furthermore, academic performance of school going adolescents also predicted healthy dietary practices in the region with adolescents with above average academic performance more likely to eat fruits and vegtables than those with average or below average academic performance. This finding was consistent with previous research findings (CDC, 2009; Doku et al., 2011; Johnson et al., 2007; Taras & Potts-Datema, 2005) that academic performance of adolescents was a significant predictor of healthy dietary practices among adolescents, with students having above average academic performance more likely to consume fruits and vegetables. The confirmatory reason for this outcome

could be that, students with high academic performance were aware of the importance of fruits and vegetables in their diet and this could be responsible for high consumption of fruits and vegetables among this group (Falkner et al., 2001). Another possible reason for the similarities in the findings could be that students with high academic performance were eating fruits and vegetables because their parents can afford. The finding therefore meant that there is a need for education on the importance of fruits and vegetables among students with average and below average academic performance.

Furthermore, the study also found that school going adolescents in the southern part were at higher risks of not eating fruits and vegetables than adolescents from central part of the region. The finding of this study is in support of the previous research findings by Layade and Adeoye (2014), Othman et al. (2012) and Mette et al. (2006) on fruits and vegetable consumption by students in Nigeria, where they described geographical location and availability of fruits and vegetable in the locality as a predictor of fruits and vegetable consumption among adolescents. They explained that availability and access to fruits and vegetables in the locality determine students' consumption. Similarly, the study affirmed the research report of Currie et al. (2008) for HBSC, that the engagement in health behaviours patterned geographical differences, hence the explanation that certain health behaviours depicted certain patterns across geographical locations. This meant that health outcomes showed the pattern of life, culture, traditions and weather conditions of the geographical zones of people. The possible reason for the outcome could be due to no or limited availability of fruits and vegetables on school campuses at the southern part as a factor that inhibited intake, hence, there is a need to encourage the consumption of fruits and vegetables in the school.

However, age did not predict healthy dietary practices among school going adolescents in the region. The finding contravened previous research findings (Emmanuel et al., 2012; Granner et al., 2004; Kpodo et al., 2015; Pearson et al., 2009; Ranjit et al., 2010). They found age as a major determinant of healthy dietary practices among adolescents, with younger adolescents reported of eating healthier than older adolescents. Bere et al. (2006), French et al. (2001) and Harnack et al. (1999) also posited that fast food consumption and the frequency of visiting fast food restaurants was higher among students in SHS (age 15-18) than students in basics school (age 12-14). The reason attributable for this difference in the findings could be the quest for independence and acceptance by peers, increased mobility, greater time spent at school and/or work activities (Spear, 2002; Siega-Riz et al., 1998). Another reason could be the possible influence of modernity where parent no longer cook packaged food for their younger adolescents rather they are given money to buy foods and these could be responsible for age not predicting healthy dietary practices among school going adolescents in the region.

Again, socioeconomic status did not predict healthy dietary practices among school going adolescents in the Central Region of Ghana. This finding also contravened previous research findings (Bere et al., 2006; Doku et al., 2011; Giskes et al., 2002; Henningsen, 2011; Vereecken et al., 2005). They opined that socioeconomic status of parents influences dietary practices of adolescents, preferably those from low socioeconomic groups having lower consumption of fruits and vegetables. The possible reason for this difference could be that, in most parts of the region, fruits and vegetables are readily available and affordable, especially during the main harvest seasons. Affordability of fruits and vegetables

could therefore explain the reason why socioeconomic status of school going adolescents did not predict the consumption of fruits and vegetables in the region. Also, the possible reason could be that public health education on healthy dieting in the country could be making some significant impact on the dietary practices of low socioeconomic group than the high, hence, narrowing the gap between the groups (Kpodo et al., 2015). Even though there was evidence that portrayed distinction between the socio-economic layers in society favouring the high socio-economic position group (Fahlman et al., 2010), the possible explanation for this finding needed to be investigated.

Parental communication was found not to be a significant predictor of healthy dietary practices among school adolescents in the region. The finding was in contrast with previous research findings ((Inchley et al., 2001; Mazur et al., 2001). They posited that parental relation had a great influence in the dietary choices of children. They posited that the child food choices outside home were influenced by habits inculcated at home. Also, connectedness to one's parents (and having parents who set firm limits and who were empathetic and nurturing) contributed to young people's social development, self-esteem, and food choices (Baumrind, 1991; Xie et al., 2003).

Furthermore, religion did not predict dietary practices among school going adolescents in the region. This outcome was inconsistent with the findings of previous research (Hart et al., 2004; Hunt et al., 1988; McIntosh & Spilka, 1990; Oleckno & Blacconiere, 1991) that religiosity and beliefs have strong association with dietary intake.

Nutritional needs during adolescent age are increased due to the increased growth rate and changes in body composition associated with puberty (Jenkins &

Horner, 2005; Spear, 2002). However, poor dietary practises among school adolescents could be responsible for the high presence of obesity, inattentiveness in class, especially painful menstruation among girls due to lack of irons in their diet ((Bundred et al., 2001; Ogden et al, 2002). Fruits and vegetables consumption should be promoted in our schools especially among boys and adolescents living around the southern parts of the region.

Hypothesis 3: Socio-demographic factors predict sexual intercourse behaviour among school going adolescents

To test this hypothesis, binary logistic regression was conducted to find out which factors predicted sexual intercourse among school going adolescents in the Central Region of Ghana. Results indicated that the overall logistic regression model significantly predicted sexual intercourse among school going adolescents in the region (-2LogL =1458.8, χ^2 =, 6.877, p = 0.001). This result showed that the predictors explained 5.1% of the variance in sexual intercourse among school going adolescent in the Central Region of Ghana.

The results in Table 3 showed that the socio-demographic variables that were the most reliable predictors of sexual intercourse among school going adolescents in the region were age, gender, parental communication and academic performance. The result showed that age significantly predicted sexual intercourse with older school going adolescents (14-15 years) 1.5 times more likely to have initiated sexual intercourse than the younger ones aged 12-13 years (OR = 1.48, 95% CI = 1.07-2.05, p = 0.017). Similarly, gender statistically predicted sexual intercourse with girls less likely to have sexual intercourse than boys (OR = 0.65, 95% CI = 0.50-0.84, p = 0.001). The result meant that boys were at more risks of engaging in earlier sexual intercourse than girls. Furthermore, school going

adolescents' parental communication status was also found to significantly predict sexual intercourse (OR = 0.69, 95% CI = 0.54-0.90, p = 0.006). The result meant that when children find it difficult to communicate with their parents, they are easily lured into sexual intercourse. Again, students whose academic performance was above average were less likely to engage in sexual intercourse than those with below average academic performances (OR = 0.67, 95% CI = 0.46-0.97, p = 0.035). But adolescents with average and below average academic performance were found to be at equal risk of having sexual intercourse (OR = 0.84, 95% CI = 0.61-1.18, p = 0.319). However, no statistically significant variations were found in the odds of initiating sexual intercourse within religious affiliation (OR = 1.42, 95% CI = 0.98-2.07, p = 0.065), socioeconomic status (OR = 0.82, 95% CI = 0.62-1.08, p = 0.150) and geographical location (OR = 0.97, 95% CI = 0.72-1.31, p = 0.835) did not significantly predict sexual intercourse among school going adolescents in the Central Region of Ghana.

The research found age, gender and the state of parental communication as significant predictors of lifetime sexual intercourse among school going adolescents in the Central region of Ghana. The findings were consistent with previous research findings of (Asampong et al., 2013; Doku, 2012b; Esantsi et al., 2015; Chi et al., 2012; GSHS, 2008; Wu et al., 2007). Researching on the substance use and risky sexual behaviours among sexually experienced Ghanaian youth aged 12-15 years, Doku found gender, age and rural residency as predictors of sexual intercourse among school adolescents in Ghana where older male adolescents had an increased likelihood of sexual intercourse. The possible reason that explained the similarities could be the similar characteristics of the samples.

Table 3:
Binary Logistic Regression of Socio-Demographic Predictors of Sexual Intercourse among School Going Adolescents

Predictors	*N*	*%*	*B*	*Wald*	*OR*	*95%CI*	*Sig.*
Age							
12-13 years (ref)	59	17.3					
14-15 years	283	82.7	0.394	5.690	1.43	1.1-2.05	0.017
Gender							
Boys (ref)	193	56.4					
Girls	149	43.6	0.433	11.29	.649	0.50-0.84	0.001
Religious Affiliation							
Christians (ref)	292	85.4					
Muslims	50	14.6	0.353	3.414	1.43	0.98-2.07	0.065
Parental Commu							
Difficult (ref)	149	43.7					
Easy	193	56.3	0.360	7.463	0.698	0.54-.903	0.006
Socioeconomic Status							
Low (ref)	239	85.7					
High	103	14.3	-0.20	2.073	0.816	0.62-1.08	0.150
Academic Perf				4.641			0.098
Below average (ref)	82	24.0					
Average	173	50.6	0.167	0.992	0.847	0.61-1.02	0.319
Above average	87	25.4	0.402	4.432	0.669	0.46-.973	0.035
Geographical Loc.				2.709			0.258
Southern (ref)	126	36.8					
Central	126	36.8	0.032	0.043	0.968	0.71-1.31	0.835
Northern	90	26.4	0.032	2.709	0.777	0.56-1.07	0.835
Constant			0.609	6.877	0.544		0.009

Source: Field Survey 2016

However, the current finding contravened Chi et al. (2012) finding of age not being a significant predictor of sexual behaviour among adolescents. The possible reason for the difference could be that there was less number of young adolescents having sexual intercourse in the current study than the previous study.

There is therefore the need for public and school health interventions with emphasis on abstinence and protective use of condoms in the region so as to shield those adolescents who are having sexual intercourse in the region from the health consequences of engaging in unprotected and pre- marital sex.

Also, the finding corroborated with previous research findings (Afenyadu & Goparaju, 2003; Chi et al., 2012; GSHS, 2003; 2008; GSS, 2011; Liang & Ma, 2004; Nic et al., 2009; Peltzer, 2010). Gender was found as a significant predictor of sexual behaviours among students, where males reported more sexual behaviours including sexual fantasy, heterosexual intercourse (GSHS; GSS; Peltzer), masturbation, viewing pornography and talking about sex with friends (Afenyadu & Goparaju; Liang & Ma; Nic et al.). The possible reason for this outcome could be the proposition of Doku (2012b) that culturally in Africa, boys are expected to be heterosexually active while girls and women are expected to keep their virginity until marriage. Another possible explanation for the similarities in the findings could be that, in developing regions, including the Central Region of Ghana, societal sexual expectation for boys and girls are viewed differently (Marston & King, 2006) where in most cases, society is more tolerant towards boys sexual debut even during adolescence. Another reason attributable for boys being at more risks of sexual intercourse could be the physiological changes that occur in the boys, such as early morning erection and nocturnal emissions which could have influenced male adolescents' early sexual experimentation (Ralph et al., 2009).

The cuurent study also found school going adolescents with below average and average academic performances at greater risks of having sexual intercourse than students with above average academic performance. This finding is

concomitant with previous research findings (Connolly et al., 2000; Peltzer, 2010; Wu et al., 2007). The authors found in their studies conducted among high school teenagers in Europe, Africa and China that academic performance is a significant predictor of sexual activity among teenagers, with teenagers with poor school achievements more likely to have already lost their virginity and engage in more sexual activities than those who achieved high academic success. A similar study in Europe also revealed that students with lower grades, compared to those with higher grades, were more likely to have experienced sexual intercourse in high school (Cohen et al. 2010; Ma et al., 2006). The possible reason attributable to these similarities is that students with high academic performance have plans for the future and concentrate on their education (Doku, 2012b), as focus on education delays sexual debut among adolescents. This therefore means there is the need to increase reproductive health education in the schools as well as health counselling especially among adolescents with low academic performance in order to reduce the health risk of teenage pregnancies and school dropout.

Parental communication was a predictor of lifetime sexual intercourse in the Central Region of Ghana, with adolescents with difficulty parental communication at higher risks to initiate sexual intercourse than those with easy parental communication. The finding is in line with previous research findings (Asampong et al., 2013; Cohen et al., 2010; Kliewer & Murrelle, 2007; Morojele et al., 2006; Peltzer, 2010). They posited that relationship satisfaction with parents was associated with a lower probability of engaging in sex. Indeed the notion that parents had significant influence on the sexual and reproductive health of their children cannot be overemphasized (Asampong et al.). The possible reasons for the similarities in the outcome could be limited assess of parents to their children

as well as sex education being regarded as taboos in the developing world. Adolescents' closeness to parents was postulated to result in less sexual activity because parent-child closeness increased opportunities for prosocial development (DiIorio et al., 2003). There was evidence to suggest that parent–adolescent communication about sex played an important role in predicting adolescent sexual behaviour (GSS, 2010; Dittus & Jaccard, 2000). In order to reduce the impact of a changing society on the sexual escapees of school going adolescents in the region, there is the need to increase parental sex education, supervision. monitoring and school reproduction health education as postulated by Bandura's (1977) SCT and Ajzen & Fishbein (1980) TRA. Insight and skill-based sex education that would equip adolescents is essential for healthy sexual behaviour (Lammers, 2000). These interventions are said to be an effective way of controlling adolescents' sexual behaviours. It is important to note that the period of adolescence is characterized by shifts in influence, where peers become more influential than parents (Glover et al., 2003). These previous researchers posited that parental sexual reproductive education, supervision and monitoring were the most effective and efficient ways of controlling early adolescents' sexual behaviours (Chi et al., 2012; GSS, 2010; Peltzer, 2010; Dittus & Jaccard, 2000). This was because since adolescents' behaviours were characterised by higher influence of peers, proper and efficient parental guidance and education can supress peer influence and mediate the behaviour.

Socioeconomic status did not significantly predict sexual intercourse among school going adolescents in the region. This finding is in contrast with previous research findings (Asampong et al., 2013; Chi et al., 2012; Cohen et al., 2010; Wu et al., 2007). They posited that socioeconomic status of adolescent was

a significant determinant of sexual intercourse in adolescents elsewhere. The possible reason for this difference could be that modern lifestyles of adolescents' engagement do not operate on the monitory gains for sexual intercourse but curiosity and experimentation could be the driving force of sexual intercourse intercourse among school going adolescents in the region.

Again, geographical location did not significantly predict sexual intercourse in the region. The finding is consistent with previous research (Chi et al., 2012). Similarly, rapid socio-cultural and economics changes in the local and international communities could be attributable for this outcome. However, the finding was in contrast with previous research finding (CDC, 2009).

In addition, religion was not a significant determinant of sexual intercourse among adolescents in the region. The finding is in contrast with McIntosh and Spilka (1990) and Awusabo et al. (2004) that religiosity and regular church attendance, prevented social pressures of risky behaviours such as early sexual intercourse. Awusabo et al. further opined that religious system influenced delay in sexual intercourse, as religion cherished virginity before marriage.

Hypothesis 4: Socio-demographic factors predict cannabis use among school going adolescents.

To test this hypothesis, binary logistic regression was conducted to find out which predictor variables (age, gender, religious affiliation, socioeconomic status, academic performance, parental communication and geographical location) predicted cannabis usage among school going adolescents in the Central Region. The results indicated that the overall logistic regression model significantly predicted cannabis use among school going adolescents in the Central Region (-2LogL =768.116, $\chi^2 = 43.545$, $p = 0.001$). The Nagelkerke R^2 of 0.071 showed

that the independent variables explained 7.1% of the variance in cannabis usage in the region. Also, from Table 4, statistically significant variations were found in the odds of using cannabis within gender, religion, socioeconomic status and geographical location. Girls were less likely to use cannabis than boys (OR = 0.58, 95% CI = 0.35-0.77, p = 0.001). The finding meant that boys were at a higher risk of using cannabis than girls. Similarly, Moslems were found to be 1.8 times more likely to use cannabis than Christians (OR = 1.76, 95% CI = 1.05-2.96, p = 0.034). Again, school going adolescents from high socioeconomic background were less likely to use cannabis than those from low socioeconomic backgrounds (OR = 0.52, 95% CI = 0.33-0.81, p = 0.004). Also, school going adolescents in the central part of the Central Region were less likely to use cannabis, than those from the southern and nortern parts of the region (OR = 0.53, 95% CI = 0.31-0.88, p = 0.016). However, no statistically significant variations were found in the odds of using cannabis within age (OR = 1.15, 95% CI = 0.69-1.88, p = 0.590), parental communication (OR = 0.83, 95% CI = 0.56-1.23, p = 0.348), academic performance (OR = 1.09, 95% CI = 0.66-1.80, p = 0.744) This outcome meant that school going adolescents would use cannabis regardless of age, differences in parental communication status and academic performance.

Gender predicted cannabis usage among school adolescents in the region. Boys were at a higher risk to use cannabis than girls. This finding is consistent with previous research findings (Adu-Mireku, 2003; Ahamad et al., 2014; Assabil, 2010; Habtamu & Adamu, 2013; Hadland et al., 2011; Hathazi et al, 2009; Kayembe, 2008; Rudatsikira et al., 2009). They posited that boys were more likely to use cannabis than girls. The similarities in the findings could be explained by the masculinity associated with cannabis use and consequently the

likelihood of more societal tolerance for male cannabis use as opposed to females cannabis use in some parts of the world (Doku et al., 2011).

Table 4:
Binary Logistic Regression of Socio-Demographic Predictors of Cannabis Use among School Going Adolescents

Predictors	*N*	*%*	*B*	*Wald*	*OR*	*95%CI*	*Sig.*
Age							
12-13 years (ref)	22	8.0					
14-15 years	100	82.0	0.136	0.290	1.145	0.77-1.87	0.590
Gender							
Boys (ref)	76	62.3					
Girls	46	37.7	-0.658	10.93	0.518	0.35-765	0.001
Religious Aff.							
Christians (ref)	101	82.8					
Muslims	21	7.2	0.564	4.518	1.758	1.0-2.95	0.034
Parental Com							
Difficult (ref)	48	39.3					
Easy	74	60.7	-0.190	0.881	0.827	0.56-1.23	0.348
Socioeconomic Sta							
Low (ref)	95	77.9					
High	27	22.1	-0.664	8.080	0.515	0.33-0.81	0.004
Academic Perf				0.168			0.919
Below average (ref)	26	21.3					
Average	62	50.8	0.084	0.107	1.088	0.66-1.80	0.744
Above average	34	27.9	0.008	0.001	1.088	0.57-1.79	0.979
Geographical Loc				16.124			0.001
Southern (ref)	42	34.4					
Central	26	21.3	-0.644	5.824	0.525	0.31-.886	0.016
Northern	54	44.3	0.377	2.755	1.458	0.93-2.28	0.097
Constant			-1.850	27.809	0.157		.001

Source: Field Survey 2016

Another possible reason for this outcome could be that boys are more sociable and more exposed to experiment cannabis than girls (Ralph et al., 2009).

However, the finding contradicted Cofie (2010) that gender was not a predictor of cannabis use among JHS students in the Dangme West District in the Greater Accra region of Ghana. The difference in this finding could be attributable to what Doku et al. (2011) posited that in Ghana, smoking had been declining in the past few decades and the decline was faster among boys than girls and in some cases it occurs only in boys. This narrowing gap could be responsible for the differences in the finding. Also, urbanisation and the presence of more slams in the Dangme West District could be attributable to the narrowing gaps between boys and girls, and this could be responsible for the differences in the findings.

Socioeconomic status also predicted cannabis use among students in the region. Adolescents from low socioeconomic backgrounds were at a higher risk of using cannabis than those from high socioeconomic backgrounds. This finding affirmed previous research findings (Doku, 2012b; Doku et al., 2010; Legleye et al., 2012; Peltzer, 2009a), that familial socioeconomic status of school going adolescents are highly associated with cannabis use among school adolescents, with low socioeconomic group having higher probability of using cannabis, compared to those from higher socioeconomic group. The possible reason for this similarity could be the similarities in the characteristics of the sampled population. Although Humensky's (2010) finding agreed with the finding of the current study, she posited that late adolescents with higher familial socioeconomic status had the propensity to use cannabis than adolescents from the lower familial socioeconomic background. The possible reason for this difference in the findings could be the differences in the characteristics of the sample used for the study. Humensky used sample from European background.

Geographical location significantly influenced cannabis use among school adolescents in the region. School going adolescents living in the southern and northern parts of the Central region were at more risks of using cannabis than their counterparts from the central part of the region. This finding supported research finding of Currie's et al. (2008) that the engagement in health behaviours patterned geographical differences, hence the explanation that certain health behaviours depicted certain patterns across geographical locations. This means that health outcomes show the pattern of life, culture, traditions and weather conditions of the geographical zones of people. The possible reason for this outcome could be that the southern part was endowed with a lot of educational facilities, where students at the higher education stayed and practiced this behaviour and these adolescents could be influenced by the university students. In addition, reports in the media had suggested that northern part of the region was an area where the cultivation of the cannabis plant was high, and this could be responsible for these adolescents at this part of the region being at more risks of involving in cannabis usage. This outcome puts school going adolescents in the northern and southern parts at risks of devastating health consequences of cannabis. This outcome calls for public health prosocial and protective interventions.

Religious affiliation significantly predicted cannabis usage among adolescents in the region. Students who practised Islamic religion were at higher risk of using cannabis than Christians. This finding is in support of previous research findings (Koenig et al., 2001; Kendler et al., 1997; Oleckno & Blacconiere, 1991; Gmur & Tschopp, 1987). They found that religion was a significant predictor of cannabis use among adolescents with regular church

attendance, personal religious devotion (importance of religion, religious seeking/prayer), religious conservatism (belief of the Bible and belief that God rewards and punishes), and institutional conservatism (religious denomination) hinder cannabis use among adolescents. The possible reason for this outcome could be that Islamic religion allows the usage of leaves as a medicine. Drug-related interventions should focus more on the religion and the belief systems to help curb cannabis use in the region.

Academic performance did not predict cannabis usage among the adolescent in the region. This outcome meant that to use cannabis was not dependent on the adolescents' academic performance; hence, both adolescents with low or high academic performance were at equal risks of using cannabis in the region. This outcome corroborated with previous research findings (Gill, 2002; Loveland-Cherry, 2005; Saltz & Elandt, 1989; Sullivan &Wodarski, 2004) that academic performance was inconclusive in its association with risky behaviours. The possible reason for this similarity could be the inability of the cross sectional studies to determine academic performance's causal relationships, hence the need for longitudinal study. Also, another attributable reason for this similarity could be the similarities in the characteristics of the population sampled for the study. However, the finding was in contrast of the previous findings (CDC, 2009; Kliewer & Murrelle, 2007; Morojele et al., 2006). To them, academic performance was a predictor of cannabis use behaviour among adolescents, with students with low academic performance more likely to use marijuana. Although these researches had shown positive associations between good health status, good health habits and good academic performance (Sigfúsdóttir et al., 2007), the possible reason for narrowing gap between the

students with low and high academic performance in terms of cannabis usage could not be determined, hence, the need for longitudinal study to determine the association between academics and cannabis usage.

The study also found age as not a predictor of cannabis usage in the region. This finding contravened with previous research findings (Frisher et al., 2007; Bere et al., 2006; French et al., 2001; Harnack et al., 1999). They posited that age was strongly associated with prevalence of drug use among young people reflecting a range of factors including drug availability, peer relationships and reduced parental monitoring. The reason attributable for this difference could be the increase in number of early age of onset of cannabis use among school going adolescents in the region, hence, narrowing the gap between the younger adolescents and the older ones. Another possible reason for the difference could be that the previous studies sampled the general population.

Parental communication also did not predict cannabis use among school going adolescents in the region. This outcome meant that school going adolescents with easy and difficult parental communication were at same risks of using cannabis in the region. This finding was in contrast with previous research findings (Clark et al., 2008; Currie et al, 2008; Frisher et al., 2007; Fulkerson et al., 2010; Soenens et al., 2006; White & Halliwell, 2010). They found parental discipline, family cohesion and parental monitoring as significant predictors of drug use among young people. The possible reason for this difference might be that the authors used samples from European backgrounds and conditions could be different.

Hypothesis 5: Socio-demographic factors predict cigarette smoking among school going adolescents

In order to find out factors influencing smoking among school going adolescents, binary logistic regression was conducted to determine which independent variables (age, gender, religion, parental communication, socioeconomic status, academic performance and geographical location) predict cigarette smoking among school going adolescents in the Central Region. The result indicated that the overall logistic regression model significantly predicted cigarette smoking among school going adolescents (-2LogL = 780.232, χ^2 =, 22.286, p = 0.008). The result further showed that the predictors had explained 3.7% of the variance in cigarette smoking among school going adolescent in the region as indicated by Nagelkerke R^2 of 0.037. From Table 5, statistically significant variations were found in the odds cigarette smoking among school adolescents within religious affiliation and socioeconomic status. Students who practised Islamic religion were more likely to smoke cigarette than those who practised Christian religion (OR = 1.70, 95% CI = 1.02-2.85, p = 0.043). Similarly, students from high socioeconomic background were less likely to smoke cigarette than those from low socioeconomic background (OR = 0.53, 95% CI = 0.34-0.84, p = 0.007). This meant that students from low socioeconomic background smoked cigarette more than those from high socioeconomic background. However, from Table 5, no statistically significant variations were observed in the odds of smoking cigarette within age (OR = 0.95, 95% CI = 0.59-1.49, p = 0.812), gender (OR = 0.77, 95% CI = 0.53-1.13, p = 0.186), parental communication (OR = 0.77, 95% CI = 0.52-1.14, p = 0.198), academic

performance (OR = 0.65, 95% CI = 0.37-1.14, p = 0.130), geographical location (OR = 1.48, 95% CI = 0.91-2.42, p = 0.113).

Table 5:
Binary Logistic Regression of Socio-Demographic Predictors of Cigarette Smoking among School Going Adolescents

Predictors	*N*	*%*	*B*	*Wald*	*OR*	*95%CI*	*Sig.*
Age							
12-13 years (ref)	27	22.5					
14-15 years	93	77.5	-0.056	0.056	0.946	0.59-1.49	0.812
Gender							
Boys (ref)	65	54.2					
Girls	55	45.8	-0.257	1.747	0.773	0.53-1.13	0.186
Religious Aff.							
Christians (ref)	99	82.5					
Muslims	21	17.5	0.532	4.105	1.72	1.0-2.84	0.043
Parental Co							
Difficult (ref)	50	41.7					
Easy	70	58.3	-0.257	1.656	0.773	0.52-1.14	0.198
Socioeconomic Sta							
Low (ref)	94	78.3					
High	26	21.7	-0.631	7.172	0.532	0.34-8.44	0.007
Academic Perfor				2.515			0.284
Below average (ref)	30	25.0					
Average	61	50.8	-0.132	.291	0.877	0.54-1.42	0.590
Above average	29	24.2	-0.434	2.292	0.648	0.37-1.14	0.130
Geographical Loc.				2.506			0.286
Southern (ref)	34	28.3					
Central	44	36.7	0.222	.815	1.28	0.77-2.02	0.367
Northern	42	35.0	0.394	2.506	1.43	0.91-2.42	0.113
Constant			-1.885	30.01	0.152		0.001

Source: Field Survey 2016

Socioeconomic status significantly predicted cigarette smoking among school adolescents in the region. Adolescents from low socioeconomic backgrounds had higher probability of smoking cigarette than adolescents with high socioeconomic backgrounds. This finding corroborated previous research findings (Doku, 2012a; Hanson & Cohen, 2007; Owusu et al., 2009). Adolescents with lower socioeconomic status had higher risks of smoking cigarette than those from higher socioeconomic backgrounds. The possible reason for the similarities might be due to the characteristics of the sampled population. This meant that materials position and affluence of parents were predictors of smoking among school going adolescents in the Central Region. Another plausible explanation for this similarity could be that adolescents with poor socioeconomic status were deviant prone and smoking of cigarette was problem behaviour (Costa et al., 2007). Another attributable reason could be the possibility of students with low socioeconomic status having parents who smoke cigarette (Villanti et al., 2011). Another postulation for this outcome could be Bandura's self-efficacy resulting in the adolescents with low socioeconomic backgrounds having the inability to resist temptation of smoking initiation (Bandura, 1986). To Doku, it is also probable that tobacco control efforts have reduced smoking more among adolescents in higher socioeconomic groups than among those in lower socioeconomic groups, resulting in widening of the gap over time.

The presence of cigarete smoking among poor adolescents could also be that the environment which this group of students interacted, such as beaches, rural areas and walking to and from school provided greater opportunity for adolescents to smoke without detection.

The study found religion as significant factor in predicting cigarette smoking. The finding revealed that adolescents who were Muslims were at higher risks, and had higher probability of smoking cigarette than Christians. This finding is in line with previous research findings (Koenig, 1994; McIntosh & Spilka, 1990). Intrinsic religiosity was highly associated with smoking behaviours with those who internalized their beliefs more likely to stand against social pressures of problem behaviour. Similarly, the finding affirmed the previous research findings that religiosity was a predictor of smoking behaviour among adolescents with regular church attendees, religious conservatism and religious denomination less likely to initiate smoking than those from other religions (Gmur & Tschopp, 1987; Kendler, et al., 1997; Koenig et al., 2001; Oleckno & Blacconiere, 1991). The possible reason for this similarity could be that Christianity reinforced negative attitudes towards smoking and increased social pressure to avoid cigarette. Also, private religious activities like prayer and bible study, being reflective of greater religious commitment might be associated with lower cigarette smoking among the Christians (Koenig et al.).

Nevertheless, the study found academic performance as not a significant determinant of cigarette smoking among school going adolescents in the region. This finding was consistent with previous finding by Doku (2012a) school performance had no causal link with tobacco use or smoking. School performance was not a significant predictor of tobacco smoking. The plausible reason for this could be the similar characteristics of participants used by the current and Doku's studies. However, the finding contravened previous research findings (Bonell et al., 2013; CDC, 2009; Samdal et al., 2000; Sigfúsdóttir et al., 2007). The authors

posited that academic performance and satisfaction with school activities led to health enhancing behaviours.

Gender was also found not to be a significant predictor of cigarette smoking among adolescents in the region. The possible reason for this outcome could be the narrowing gap between boys and girls in terms of smoking where there seemed to be increased number of girls smoking in the current research. The finding corroborated previous research findings (Doku, 2012a; Doku et al., 2010). They found gender as not a significant predictor of tobacco use among Ghanaians. The author further opined that the attributable for gender non-predictability of tobacco usage could be the break in the social norms in the region where there was now a balance between boys and girls in terms of tobacco use (Doku, 2012a). However, the finding of this study contravened the findings of (Hadii et al., 2013). They found gender as a significant predictor of smoking of tobacco among adolescents. The same authors posited that compared with females, the adjusted estimates revealed that males were significantly associated with the increased likelihood of being a current smoker by two times. Although smoking of cigarette appeared to be behaviour of masculinity, there seemed to be a close gap between boys and girls.

Age was also found as not a predictor of cigarette smoking in the region. The finding contravened previous research findings of (Doku et al., 2010; Hadii et al., 2013). The authors found significant causal relationship between tobacco-use and age, and observed that age had a quadratic relationship with cigarette smoking and usage of noncigarette tobacco products among school-going adolescents in Ghana. The possible reason for this difference could be the narrowing gap between early adolescents and older adolescents in terms of

smoking. Although smoking was considered the behaviour among older adolescents (Doku et al.), this research found early initiation of cigarette smoking among school going adolescents. This early initiation can predispose these young ones to other risky behaviours; hence there is a need to increase public health education and early introduction of school children to risky behaviours and their consequences in the school curriculum.

Also, parental communication with their children was found not to statistically predict smoking behaviour among school going adolescents in the region. The finding was concomitant with previous research findings (Kafka & London, 1991; Luk et al., 2010; Stoker & Swadi, 1990), where it was found that parental communication was not a predictor of smoking behaviour among adolescents. Another attributable reason for this outcome could be that adolescents spend most of their times away from home, in school with extracurricular activities and leisure time activities, hence were more influenced by their peers. However, other previous research findings indicated strong association of parental communication with smoking initiation among adolescents, of which adolescents with perceived difficulty of talking to parents about their problems was associated with increased risk of smoking cigarette (Ackard et al., 2006; Pokhrel et al., 2008). The finding meant that parental protective norms were no longer effective in preventing risky behaviours among adolescents. Therefore, there is the need to design other prosocial interventions to decrease smoking behaviour among adolescents.

Similarly, geographical location of the participants did not significantly predict cigarette smoking among school adolescents in the region. This outcome meant that for adolescents to smoke in the region, was not dependent where

he/she resides but depends on his/her socioeconomic status and religious affiliation. The outcome was consistent with previous studies (Shakib et al., 2005; Unger et al., 2003) where they posited that there was no causal relationship between adolescents on the cigarette smoking and their place of residence. Also, smoking which was previously considered as behaviour of city dwellers because it was a socially acceptable behaviour in the urban regions, however, due to a break in social norms of the rural districts, more adolescents from the hinterlands were having easy access to cigarette hence narrowing the smoking gaps between the urban districts, peri urban and the rural districts, and this could be attributable to non-predictability of the geographical location (Colby et al. 1994; Doku, 2012a). Nevertheless, the finding contravened previous studies that reported that adolescents from rural districts were more likely to smoke than those from districts sharing boundaries with regional capitals (Aloise-Young et al., 2002; Doescher et al., 2006; Flisher & Chalton, 2001; Lutfiyya et al., 2008; Plotnikoff et al., 2004). Similar studies had also found higher probability of tobacco use among urban district dwellers, compared to those of rural districts (Fatoye & Morakinyo, 2002; Fatoye, 2003; Völke et al., 2006). This was attributable partly to differences in the definition of rural/urban and the differences in sample sizes and the mechanism through which a place of residence controls cigarette smoking was not clearly understood (Doku, 2012a). This was because most previous researches had reported conflicting results regarding the association between place of residence and adolescents' smoking behaviour (Fatoye & Morakinyo, 2002; Fatoye 2003; Flisher & Chalton, 2001; Lutfiyya et al. 2008; Plotnikoff et al., 2004; Völzke at al., 2006; Unger et al., 2003).

Socioeconomic status and religious affiliations were highly associated with cigarette smoking in the region, hence, health promoting interventions and strategies should be tailored by public health department of GHS and SHEP unit of GES at reducing inequalities in cigarette smoking. Also these interventions should be focused on to protect school going adolescents in lower socioeconomic backgrounds as well as those adolescents that practised Islamic religion.

Hypothesis 6: Socio-demographic factors predict active physical activity level behaviour among school going adolescents

Binary logistic regression was conducted and the results indicated that the overall model did not significantly predicted physical activity level of school going adolescents in the Central Region (-2LogL =1803.158, χ^2 =, 13.113, p = 0.158). The logistic regression model explaining 13% of variances of adolescents' PA level, the findings showed inclusiveness of age, gender, religious affiliation, parental communication status, socioeconomic status, academic performance and geographical location cannot influence physical activity level of adolescents in the region. Similarly, Table 6 showed that no statistically significant variations were found in the odds of being physically active within age (OR = 0.84, 95% CI = 0.64-1.09, p = 0.180), gender (OR = 1.17, 95% CI = 0.94-1.45, p = 0.170), religion (OR = 1.01, 95% CI = 0.72-1.42, p = 0.957), parental communication (OR = 1.16, 95% CI = 0.92-1.46, p = 0.198), socioeconomic status (OR = 1.14, 95% CI = 0.89-1.44, p = 0.289), academic performance (OR = 1.08, 95% CI = 0.79-145, p = 0.637) and geographical location (OR = 1.22, 95% CI = 0.93-1.56, p = 0.148). The results meant that there could be other factors that were responsible for physical activity among school going adolescents in the region, hence, these factors needed to be exploited qualitatively.

Table 6:
Binary Logistic Regression of Socio-Demographic Predictors of Physical Activity among School Going Adolescents

Predictors	*N*	*%*	*B*	*Wald*	*OR*	*95%CI*	*Sig.*
Age							
12-13 years (ref)	159	25.0					
14-15 years	477	75.0	-0.179	1.800	0.836	0.64-1.09	0.180
Gender							
Boys (ref)	291	45.8					
Girls	345	54.2	0.153	1.883	1.166	0.94-1.45	0.170
Religious Aff.							
Christians (ref)	562	88.4					
Muslims	74	11.6	0.009	0.003	1.010	0.72-1.42	0.957
Parental Com.							
Difficult (ref)	281	44.2					
Easy	418	55.8	0.151	1.660	1.163	0.92-1.46	0.198
Socioeconomic St.							
Low (ref)	409	64.3					
High	227	35.7	0.127	1.123	1.136	0.89-1.43	0.289
Academic Perform.							
Below aver. (ref)	117	18.4		0.715			0.699
Average	324	50.9	0.072	.223	1.075	0.79-1.45	0.637
Above average	195	30.7	-0.032	.036	0.969	0.69-1.34	0.850
Geographical Loc.							
Southern (ref)	209	32.9		4.982			0.083
Central	247	38.8	0.197	2.098	1.217	0.93-1.59	0.148
Northern	180	28.3	-0.104	.538	0.901	0.68-1.19	0.463
Constant			-0.208	1.024	0.813		0.312

Source: Field Survey 2016

Age did not predict PA levels of school adolescent in the Central Region. This finding meant that age is not a critical determinant of PA among adolescents in the region. This finding contravened previous findings (Shridhar et al., 2016; WHOHBSC, 2006). They posited that age was a significant predictor of PA

among adolescents. Attributable reason for this outcome could be technological advancement of the society, where younger children are becoming more sedentary due to influx of video games and television and thus reducing their activity level, hence equalising with the older adolescents. Also, walking to school previously was a better means of complimenting PA, however, currently walking to school is considered as the behaviour of the poor or as a punishment. This could have been responsible for high level obesity among young children.

Similarly, gender did not predict PA of school going adolescents in the region. The finding was inconsistent with previous research findings (Afrifa-Anane et al., 2015; GSHS, 2007; HBSC, 2010; Peltzer & Pengpid, 2012; WHOHBSC, 2006). According to these studies, gender was a significant predictor of PA among adolescents with girls at more risks of being physically inactive.

The possible reason accounting for this outcome could be the gender parity in the schools and communities, where physical activities are designed nowadays to attract more girls into physical activities through more gender sensitive programmes; hence giving more girls opportunities to engage in sporting activities just like their boys counterpart. This could be responsible for the narrowing gap between boys and girls (HBSC, 2010). Also, the possible explanation for this outcome could be healthy life education in the media is having positive changes on the girls' active lives, while technological advancement is leading to decline of physical activities among boys.

Academic performance according to previous research finding (CDC, 2009) had negative association with physical activity, and this was affirmed in the current study. However, academic performance had been found by other researchers; Johnson et al. (2007), Taras (2005) and Schmitz et al. (2002) to be

highly associated with physical activity level, with higher academic rank or expectations predicting greater levels of physical activity and lesser amount of sedentary lifestyle behaviours among school adolescents. The possible explanation for this difference could be that there was a decline in PA participation among school going adolescents due to technological advancements and this decline was occurring more among adolescents with high academic performance.

The state of parental communication was not a significant predictor of PA among school going adolescents in the region. This finding contravened previous research findings (Xin et al., 2015), where it was reported that the odds of family involvement in the children's activity in most days of the week were associated with both higher level of PA and less leisure-time sedentary behaviours. The plausible explanation for this difference could be due to inappropriate mentoring from parents, in terms of active life leading to decline in the activity level of those with easy parental guidance. This Dougherty (1993) also explained that when parents were indifferent, exhibited inappropriate role modelling. or were inconsistent in setting standards of behaviour for their children. There was a much greater likelihood of problem behaviour and psychological problems. Inchley et al. (2001), Mazur et al. (2001) and Baumrind (1991) expatiated that, the role of parents cannot be overrriden as parental supports remain vital to the positive development of adolescents towards physical activity, and this can buffer detrimental macrosystem influences from the friends. Easy adolescents' communication with the parents can be considered as an indicator of both social support from parents and family connectedness.

Geographical location had also been shown not to predict PA in the region. This meant that to engage in PA in the region was not dependent on one's place of residence or geographical location but other factors could be responsible for PA. There was inconsistency in this prediction as compared to previous research findings (Bergier et al., 2014; Mynarski et al., 2012), where it was found that, school adolescents from rural districts have higher probability to engage physical activity than those from the urban districts. The attributable for the inability of the geographical location to predict PA level might be due to the fact that video games and technologies have found their ways into rural settings leading to reduction in PA of adolescents, hence, narrowing the gap with urban districts. Adolescents from rural districts were known to be physically active through work performed on farms and gardens, as well as commuting to and from school, shops on foot or by bicycle (Mynarski et al.). But there seemed to be reduction in these activities among the rural folks.

Religion did not significantly predict PA among school going adolescents in the region. The possible explanation of the cause of this outcome was that adolescents in the region had the similar characteristics in terms of religious affiliation and PA. This finding was in contrast with previous findings (McIntosh & Spilka, 1990; Oleckno & Blacconiere, 1991) that highly religious college students were more likely to engage in regular exercise than low religious students.

Furthermore, socioeconomic status did not predict PA level of adolescents in the region. The finding of this study was in distinction with the previous research findings (Asare & Danquah, 2015; Blaxter, 1990; Inchley, 2005; Manios, et al., 2010; Micklesfield et al., 2014; Strong, 2005). They posited that socio-

economic status of parents was associated with diet and exercise among adolescents. Adler and Matthews (1994) further stated that younger, wealthier, better educated individuals, under low levels of stress, with high levels of social support, were more likely to practice health protective behaviours such as physical activity. However, there seemed to be narrowing gaps between the rich and the poor adolescents in terms of sedentary behaviour and physical inactivity, and this could be attributable to the differences in findings. Another reason attributable for this outcome was the increased level of sedentary behaviours and physical inactivity among school adolescents with low socioeconomic status because physical activity was associated with people with low socioeconomic backgrounds. This outcome meant that environmental modification and infusion of physical activities into video games could serve as the best programme intervention to increase the PA level among school adolescents (WHO/HBSC, 2006). This was because to WHO/HBSC increasing expansion in the availability of television channels and computer games targeting children, compounded by changes in culture and family composition, had contributed to an increase in the number of hours children spend in sedentary activities. Children's energy expenditure had been further decreased by reductions in levels of human-powered transportation schemes (walking and cycling) and, in some cases, fewer school and community opportunities for engaging in sporting activities.

Although none of the predictors predict physical activity among school going adolescents in the Central Region, supportive school environment is essential to the development of social skills and positive behaviours (Murray & Greenberg, 2000). Supportive environment such as school playing fields, school

avenues of trees, parks, gardens and health enhancing psychosocial environment are need for lasting development of physical education skills.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to determine the prevalence of health-related behaviours among school going adolescents in the Central Region of Ghana, and explore factors influencing these behaviours. This chapter presents the summary of the study, main findings, conclusions and recommendations to inform policy formulation.

Summary

Adolescence has been viewed as the most critical period of human life, where health is one of the essential requirements for proper adolescent development. This period of life represents a great share of the founding of future health and health behaviour patterns biologically, psychologically and behaviourally. It is a period for the adoption of health behaviours relating to cannabis use, smoking, sexual intercourse, diet, exercise and alcohol usage. It is also a period where cannabis use, cigarette smoking and drinking peak up while sexual health problems such as sexual promiscuity, experimentations and its associated problems such as teenage pregnancies and sexually transmitted infections become more prominent among adolescents, and increase in the consumption of fast foods with decrease in physical activity. Due to complex and changing profile of adolescent health, there is the need to keep up-to-date data on adolescents health related behaviours for differentiations and for regular multi-faceted oriented approaches and interventions to ensure healthy developments of this category of our population.

To achieve the purpose of the study, two research questions as well as six hypotheses were formulated to guide the study. To find answers to these

questions, descriptive quantitative cross-sectional design was employed to conduct the study. Using multistage sampling procedures of cluster, random sampling techniques, proportionate class sampling with gender classification, and convenient sampling, 1,400 school going adolescents were sampled from 34 JHSs across the Central Region. GSHS (2012) questionnaire was adopted, modified and used for the data collection. Data collected was analysed using frequency and percentages to report on the prevalence of health related behaviours in the region as well as logistic regression to report on the hypotheses formulated through the use of SPSS (Version 16) software. The prevalence of health related behaviours were presented in pie charts and regression statistics presented in tables.

Main Findings

The findings revealed 9% prevalence of overall lifetime cigarette smoking among school going adolescents in the region. Age of cigarette smoking initiation was 11 years (primary school) with increased prevalence at the JHS (age 14-15years). The study also found high prevalence of current smoking (54%) among school adolescents in the region. Friendship was found to be a predisposing influence of smoking initiation in the region. The study also found 42% prevalence of lifetime alcohol consumption among school going adolescents in the region. High prevalence of drunkenness was also found in the region. Again, the study found primary school as the starting point of alcohol consumption, with increased prevalence at the JHS. Using alcohol as a medicine to cure diseases and seasonal festivals were the main reasons for alcohol initiation in the region.

Furthermore, 9% prevalence of cannabis usage was found among school going adolescents in the region. Age of onset of cannabis usage was JHS. Friendship and group membership were the predisposing factors for cannabis

initiation among school adolescents in the region. Also, the study found 26% prevalence of sexual intercourse among school going adolescents in the region. The age of onset was 11-13 years with increased prevalence at age 14-15 (JHS). The predisposing factors for early sexual intercourse were forced sexual intercourse, drunkenness and as a proof of love among adolescents in the region. High prevalence (61%) of unprotected sexual intercourse was found in the region with increased prevalence of multiple sexual relationships among school going adolescents.

The study also found 50% prevalence of healthy dietary practices of fruits and vegetables consumption in the region. Also, there was high (90%) consumption of toffees and carbonated drinks in the region coupled with low (57%) intake of breakfast among school going adolescents. The study also found 48% prevalence of physical activity among school going adolescents with low participation in Physical Education lessons.

Furthermore, the findings revealed geographical location as factor predicted lifetime alcohol usage among school going adolescents, with students from the northern part of the region less risk to drink alcohol than those from the southern and central parts of the region. However, the study found age, gender, socioeconomic status, religious affiliation, parental communication and academic performance of students as not predictors of alcohol usage in the region.

Also, gender, statistically predicted healthy dietary practices among school going adolescents, with girls more likely to eat healthy foods than boys. Similarly, academic performance of students as a factor, significantly predicted healthy dietary practices among adolescents with students whose academic performances were above average more likely to practice healthy dietary practices of eating

fruits and vegetables than those with below average and average performances. In addition, geographical location as a factor significantly predicted healthy dietary practices in the region, with adolescent living in the central parts of the region more likely to practice healthy dietary practices than those from the southern and the northern part of the region. Nevertheless, the study found age, religious affiliation, parental communication and socioeconomic status of the students as not significant predictors of dietary practices in the region.

The study also found age to significantly predict sexual intercourse among school going adolescents in the Central Region of Ghana with older adolescents (14-15years) more likely to have sexual intercourse than the younger ones (12-13 years). Similarly, gender was significantly associated with sexual intercourse among school going adolescents with boys more likely to have sexual intercourse than girls. Parental communication was also found to be highly associated with sexual intercourse among school going adolescents in the region, where adolescents with easy parental communication were less likely to have initiated sex than adolescents who find it difficult to communicate with their parent. In addition, academic performance of the students was also found to have causal relationship with sexual intercourse, with adolescents whose academic performances were above average less likely to have engaged in the sexual intercourse than those whose academic performances average and below average. Nevertheless, religious affiliation, socioeconomic status, and geographical locations of the students had no causal relationship with sexual intercourse among school going adolescents in the region.

Gender predicted cannabis utilisation among school going adolescents in the region with girls less likely to use cannabis than boys. Religious affiliation

was also found to be a significant predictor of cannabis usage, with Moslems more likely to consume cannabis than Christians. Similarly, socioeconomic status of the school going adolescents as determining factor significantly predicted cannabis usage in the region with adolescents from high socioeconomic background less likely to use cannabis. Also, geographical location as a factor significantly predicted cannabis usage in the region, with adolescents from the central part of the region less likely to utilise cannabis, than those from southern and northern part of the region. However, the study found age, parental communication and academic performances of school adolescents as not associated with cannabis usage in the region.

Again, the findings revealed that religious affiliation predicted cigarette smoking among school going adolescents, with Moslems at more risks to smoke cigarette than Christians. Also, socioeconomic status as a factor was found to be a significant predictor of cigarette smoking among school going adolescents in the region, with students from high socioeconomic backgrounds less likely to smoke than those from low socioeconomic status. The findings also revealed age, gender, academic performance, parental communication and geographical locations of the adolescents as not significant predictors of cigarette smoking in the region. The findings also revealed age, gender, religious affiliation, socioeconomic status, parental communication and geographical location as not significant factors to determine PA level of school going adolescents in the region.

Conclusions

Based on the findings, the following conclusions have been posited: it could be assumed that there is relatively low prevalence of cigarette smoking among school going adolescents in the Central Region. These adolescents seem to

initiate cigarette smoking early, resulting in high incidence of cigarette smoking in the region with friendship being a predisposing factor of initiation of smoking in the region. The findings also suggest that alcohol consumption and drunkenness are high among adolescents in the region. They seem to consume alcohol early, with alcohol drinking parents and festivals being the major influences of alcohol drinking initiation among school going adolescents in the region.

However, cannabis usage in the region was found to be low among school going adolescents. The starting point of cannabis usage is JHS with friendship and sense of belongingness being major predisposing factors. Similarly, sexual intercourse is relatively low, compared to other regions, with age of sexual intercourse onset at 11-13 years. Drunkenness, forced sexual intercourse and proof of love, are the enabling factors for early sexual intercourse in the Central Region. Also, there is high prevalence of unprotected sexual intercourse among school going adolescents in the region as well as multiple sexual relationships. This implied that there may be high rate of teenage pregnancy and other consequencies associated with early sexual intercourse in the region.

Relatively, there was high prevalence of fruits and vegetables consumption in the region with high consumption of toffees and carbonated drinks among school going adolescents. There is low intake of breakfast in the Central Region. Geographical location is a predictor of alcohol consumption among school going adolescents in the region, with adolescents from southern and middle zones at higher risks of drinking alcohol, than those from northern zones. Also, gender, academic performances and geographical location are significant factors that influence healthy dietary practices among school going adolescents in

the region. Similarly, for adolescents to have sexual intercourse early in life; boys, older adolescents with difficult parental communication and poor academic performance are at higher risks of having early sexual intercourse in the region. Also, to use cannabis in the Central region, boys, Muslims, adolescents with low socioecomic status and those from northern and southern parts of the region are at higher risks of using cannabis than those from the middle parts of the region. In addition, religious affiliation and socioeconomic status are factors that are highly associated with cigarette smoking, such that adolescents from poor backgrounds and Muslims at higher risks. Finally, to engage in PA in the Central region among school going adolescents is not dependent on age, gender, religion, socioeconomic status, parental communication, academic performance and geographical location but other confounding factor which has to be investigated.

Recommendations

Based on the conclusions, the following recommendations have been opined:

School sex and reproductive health education should focus on mediating the gender, age, parental and academic influence on sexual intercourse through classroom teachings, parent teacher association meetings and public health education, because effective implementation of prosocial sex education in schools and communities would delay sexual intercourse among adolescents, and increase safer sexual behaviour. Also, education, vision for the future and communal socialisation delays engagement in early sexual intercourse, therefore mentoring and modelling by successful people in the society should be used to arrest early sexual intercourse among adolescents, since it is a precursor for contracting STIs like HIV/AIDS, teenage pregnancy, school dropout and early marriages. The

possibility of drug use epidemic occurrence in the region could occur more among boys, with school going adolescents with low socioeconomic status and also among those from the southern and northern parts of the region as well as practice Islamic religion. This means that distinctive public health interventions should focus on these aspects of school adolescents in the region. These programmes must address the multiple risks and protective factors to prevent onset of and mitigate the problems associated with cannabis usage among school going adolescents.

Recommendation for Further Studies and Practice

Again, the following recommendations can also be considered.

1. Qualitative research is needed to investigate factors influencing PA of school going adolescents in the region.
2. More public health education is needed at the southern and middle part of the region to guide alcohol abusers as well as prevent those about to drink.
3. PTA/SMC should be educated on the dangers of alcohol to children since most adolescents are initiated into drinking by their own parents.
4. Breakfast should be added to school feeding programme since most school going adolescents are not eating breakfast.
5. Drug related interventions should focus more on the religion especially Islam and the belief systems to help curb cannabis use and cigarette smoking in the region.
6. Parental supports for children and adolescents throughout their development and particularly at critical transition periods where they are most vulnerable, e.g. infancy and early childhood, at the transition between childhood and adolescence need critical considerations.

7. Interventions should target the population at large (universal prevention), but also support groups (selective prevention) and individuals (indicated prevention) that are particularly at risk.
8. Public health education should focus on both individual and environmental factors of vulnerability and resilience.
9. Health education programmes should reach the population through multiple settings (e.g. families, schools, communities and play grounds).
10. A policy requiring schools to implement substance abuse prevention education and policies in the context of health or personal/ social education and promotion, including standards on how to do so are necessary.
11. Enhancing family bonding, i.e. the attachment between parents and children are necessary the for the region
12. Supporting parents on how to play a more active role in their children's lives, e.g., monitoring their activities and friendships, and being involved in their learning and education

REFERENCES

Aarø, L. E., & Klepp, K-I. (2009). *Helserelatert atferd og livsstil i kontekst*. In L.E. Aarø & K-I. Klepp. *Ungdom, livsstil og helsefremmende arbeid* (pp. 19-42.) Oslo: Gyldendal Akademisk.

Abell, S. C., & Richards, M. H. (1996). The relationship between body shape satisfaction and self-esteem: An investigation of gender and class differences. *Journal of Youth and Adolescence, 25*(5), 691-703.

Abruquah, H. H., & Bio, F. Y. (2008). HIV/AIDS: Knowledge, attitude and practice of school adolescents in the Kwaebibirem District. *Journal of Science and Technology, 28*(2), 10-18.

Acier, D., & Kern, L. (2011). Problematic internet use: perceptions of addiction counsellors. *Computer Education, 56,* 983-989.

Ackard, D. M., Neumark-Sztainer, D., Story, M., & Perry, C. (2006). Parent-child connectedness and behavioural and emotional health among adolescents. *American Journal of Preventive Medicine, 30*, 59-66.

Adger, H. (1991). Problems of alcohol and other drug abuse in adolescents. *Journal of Adolescent Health, 12,* 606-613.

Adih, W. K., & Alexander, C. S. (1999). Determinants of condom use to prevent HIV infection among youth in Ghana, *Journal of Adolescent Health*, *24*(1), 63-72.

Adler, N., & Matthews, K. (1994). Health psychology: Why do some people get sick and some stay well? *Annual Review of Psychology*, *45*, 229-259.

Adomako, A. (1991). *To be or not to be a prostitute: The example of Ghanaian prostitutes in the Netherlands.* Paper presented at the Development and Women's Studies Seminar on Women and Development, Institute of African Studies, University of Ghana, Legon.

Adu-Mireku, S. (2003). Prevalence of alcohol, cigarette, and marijuana use among Ghanaian senior secondary students in an urban setting. *Journal of Ethnicity in Substance Abuse, 2*(1), 53-65.

Afenyadu, D., & Goparaju, L. (2003). *Adolescent sexual and reproductive health behaviour in Dodowa, Ghana.* Washington, DC: U.S. Agency for International Development and USAID/Ghana.

Afrifa-Anane, E., Agyemang, C., Codjoe, S. N. A., Ogedegbe, G., & de-Graft Aikins, A. (2015). The association of physical activity, body mass index and the blood pressure levels among urban poor youth in Accra, Ghana. *BMC Public Health, 15,* 269, DOI 10.1186/s12889-015-1546-3.

Agnew, R. (1991). A longitudinal test of social control theory and delinquency. *Journal of Research in Crime and Delinquency, 28,* 126-156.

Agyei, W. K. A. (2000). Sexual Behaviour and contraception among unmarried adolescents and young adults in grater Accra and Eastern Regions of Ghana. *Journal of Biosocial Science, 32*(4), 495-512.

Ahamad, K., DeBeck, K., Feng, C., Sakakibara, T., Kerr, T., & Wood, E. (2014). Gender influences on initiation of injecting drug use. *Am J Drug Alcohol Abuse, 40*(2), 151-156.

Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology of Health, 26,* 1113-1127.

Ajzen, I. (1991).The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*, 179-211.

Ajzen I., & Fishbein M. (1980). *Understanding attitudes and predicting social behaviour.* Englewood Cliffs, NJ: Prentice-Hall.

Akuffo, F. O. (1987). Teenage pregnancies and school dropouts: The relevance of family life education and vocational training to girls' employment opportunities. In C. Oppong (Ed). *Sex Roles, Population and Development in West Africa*, London: James Curry.

Akwara, P. A., Fosu, G. B., Govindasamy, P., Alayón, S., & Hyslop, A. (2005). *An in-depth analysis of HIV prevalence in Ghana: Further analysis of demographic and health surveys Data.* Calverton, USA: ORC Marco.

Aloise-Young, P. A., Wayman, J. C., & Edwards, R. W. (2002). Prevalence of cigarette smoking among rural adolescents in the United States. *Substance Use Misuse, 37*, 613-630.

Alvarez-Aguirre, A., Alonso-Castillo, M. M., & Zanetti, A. C. G. (2014). Predictive factors of alcohol and tobacco use in adolescents. *Rev. Latino-Am. Enfermagem, 22*(6), 1056-62.

Amato, P. R. (2001). Children of divorce in the 1990s: An update of the Amato and Keith (1991) meta-analysis. *Journal of Family Psychology, 15*, 355-370.

Amato, P. R. (2000). The consequences of divorce for adults and children. *Journal of Marriage and the Family, 62*, 1269–1287.

Amato, P. R., & Keith, B. (1991). Parental divorce and the well-being of children: a meta-analysis. *Psychological Bulletin, 110*, 26-46.

Ambrosini, G. L., Oddy, W. H., & Robinson, M. (2009). Adolescent dietary patterns are associated with lifestyle and family psycho-social factors. *Public Health Nutr., 12*, 1807.

American School Food Service Association. (1989). Impact of hunger and malnutrition on student achievement. *Sch Food Serv Res Rev, 13*, 17-21.

Amireault, S., Godin, G., Vohl, M. C., & Perusse, L. (2008). Moderators of the intentionbehaviour and perceived behavioural control-behaviour relationships for leisure-time physical activity. *International Journal of Behaviour Nutrition and Physical Activity, 5*, 7.

Amooti-Kaguna, B. & Nuwaha, F. (2000). Factors influencing choice of delivery sites in Rakai district of Uganda. *Social Science and Medicine*, *50*, 203-213.

Amos, P. M., Intiful, F. D., & Boateng, L. (2012). Factors that were found to influence Ghanaian adolescents' eating habits. *SAGE Open*, 1-6. DOI: 10.1177/2158244012468140.

Anarfi, J. K. (1997). Vulnerability to sexually transmitted disease: Street children in Accra. *Health Transition Review*, *7*, 281-306.

Anarfi, J. K., & Antwi, P. (1995). Street youth in Accra city: Sexual networking in a high-risk environment and its implications for the spread of HIV/AIDS. *Health Transition Review*, *5*, 131-152.

Anderson, S. E., Cohen P., Naumova, E. N., Jaques, P. F., & Must, A. (2007). Adolescent obesity and risk for subsequent major depressive disorder and anxiety disorder: prospective evidence. *Psychosomatic Medicine 69*(8), 740-747.

Andoh, D. (2014, June, 2). *Ban on smoking in public places...FDA faces challenges with implementation*. Graphiconline.com.

Ankomah, A., & Ford, N. (1993). *Pre-marital sexual behaviour and its impact for HIV prevention in Ghana*. Occasional Paper, Exeter, UK: Institute of Population Studies, University of Exeter.

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*, 471-499.

Arthur, C. (2003). *A textbook on Akan culture*. Winneba: University of Education Press.

Asampong, E., Osafo, J., Bingenheimer, J. B., & Ahiadeke, C. (2013). Adolescents and parents' perceptions of best time for sex and sexual communications from two communities in the Eastern and Volta Regions of Ghana: implications for HIV and AIDS education. *BMC International Health and Human Rights, 13*(40), 1472-698.

Asare, M., & Danquah, S. A. (2015). The relationship between physical activity, sedentary behaviour and mental health in Ghanaian adolescents. *Child and Adolescent Psychiatry and Mental Health, 9*(11), DOI 10.1186/s13034-015-0043.

Assabil, J. K. (2010). *Abuse of psychotropic substances: A survey of some first and second cycle institutions in the Bosomtwi and Atwima-Kwanwoma districts in Ashanti Region of Ghana*. A dissertation presented to the Department of Theoretical and Applied Biology of the Kwame Nkrumah University of Science and Technology.

Awusabo-Asare, K., Abane, A. M., & Kumi-Kyereme, A. (2004). *Adolescent sexual and reproductive health in Ghana: A Synthesis of research evidence*. Occasional Report, New York: The Alan Guttmacher Institute, No. 13.

Baker, W., Little, D., & Brownell, D. (2003). Predicting adolescent eating and activity behaviours: The role of social norms and personal agency. *Journal of Health Psychology, 22*(2), 189-198.

Ball, K., MacFarlane, A., Crawford, D., & Savige, G. (2009). Can social cognitive theory constructs explain socio-economic variations in adolescent eating behaviours? A mediation analysis. *Health Education Research, 24*(3), 496-506.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organ Behaviour Hum, 12*, 50.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behaviour change. *Psychological Review, 84*, 191-215.

Bandura, A. (1976). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bankole, A., Biddlecom, A., Guiella, G., Singh, S., & Zulu, E. (2007). Sexual behavior, knowledge and information sources of very young adolescents in four sub-Saharan African countries. *Afr J Reprod Health, 11*(3), 28-43.

Barker, M., Robinson, S., Wilman, C., & Barker, D. J. (2000). Behaviour, body composition and diet in adolescent girls. *Appetite, 35*(2), 161-170.

Barker, R. J. (1968). *Ecological psychology*. Stanford, CA: Stanford University Press.

Bartfeld, J. (2000). Child support and the post-divorce economic well-being of mothers, fathers, and children. *Demography, 37*, 203-213.

Bauer, K. W., Larson, N. I., Nelson, M. C., Story, M., & Neumark-Sztainer, D. (2008). Socio-environmental, personal and behavioural predictors of fast-food intake among adolescents. *Public Health Nutrition, 12*(10), 1767-1774.

Bauman, A. E., & Bull, F. C. (2007). *Environmental correlates of physical activity and walking in adults and children: A review of reviews.* Loughborough: Loughborough University.

Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *The Journal of Early Adolescence, 11,* 56-95.

Bearinger, L. H., Sieving, R. E., Ferguson, J., & Sharma, V. (2007). Global perspectives on the sexual and reproductive health of adolescents: Patterns, prevention, and potential. *Lancet, 369*(9568), 1220-1231.

Bere, E., Andersen, L. F., & Klepp, K. I. (2009). *Ernæring og kosthold: Utfordringer og muligheter i ungdomsårene.* In Aarø & K-I. Klepp. *Ungdom, livsstil og helsefremmende arbeid* (pp. 203-218.) Oslo: Gyldendal Akademisk.

Bere, E., Brug, J., & Klepp, K. I. (2007). Why do boys eat less fruit and vegetables than girls? *Public Health Nutrition, 11*(3), 321-325.

Bere, E., Glomnes, E. S., te Velde, S. J., & Klepp, K-I. (2006). Determinants of adolescents' soft drink consumption. *Public Health Nutrition 11*(1), 49-56.

Bergier, B., Bergier, J., & Paprzycki, P. (2014). Level and determinants of physical activity among school adolescents in Poland. *Annals of Agricultural and Environmental Medicine, 21*(1), 75-78.

Berk, L., & Levin, E. A. (Eds) (2003). *Child development: A Canadian perspective*. Toronto: Pearson.

Biddle, S. J. H., Gorely, T., & Stensel, D. J. (2004). Health enhancing physical activity and sedentary behaviour in children and adolescents. *Journal of Sport Science, 22,* 679-701.

Birch, S. H., & Ladd, G. W. (1997). The teacher–child relationship and children's early school adjustment. *Journal of School Psychology, 35,* 61-79.

Bjarnason, T., Andersson, B., Choquet, M., Elekes, Z., Morgan, M., & Rapinett, G. (2003). Alcohol culture, family structure and adolescent alcohol use: multi-level modeling of frequency of heavy drinking among 15-16 year old students in eleven European countries. *Journal of Studies on Alcohol, 64,* 200-208.

Blakely, T. A., & Woodward, A. J. (2000). Ecological effects in multi-level studies. *Journal of Epidemiology and Community Health, 54,* 367-374.

Blaxter, M. (1990). *Health and lifestyles*. London: Routledge.

Bonell, C., Farah, J., Harden, A., Wells, H., Parry, W., & Fletcher, A. (2013). Systematic review of the effects of schools and school environment interventions on health: Evidence mapping and synthesis. *Public Health Research, 1*(1), doi:http://dx.doi.org/10.3310/phr01010.

Boyd, C., McCabe, S. E., & Morales, M. (2005). College students' alcohol use: a critical review. *Annual Review of Nursing Research, 23,* 179-211.

Bradshaw, J., & Keung, A. (2011). Trends in child subjective well-being in the UK. *Journal of Children's Services, 6,* 4-17.

Brannon, L. & Feist, J. (2007). *Health psychology. An introduction to behaviour and health.* (6th ed.) Belmont: Thomson Higher Education.

Brener, N., Billy, J., & Grady, W. (2003). Assessment of factors affecting the validity of self - reported health – risk behaviour among adolescents: Evidence from the scientific literature. *Journal of Adolescent Health, 33*(6), 436-457.

Brickell, T. A., Chatzisarantis, N. L., & Pretty, G. M. (2006). Autonomy and control: augmenting the validity of the theory of planned behaviour in predicting exercise. *Journal of Health Psychology, 11*, 51-63.

Bronfenbrenner, U. (1989). Ecological systems' theory. *Annals of Child Development, 22*, 723-742.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*, 513-531.

Brooks - Gunn, J. (1988). Antecedents and consequences of variations in girls' maturational timing. *Journal of Adolescent Health Care, 9*, 1-9.

Bruijn, G. J., & Rhodes, R. E. (2011). Exploring exercise behaviour, intention and habit strength relationships. *Scandavian Journal of Medical Science and Sports, 21*, 482-491.

Bundred, P., Kitchiner, D., & Buchan, I. (2001). Prevalence of overweight and obese children between 1989 and 1998: Population based series of cross sectional studies. *BMJ, 322*, 326-328.

Buxton, C. N. A. (2014). Ghanaian Junior High School adolescents' dietary practices and food preferences: Implications for public health concern. *J Nutr Food Science, 4*, 297. doi: 10.4172/2155-9600.1000297.

Cahalan, D., & Room, R. (1972). Problem drinking among American men aged 21-59. *American Journal of Public Health, 62*, 1473-1482.

Canadian Tobacco Usage Monitoring Survey. (2003). *Smoking in Canada: Young adults*. Retrieved July 13, 2014 from http://www.hc-sc.gc.ca/hc-ps/tobactabac/research-recherche/staff-ctums-esutc-fs-if/2003-youn-jeun-eng.php

Canpolat, B. I., Orsel, S., Akdemir, A. (2005). The relationship between dieting and body image, body ideal, self-perception, and body mass index in Turkish adolescents. *Int J Eat Disorder, 37*, 150-155.

Cardon, G., Van Cauwenberghe, E., Labarque, V., Haerens, L., & De Bourdeaudhuij, I. (2008).The contribution of preschool playground factors in explaining children's physical activity during recess. *Int J Behav Nutr Phys Activity, 5*(1), 11.

Catalano, R. F., Hawkins, J. D., Berglund, M. L., Pollard, J. A., & Arthur, M. W. (2002). Prevention science and positive youth development: competitive or cooperative frameworks? *Journal of Adolescent Health, 31*, 230-39.

Cavadini, C., Siega-Riz, A. M., & Popkin, B. M. (2000). US adolescent food intake trends from 1965 to 1996. *Arch Dis Child, 83*, 18.

CDC. (2014). *State indicator report on physical activity, 2014*. Atlanta, GA: U.S. Department of Health and Human Services.

CDC. (2006). Current youth cigarette smoking for AFRO region. *MMWR Weekly, 55*(20), 553-556.

CDC. (2009). *Health-risk behaviours and academic achievement.* US: U.S. Department of Health and Human Services.

Chan, E. W., Au, E. Y., Chan, B. H., Kwan, M. K., Yiu, P. Y., & Yeung, E. W. (2003). Relations among physical activity, physical fitness, and self-perceived fitness in Hong Kong adolescents. *Perceptual and Motor Skills, 93,* 787-797.

Chatzisarantis, N. L., Hagger, M. S., Biddle, S. J., & Karageorghis, C. (2002). The Cognitive processes by which perceived locus of causality predicts participation in physical activity. *Journal of Health Psychology, 7,* 685-699.

Chi, X., Yu, L., & Winter, S. (2012). Prevalence and correlates of sexual behaviours among university students: a study in Hefei, China. *BMC Public Health, 12*(972), 1471-2458.

Clark, D. B, Kirisci, L., Mezzich, A., & Chung, T. (2008). Parental supervision and alcohol use in adolescence: developmentally specific interactions. *Journal of Developmental and Behavioral Pediatrics, 29,* 285-292.

Cloninger, C. R. (1987). Neurogenetic adaptive mechanisms in alcoholism. *Science, 236,* 410-416.

Cofie, C. N. (2010). *Prevalence of substance use among junior high school pupils of the Dangme West District*. This dissertation is submitted to the University of Ghana for the award of Master of Public Health Degree.

Cohen, D. A., Scribner, R. A., & Farley, T. A. (2000). A structural model of health behaviour: A pragmatic approach to explain and influence health behaviours at the population level. *Preventive Medicine, 30,* 146-154.

Cohen, J. R., Asarnow, R. F., Sabb, F. W., Bilder, R. M., Bookheimer, S. Y., Knowlton, B. J., & Poldrack, R. A. (2010) A unique adolescent response to reward prediction errors. *Nat Neuroscience, 13*(6), 669-71.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London: Routledge.

Colby, A., Kohlberg, L., Gibbs, J., & Lieberman, M. (1983). *A longitudinal study of moral judgment: Monographs of the society for research in child development*. Chicago: University of Chicago Press.

Colby, A., Kohlberg, L., Gibbs, J., & Lieberman, M. (1987). *A longitudinal study of moral judgment. Monographs of the society for research in child development*. Chicago: University of Chicago Press.

Colby, J. P. Jr, Linsky, A. S., & Straus, M. A. (1994). Social stress and state-to-state differences in smoking and smoking related mortality in the United States. *Social Science Medicine, 38*, 373-81.

Coleman, L., & Cater, S. (2003). What do we know about young people's use of alcohol? *Education and Health, 21*(3), 50-57.

Coley, R. L., & Medeiros, B. L. (2007). Reciprocal longitudinal relations between non resident father involvement and adolescent delinquency. *Child Development, 78*,132-147.

Colley, R. C., Garriguet, D., Janssen, I., Craig, C., Clarke, J., & Tremblay, M. S. (2011). Physical activity of Canadian adults: Accelerometer results from the 2007-2009 Canadian Health Measures Survey. *In Health Rep., 22*, 82-003.

Commission on Social Determinants of Health. (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health*. Geneva: World Health Organization.

Cone, E. (1997). New developments in biologic measures of drug use. In the validity of self - reported drug use: Improving accuracy of survey estimates. *NIDA Research Monograph Series, 167*, 108-129.

Conner, B. T., Noble, E. P., Berman, S. M., Ozkaragoz, T., Ritchie, T., Antolin, T., & Sheen, C. (2005). DRD2 genotypes and substance use in adolescent children of alcoholics. *Drug and Alcohol Dependence, 79,* 379-387.

Conner, M., & Sparks, P. (2005). *Theory of planned behaviour and health behaviour.* England: Open University Press.

Conner, M. (2002). *Health behaviours.* UK: University of Leeds UK.

Conner, M., & Norman, P. (Eds.). (1996). *Predicting health behaviour.* Buckingham, UK: Open University Press.

Connolly, J., Furman, W., & Konarksi, R. (2000).The role of peers in the emergence of heterosexual romantic relationships in adolescence. *Child Development, 71*(5), 1395-1408.

Cooper, M. L. (2002). Alcohol use and risky sexual behaviour among college students and youth: Evaluating the evidence. *Journal of Studies on Alcohol, 14* (Supplemental), 101-117.

Corbin, C., & Pangrazi, R. P. (1998). *Physical activity for children: A statement of guidelines.* Reston, VA: NASPE Publications.

Costa, F. M., Jessor, R., & Turbin, M. S. (2007). College student involvement in cigarette smoking: the role of psychosocial and behavioural protection and risk. *Nicotine Tobacco Research, 9,* 213-24.

Coughlin, J. (2016). *Teenage pregnancy in Ghana: Assessing situation and moving forward.* Retrieved 22nd July, 2016 from http://www.graphic.com.gh/news/general-news/teenage-pregnancy-in-ghana-assessing-situation-and-moving-forward.html

Creswell, J. W. (2009). *Research design: Qualitative and mixed methods approaches.* London: SAGE.

Crow, S., Eisenberg, M. E., & Story, M. (2006). Psychosocial and behavioural correlates of dieting among overweight and non-overweight adolescents. *Journal of Adolescent Health, 38*, 569-574.

Cummings, K. M., Becker, M. H., & Maile, M. C. (1980). Bringing the models together: an empirical approach to combining variables used to explain health actions. *Journal of Behavioural Medicine, 3*, 123-45.

Currie, C., Nic Gabhainn, S., Godeau, E., Roberts, C., Smith, R., Currie, D., Pickett, W., Richter, M., Morgan, A., & Barnekow, V. (eds.) (2008). *Inequalities in young people's health: HBSC international report from the 2005/2006 survey, health policy for children and adolescents number* 5. Copenhagen: WHO Regional Office for Europe.

Currie, C., Todd, J., & Platt, S. (1997). Indicators of socio-economic status for adolescents: The WHO Health Behaviour in School-Aged Children Survey. *Health Education Research, 12*, 385-397.

Gochman, D. S. (1997). Handbook of health behaviour research. *New York*, 1-4.

Damon, W. (2004). What is positive youth development? *Annals of the American Academy of Political and Social Science, 591*, 13-24.

Department for Education and Skills. (2005). *Healthy school lunches for pupils in secondary schools: Guidelines for school caterers.* London: DFES.

Department of Health. (2005). *Department of health, policy and guidance, health and social care topics, 5 a day.* Retrieved on 25th July, 2014 from http:// www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCare

Devore, E. R., & Ginsburg, K. R. (2005). The protective effects of good parenting on adolescents. *Current Opinion in Pediatrics, 17*, 460-465.

Dietz, W. H. (2004). Overweight in childhood and adolescence. *N Engl J Med, 350*, 855-857.

Diez-Roux, A. V., Nieto, J., Muntaner, C., Tyroler, H. A., Comstock, G. W., Shahar, E., Cooper, L. S., Watson, R. L., & Szklo, M. (1997). Neighbourhood environments and coronary heart disease: A multilevel analysis. *American Journal of Epidemiology, 146*, 48-63.

DiIorio, C. (2005). *Measurement in health behaviour: Methods for research and education.* San Francisco: Jossey-Bass.

DiIorio, C., Pluhar, E., & Belcher, L. (2003). Parents child communication about sexuality: a review of the literature from the 1980-2002. *J HIV/AIDS PrevEduc Adolesc Children, 5*(3-4), 7-32.

Dittus, P. J., & Jaccard, J. (2000). Adolescents' perceptions of maternal disapproval of sex: relationship to sexual outcomes. *J Adolesc Health. 26*, 268-278.

Dogbe, C. (2003). The prevalence of alcohol, cigarette, and marijuana use among Ghanaian senior secondary students in an urban setting. *Journal of Ethnicity in Substance Abuse, 2*(1), 53- 65.

Doescher, M. P., Jackson, J. E., Jerant, A., & Hart, L. G. (2006). Prevalence and trends in smoking: A national rural study. *J Rural Health, 22*, 112-118.

Doku, D. T., Darteh, E. K.M., & Kumi-Kyereme, A. (2013). Socioeconomic inequalities in cigarette smoking among men: evidence from the 2003 and 2008.Ghana demographic and health surveys. *Archives* of *Public Health, 71*, 1-9.

Doku D. T., Koivusilta L., Raisamo S., & Rimpela A. (2011). Socio-economic differences in adolescents' breakfast eating, fruit and vegetable consumption and physical activity in Ghana. *Public Health Nutrition, 27*, 1-9.

Doku, D. T., Koivusilta, L., Raisamo, S., & Rimpela, A. (2010). Do socioeconomic differences in tobacco use exist also in developing countries? A study of Ghanaian adolescents. *BMC Public Health, 10*, 758.

Doku, D. T. (2012a). Substance use and risky sexual behaviours among sexually experienced Ghanaian youth. *BMC Public Health, 12*(571), 1471-2458.

Doku, D. T. (2012b). *Socioeconomic differences in tobacco use among Ghanaian and Finnish adolescents*. Academic Dissertation presented to University of Tampere, School of Health Sciences Finland.

Doku, D. T., Koivusilta, L., & Rimpela, A. (2011). Socioeconomic differences in alcohol and drug use among Ghanaian adolescents. *Addictive behaviours. 37*(3), 57-60.

Doku, D. T., Raisamo, S., & Wiium, N. (2012). The role of tobacco promoting and restraining factors in smoking intentions among Ghanaian youth. *BMC Public HealthBMC Series, 12*, 662. DOI: 10.1186/1471-2458-12-662.

Donnermeyer, J. (1992). The use of alcohol, marijuana, and hard drugs by rural adolescents: A review of recent research. *Drugs and Society, 7*(1-2), 31-75.

Doyle, A. M., Mavedzenge, S. N., Plummer, M. L., & Ross, D. A. (2012). The sexual behaviour of adolescents in sub-Saharan Africa: Patterns and trends from national surveys. *Tropical Medicine and International Health, 17* (7), 796-807.

Driessnack, M. (2006). Adolescent. In C. L. Edelman & C. L. Mandle (ed.) *Health Promotion throughout the life span.* (6th Ed). pp. 502-522. St. Louis: Elsevier Mosby.

Duker, A. D. (2006). *Child naming ceremonies in Ghana.* Retrieved 17th May, 2016, from www.allghanadata.com

Dzewaltowski, D. A. (1997). The ecology of physical activity and sport: Merging science and practice. *Journal of Applied Sport Psychology, 9,* 254-276.

Eaton, D. K., Kann, L., & Kinchen, S. (2008). Youth risk behavior surveillance – United States, 2007. Surveillance summaries. *MMWR, 57,* 1-131.

Ebbeling, C. B., Pawlak, D. B., & Ludwig, D. S. (2002). Childhood obesity: public-health crisis, common sense cure. *Lancet, 360,* 473-482.

Ecob, R., & Macintyre, S. (2000). Small area variations in health related behaviours: Do these depend on the behaviour itself, its measurement, or on personal characteristics? *Health & Place, 6,* 261-274.

Eitle, D. (2006). Parental gender, single-parent families, and delinquency: exploring the moderating influence of race/ethnicity. *Social Science Research, 35,* 727-748.

Emanuel, A. S., McCully, S. N., Gallagher, K. M., & Updegraff, J. A. (2012). Theory of planned behaviour explains gender difference in fruit and vegetable consumption. *Appetite, 59,* 693-697.

Enstrom, J. E. (1989). Health practices and cancer mortality among active California Mormons. *Journal of the National Cancer Institute, 81,* 1807-1814.

Erikson, E. H. (Ed.). (1998). *Life cycle: Completed extended version with new chapters on the ninth stage of development by Joan M. Erikson*. New York, NY: Norton and Company.

Esantsi, S. F., Onyango, F., Quansah-Asare, G. J., Kuffour, E. O., Tapsoba, P., Birungi, H., & Askew, I. (2015). *Understanding the reproductive health needs of adolescents in selected slums in Ghana: A public health assessment*. STEP UP Research Report, Ghana: Population Council.

Espnes, G. A., & Smedslund, G. (2001). *Dietary habits and correlating factors (Helsepsykologi)*. Oslo: Gyldendal Norsk Forlag.

Facy, F. (2000). La place de l'alcool dans la morbidité et la mortalité des jeunes [Place of alcohol morbidity & mortality of young people]. In F. Navarro, E. Godeau, & C. Vialas (Eds.). *Actes du colloque les jeunes et l'alcool en Europe*. Toulouse, France: Editions Universitaires du Sud.

Fahlman, M. M., McCaughtry, N., Martin, J., & Shen, B. (2010). Racial and socioeconomic disparities in nutrition behaviours: Targeted interventions needed. *J Nutr Educ Behaviour, 42*(1), 10-6. doi: 10.1016/j.jneb.2008.11.003.

Falkner, N. H., Neumark-Sztainer, D., Story, M., Jeffrey, R. W., Beuhring, T., & Resnick, M. D. (2001). Social, educational, and psychological correlates of weight status in adolescents. *Obesity Research, 9*, 32-42.

Family Health International and Research International. (2001). *Behavioural surveillance survey, Ghana, 2000*. Accra, Ghana: National AIDS Control Programme, Ministry of Health.

Fatoyo, F. O. (2003). Psychosocial correlates of substance use amongst secondary school students in South Western Nigeria. *S Afr Med J, 86*, 154-158.

Fatoyo, F. O., & Morakinyo, O. (2002). Substance use amongst secondary school students in rural and urban communities in South Western Nigeria. *East Afri Med J, 79*, 299-305.

Faulkner, G. E. J., Buliung, R. N., Flora, P. K. , & Fusco, C. (2009). Active school transport, physical activity levels and body weight of children and youth: A systematic review. *Preventive Medicine, 48*(1), 3-8.

Ferrand, R. A., Luethy, R., Bwakura, F., Mujuru, H., Miller, R. F., & Corbett, E. L. (2007). HIV infection presenting in older children and adolescents: A case series study from Harare, Zimbabwe. *Clin Infect Dis., 44*, 874-8.

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behaviour: The reasoned action approach.* New York: Taylor and Francis.

Fishbein, M., Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research.* Addison-Wesley: Reading MA.

Fishbein, M., Bandura, A., Triandis, H. C., Kanfer, F. H., Becker, M. H., Middlestadt, S. E. (1991). *Factors influencing behaviour and behaviour change.* Final Report of the Theorist's Workshop, Washington, DC.

Flisher, A. J., & Chalton, D. (2001). Urbanisation and adolescents risk behaviour. *S Afr Med J, 91*, 243-249.

Ford, C. A., Nonnemaker, J. M., & Wirth, K. E. (2008). The influence of adolescent body mass index, physical activity, and tobacco use on blood pressure and cholesterol in young adulthood. *Journal of Adolescent Health, 43*(6), 576-583.

Ford, C. A., Pence, B. W., Miller, W. C., Resnick, M. D., Bearinger, L. H., Pettingell, S., & Cohen , M. (2005). Predicting adolescents' longitudinal risk for sexually transmitted infection: Results from the National Longitudinal Study of Adolescent Health. *Archives of Pediatric and Adolescent Medicine, 159*(7), 657-664.

Forshee, R. A., Anderson, P. A., & Storey, M. L. (2004). The role of beverage consumption, physical activity, sedentary behaviour, and demographics on body mass index of adolescents. *Int J Food Sci Nutr., 55*, 463-478.

Fortenberry, J. D., Cecil, H., & Zimet, G. (1997). Concordance between self - report questionnaires and coital diaries for sexual behaviours of adolescent women with sexually transmitted infections. In J. Bancroft (Ed.). *Research sexual behaviour: Methodological issues.* Bloomington: Indiana University Press.

Foxcroft, D. R., & Lowe, G. (1999). Adolescent drinking behavior and family socialization factors: A meta- analysis. *Journal of Adolescence, 14*, 255-73.

Frankish, C. J., Milligan, C. D., & Reid, C. (1998). A review of relationships between active living and determinants of health. *Social Science & Medicine, 47*, 287-301.

Frankish, C. J., Milligan, D., & Reid, C. (1998). A review of the relationship between active living and determinants of health. *Social Science Medicine, 47*, 287-301.

Fredman, S., Chambless, D., & Steketee, G. (2004). Development and validation of an observational coding system for emotional over involvement. *Journal of Family Psychology, 18*(2), 339-347.

French, S. A., Story, M., Downes, B., Resnick, M. D., & Blum, R. W. (1995). Frequent dieting among adolescents: Psychological and health behaviour correlates. *American Journal of Public Health, 85,* 695-701.

French, S. A., Story, M., Neumark-Sztainer, D., Fulkerson, J.A., & Hannan, P. (2001). Fast food restaurant use among adolescents: Associations with nutrient intake, food choices and behavioral and psychosocial variables. *International Journal of Obesity, 25*(12), 1823-1833.

Frisher, M., Crome, L., Macleod, J., Bloor, R., & Hickman, M. (2007). *Predictive factors for illicit drug use among young people: A literature review.* London: UK government publications.

Fuemmeler, B. F., Pendzich, M. K., & Tercyak, K. P. (2009). Weight, dietary behavior, and physical activity in childhood and adolescence: Implications for adult cancer risk. *Obesity Facts, 2*(3), 179-186.

Fulkerson J. A., Pasch, K. E., Stigler, M. H., Farbakhsh, K., Perry, C. L. & Komro, K. A. (2010). Longitudinal associations between family dinner and adolescent perceptions of parent–child communication among racially diverse urban youth. *Journal of Family Psychology, 24,* 261-270.

Gakidou, E., Cowling, K., Lozano, R., & Murray, C. J. (2010). Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: a systematic analysis. *Lancet, 376,* 959-74.

Gardner, M., & Steinberg, L. (2005). Peer influence on risk - taking, risk preference, and risky decision making in adolescence and adulthood: An experimental study. *Developmental Psychology, 41,* 625-635.

Gauvin, L., Levesque, L., & Richard, L. (2001). Helping people initiate and maintain a more active lifestyle: A public health framework for physical activity promotion research. In R. N. Singer, H. A. Hausenblas, & C. N. Janelle (Eds.). *Handbook of sport psychology* (2nd ed.) (pp. 718-739). New York: Wiley.

Gauvin, L., Richard, L., Potvin, L., Craig, C. L. Spence, J. C., Quinney, H. A., & Dassa, C. (2001, March). *Multilevel determinants of physical activity: Individual- and neighbourhood-level influences*. Poster presented at the 22nd Society for Behavioural Medicine meeting, Seattle, WA.

GDHS. (2003). *2003 Ghana demographic and health survey*. Accra: Ghana Statistical Service.

GDHS. (2008). *2008 Ghana demographic and health survey*. Accra: Ghana Statistical Service.

Geography Department. (2016). *Map of the Central Region*. Cape Coast: University of Cape Coast.

Ghana Education Service. (2014). *Basic curriculum education: The junior high education*. Accra: Ghana Education Service.

Ghana Statistical Service. (2011). *Ghana multiple indicator cluster survey with an enhanced malaria module and biomarker 2011: Monitoring the situation of children and women in Ghana*. Accra: Government of Ghana.

Ghana Statistical Service, Ghana Health Service, and ICF Macro. (2009). *Ghana demographic and health survey 2008*. Accra, Ghana: Ghana Statistical Service, GHS, and ICF Macro.

Ghana Statistical Service. (1994). 1993 *Ghana demographic and health survey, Accra, Ghana*: Ghana Statistical Service.

Ghana Statistical Service. (2010). *Population and housing census summary report of final results 2012*. Accra: GSS.

Ghana Statistical Service. (2013). *2010 population and housing census report: Children, adolescents and young people in Ghana*. Accra: GOG/UNGhana.

Giedd, J. N. (2008). The teen brain: Insights from neuroimaging. *Journal of Adolescent Health, 42*, 335-343.

Gill, J. S. (2002). Reported levels of alcohol consumption and binge drinking within the UK undergraduate student population over the last 25 years. *Alcohol and Alcoholism, 37*(2), 109-20.

Gillespie, H. O. (2006). Exercise. In C. L. Edelman & C. L. Mandle (Ed.) *Health Promotion throughout the life span.* (6th ed.). (pp. 261-288). St. Louis: Elsevier Mosby.

Giskes, K., Turrell, G., Patterson, C., & Newman, B. (2002). Socio-economic differences in fruit and vegetable consumption among Australian adolescents and adults. *Public Health Nutrition, 5*(5), 663-669.

Glassford, R. G. (1976). *Application of a theory of games to the transitional Eskimo culture*. New York: Arno Press.

Global School-based Student Health Survey. (2012). *GSHS questionnaire.* Retrieved on 24th June, 2015 from www.cdc.gov/gshs

Glover, K. E., Bannerman, A., Pence, B. W., Jones, H., Miller, R., Weiss, E., & Nerquaye-Tetteh, J. (2003). Sexual health experiences of adolescents in three Ghanaian towns. *Int Fam Plan Perspectives, 29*(1), 32-40.

Gmur, M., & Tschopp, A. (1987). Factors determining the success of nicotine withdrawal: 12-year follow-up of 532 smokers after suggestion therapy (by a faith healer). *International Journal of the Addictions, 22*, 1189-1200.

Gochman, D. S. (1997). *Handbook of health behavior research I: Personal and social determinants.* New York: Springer Science & Business.

Godeau, E., Nic Gabhainn, S., & Ross, J. (2005). *Sexual health. In HBSC research protocol for 2005/06 survey.* Section 2, Scientific rationales for focus areas. Canada: HBSC.

Godin, G., & Shephard, R. J. (1986). Psychosocial factors influencing intentions to exercise of young students from grades 7 to 9. *Res Q Exerc Sport, 57,* 41-52.

Gomez, L. F., Mateus, J. C., & Cabrera, G. (2004). Leisure-time physical activity among women in a neighbourhood in Bogota, Colombia: Prevalence and socio-demographic correlates. *Cadernos de Saúde Pública, 20*(4), 1103-1109.

Granner, M. L., Sargent, R. G., Calderon, K. S., Hussey, J. R., Evans, A. E., & Watkins, K. W. (2004). Factors of fruit and vegetable intake by race, gender, and age among young adolescents. *Journal of Nutrition Education and Behaviour, 36,* 173-180.

Grant, B. F. (1998). The impact of a family history of alcoholism on the relationship between age at onset of alcohol use and DSM-IV alcohol dependence: Results of the National Longitudinal Alcohol Epidemiologic Survey. *Alcohol Health & Research World, 22,* 144-147.

Green, L. W., Kreuter, M. W., Deeds, S. G., & Partridge, K. B. (1980). *Health education planning: A diagnostic approach.* Palo Alto, CA: Mayfield Publishing.

Greer, F. R., Krebs, N. F., & American Academy of Pediatrics Committee on Nutrition. (2006) Optimizing bone health and calcium intakes of infants, children, and adolescents. *Paediatrics, 117,* 578.

GSHS. (2007).*Global School-based Student Health Survey: Ghana 2007 fact sheet.* Accra: CDC.

GSHS. (2008). *Global school-based student health survey (GSHS) 2008: Ghana report, senior high schools*. Accra: Gov/Ghana/CDC/GSHS.

GSHS. (2012). *Global school-based student health Survey: Ghana junior high 2012 fact sheet.* Accra: CDC.

Guo, S. S., & Chumlea, W. C. (1999) Tracking of body mass index in children in relation to overweight in adulthood. *America Journal of Clinical Nutrition, 70*, 145-148.

Guttmacher Institute. (2004). *Adolescents in Ghana: Sexual and reproductive health.* Retrieved on 22nd July 2016 from www.guttmacher.org/pubs/rib/rib1-04.html

GYTS. (2006). *Ghana global youth tobacco survey (GYTS): Fact sheet.* Geneva: WHO Press.

Habtamu, D., & Adamu, A. (2013). Assessment of sexual and reproductive health status of street children in Addis Ababa. *J Sex Transmitted Diseases*, 1-20.

Hadii M. M., Sreenivas P. V. M. D., & Rijo M. J. (2013). Tobacco use among school-going adolescents (11-17 years in Ghana. *Nicotine & Tobacco Research, 10*, 1093, 269-279.

Hadland, S. E., Marshall, B. D., Kerr, T., Zhang, R., Montaner, J. S., & Wood, E. (2011). A comparison of drug use and risk behaviour profiles among younger and older street youth. *Substance Use Misuse, 46*(12), 1486-1494.

Hagger, M. S., Chatzisarantis, N. L. D., & Biddle, S. J. H. (2002). A meta-analytic review of the theories of reasoned action and planned behaviour in physical activity: predictive validity and the contribution of additional variables. *Journal of Sport Exercise Psychology, 24*, 3-32.

Hallal, P. C., Andersen, L. B., Bull, F. C., Guthold, R., Haskell, W., Ekelund, U., & Group FTLPASW. (2012). Global physical activity levels: surveillance progress, pitfalls, and prospects. *Lancet, 380*, 247-257.

Hanson, M. D., & Chen, E. (2007). Socioeconomic status and health behaviours in adolescence: A review of the literature. *J Behav Med, 30*, 263-285.

Hardy, L. L., Dobbins, T., & Booth, M. L. (2006). Sedentary behaviours among Australian adolescents. *Aust N Z J Public Health, 30*, 534-540.

Harnack, L., Stang, J., & Story, M. (1999) Soft drink consumption among US children and adolescents: nutritional consequences. *Journal of American Dietetic Association,* 99, 436-441.

Hart, A., Tinker, L. F., Bowen, D. J., Satia-About, A. J., & McLerran, D. (2004). Is religious orientation associated with fat and fruit/vegetable intake? *Journal of the American Dietetic Association, 104*, 1292-1296.

Hathazi, D., Lankenau, S. E., Sanders, B., & Bloom, J. (2009). Pregnancy and sexual health among homeless young injection drug users. *J Adolesc, 32*(2), 339-355.

Hausenblas, H. A., Carron, A. V., & Mack, D. E. (1997). Application of the theories of reasoned action and planned behaviour to exercise behaviour: A meta-analysis. *Journal of Sport Exercise Psychology, 19*, 36-51.

HBSC. (2012). *Report on the health behaviour in school-aged children (HBSC) study*. Copenhagen, 2 May 2012: WHO Regional Office for Europe.

Heard, H. E. (2007). Fathers, mothers, and family structure: family trajectories, parent gender, and adolescent schooling. *Journal of Marriage and the Family, 69*, 435-450.

Henningsen, M. (2011). *Dietary habits in adolescence related to sociodemographic factors, physical activity and self-esteem.* Thesis submitted for the Master Degree in Health Science, Department of Social Work and Health Science, Faculty of Social Science and Technology Management, Norwegian University of Science and Technology, Trondheim.

Henry, R., & Fayorsey, C. (2002). *Coping with pregnancy: Experiences of adolescents in Ga Mashi, Accra*. Calverton, MD, USA: ORC Macro.

Hoge, D. R., Smit, E. K., & Hanson, S. L. (1990). School experiences predicting changes in self-esteem of sixth- and seventh-grade students. *Journal of Educational Psychology, 82*, 117-27.

Holstein, B. E., Hansen, E.H., & Due, P. (2004). Social class variation in medicine use among adolescents. *The European Journal of Public Health, 14*, 49-52.

Humensky, L. J. (2010). Are adolescents with high socioeconomic status more likely to engage in alcohol and illicit drug use in early adulthood? *Substance Abuse Treatment, Prevention, and Policy, 5*, 19. DOI: 10.1186/1747-597X-5-19.

Hunt, I. E., Murphy, N. J., & Henderson, C. (1988). Food and nutrient intake of Seventh-Day Adventist women. *American Journal of Clinical Nutrition, 48,* 850-851.

Inchley, J. C. (2005). Persistent socio-demographic differences in physical activity among Scottish schoolchildren 1990-2002, *European Journal of Public Health*, *15*(4), 386-388.

Inchley, J., Todd, J., Bryce, C., & Currie, C. (2001). Dietary trends among Scottish schoolchildren in the 1990's. *Journal of Human Nutrition and Dietetics, 14,* 206-217.

Intiful, F. D., & Lartey, A. (2014). Breakfast habits among school children in selected communities in the Eastern Region of Ghana. *Ghana Medical Journal, 48*(2), 71-77.

Irwin, L. G., Siddiqi, A., & Hertzman, C. (2007). *Early child development: A powerful equalizer (final report).* Geneva: World Health Organization.

Jablonska, B., & Lindberg, L. (2007). Risk behaviours, victimization and mental distress among adolescents in different family structures. *Social Psychiatry and Psychiatric Epidemiology, 42*, 656-663.

Jenkins, S., & Horner, S. D. (2005). Barriers that influence eating behaviours in adolescents. *J Pediatr Nurs, 20*, 258.

Johnson, J. G., Cohen, P., Kasen, S., & Brook, J.S. (2007). Extensive television viewing and the development of attention and learning difficulties during adolescence. *Arch Pediatr Adolesc Med, 161*, 480-486.

Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2002). *Demographic subgroup trends for various licit and illicit drugs, 1975-2001. Monitoring the future: Occasional paper No. 57.* Ann Arbor, MI: Institute for Social Research.

Joint Committee on National Health Education Standards. (2007). *National health education standards: Achieving excellence* (2nd ed). Athens, GA: The American Cancer Society.

Jotangi, D., Moody, A., Stamatakis, E., & Wardle, H. (2005). *Obesity among children under 11.* London: Office for National Statistics/National Centre for Social Research/University College London.

Kaestle, C. E., Halpern, C. T., Miller, W. C., & Ford, C. A. (2005). Young age at first sexual intercourse and sexually transmitted infections in adolescents and young adults. *American Journal of Epidemiology, 161* (8), 774-780.

Kafka, R. R., & London, P. (1991). Communication in relationships and adolescent substance use: The influence of parents and friends. *Adolescence, 26,* 587-598.

Kafuko, A., & Bukuluki, P. (2008). *Qualitative research in Uganda on knowledge, attitudes and practices concerning alcohol.* Kampala: USAID.

Kann, L., Kinchen, S., & Shanklin, S. L. (2014). Youth risk behavior surveillance-United States, 2013. *MMWR Surveill Summ, 63*(4),1-8.

Kantomaa, M. T., Tammelin, T. H., Ebeling, H. E., & Taanila, A. M. (2008). Emotional and behavioural problems in relation to physical activity in youth. *Medicine and Science in Sports & Exercise, 40,* 1749-1756.

Kanyoni, M., Gishoma, D., & Ndahindwa, V. (2015). Prevalence of psychoactive substance use among youth in Rwanda. *BMC Research Notes, 8* (1), 190-100.

Kaplan, P. S. (2004). *Adolescence 2004*. USA: Houghton Mifflin Company.

Karim, A. M. (2003). Reproductive health risk and protective factors among unmarried youth in Ghana, *International Family Planning Perspectives, 29*(1), 14-24.

Kasen, S., Johnson, S., & Cohen, P. (1990). The impact of school emotional climate on student psychopathology. *Journal of Abnormal Child Psychology, 18,* 165-77.

Kayembe, P. K., Mapatano, M. A., Fatuma, A. B., Nyandwe, J. K., Mayala. G. M., Kokolomami, J. I., & Kibungu, J. P. (2008). Knowledge of HIV, sexual behaviour and correlates of risky sex among street children in Kinshasa, democratic republic of Congo. *East Afr J Public Health, 5*(3), 186-192.

Kelly, J. B. (2007). Children's living arrangements following separation and divorce: insights from empirical and clinical research. *Family Process, 46,* 35-51.

Kelly, J. G. (1990). Changing contexts and the field of community psychology. *American Journal of Community Psychology, 18,* 769-792.

Kemper, H. C. C., Twisk, J. W., van Mechelen, W., Post, G. B., Roos, J. C., & Lips, P. (2000). A fifteen-year longitudinal study in young adults on the relation of physical activity and fitness with the development of the bone mass: the Amsterdam Growth and Health Longitudinal Study. *Bone, 27,* 847-853.

Kendler K. S., Schmitt E., Aggen S. H., & Prescott C. A. (2008). Genetic and environmental influences on alcohol, caffeine, cannabis, and nicotine use from early adolescence to middle adulthood. *Archives of General Psychiatry, 65,* 674-682.

Kendler, K. S., Gardner, C. O., & Prescott, C. A. (1997). Religion, psychopathology, and substance use and abuse: A multimeasure, genetic-epidemiologic study. *American Journal of Psychiatry, 154,* 322-329.

King, V., & Sobolewski, J. M. (2006). Non-resident fathers' contributions to adolescent well-being. *Journal of Marriage and the Family, 68,* 537-557.

Kliewer, W., & Murrelle, L. (2007). Risk and protective factors for adolescent substance use: Findings from a study in selected Central American countries. *J Adolescent Health, 40,* 448-55.

Koenig, H. G. (1994). Religious conversion. In H. G. Koenig. *Aging and God* (pp. 419-438). Binghamton, NY: Haworth.

Koenig, H. G., George, L. K., & Peterson, B. L. (1998). Religiosity and remission of depression in medically ill older patients. *American Journal of Psychiatry, 155,* 536-542.

Koenig, H. G., McCullough, M. E., & Larson, D. B. (2001). *Handbook of religion and health.* New York: Oxford University Press.

Koezuka, N., Koo, M., & Allison, K. R. (2006). The relationship between sedentary activities and physical inactivity among adolescents: results from the Canadian Community Health Survey. *J Adolesc Health, 39,* 515-522.

Kohl, H., Fulton, J., & Caspersen, C. (2000). Assessment of physical activity by self - report: Status, limitations, and future directions. *Preventive Medicine, 31,* 54-76.

Kotecha, P. V., Patel, S .V., Baxi, R.K., Mazumdar, V. S., Shobha, M., Mehta, K.G., Mansi, D., & Ekta, M. (2013). Dietary pattern of schoolgoing adolescents in urban Baroda, India. *J Health Popul Nutr., 31*(4), 490-496.

Kpodo F. M., Mensah C., & Dzah C.S. (2015). Fruit and vegetable consumption patterns and preferences of students in a Ghanaian Polytechnic. *World Journal of Nutrition and Health*, *3*(3), 53-59. Doi: 10.12691/jnh-3-3-2.

Kravdal, O. (2002). Education and fertility in sub-Saharan Africa: individual and community effects. *Demography, 39,* 233-50.

Krebs-Smith, S. M., Heimendinger, J., Patterson, B. H., Subar, A. F., Kessler, R., & Pivonka, E. (1995). Psychosocial factors associated with fruit and vegetable consumption. *Am J Health Promotion, 10,* 98-104.

Kristjánsson, A. L., Sigfúsdóttir, I. D., & Allegrante, J. P. (2008). Health behavior and academic achievement among adolescents: the relative contribution of dietary habits, physical activity, body mass index, and self-esteem. *Health Education & Behaviour, 22*(10), 22-26.

Kuder, G. F., & Richardson, M. W. (1937). The theory of the estimation of test reliability. *Psychometrika, 2*(3), 151-160.

Kumi-Kyereme, A., Awusabo-Asare, K., Biddlecom, A., & Tanle, A. (2007) Influence of social connectedness, communication and monitoring on adolescent sexual activity in Ghana. *African Journal of Reproductive Health, 11,* 133-147.

Kuperminc, G. P., Leadbeater, B. J., & Blatt, S.J. (2001). School social climate and individual differences in vulnerability to psychopathology among middle school students. *Journal of School Psychology, 39,* 141-59.

Lammers, C. (2000) Influences on adolescents' decision to postpone onset of sexual intercourse: A survival analysis of virginity among youths aged 13 to 18 years. *J Adolesc Health, 26*, 41-46.

Langenkamp, A. G., & Frisco, M. L. (2008). Family transitions and adolescent severe emotional distress: The salience of family context. *Social Problems, 55*, 238-253.

Larson, N. I., Story, M., Wall, M., & Neumark-Sztainer D. (2006). Calcium and dairy intakes of adolescents are associated with their home environment, taste preferences, personal health beliefs, and meal patterns. *Journal of the American Dietetic Association, 106,* 1816-1824.

Larson, E. B., & Larson, W. (1994). Exercise, aging, and Alzheimer disease. *Alzheimer Dis Assoc Disorder, 18*, 54-56.

Layade, A. A., & Adeoye, I. B. (2014). Fruit and vegetable consumption among students of tertiary institutions in Oyo State. *RJOAS, 6*(30), 1-6.

Lazarou, C., Kalavana, T., & Leda-Matalas, A. (2008). The influence of parents' dietary beliefs and behaviours on children's dietary beliefs and behaviours: The CYKIDS study. *Appetite, 51*(3), 690- 96.

Legleye, S., Beck, F., Khlat, M., Peretti-Watel, P., & Chau, N. (2012). The influence of socioeconomic status on cannabis use among French adolescents. *Journal of Adolescent Health, 50*(4), 395-402. Doi: 10.1016/j.jadohealth.2011.08.004.

Li, S., Huang, H., Cai, Y., Xu, G., Huang, F., & Shen, X. (2009). Characteristics and determinants of sexual behavior among adolescents of migrant workers in Shangai (China). *BMC Public Health, 9*, 195.

Liang, Z., & Ma, Z. (2004). China's floating population: New evidence from the 2000 census. *Population and Development Review, 30*(3), 467-488.

Lietz, P., & Keeves, J. P. (1997) Cross-sectional research methods. In J. P. Keeves (ed.) *Educational research, methodology and measurement: An international handbook* (2nd ed. pp.138-49) Oxford: Elsevier Science.

Löllgen, H., Böckenhoff, A., & Knapp, G. (2009). Physical activity and all-cause mortality: an updated meta-analysis with different intensity categories. *International Journal Sports Medicine, 30,* 213-24.

Loveland-Cherry, C. J. (2005). Alcohol, children, and adolescents. *Annual Review of Nursing Research, 23,* 135-77.

Luk, J. W., Farhat, T., Iannotti, R. J., & Simon-Morton, B. G. (2010). Parent-child communication and substance use among adolescents: Do father and mother communication play a different role for sons and daughters? *Addictive Behaviors, 35,* 426-431.

Lutfiyya, M. N., Shah, K. K., Johnson, M., Bales, R. W., Cha, I., McGrath, C., Serpa, L., & Lipsky, M. S. (2008). Adolescent daily cigarette smoking: is rural residency a risk factor? *Rural and Remote Health, 8*, 875.

Lynch, J. W., Kaplan, G. A., & Salonen, J. T. (1997). Why do poor people behave poorly? Variation in adult health behaviours and psychosocial characteristics by stages of the socioeconomic life course. *Social Science and Medicine*, *44*, 809-819.

Ma, Q. Q., Kihara, M. O., Cong, L. M., Xu, G. Z., Zamani, S., Ravari, S. M., & Kihara, M. (2006). Sexual behaviour and awareness of Chinese university students in transition with implied risk of sexually transmitted diseases and HIV infection: A cross sectional study. *BMC Public Health, 6,* 232.

MacFarlane, A., Crawford D., Ball, K., Savage, G., & Worsley, A. (2007). Adolescent home food environments and socioeconomic position. *Asia Pacific Journal of Clinical Nutrition, 16*(4), 748-756.

Mackenbach, J. P., Stirbu, I., & Roskam, A. J. (2008). Socioeconomic inequalities in health in 22 European countries. *New English Journal Medicine, 358,* 2468-81.

Maggs, J., & Schulenberg, J. E. (2005). Initiation and course of alcohol consumption among adolescents and young adults. In GM. *Recent developments in alcoholism: Alcohol problems in adolescents and young adults*. New York: Kluwer Academic/Plenum Publishers.

Manios, Y., Dietrich, S., Mauro, B., Artero, E. G., Molnár, D., Hagströmer, M., ... & De Bourdeaudhuij, I. (2010). Self-reported physical activity in European adolescents: Results from the HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescence) study. *Public Health Nutrition,14,* 246-254.

Mann, J., & Tarantola, D. (1996). *AIDS in the world* (2nd ed.). Oxford, UK: Oxford University Press.

Manning, W. D., Longmore, M. A., & Giordano, P. C. (2000). The relationship context of contraceptive use at first intercourse. *Family Planning Perspectives, 32*(2), 104-110.

Markham, W. A., Aveyard, P., Hywel, T., Charlton, A., Lopez, M. L., & De Vries, H. (2004). What determines future smoking intentions of 12 to 13 year-old UK African-Caribbean, Indian, Pakistani and white young people? *Health Education Research, 19*(1), 15-28.

Marlatt , G. A. , Baer , J. S. , Donovan , D. M., & Kivlahan , D. R. (1988). Addictive behaviours: Etiology and treatment. *Annual Review of Psychology, 39,* 223-252.

Marston, C., & King, E. (2006). Factors that shape young people's sexual behaviour: A systematic review. *Lancet, 368*(9547), 1581–1586.

Martínez-Gómez, Veiga, D., O L., Gómez-Martínez, S., Zapatera, B., Martínez-Hernández, D., Calle, M. E., ... AFINOS Study Group (2012). Gender-specific influence of health behaviours on academic performance in Spanish adolescents. *Nutr Hosp., 27*(3), 724-730.

Mazur, J., Scheidt, P. C., Overpeck, M. D., Harel, Y., & Molcho, M. (2001). Adolescent injuries in relation to economic status: An international perspective. *Injury Control and Safety Promotion, 8,* 179-182.

McIntosh, D., & Spilka, B. (1990). Religion and physical health: The role of personal faith and control beliefs. *Research in the Social Scientific Study of Religion, 2,* 167-194.

McKenzie, T. L., Sallis, J. F., Elder, J. P., Berry, C. C., Hoy, P. L., & Nader, P. R. (1997). Physical activity levels and prompts in young children at recess: A two-year study of a Bi-ethnic sample. *Res Q Exerc Sports, 68*(3), 195–202. Doi:10.1080/ 02701367.1997.10607998.

McLaws, M., Oldenburg, B., Ross, M., & Cooper, D. (1990). Sexual behaviour in AIDS-related research: Reliability and validity of recall and diary measures. *Journal of Sex Research, 27,* 265-281.

McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programmes. *Health Education Quarterly, 15,* 351-377.

McMaster, J., & Keshav, C. (1994). Perceptions of normal alcohol use held by Zimbabwean high school students. *Cent Afr J Med., 40*, 88-94.

McNaughton, S. A., Ball, K., Mishra, G. D., & Crawford, D. A. (2008). Dietary patterns of adolescents and risk of obesity and hypertension. *J Nutr., 138*, 36-40.

McPherson, S., Hoelscher, D., Alexander, M., Scanlon, K., & Serdula, M. (2000). Dietary assessment methods among school - aged children: Validity and reliability. *Preventive Medicine, 31*, 11-33.

Mette, R., Rikke, K., Knut-Lnge, K., Leslie, L., Johanness, B., Elling, B., and Pernille, D. (2006). Determinants of fruit and vegetable consumption among children and adolescents: A review of literature. *The International Journal of Behaviour Nutrition and Physical Activity, 3*(22), 45-57.

Micklesfield, L. K., Pedro, T. M., Kahn, K., Kinsman, J., Pettifor1, J. M., Tollman, S., & Norris, S. A. (2014). Physical activity and sedentary behaviour among adolescents in rural South Africa: Levels, patterns and correlates. *BMC Public Health, 14*, 40-48.

Miller, M. H., Esbensen, F., & Freng, A. (1999). Parental attachment, parental supervision and adolescent deviance in intact and non-intact families. *Journal of Crime and Justice, 22*, 1-29.

Ministry of Education, Ghana. (2014). *National profile-2012 / 2013 school year data.* Accra: Ministry of Education, Ghana.

Ministry of Health. (2011). *National policy for the prevention and control of chronic non-communicable diseases in Ghana*. Accra, Ghana: MOH.

Ministry of Health/World Health Organization. (2003). *A national survey on prevalence and social consequences by substance (drug) use among second cycle and out of school youth in Ghana* research report. Retrieved 20th July, 2014 from http://www.who.int/ countries/gha/ publications/ substance_ abuse_report.pdf

MOH. (2009). *Dietary and physical activity guidelines for Ghana.* Accra: MOH.

Montaño, D. E., Kasprzyk, D., & Taplin, S. H. (1997). The theory of reasoned action and theory of planned behaviour. In K. Glantz, F. M. Lewis, B. K. Rimer (Eds). *Health behaviour and health education: Theory, research, and practice*. San Francisco, CA: Jossey-Bass, Inc; (pp. 85-112).

Moreno, L.A., Rodriguez, G., Fleta, J., Bueno-Lozano, M., Lazaro, A., & Bueno, G. (2010). Trends of dietary habits in adolescents. *Critical Reviews in Food Science and Nutrition, 50*(2), 106-112.

Morojele, N. K., Brook, J. K., & Kachieng'a, M. A. (2006). Perceptions of sexual risk behaviours and substance abuse among adolescents in South Africa: A qualitative investigation. *AIDS Care, 18*, 215-9.

Morrison, D., Gillmore, M., Hoppe, M., Gaylord, J., Leigh, B., & Rainery, D. (2003). Adolescent drinking and sex: Findings from a daily diary study. *Perspectives on Sexual and Reproductive Health, 35*(4), 162-168.

Mukoma, W., & Flisher, A. J. (2004). Evaluations of health promoting schools: A review of nine studies. *Health Promotion International, 19*, 357-368.

Murray, C., & Greenberg, M. T. (2000). Children's relationship with teachers and bonds with school: An investigation of patterns and correlates in middle childhood. *Journal of School Psychology, 38*, 42-55.

Murray, C., & Greenberg, M.T. (2000). Children's relationship with teachers and bonds with school. An investigation of patterns and correlates in middle childhood. *Journal of School Psychology, 38*(5), 42-45.

Mynarski, W., Nawrocka, A., Rozpara, M., & Garbaciak, W. (2012). Physical activity of male and female adolescents living in a town and a city in the context of public health recommendations. *Biomedical Human Kinetics, 4*, 18-23.

Nabila, J. S., & Fayorsey, C. (1996). *Youth and reproductive health in Africa: Assessment of adolescent reproductive health needs in Ghana*, Accra, Ghana: United Nations Population Fund (UNFPA).

Neumark-Sztainer, D., Hannan, P. J., & Story, M. (2004). Weight-control behaviours among adolescent girls and boys: implications for dietary intake. *J Am Diet Assoc, 104*, 913-920.

Neumark-Sztainer, D., Story, M., Perry, C., & Casey, M. A. (1998). Factors influencing food choices of adolescents: findings from focus-group discussions with adolescents. *Journal of the American Dietetic Association, 99*, 929-937.

Neumark-Sztainer, D., Wall, M., Story, M., & Fulkerson, J. A. (2003). Are family meal patterns associated with disordered eating behaviours among adolescents? *Journal of Adolescent Health, 35*, 350-359.

Nic Gabhainn, S., Baban, A., Boyce, W., & Godeau, E., (2009). HBSC Sexual Health Focus Group: How well protected are sexually active 15-year olds? Cross-national patterns in condom and contraceptive pill use 2002–2006. *International Journal of Public Health, 54*(2), 209-215.

Nicol, A. A. M., & Pexman, P. M. (2005). *Presenting your findings: A practical guide for creating tables.* Washington, DC: American Psychological Association.

Nilsen, S. M., Krokstad, S., Holmen, T. L., & Westin, S. (2009). Adolescents' health-related dietary patterns by parental socio-economic position, The Nord-Trøndelag Health Study (HUNT). *European Journal of Public Health, 20*(3), 299-305.

Nkyi, A. (2014). Substance abuse among senior high school students in Ghana. *International J. Soc. Sci. & Education, 4*(2), 2223-4934.

Nowak, M. (1998). The weight-conscious adolescent: Body image, food intake, and weight-related behaviour. *Journal of Adolescent Health 23*(6), 389-398.

Nutbeam, D., Smith, C., Moore, L., & Bauman, A. (1993). Warning! Schools can damage your health: Alienation from school and its impact on health behaviour. *Journal of Paediatrics and Child Health, 29*(1), 25-30.

Nyawornota, V. K., Aryeetey, R. Bosomprah, S., & Aikins, M. (2013). An exploratory study of physical activity and overweight in two senior high schools in the Accra Metropolis. *Ghana Medical Journal, 47*(4), 197-203.

O'Loughlin, J., Karp, I., Koulis, T., Paradis, G., & Difranza, J. (2009). Determinants of first puff and daily cigarette smoking in adolescents. *American Journal of Epidemiology, 170*, 585-597.

Ocansey, R., Aryeetey, R., Sofo, S., Badasu, D. M., Pambo, P., & Nyawornota, V. K. (2014). Results from Ghana's 2014 report card on physical activity for children and youth. *Journal of Physical Activity and Health, 11*(1), 58-62.

Oellingrath, I. M., & Nærum, K. R. (2006). Kosthold blant ungdom i Porsgrunn. Kjønn, alder og sosial bakgrunn. *Tidsskriftet for Ungdomsforskning, 6*(1), 58-63.

Oetting, E. R., & Donnermeyer, J. F. (1998). Primary socialization theory: the etiology of drug use and deviance. *Substance Use Misuse, 33*, 995-1026.

Ofori, R., & Dampson, D. G. (2011). *Research methods and statistics using SPSS.* Amakom-Kumasi: Payless Publication Limited.

Ogah, J. K. (2013). *Decision making in the research process: Companion to students and beginning researchers.* Legon-Accra: Adwinsa Publications (Gh) Ltd.

Ogden, C., Flegal, K., & Carroll, M. (2002). Prevalence and trends in overweight among US children and adolescents, 1999–2000. *JAMA, 288,* 1728-1732.

Oleckno, W. A., & Blacconiere, M. J. (1991). Relationship of religiosity to wellness and other health related behaviours and outcomes. *Psychological Reports, 68,* 819-826.

Orleans, T. C. (2000). Promoting the maintenance of health behaviour change: Recommendations for the next generation of research and practice. *Health Psychology, 19*, 76-83.

Othman K. I., Abdul, K. S.R., Karim R., Adzhan, N., Abdul, H. N. and Osman S. (2012). Factors influencing fruits and vegetables consumption behaviour among adults in Malaysia. *Journal of Agribusiness Marketing. 5*, 29- 46.

Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behaviour predicts future behaviour. *Psychological Bulletin, 124*, 54-74.

Øverbye, N., & Andersen, L. F. (2000). *UNGKOST-2000. Landsomfattende kostholds-undersøkelse blant elever i 4. og 8. klasse i Norge*. Oslo: Sosial- og helsedirektoratet.

Owen, N., Leslie, E., Salmon, J., & Fotheringham, M. J. (2000). Environmental determinants of physical activity and sedentary behaviour. *Exercise and Sport Sciences Reviews, 28*, 153-158.

Owusu, A., Murdock P.O., & Weatherby (2007). Measuring nutritional intake of adolescents in Ghana, West Africa. *International Electronic Journal of Health Education, 10*, 104-113.

Owusu-Dabo, E., Lewis, S., McNeill, A., Gilmore, A., & Britton, J. (2009). Smoking uptake and prevalence in Ghana. *Tobacco Control, 18*, 365-370. doi:10.1136/tc.2009.030635.

Parker, L. (1989). *The relationship between nutrition & learning. In a school employee's guide to information and action*. Washington, DC: National Education Association of the United States.

Patrick, M. E., & Schulenberg, J. E. (2010). Alcohol use and heavy episodic drinking prevalence and predictors among national samples of American eighth- and tenth-grade students. *Journal of Studies on Alcohol and Drugs, 71*(1), 41-45.PmiD: 20105412.

Patrick, M. E., & Schulenberg, J. E. (2014). Prevalence and predictors of adolescent alcohol use and binge drinking in the United States. *Alcohol Research, 35*(2), 193-200.

Pearson, N., Atkin, A. J., Biddle, S. J., Gorely, T., & Edwardson, C. (2009). Patterns of adolescent physical activity and dietary behaviors. *International Journal of Behavioural Nutrition and Physical Activity 6*(45), 458-463.

Peltzer K., & Pengpid, S. (2012). *Fruits and vegetables consumption and associated factors among in-school adolescents in five Southeast Asian countries.* Retrieved 25th July, 2016 from http://www.hsrc.ac.za/en/research-outputs/view/6056

Peltzer, K. (2009a). Prevalence and correlates of substance use among school children in six African countries. *International Journal of Psychology, 44*(5), 378-383.

Peltzer, K. (2009b). Health behaviour and protective factors among school children in four African countries. *International Journal of Behavioural Medicine, 16*, 172-180.

Peltzer, K. (2010). Early sexual debut and associated factors among in-school adolescents in eight African countries. *Acta Paediatrics, 99*(8), 124-127. Doi: 10.1111/j.1651-2227.2010.01874.x.

Pentz, M. A. (2009). Understanding and preventing risks for adolescent obesity. In R. J. DiClemente, J. S. Santelli & R. A. Crosby (Ed.). *Adolescent Health. Understanding and Preventing Risk Behaviors.* (pp. 147-164). San Fransisco: John Wiley & Sons.

Phinney, V. G., Jensen, L. C., Olsen, J. A., & Cundick, B. (1990). The relationship between early development and psychosexual behaviours in adolescent females. *Adolescence, 98*, 321-332.

Pickett, W., Boyce, W. F., Garner, M., & King, M. A. (2002). Gradients in risk for youth injury associated with multiple risk behaviours: A study of 11,329 Canadian children. *Social Science and Medicine, 55*, 1055-1068.

Pinhas-Hamiel, O., & Zeitler, P. (2005). The global spread of type 2 diabetes mellitus in children and adolescents. *The Journal of Pediatrics, 146*(5), 693-700.

Plotnikoff, R. C., Bercovitz, K., & Loucaides, C.A. (2004). Physical activity, smoking, and obesity among Canadian school youth. Comparison between urban and rural schools. *Can J Public Health, 95*, 413-418.

Pokhrel, P., Unger, J. B., Wagner, K. D., Ritt-Olson, A., & Sussman, S. (2008). Effects of parental monitoring, parent-child communication and parents' expectation of the child's acculturation on the substance use behaviors of urban, Hispanic adolescents. *J Ethn Subst Abuse, 7*(2), 200-213. Doi: 10.1080/15332640802055665.

Pring, R. (2000). *Philosophy of educational research.* London: Continuum.

Progressive Life Center. (2010). *Technical report*. Accra: Progressive Life Center Inc.

Ralph, J., Diclemente, J. S., Santelli, R. A., & Crosby, E. (2009). *Adolescent health: Understanding and preventing risk behaviours.* San Francisco: John Wiley & Sons.

Ranjit, N., Evans, M. H., Byrd-Williams, C., Evans, A. E., & Hoelscher, D. M. (2010). Dietary and activity correlates of sugar-sweetened beverage consumption among adolescents. *Pediatrics, 126*(4), 754-761. doi: 10.1542/peds.2010-1229.

Rasmussen, M. (2006). Determinants of fruit and vegetable consumption among children and adolescents: a review of the literature. Part 1: Quantitative studies. *International Journal of Behavioral Nutrition and Physical Activity, 3*(22), 109-115.

Rebellon, C. J. (2002). Reconsidering the broken homes/delinquency relationship and exploring its mediating mechanism(s). *Criminology, 40,* 103-136.

Reboussin, B. A., Preisser, J. S., Song, E. Y., & Wolfson, M. (2010). Geographic clustering of underage drinking and the influence of community characteristics. *Drug Alcohol Depend, 106*(1), 38-43. Doi:10.1016/j.drugalcdep.2009.07.019.

Rehm, J., Room, R., Monteiro, M., Gmel, G., Graham, K., & Rehn, N. (2003). Alcohol as a risk factor for global burden of disease. *European Addiction Research, 9,* 157-164.

Reilly, J. J., & Kelly, J. (2010). Long-term impact of overweight and obesity in childhood and adolescence on morbidity and premature mortality in adulthood: systematic review. *International Journal of Obesity, 2*(6), 10-20.

Ribeiro Sarmento, D., & Yehadji, D. (2016). An analysis of global youth tobacco survey for developing a comprehensive national smoking policy in Timor-Leste. *BMC Public Health, 6*(65), 274-285. DOI 10.1186/s12889-016-.

Richard, L., Potvin, L., Kishchuk, N., Prlic, H., & Green, L. W. (1996). Assessment of the integration of the ecological approach in health promotion programs. *American Journal of Health Promotion, 10,* 318-328.

Rode, A., & Shephard, R. J. (1994). Physiological consequences of accultration: A 20-year study of fitness in an Inuit community. *European Journal of Applied Physiology, 69,* 516-524.

Roeser, R., Eccles, J. S., & Sameroff, A. J. (2000). School as a context of early adolescents' academic and social-emotional development: A summary of research findings. *Elementary School Journal, 100,* 44-71.

Roeser, R., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioural functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88,* 408-422.

Rose, G. (2003). *The strategy of preventive medicine.* Oxford: Oxford University Press.

Rudatsikira, E., Maposa1, D., Mukandavire, Z., Adamson, S., & Siziya, M. S. (2009). Prevalence and predictors of illicit drug use among school-going adolescents in Harare, Zimbabwe. *Annals of African Medicine, 8*(4), 215-220.

Sallar, A. M. (2001). *Sexual risk taking in the era of HIV/AIDS: Case study of adolescents resident in Ketu South, Upper Denkyira, and Offinso electoral constituencies in Ghana*, dissertation, University of British Columbia, Vancouver.

Sallis, J. F. (1994). Physical activity guidelines for adolescents (Special issue). *Pediatr. Exerc. Sci., 6,* 4-9.

Sallis, J. F., & Owen, N. (1997). Ecological models. In K. Glanz, F. M. Lewis, & B. K. Rimer (Eds.). *Health behaviour and health education: Theory, research and practice* (2nd ed.) (pp. 403-424). San Francisco: Jossey-Bass.

Sallis, J. F., Bauman, A., & Pratt, M. (1998). Environmental and policy interventions to promote physical activity. *American Journal of Preventive Medicine, 15,* 379-397.

Sallis, J. F., Prochaska, J. J., & Taylor, W. C. (2000). A review of correlates of physical activity of children and adolescents. *Journal of the American College of Sports Medicine, 103,* 963-975.

Saltz, R., & Elandt, D. (1986). College student drinking studies 1976-1985. Contemporary *Drug Problems, 13*(1), 117-119.

Saltz, R., & Elandt, D. (1989). College student drinking studies 1976-1985. *Contemporary Drug Problems, 13*(1), 117-119.

Samdal, O., Nutbeam, D., Wold, B., & Kannas, L. (1998). Achieving health and educational goals through schools: A study of the importance of the school climate and the student's satisfaction with school. *Health Education Research, 13*, 383-397.

Samdal, O., Wold, B., Klepp, K-I., & Kannas, L. (2000). Students' perception of school and their smoking and alcohol use: A cross national study', *Addiction Research*, *8*(2), 141-167.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighbourhoods and violent crime: A multilevel study of collective efficacy. *Science*, *277*, 918-924.

Santelli, J. (1997). Human subjects' protection and parental permission in adolescent health research, *Journal of Adolescent Health*, *21*(6), 384-387.

Sarmento, D. R., & Yehadjii, D. (2016). Analysis of global youth tobacco survey for developing a comprehensive national smoking policy in Timor-Leste. *BMC Public Health, 16,* 6.

Saunders, B., & Baily, S. (1993). Alcohol and young people: Minimizing the harm. *Drug and Alcohol Review, 12(*1), 81-90.

Schickedanz, J. A., Schickedanz, D. I., Forsyth, P. D., & Forsyth, G. A. (Eds) (2001). *Understanding children and adolescents.* Toronto: Allyn and Bacon.

Schmid, H., ter Bogt, T., Godeau, E., Hublet, A., Dias, S. F., & Fotiou, A. (2003). Drunkenness among young people. A cross-national comparison. *Journal of Studies on Alcohol, 64,* 650-661.

Schmitz, K. H., Lytle, L. A., & Phillips, G. A. (2002). Psychosocial correlates of physical activity and sedentary leisure habits in young adolescents: the teens eating for energy and nutrition at school study. *Prev Med., 34,* 266- 278.

Schoeppe, S., Duncan, M. J., Badland, H., Oliver, M., & Curtis, C. (2013). Associations of children's independent mobility and active travel with physical activity, sedentary behaviour and weight status: A systematic review. *Journal of Science and Medicine in Sport, 16*(4), 312-319.

Schuyler, W. H. (2008). *Reading statistics and research.* Boston: Pearson Education, Inc.

Schwarzer, R., & Luszczynska, A. (2008). How to overcome health-compromising behaviours: The health action process approach. *European Psychologist, 13*(2), 141-151.

Sells, C. W., & Blum, R. W. (1996). Morbidity and mortality among U.S. adolescents: An overview of data and trends. *American Journal of Public Health, 86,* 513-519.

Selman, R.L. (1980). *The growth of interpersonal understanding.* New York: Academic Press.

Seroczynski, A. D., Cole, D. A., & Maxwell, S. E. (1997). Cumulative and compensatory effects of competence and incompetence on depressive symptoms in children. *Journal of Abnormal Psychology, 106,* 586-597.

Shakib, S., Zheng, H., Johnson, C.A., Chen, X., Sun, P, Palmer, P.H., Yan, L., Jie, G., & Unger, J. B. (2005). Family characteristics and smoking among urban and rural adolescents living in China. *Preventive Medicine, 40*, 83-91.

Sharp, D., & Lowe, G. (1989). Adolescents and alcohol; a review of the recent British research *Journal of Adolescence, 12(3)*, 295-307.

Shridhar, K., Millett, C., Laverty, A. A., Alam, D., Dias, A., Williams, J., & Dhillon, P. K. (2016). Prevalence and correlates of achieving recommended physical activity levels among children living in rural South Asia: A multi-centre study. *BMC Public Health, 16*, 690-700.

Shrier, L., Shih, M., Hacker, L., & de Moor, C. (2007). A momentary sampling study of the affective experience following coital events in adolescents. *Journal of Adolescent Health, 40* (4), e351-e358.

Shucksmith, J., Glendinning, A., & Hendry, L. (1997). Adolescent drinking behaviour and the role of family life: A Scottish perspective. *Journal of Adolescence, 20*(1), 85-101.

Siega-Riz , A. M., Carson, T., & Popkin, B. (1998). Three squares or mostly snacks what do teens really eat? A sociodemographic study of meal patterns. *Journal of Adolescent Health, 22*, 29.

Sigfúsdóttir, I. D., Kristjánsson, Á. L., & Allegrante, J. P. (2007). Health behaviour and academic achievement in Icelandic school children. *Health Education Research*, 22, 70-80.

Singh, S. (2000). Gender differences in the timing of first intercourse: data from 14 countries, *International Family Planning Perspectives*, 26(1), 21-43.

Sirard, J., & Pate, R. (2001). Physical activity assessment in children and adolescents. *S ports Medicine, 31* (6), 439-454.

Skinner, B. F. (1954). *Science and human behaviour*. New York: MacMillian.

Slining, M. M., Mathias, K. C., & Popkin, B. M. (2013). Trends in food and beverage sources among US children and adolescents: 1989-2010. *J Acad Nutr Diet, 113,* 1683.

Smith, T. M., Tingen, M.S., & Waller, J. L. (2005). The influence of self-concept and locus of control on rural preadolescent tobacco use. *SOJNR, 6,* 1-19.

Soenens, B., Vansteenkiste, M., Luyckx, K., & Goossens, L. (2006). Parenting and adolescent problem behavior: An integrated model with adolescent self-disclosure and perceived parental knowledge as intervening variables. *Developmental Psychology, 42,* 305-318.

Sparrow, S. L. (2010). *Examining skills-based health education in select secondary schools*. Dissertation presented to Nutrition Education Institute, Boston University.

Spear, B. A. (2002). Adolescent growth and development. *J Am Diet Assoc, 102,* S23.

Spence, J. C., & Lee, R. E. (2003). Toward a comprehensive model of physical activity. *Psychology of Sport and Exercise, 4,* 7-24.

Spooner, C., Mattick, R. P., & Noffs, W. (2000). A study of the patterns and correlates of substance use of substance use among adolescents applying for treatment. *Australian and New Zealand Journal of Public Health, 24,* 492-502.

Steinberg, L. (2004). Risk- taking in adolescence: What changes, and why? *Annals of the New York Academy of Sciences, 1021,* 51-58.

Steinberg, L. (2007). Risk taking in adolescence: New perspectives from brain and behavioural science. *Current Directions in Psychological Science, 16,* 55-59.

Steinberg, L. (2008). *Adolescence.* (8th ed.). New York: McGraw-Hill.

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology, 52,* 83-110.

Stewart, G. (1995). *Active living: The miracle medicine for a long and happy life.* Windsor, ON: Human Kinetics.

Stoker, A., & Swadi, H. (1990). Perceived family relationships in drug abusing adolescents. *Drug and Alcohol Dependence, 25,* 293-297.

Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion, 10,* 282-298.

Strong, W. B. (2005). Evidence-based physical activity for school-age youth. *Journal of Pediatrics, 146*(6), 732-737.

Strong, W. B., Malina, R. M., Blimkie, C. J., Daniels, S. R., Dishman, R. K.. & Gutin, B. (2005). Evidence based physical activity for school-age youth. *Journal of Pediatrics, 14,* 732-737.

Sullivan, M., & Wodarski, J. (2004). Rating College Students' Substance Abuse: A systematic literature review. *Brief Treatment and Crisis Intervention, 4*(1), 71-91.

Susser, M., & Susser, E. (1996). Choosing a future for epidemiology: II. From black box to Chinese boxes and ecoepidemiology. *American Journal of Public Health, 86,* 674-677.

Treloar, C., Porteous, J., Hassan, F., Kasniyah, N., Lakshmanudu, M., Sama, M., Sja'bani, M., & Heller, R. F. (1999). The cross cultural context of obesity: An INCLEN multicentre collaborative study. *Health & Place, 5*, 279-286.

Tremblay, M. S., Inman, J. W., & Willms, S. (2000). The Relationship between physical activity, selfesteem, and academic achievement in 12- year-old children. *Pediatric Exercise Science, 12,* 312-323.

Turner, L., Mermelsten, R., & Flay, B. (2004). Individual and contextual influences on adolescent smoking. *Ann NY Acad Science, 1021*, 175-197.

Tweedie, I., & Witte, K. (2000). *Ghana youth reproductive health survey report.* Accra, Ghana: Ghana Social Marketing Foundation.

Uauy, R., & Solomons, N. (2005). Diet, nutrition, and the life-course approach to cancer prevention. *Journal of Nutrition, 135,* 29-34.

Udry, J. R., Billy, J. O. G., Morris, N. M., Groff, T. R., & Raj, M. H. (1985). Serum androgenic hormones motivate sexual behaviour in adolescent boys. *Fertility and Sterility, 43*(1), 90-94.

Udry, J. R., Talbert, L. M., & Morris, N. M. (1986). Biosocial foundations for adolescent female sexuality. *Demography, 23,* 217-227.

Underwood, M. (2005). Observing anger and aggression among preadolescent girls and boys: Ethical dilemmas and practical solutions. *Ethics and Behaviour, 15* (3), 235-245.

UNESCO. (2001). *Education and poverty eradication.* New York: UNESCO.

United Nations Office on Drugs and Crime. (2015). *Guidelines on school based education on drug abuse prevention.* Retrieved 24th December, 2016 from http://www.unodc.org

United Nations Office on Drugs and Crime. (2016). *World drug report*. New York: United Nations.

Unger, J. B., Shakib, S., Cruz, T. B., Hoffman, B. R., Pitney, B. H., & Rohrbach, L. A. (2003). Smoking behaviour among urban and rural Native American adolescents in California. *America Journal of Preventive Medicine, 25*, 251-254.

US Department of Health and Human Services, Center for Disease Control and Prevention. (1996). *Physical activity and health: A report of the surgeon general executive summary*. Atlanta, GA: CDC.

Utter, J., Neumark-Sztainer, D., & Jeffrey, R. (2002). Couch potatoes or French fries: are sedentary behaviours associated with body mass index, physical activity, and dietary behaviours among adolescents? *J Am Diet Assoc., 103*, 1298-1305.

Van Kooten, M., De Ridder, D., Vollebergh, W., & Van Dorsselaer, S. (2007). What's so special about eating? Examining unhealthy diet of adolescents in the context of other health related behaviours and emotional distress. *Appetite, 48* (3), 325-32.

van Sluijs, E. M. F., Fearne, V. A., Mattocks, C., Riddoch, C., Griffin, S. J., & Ness, A. (2009).The contribution of active travel to children's physical activity levels: Cross sectional results from the ALSPAC study. *Preventive Medicine, 48*(6), 519-24.

Vereecken, C. A. (2005). Eating habits. In *HBSC Research Protocol for 2005/06 Survey. Section 2.* Scientific rationales for focus areas.

Vereecken, C. A., Inchley, J., Subramanian, S. V., Hublet, A., & Maes, L. (2005). The relative influence of individual and contextual socio-economic status on consumption of fruit and soft drinks among adolescents in Europe. *European Journal of Public Health 15*(3), 224-232.

Veronneau, M. H., & Dishion, T. J. (2011). Middle school friendships and academic achievement in early adolescence: A longitudinal analysis. *The Journal of Early Adolescence*, *31*(1), 99-124.

Villanti, A., Boulay, M., & Juon, H. (2011). Peer, parent and media influences on adolescent smoking by developmental stage. *Addictive Behaviour, 36,* 133-136.

Vince-Whitman, C., Aldinger, C., Levinger, B., & Birdthistle, I. (2001). *Education For All 2000 assessment. Thematic studies: School health and nutrition*. Paris: UNESCO.

Viner, R. M., Ozer, M. E., Denny, S., Marmot, M., Resnick, M., Fatusi, A., & Currie, C. (2012). Adolescence and the social determinants of health. *Lancet, 379,* 141-152.

Völzke, H., Neuhauser, H., Moebus, S., Baumert, J., Berger, K., Stang, A., Ellert, U., Werner, A., & Döring, A. (2006). Urban-rural disparities in smoking behaviour in Germany. *BMC Public Health, 6*, 146, doi: 10.1186/1471-2458-6-146.

Wachs, T. D. (1992). *The nature of nurture*. Newbury Park, CA: Sage.

Wachs, T. D. (1999). Celebrating complexity: Conceptualization and assessment of the environment. In S. L. Friedman, & T. D. Wachs (Eds.). *Measuring environment across the life span: Emerging methods and concepts* (pp. 357-392). Washington, DC: American Psychological Association.

Waldron, I. (1988). Why do women live longer than men? *Journal of Human Stress, 2,* 2-13.

Weinstein, N. D. (1993). Testing four competing theories of health-protective behaviour. *Health Psychology, 12,* 324-333.

Welk, G. J. (1999). The youth physical activity promotion model: A conceptual bridge between theory and practice. *Quest, 51,* 5-23.

White, J., & Halliwell, E. (2010). Alcohol and tobacco use during adolescence: The importance of the family mealtime environment. *Journal of Health Psychology, 15,* 526-532.

WHO. (2002). Diet, physical activity and health: Report by the secretariat. *Fifty-fifth world health assembly, provisional agenda item, 13,* 11.

WHO. (2003a). Information Sheet on Physical Activity. Geneva, Switzerland, 2003. Retrieved 14th June, 2015, from http://www.who.int/dietphysicalactivity/media/en/gsfs_pa.pdf

WHO. (2003b). *Skills for health.* Information Series on School Health, Document. *Retrieved 23rd August, 2015,* http://www.who.int/school_youth_health/media/en/sch_skills4health_03.pdf

WHO. (2004). Young people's health in context: Selected key findings form the Health Behavior in Schoolaged Children study. *Fact Sheet EURO 04,* 4.

WHO. (2006). *Addressing the socioeconomic determinants healthy eating habits and physical activity levels among adolescents.* Geneva: The Regional Office for Europe of the World Health Organization.

WHO. (2009). *World health statistics 2009.* Geneva: WHO.

WHO. (2010). *World health statistics 2010: Progress on the health related millennium development goals.* Geneva: WHO Press.

WHO. (2012). *World health statistics*. Geneva: WHO Press.

WHO. (2013). *World health statistics 2013*. Geneva: WHO Press, WHO.

WHO. (2015). *Sexual reproductive health ethical issues: Reproductive health involving adolescents*. Geneva: Scientific and Ethical Review Group.

WHO/HBSC. (2006). *Addressing the socioeconomic determinants of healthy eating habits and physical activity levels among adolescent*. Europe Office: WHO.

Witt, E. A., Massman, A. J., & Jackson, L. A. (2011). Trends in youth's videogame playing, overall computer use, and communication technology use: The impact of self-esteem and the Big Five personality factors. *Computer Human Behaviour, 27*, 3-9.

Working Group of the NIH Advisory Committee. (2004). *Report of the working group of the NIH advisory committee to the director on research opportunities in the basic behavioural and social sciences*. Retrieved 16th May 2015, from http://obssr.od.nih.gov/Documents/BSSRCC/Meetings/Minutes/Minutes_2005/Basic%20Beh%20Report_complete.pdf

Wright, L., & Montezuma, R. (2004). *Reclaiming public space: The economic, environmental, and social impacts of Bogota's transformation*. In: Cities for People Conference, Walk21, 9-11 Jun 2004, Copenhagen, Denmark.

Wu, J., Xiong, G., & Shi, S. (2007). Study on sexual knowledge, attitudes and behaviours of adolescents. *Chinese Journal of Child Health Care (in Chinese), 15*(2), 120-121.

Xie, B., Gilliland, F. D., Li, Y-F., & Rockett, H. R. H. (2003). Effects of Ethnicity, Family Income, and Education on Dietary Intake among Adolescents. *Preventive Medicine, 36,* 30-40.

Xin, W.,Qing-Min, L., Yan-Jun, R., Jun, L., & Li-Ming, L. (2015). Family influences on physical activity and sedentary behaviours in Chinese junior high school students: A cross-sectional study. *BMC Public Health, 15*, 287. doi:10.1186/s12889-015-1593-9.

Yen, I. H., & Kaplan, G. A. (1998). Poverty area residence and changes in physical activity level: Evidence from the Alameda County Study. *American Journal of Public Health*, *88*, 1709-1712.

Zeigler, D., Wang, C. C., Yoast, R. A., Dickinson, B. D., McCaffree, M. A., & Robinowitz, C. B. (2005). The neurocognitive effects of alcohol on adolescents and college students. *Preventive Medicine, 40*(1), 23-32.

Zullig, K. J., Pun, S., Patton, J. M., & Ubbes, V. A. (2006). Reliability of the 2005 middle school youth risk behaviour survey. *J Adolesc Health. 39*, 856- 60.

APPENDICES

APPENDIX A: QUESTIONNAIRE FOR ADOLESCENTS HEALTH BEHAVIOUR

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND RECREATION

Dear valued Students,

I am a PhD student in the Department of Health, Physical Education and Recreation, University of Cape Coast. I am collecting data for a thesis research that looks at the **Determinants of Health Related Behaviours among School going Adolescents in the Central Region of Ghana.**

This survey deals with health behaviours as portrayed by adolescents in the Junior High Schools in the region. It has been developed so you can tell us what you do that may affect or improve your health. The information you give will help in policy formulations and strategies to improve your health through education and programmes for young people like yourself in the schools across Central region and to an extension, the whole country. **DO NOT** write your name. The answers you give will be kept confidential so that no one will identify you with your responses. Answer the questions based on what you really do.

Your responses will be extremely helpful if they are truthful and reflect the real situation as you remember. This research is solely academic and your school's responses will be treated with confidentiality. Please be inform you will meet some questions on your sexual, drug and alcohol experiences which you must be truthful as much as possible.

Please, it will take you about 35 minutes to answer the questions.

Informed Consent

Please complete this informed consent before you respond to this questionnaire.

I fully understand the importance of this research and willingly offer myself to participate in this study.

Signature: .....

Date: .....

Researcher: Thomas Hormenu 0244213465

Principal Supervisor: Prof. J. K. Ogah (0243102322)

INSTRUCTION: PLEASE CIRCLE OR WRITE YOUR APPROPRIATE RESPONSE WHERE NECESSARY

1. How old are you?.....
2. What is your sex? A. Boy B. Girl
3. Religious affiliation: A. Christians B. Moslem C. Others
4. Which form are you?
   A. 1
   B. 2
   C. 3

Physical Activity (Physical Education, walking to school, running, fast walking, biking, dancing, football, ampe, skipping etc.)

5. From Mondays to Sundays in the last 4 weeks, how many days were you physically active for a total of at least 60 minutes per day?
   A. Never

B. One
C. Two
D. Three
E. More than Three

Sedentary Life

6. Do you watch TV every day? A. Yes B. No
7. From Monday to Sunday how many hours a day do you spend watching TV?
   A. Never
   B. Half an hour
   C. 1 hour
   D. 2 hours
   E. 3 hours
   F. 4 hours
   G. 5 or more hours
8. How many hours do you play computer/ video games in a day?
   A. Never played computer game
   B. About half an hour a day
   C. About 1 hour a day
   D. About 2 hours a day
   E. About 3 hours a day
   F. About 4 hours a day
   G. About 5 hours a day
   H. About 6 hours a day
   I. About 7 or more hours a day
9. How many times have you being going for Physical Education class in a week?
   A. Never gone for PE class
   B. Once a week
   C. Twice a week
   D. More than twice a week

Smoking Behaviour (cigarette smoking)

10. Have you ever smoked A. Yes B. No
11. At which level of schooling have you first smoked?
    A. I have never smoked
    B. Lower Primary school
    C. Upper Primary
    D. JHS
12. How often do you smoke nowadays?
    A. I have never smoked
    B. 1 or 2days
    C. 3 or 4 days
    D. 5 or 6 days
    E. All 7 days
13. How did you get the first cigarette stick you smoked?
    A. I have never smoked
    B. From a friend
    C. My parent
    D. My teacher
    E. Brothers or Sisters

F. Picked it on the ground

14. What was the reason for smoking the first time?
    A. Never smoked
    B. Just want to feel the taste
    C. I was forced by a friend
    D. I don't know

Substance Use (Wee)

15. Have you ever smoked, chewed or eaten wee?
    A. Yes B. No
16. Which class were you when you first used wee?
    A. I have never used weed
    B. Lower Primary
    C. Upper Primary
    D. JHS
17. Who introduced you to the wee?
    A. I have never use wee
    B. My school mates
    C. My parent
    D. Brother or Sister
    E. I was sent to buy it
18. Why did you take the wee for the first time?
    A. I have never used wee
    B. In order to be with my friends
    C. I want to learn my books
    D. I want to be powerful
    E. I want to have sex

Sexual Behaviour (vaginal and anal penetration)

19. Have you ever had sexual intercourse? A. Yes B. No
20. Which class were you when you had sexual intercourse for the first time?
    A. I have never had sexual intercourse
    B. Lower Primary
    B. Upper Primary
    C. JHS
21. What influenced your first sexual intercourse?
    A. I had never had sex
    B. I was drunk
    C. I wanted to prove my love
    D. I was forced to do it
    E. I wanted to please my friends
    F. I don't know
22. How many people have you had sexual intercourse with in your life?
    A. I have never had sexual intercourse
    B. 1 person
    C. 2 people
    D. More than two (2) people
23. The **last time** you had sexual intercourse, did you protect yourself with condom?
    A. I have never had sexual intercourse
    B. Yes

F. Picked it on the ground

14. What was the reason for smoking the first time?
    A. Never smoked
    B. Just want to feel the taste
    C. I was forced by a friend
    D. I don't know

Substance Use (Wee)

15. Have you ever smoked, chewed or eaten wee?
    A. Yes B. No
16. Which class were you when you first used wee?
    A. I have never used weed
    B. Lower Primary
    C. Upper Primary
    D. JHS
17. Who introduced you to the wee?
    A. I have never use wee
    B. My school mates
    C. My parent
    D. Brother or Sister
    E. I was sent to buy it
18. Why did you take the wee for the first time?
    A. I have never used wee
    B. In order to be with my friends
    C. I want to learn my books
    D. I want to be powerful
    E. I want to have sex

Sexual Behaviour (vaginal and anal penetration)

19. Have you ever had sexual intercourse? A. Yes B. No
20. Which class were you when you had sexual intercourse for the first time?
    A. I have never had sexual intercourse
    B. Lower Primary
    B. Upper Primary
    C. JHS
21. What influenced your first sexual intercourse?
    A. I had never had sex
    B. I was drunk
    C. I wanted to prove my love
    D. I was forced to do it
    E. I wanted to please my friends
    F. I don't know
22. How many people have you had sexual intercourse with in your life?
    A. I have never had sexual intercourse
    B. 1 person
    C. 2 people
    D. More than two (2) people
23. The **last time** you had sexual intercourse, did you protect yourself with condom?
    A. I have never had sexual intercourse
    B. Yes

C. No

24. If No what did you use?.....

25. How many of your friends have had sexual intercourse?
    A. None of my friends
    B. Some of them
    C. Most of them
    D. All of them

26. Did you drink or use any other drugs before your sexual intercourse?
    A. I never had sex
    B. Yes
    C. No

Alcohol Use or Drinking behaviour (Alcohol: Pito, Palm Wine, Akpeteshie, Beer, Guinness, Alomo, Kasapreko drinks)

27. Have you taken any alcoholic beverage before? A. Yes B. No

28. Have you ever been drunk?
    A. Never
    B. Once
    C. Twice
    D. Several times

29. Which class were you when you had your first drink of alcohol?
    A. I have never had a drink of alcohol
    B. Lower Primary
    C. Upper Primary
    D. JHS

30. How many of your friends drink alcohol?
    A. None of them
    B. Some of them
    C. Most of them
    D. All of them

31. Who introduced the drinking of alcohol to you?
    A. I have never tasted alcohol
    B. My friends
    C. My parents
    D. I watched it on TV
    E. I was sent to buy it by an older person

32. What was the reason for you drinking alcohol for the first time?
    A. I have never tasted alcohol
    B. Wanted to please my friend
    C. Wanted to be strong and have more energy
    D. I took with medicine
    E. I don't know

Dietary practices (eating of vegetables and fruits)

33. How many times do you take your breakfast during school going days of the week?
    A. Never taken breakfast
    B. Some days
    C. Everyday

34. During the past 7 days, how often per day did you eat fruit, such as oranges, pineapple, watermelon, banana, guava, pear, sweet apple, mangoes, or pawpaw?

APPENDIX B: ETHICAL CLEARANCE

UNIVERSITY OF CAPE COAST
INSTITUTIONAL REVIEW BOARD SECRETARIAT
TEL: 03321-33172/3 / 0207355653/ 0244207814
E-MAIL: irb@ucc.edu.gh
OUR REF: UCC/IRB/A/17
YOUR REF:
C/O Directorate of Research, Innovation and Consultancy

11TH JULY, 2016

Mr. Thomas Hormenu
Department of Health Physical Education and Recreation
University of Cape Coast

Dear Mr. Hormenu,

ETHICAL CLEARANCE –ID NO: (UCCIRB/CES/2016/04)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted **Provisional** Approval for implementation of your research protocol titled: **": Determinants of Health Related Behaviours among School Going Adolescent in the Central Region of Ghana."**

This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

fr (Samuel Asiedu Owusu)
ADMINISTRATOR

cc: The Chairman, UCCIRB

ADMINISTRATOR
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST
Date: 11-07-16

APPENDIX C: INTRODUCTION TO DISTRICTS

GHANA EDUCATION SERVICE

REPUBLIC OF GHANA

In case of reply the number and date of this letter should be quoted

Tel: 03321-32333
Fax: 03321-32333
Email: gescentraleduc@gmail.com
My Ref. No GES/CR/49/VOL.38/29
Your Ref. No.....

Regional Education Office
P. O. Box 111,
Cape Coast,

5th February, 2016.

INTRODUCTORY LETTER: THOMAS HORMENU
ED/HTP/14/005 : PHD STUDENT UNIVERSITY OF CAPE COAST

The above-stated name is a PHD Student of Department of Health, Physical Education and Recreation, conducting a research on the Topic "Determinants of Health Related Behaviours of School going Adolescent in the Central Region".

The department wrote to the Management of the Ghana Education Service, Regional Education Directorate, Central, for permission to enable him access the Junior High Schools in the Region for the said exercise.

Permission had been granted to him and the Directorate is by this letter introducing him and also informing all Metro, Municipal and District Directors of Education officially for your support and maximum co-operation for the exercise.

The department assured the Directorate that, the information collected will be treated with utmost confidentiality.

It is our hope that your outfit will inform all the Heads of the JHS Schools within your jurisdiction.

Counting on your usual support and co-operation.

Thank you.

B. K. OFORI
AG. REGIONAL DIRECTOR OF EDUCATION,
CENTRAL.

Distribution:

All Metro, Municipal, District Directors of Education, Central Region.

cc:- The Head,
Department of Health, Physical Education and Recreation
University of Cape Coast.

✓ Mr. Thomas Hormenu,
Department of Health & Physical Education & Recreation,
University of Cape Coast.

APPENDIX D: INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
Department of Health, Physical Education & Recreation

TELEPHONE. +233 - (0)206610931 / (0)543021384 / (0)268392819

Cables & Telegrams:
UNIVERSITY, CAPE COAST

Our Ref: ED/HTP/14/0005/7

17th December, 2015

Institutional Review Board
University of Cape Coast
Cape Coast

INTRODUCTORY LETTER: THOMAS HORMENU (ED/HTP/14/0005)

The bearer of this letter is a PhD student of the above department. In partial fulfilment of the requirements for the programme, he is conducting a research on the topic **"Determinants of Health Related Behaviours of School going Adolescents in the Central Region of Ghana"** and would need ethical clearance from your outfit.

We would therefore be most grateful if he could be given approval to enable him conduct the research.

We count on your usual co-operation.

Thank you.

Prof. Joseph K. Mintah
Head