UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

EXAMINE FACTORS AFFECTING EATING HABITS AND FOOD CHOICES OF ADOLESCENTS LIVING IN THE FAHIAKOBO AND KWAMEKROM RURAL COMMUNITIES OF BIBIANI IN THE WESTERN NORTH REGION OF GHANA

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A Project Work Submitted to the Faculty of Catering and Hospitality, Akenten Appiah-Menka University of Skill Training and Entrepreneurial Development (AAMUSTED), Kumasi in partial fulfilment of the Requirement for the Award of Master of Technology Education in Catering and Hospitality

FEBRUARY, 2022

DECLARATION

STUDENT'S DECLARATION

I, LYDIA ANANE hereby declare that this research work, with the exception of quotations and references contained in published works which have been identified and acknowledged, is entirely my own original work and it has not been submitted, either in part or whole for another degree in this university or elsewhere.

SIGNATURE: ……

DATE: ……..

SUPERVISOR'S DECLARATION

I, hereby certify that the preparation and presentation of this research project was supervised in accordance with guidelines and supervision of research work laid down by the Akenten Appiah-Menka University of Skill Training and Entrepreneurial Development (AAMUSTED), Kumasi.

SIGNATURE: ……

DATE: …….

DR. ELLEN OLU FAGBEMI

DEDICATION

This research work **is** dedicated to my dear husband, Mr. Agyei Domfeh and my lovely kids: Goodisdorr Owiredu Domfeh, and Deborah Penamang Domfeh.

ACKNOWLEDGEMENT

To God be the glory, great things he has done. I, first and foremost, want to thank the Almighty God who made this humble dream a reality, for his grace and providence. Without the most high, I could not have achieved this feat. I am highly indebted to you, Jehovah. My heartfelt and sincere gratitude goes to Dr. Ellen L.Olu Fabgemi whose advice, patience and expert guidance greatly contributed to the successful completion of this research work. Also, I wish to thank the following people for their contributions to this work: Bright Kesse for helping to type the manuscript, my husband (K.A Domfeh) for proofreading and editing the entire work; my siblings – Desmond Anane, Evans Oteng Ackaah, Josephine Ackaah Mensah, Seth Ackah Mensah for their unforgettable support from the start to the finish of this project. Peculiarly, my profound thanks go to my lovely mum, Madam Georgina Mensah, for her encouragement and strong financial backing. I am full of gratitude to her for also caring for my little children while I stayed on campus.

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ABSTRACT

Adolescents was defined by the United Nations (UNICEF, 2019) as those between ten (10) and nineteen (19) years old. It is a period of physiological stress for the body because of extremely rapid rate of growth. The diet plays a crucial role in promoting growth; hence the Recommended Dietary Allowances (RDAs) for all nutrients are high during 13-18 years of age. The main nutritional problems which affect adolescents are under nutrition, in terms of stunting, thinness, catch-up growth, and intrauterine growth retardation in pregnant adolescent girls, iron deficiencies and other specific nutrient deficiencies (WHO, 2002). Food choice is a complex process and it may require more or less consideration (Vabø &Hansen, 2019). The purpose of the study is to examine factors affecting eating habits and food choices of adolescents living in the Fahiakobo and Kwamekrom rural communities of Bibiani in the Western North Region of Ghana. The objectives of the study are to examine the factors influencing the eating habits of adolescents in Fahiakobo and Kwamekrom communities of Bibiani, examine the factors influencing food choices of adolescents in Fahiakobo and Kwamekrom rural communities of Bibiani and identify the health effects of eating habits and food choices on adolescents in the Fahiakobo and Kwamekrom rural communities in Bibiani. The research design used for this study was the combined approaches of a cross-sectional survey. In this study, both primary and secondary data were used as methods of data collection. This study used data collection tools which involve observation, interview and questionnaires. As a descriptive survey, statistical tools such as the Statistical Package for Social Scientist (SPSS), Statistical Analysis software, simple measures of central tendencies (that is ratios and percentages) were used together with summarized

statements and opinions of respondents. For ease of conceptualization and enhanced visual appreciation of the data to be analysed, some of the data has been displayed in charts, tables and graphical forms. The chart and graph were used interchangeably. The aim was to improve graph ease and reduce repetitiveness and boredom. The finding of the study showed that adolescent eating behaviour and food choice significantly and positively predicted increase in health effects on these adolescents. This implies that as respondents perceive eating habits and food choice to be positive, they tend to have an increased desire to control their health. It would be recommended that adolescents are guided on healthy eating habits with the assistance of guidance coordinators in their schools, parents, teachers, and dieticians.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Adolescents typically prefer to associate with their own group and conform to their peers, although this could result in risk-taking behaviors, including unhealthy eating habits (Ganasegeran et al., 2018). Unhealthy eating habits place adolescents at risk for problems, such as obesity (Bin Zaal et al., 2019). Disordered eating habits, such as skipping breakfast, low intake of fruits and vegetables, and high intake of fast foods, have been noted in Europe (Hallström et al., 2018), Bahrain (Musaiger et al., 2017), Egypt (El-Gilany & Elkhawaga, 2018), as well as in Jordan (Haddad et al., 2019; Mousa et al., 2020).

Adolescence is the transitional period from childhood onto adulthood. This life phase is characterized by several needs including nutrition. Nutrient requirements are higher during adolescence because of the rapid growth and development with biological, psychosocial and emotional transformations (Jenkins & Horner, 2018). It is estimated that, 15-20% of adult height and 25-50% of adult weight are attained during this period (World Health Organization, 2016).

Research findings have noted that factors influencing eating habits of adolescents include parental support, peer pressure, and influence of mass media. Parental encouragement and support are critical in regulating adolescent's dietary intake and weight control habits (Pearson et al., 2019). Videon & Manning (2018), on studying fruit, vegetable, and dairy products consumption among adolescents in the United States, concluded that the presence of parents during evening meals positively increased their children's

consumption of fruits, vegetables, and dairy products. Also, because older adolescents or siblings are emulated, their eating habits influenced what and when younger adolescents ate (Fitzgerald et al., 2020). Bruening and colleagues (2018) examined associations between adolescents' and their friends' healthy eating behaviors, specifically eating of breakfast and consumption of fruits, vegetables, whole-grain, and dairy.

Statistically, significant positive associations between the two groups were found in relation to eating breakfast and consumption of whole-grains and dairy foods. Furthermore, mass media play a dominant role in postmodern society in the targeting of adolescents for specialized food marketing and advertising efforts (Bauer et al., 2017). Because multiple techniques are used to reach and attract the younger market, media messages related to eating have significant impacts on the health, nutritional status, and dietary patterns for adolescents (Parvanta et al., 2020).

Dietary inadequacies among adolescents can have a negative effect on their reproductive health, growth and well-being, thus making them malnourished. Malnutrition among adolescents is of great concern because of its repercussion on their health during childhood and in future. Double burden of over-nutrition and under-nutrition is common in this age group (Kotecha et al., 2018). A study in Nigeria reported a double burden of malnutrition (28.8%) among adolescents (Abdulkarim et al., 2018). In Ghana, Appiah-Kubi & Laar, (2018) reported that the prevalence of overweight, stunting and thinness among adolescents were 6.9%, 50.3% and 19.4% respectively. Another study by Adamu, Adjei, & Kubreziga, (2012), showed that 10% of adolescents were underweight, 7% were at a risk of becoming overweight and 4% were at risk of overweight. The findings of Teji et al., (2016) on adolescent girls in Ethiopia revealed that 21.6% of the girls were thin,

4.8% were overweight and 1.1% were obese, 32% were anemic and 15% of adolescents were stunted. Malnutrition can delay the onset of menarche in adolescent girls (Acharya et al., 2017). The physiological transformations in adolescents increase their nutrient requirements whereas changes in their behavior influence their eating habit and food choices ("Nutrition in Adolescent", 2017). Unhealthy dietary practices and food choices are common during adolescence (Mbithe et al., 2018). These unhealthy dietary practices among adolescents can contribute to the aforementioned nutrition related problems (Mallick et al., 2018; WHO, 2019). It is therefore important to advocate healthy diets in adolescents to improve long-term health (McNaughton et al., 2018).

Food choice is a complex process and it may require more or less consideration (Vabø & Hansen, 2019). There are several parameters which influence adolescents in making their food choices and these include food attributes, food habits and experience (Ensaff et al., 2019). Adolescent eating habits are driven by personal and environmental influence (World Health Organization, 2018).

Story et al., (2018) developed a conceptual model which integrated social cognitive theory and ecological model to explain the eating behaviors and food choices of adolescents. In this model, the adolescents eating behaviors and food choices were influenced by personal factors and environmental factors. These factors were further grouped into four levels of influence and they include: individual and intrapersonal influence (psychosocial, biological); social environment or interpersonal influence (e.g. Family and peers); physical environment or community setting (e.g. Schools, fast food outlets, convenience stores); macro system or societal (mass media, marketing and advertising, social and cultural norms) Okoro, Musonda, & Agumba, (2018)

conceptualized food choice determinants into nutritional knowledge, economic factors, environmental factors, social factors, psychological factors and physiological factors. This is in agreement with a statement by Beres et al., (2019) that adolescents' eating habits are influenced by social, psychological, economic, political, and educational factors.

1.2 Problem Statement

Adolescence is a particularly unique period in life because it is a time of intense physical, psychosocial, and cognitive development and it is the age at which growth is faster than at any other time in the individual's life next to infancy. There are increased nutritional requirements during adolescent than any age group in the life cycle which is related to the fact that adolescents gain up to 50 per cent of their adult weight, more than 20 per cent of their adult height, and 50 per cent of their skeletal mass (WHO, 2002).

Unfortunately, for many years, the health of adolescents has not been a major concern, and consequently, there has been limited research in the area of adolescent nutrition, particularly in developing countries as Ghana. This is mainly due to the fact that adolescents are less susceptible to diseases and suffer from fewer life-threatening conditions than children and the elderly.

Most health services in developing countries focus on children and pregnant women. As a consequence, in most cases the health needs of adolescents may not be adequately investigated and addressed (Savage, S et al (2007).

Food choice in general is a complex process that depends on culture and can be influenced by different factors such as personal, social, economic and emotional.

Moreover, since eating is a social act, social networks and family can affect adolescents' food choices even more. According to Roday S. (2013), food habits change drastically because of peer pressure, maintaining one's figure and weight, skin problems, and the newly found independence. She makes it clear that snacks are the all-time favourite food, which often forms a large percentage of energy intake; favourite snacks being burgers, pizzas, pastries, ice creams, French fries… popcorn, and South Indian snacks. Milk is substituted by tea/coffee (which is more of a social need) or aerated beverages. This trend indicates a high consumption of refined flour, hydrogenated fats and potato. In general, the diet is deficient in the protein food group and protective food group. Food such as milk, green leafy vegetables, yellow fruits and vegetables, citrus fruits, and whole grain cereals are deficient in the diet of adolescents.

Story and Stang (2005) also reported that the increased need for energy and nutrients among adolescents, combined with increasing financial independence, increasing need for autonomy when making food choices, immature cognitive abilities place adolescents at nutritional risk.

Adolescents are the future generation of any country and their nutritional needs are crucial for the well-being of society. Therefore, the researcher sought to examine the eating habits of adolescents in the rural communities of Fahiakobo and Kwamekrom in the Bibiani Township of the Western North Region of Ghana; to uncover the nutritional risk they might be exposed to; as well as study the factors that affect their food choices.

1.3 Purpose of the Study

The purpose of the study is to examine factors affecting eating habits and food choices of adolescents living in the Fahiakobo and Kwamekrom rural communities of Bibiani in the Western North Region of Ghana.

1.4 Specific Objectives of the Study

The specific objectives of the study are to

1. Examine the factors influencing the eating habits of adolescents in Fahiakobo and Kwamekrom communities of Bibiani.
2. Examine the factors influencing food choices of adolescents in Fahiakobo and Kwamekrom rural communities of Bibiani.
3. Identify the health effects of eating habits and food choices on adolescents in the Fahiakobo and Kwamekrom rural communities in Bibiani.

1.5 Research Questions

The research seeks to answer the following questions

1. What are the factors influencing the eating habits of adolescents in Fahiakobo and Kwamekrom communities of Bibiani?
2. What are the factors influencing food choices of adolescents in Fahiakobo and Kwamekrom rural communities of Bibiani?
3. What are the health effects of eating habits and food choices on adolescents in the Fahiakobo and Kwamekrom rural communities of Bibiani?

1.6 Significance of the Study

Optimal nutrition among adolescents during the transitional period from childhood to adulthood is essential to improve their reproductive health, cognitive development and nutritional status. Adolescent can obtain better nourishment when they make appropriate food choice. There are several determinants that stimulate adolescent girls to eat or avoid certain kind of foods. These factors can drive adolescent to make healthy or unhealthy food choices that can affect their health. When adolescents take on healthy eating habits, it does not only improve their health but it has positive impact on their friends, family and community members (World Health Organization, 2018). Adolescent with improved nutritional status are at less risk of obstetric complication of teenage mothers, low birth weight, and it enhances their sexual maturation and growth. Identifying the determinants of food choices among adolescent girls is an important approach to develop effective nutrition programs to empower girls to make healthy food choices to improve their current and future health outcome.

The findings of the study will inform policy makers and intervention programs to integrate programs that will promote healthy food choices among adolescent girls based on the various determinants that influence the food choices of the adolescent girls so as to improve their health and nutritional status.

1.7 Scope of the Study

The study was restricted to examining factors affecting eating habits and food choices of adolescents living in the Fahiakobo and Kwamekrom rural communities of Bibiani in the Western North Region of Ghana. The study also focused on examining the factors influencing the eating habits of adolescents in Fahiakobo and Kwamekrom communities of Bibiani, examine the factors influencing food choices of adolescents in Fahiakobo and Kwamekrom rural communities of Bibiani and identify the health effects of eating habits and food choices on adolescents in the Fahiakobo and Kwamekrom rural communities in Bibiani.

1.8 Limitations of the Study

In the course of the research, several difficulties were encountered. The study was constrained by time at the disposal of the researcher. The time for the study was very short so the study had to be designed to meet the date of submission of the study without sacrificing important issues. The study was also limited by inadequate funds on the part of the researcher to enable her carry out extensive work. The study was constrained by the use of Statistical Package for Social Sciences (SPSS) since it was my first time of using it.

1.9 Organization of Chapters

The study is planned to cover five chapters. Chapter one is devoted to the introductory part of the study. This includes the background information of the research work,

problem statement, objectives of the study, research questions, significance of the study, the scope of the study, limitation of the study and the organization of chapters.

Chapter Two is on a review of the related literature. The theoretical and conceptual issues of the research work are taken care of in this chapter. The research methodology is discussed in Chapter Three. This focuses on the research design and issues related to data collection methods and data analysis procedures. It also looks at the socio-economic background of the study area and sample population. Chapter Four is devoted to the analysis of the data collected from the field and the secondary sources as well. Then the discussion of the data analysis is prepared here. It also looks at the findings. Chapter Five focuses on the summary, recommendations and conclusions of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter sheds more light on the topic under study. Through the review of related literature the study is repositioned in the appropriate theoretical perspective. The chapter also attempts to define key concepts and terms on which the study is based.

2.1 Concept of Adolescent

Adolescence, as we know today, has undergone major social and evolutionary transitions like childhood. You might know that 'adolescence' as a concept/term was introduced at the end of the 19th century and the early part of the 20th century. Before this period, adolescence was not differentiated from childhood. The introduction of the concept/term adolescence is the result of the rapid changes brought about by industrial revolution. You could categorize these changes as industrialization, urbanization, institutionalization and immigration. Though we are not going into the details of each category, let us examine the changes brought about by industrialization and how this impact the concept we call adolescence.

Before delving into the details of condition of children and adolescents in industrial societies, we have to address the captivating issue- 'How childhood and adolescence are treated in non-industrial societies' in the subsequent paragraph, we ponder over this issue. Ruth Benedict argues that in non-industrial societies, children are generally treated differently from that of industrial societies in the following ways:

- Children in non-industrial societies took responsibility at an early age;

- Those children who show obedience to adult authority were placed in less value; and
- The sexual behaviour of children is often viewed differently.

Before the industrial revolution, children and adolescents were considered to be merely miniature adults. They were expected to work within the family household such as in farm fields, carpentry or engaged in other trades at home. Children and adolescents were seen more of an economic liability and less of an asset. In rural areas, they helped in caring for livestock and harvesting; but in the city, they often did not work. With the increased mechanization, the demand for skilled workers had increased and necessitated a specialized division of labour. This reduced the usefulness of both children and adolescents as workers. More than that, laws were passed restricting child labour and making schooling compulsory. What changes have happened in society to make childhood and adolescence a distinct life-stage? You may say that schooling, laws restricting child labour, and child protection Acts gave children the stages of childhood and adolescence. By the middle of the 20th century, adolescents were separated from adults and they spent most of their time with peers. After World War II, the enrolment of adolescents who attended schools increased and they delayed their entry into the adult world. Thus, you have understood how urbanization and economic change impact the construction and experience of adolescence. When we look at the derivation of the term 'adolescence', we can see that the term comes from the Latin verb 'adolescere' which means 'to grow up' or 'to grow to maturity'. In psychology, adolescence is treated as a stage between childhood and adulthood. In this stage, one has to adapt and adjust childhood behaviours to the adult standards that are recognized in one's culture. Here, we

may refer adolescence not only to biological growth, but also to social growth within a cultural framework. Some may consider puberty as the evidence of reaching the adolescence stage. We use puberty to denote the time when a child attains physical and sexual maturity. The two-year period that precedes puberty is termed as pubescence. It is the period when physiological changes lead to the development of secondary sex characteristics. Adolescence being linked to puberty refers to the transitional period from childhood to adolescence and is different from culture to culture because of the influence of society.

The Although it sometimes seems that adolescents' bodies change overnight, the process of sexual maturation actually occurs over a period of several years. The sequence of physical changes is largely predictable, but there is great variability in the age of onset of puberty and the pace at which changes occur (Kipke, 2019). There are numerous factors that affect the onset and progression of puberty, including genetic and biological influences, stressful life events, socioeconomic status, nutrition and diet, amount of body fat, and the presence of a chronic illness. The growth spurt, which involves rapid skeletal growth, usually begins at about ages 10 to 12 in girls and 12 to 14 in boys and is complete at around age 17 to 19 in girls and 20 in boys (Hofmann & Greydanus, 2017). For most adolescents, sexual maturation involves achieving fertility and the physical changes that support fertility. For girls, these changes involve breast budding, which may begin around age 10 or earlier, and menstruation, which typically begins at age 12 or 13. For boys, the onset of puberty involves enlargement of the testes at around age 11 or 12 and first ejaculation, which typically occurs between the ages of 12 and 14. development of secondary sexual characteristics, such as body hair and (for boys) voice

changes, occur later in puberty. Many adults may still believe that the magic age of 13 is the time to talk about puberty, but for many boys and girls, this is an age too late. A recent study of 17,000 healthy girls ages 3 through 12 visiting paediatricians' offices found that 6.7% of White girls and 27.2% of African American girls were showing some signs of puberty by age 7 (i.e., breast and/or pubic hair development) (Herman-Giddens et al., 2017; Kaplowitz & Oberfield, 2019). The findings of this study suggest that onset of puberty may be occurring about 1 year earlier in White girls and 2 years earlier in African American girls than had previously been thought.

However, studies have not yet been completed on nonclinical samples to confirm that this is the case for girls in general. Relatively little research has examined differences in the course of puberty among different ethnic groups; this is clearly an area that deserves additional attention (Lerner & Galambos, 2018).

Professionals who work with children and their families can alert parents to the need to prepare their children early for the changes of adolescence. Professionals can also offer helpful advice to parents and other adults about how to discuss puberty with younger adolescents.

Research findings suggest that adolescent girls who are unprepared for the physical and emotional changes of puberty may have the most difficulty with menstruation (Koff & Rierdan, 2017; Stubbs et al., 2019). When 157 ninth grade girls were asked to suggest how younger girls should be prepared for menstruation, they recommended that mothers provide emotional support and assurance, emphasize the pragmatics of menstrual hygiene, and provide information about how it will actually feel, emphasizing positively their own first experiences with menstruation (Koff & Rierdan,2017). The girls also

recommended that fathers should not comment on their daughters' physical changes, and that mothers should not discuss these changes with fathers in front of the adolescent, even when they become evident. Although research on boys' first experiences of sexual maturation is limited, some evidence suggests that boys, too, are more comfortable with the physical changes of adolescence when adults prepare them. For example, young adolescent boys who were not prepared for these changes have reported feeling "somewhat perplexed" upon experiencing their first ejaculations of semen during dreaming or masturbation (Stein & Reiser, 2018). The implication of these findings is that adolescents should be prepared for the upcoming changes early, at about 9 or 10 years of age, so they will not be caught off guard when the changes occur.

It is important for adults to be especially alert for signs of early and late physically maturing adolescents particularly early maturing girls and late maturing boys, because these adolescents appear to be at increased risk for a number of problems, including depression (Graber et al., 2017; Perry, 2020). For example, early maturing girls have been found to be at higher risk for depression, substance abuse, disruptive behaviours, and eating disorders (Ge et al., 2020; Graber et al., 2017; Striegel-Moore & Cachelin, 2019). Likewise, there is growing evidence that boys whose physical development is out of harmony with their peers are at increased risk for problems. Early maturing boys have been found to be more likely to be involved in high-risk behaviours such as sexual activity, smoking, or delinquency (Flannery et al., 2018; Harrell et al., 2018). Although early physical maturation does not appear to pose as many problems for boys as it does for girls, late maturation seems to place boys at greater risk for depression, conflict with parents, and school problems (Graber et al., 2017). Because of their smaller stature, late

maturing boys may also be at higher risk for being bullied (Pollack & Shuster, 2020). Adults, including parents, may not be aware of the risks of early maturation for girls and be unprepared to help these adolescents deal with the emotional and social demands that may be placed on them (Graber et al., 2017). For example, older boys and even adult men may be attracted to early maturing girls at a time when the girls do not yet have the social maturity to handle these advances, placing them at risk for unwanted pregnancies and sexually transmitted diseases (Flannery et al., 2018).

Professionals can talk openly with early maturing youth and their parents about the likelihood that they will confront peer pressure to engage in activities that they are not yet emotionally ready to handle, such as dating and sexual activity. For most teens, telling them to "just say no" does not help them to deal with sexually stressful interpersonal situations in which they are anxious to be liked. Instead, professionals can help the adolescent identify and practice strategies in advance for dealing with or avoiding these situations. Parents may need guidance to understand that adolescent autonomy should be linked to the teen's chronological age and social and emotional development, and not to the level of physical development, whether early, on time, or late. For example, 13-year-olds should be given earlier curfews and be more closely supervised than older teens, even if they physically appear to be much older. Likewise, an adolescent whose physical maturity is behind his or her peers may still be ready for increased independence.

2.2 Concept of Eating Habits

Eating is an important aspect of every nation's culture. In villages, meals are a familial event, with immediate and extended family present. Also steeped in Ghana's culture is

the use of food to express hospitality. Ghanaians serve families, friends, and guests with great pleasure in their homes, no matter how modest their means. Customs such as weddings, birth of a child, funerals, birthdays, and specific religious and national ceremonies call for serving of food. Bawadi and colleagues (2019) concluded that culture in Ghana has massive influences on eating practices and food choices, including influences that negatively affect good eating practices.

Adolescence is a period of extensive psychosocial change, such as growing independence, the need to explore, to take risks and to seek one's self-identity, the need for peer acceptance, increased eating away from home, and busy schedules. These factors may have effect on the eating patterns and food choices of adolescents (Story et al., 2018). Since healthy eating habits support optimal health, growth and intellectual development of an individual, establishing and maintaining healthy eating patterns is crucial, especially during this period. Maintaining healthy eating habits during adolescence is important also from a long-term perspective. Adolescents who develop unhealthy eating patterns are likely to carry these practices into adulthood (Lake et al., 2018). Much research shows that the eating habits of adolescents in industrialised countries are inappropriate. Results of the international Health Behaviour of School aged Children (HBSC) study have shown that unhealthy eating habits, such as skipping breakfast, low fruit and vegetable consumption, high sweets consumption or frequent soft drinks consumption, are highly prevalent among European adolescents (Currie et al., 2017; Inschley et al., 2016). Since unhealthy eating habits are considered to be among the most important factors leading to overweight, obesity and other diet related chronic diseases, there is a great need to optimize eating patterns in the world population,

especially in children and adolescents. In line with this, the World Health Organisation (WHO) draws attention to the alarming rise of childhood obesity and the serious threat it poses to the health of both children and adults (Nishtar et al., 2016). Following a theoretical framework based on social cognitive theory and an ecological perspective, adolescents' eating behaviour is viewed as a function of multiple levels of influence: (1) individual, (2) social environmental, (3) physical environmental and (4) a wider societal level (Story et al., 2018). The model explores adolescents' eating behaviour as affecting and being affected by multiple levels of influence. Intrapersonal (individual) characteristics include psychosocial factors (attitudes, beliefs, knowledge, self-efficacy, food preferences), biological factors (hunger), behavioural factors (weight control behaviours, dieting) and lifestyle factors (time demands, convenience). Social environmental influences (i.e. interpersonal) include family, friends and peer networks. These affect eating behaviours through mechanisms such as modelling, reinforcement, social support and perceived norms. Physical environmental influences involve the accessibility and availability of foods. For example, offering sliced fruit or reducing the prices of healthy foods, such as fruit and vegetables, in school cafeterias should influence adolescents' food choices and thus improve overall eating patterns in this age group (Kessler, 2016). Wider societal influences play a more distal and indirect role in determining food behaviours; these include mass media and advertising, social and cultural norms and policies and laws that regulate or support food-related issues, such as availability and pricing.

As a part of the unhealthy eating habits, soft drinks and energy drinks consumption is becoming popular among adolescents. Scientific evidence from Europe and the US

confirms that the prevalence of adolescents reporting frequent consumption of these beverages is high (Gallimberti et al., 2017). Soft drinks (also called soda or carbonated beverages) are a type of drinks that typically contain carbonated water, a sweetener and a natural or artificial flavouring. They also contain large amounts of sugar or high-fructose syrup, fruit juice, sugar substitutes or some combination of these. Soft drinks may also contain caffeine, colourings, preservatives and other ingredients. Energy drinks are beverages which contain large doses of caffeine, sugar and a variety of other stimulants and substances, such as guarana, taurine or vitamins (Higgins et al., 2020). Regular consumption of soft drinks and energy drinks in adolescents has previously been found to be strongly associated with several health and behavioural problems. Adolescents reporting regular consumption of these drinks were at higher risk of overweight, obesity and diabetes (Basu et al., 2018); mental health problems (Lien et al., 2016); unhealthy behaviours, such as excessive screen-based activities (Larson et al., 2018; Olafsdottir et al., 2018); substance use (Gallimberti et al., 2017) and aggressive behaviour (Kristjansson et al., 2018). Moreover, a possible negative effect of energy drinks consumption on cognitive performance in adolescents has been suggested (Van Batenburg-Eddes et al., 2019). As cognitive performance is strongly associated with academic success, adolescents consuming these drinks on regular basis may be at higher risk of experiencing problems in school. Existing research on the possible effects of regular consumption of soft drinks and energy drinks on adolescents' school experiences is limited. Taken together, there is a growing body of research suggesting that the consumption of soft drinks and energy drinks poses a serious public health risk, mainly in children and adolescents (Ali et al., 2019; Goldman, 2013; Lien et al., 2016; Owens et al.,

2018; Solnick & Hemenway, 2018), but further research is needed to fill the gap in knowledge on this recently emerging phenomenon, primarily in the group of young adolescents.

2.3 Concept of Food Choice Behaviour

Food and eating are part of our every-day life. Although its primary function is to fulfil biological needs, food plays an important role in many activities in our lives that are unrelated to nutrition (Rozin, 2018). Food choice has become a central part of symbolic, economic and social aspects of life by conveying information concerning preferences, identities and cultural meanings (Sobal et al., 2019). One of the earliest studies in food choice behaviour research was conducted by Kurt Lewin who led pioneering investigations trying to answer the question' Why do we eat'? In his 'channel theory', he described food behaviour as a complex process determined by cultural, psychological, biological and economic channels through which foods comes to the table (Lewin, 1943). The manifold nature of this behaviour has attracted interest from many fields of expertise, all of which attempt to find an answer to at least parts of the question: "Why does who eat what, when, and where?" Disciplines contributing to the discussion about food include biology, physiology, psychology, sociology, economics, consumer research, food science to name a few. Each discipline will tackle the question in their own right (Köster 2019). The mere fact that so many disciplines address the issue of food choice behaviour demonstrates its complexity but also its importance (Falk et al., 2018). Thus, food choice behaviour can only be understood by taking various theoretical and methodological approaches and as yet, no standard definition for it exists.

Derived from various disciplines, the determinants of food choice behaviour can also be grouped into different categories. In the following section, a brief overview of the major determinants on food choice behaviour is given.

Obtaining food is central for survival and consequently biological determinants are expected to play a significant role in the food selection process. From a biological perspective, there are several factors that all humans have in common such as the regulation of energy intake and the preference for certain tastes (Rozin, 2018). Humans initiate eating in response to signals reflecting the depletion of energy stores below some critical level, and they terminate it when receiving signals of satiety. Signals of satiety are generated when food is detected, ingested and absorbed. The metabolic state of the body is regulated by the central nervous system, which stimulates and hinders appetite and food intake. Although energy regulation is modulated after each meal to maintain energy stores, it is more likely to act over longer intervals such as days or weeks. The gastrointestinal and central nervous system pathways governing energy homeostasis have turned out to be an important area of research, particularly with respect to obesity treatment (Cummings & Overduin, 2017, Woods et al., 2018).

Most people believe that taste is the main driver for their food choices (Glanz et al., 2018). Indeed, there appears to be a biological disposition to certain tastes. Humans do have an innate preference for liking sweet and salty tastes and an aversion for sour and bitter tastes (Mennella, Pepino & Reed 2019, Wardle & Cooke 2018), but individuals differ genetically in their degree of perceiving these tastes (Drewnowski et al., 2019, Drewnowski). It has also been demonstrated that humans have a preference for high energy dense foods (Zandstra & El-Deredy 2019), which is assumed to be acquired and

not innate because fat imparts different characteristic textures to different foods (Nestle et al., 2018). Most of our food preferences result from an interaction of genetic and experiential factors, with 'learning' playing a critical role (Birch, 2019). 'Liking' or palatability, referring to the hedonic evaluation of sensory factors such as taste, smell, texture and appearance of a food (Mela 2016) is therefore predominately an individual characteristic that can be learnt.

Emotions, motives and attitudes are the main traditional psychological factors influencing food choice behaviour (Gedrich, 2018). The relation between food choice and emotional status is reciprocal. Foods can either be chosen for the purpose of enhancing the current emotional state, e.g. lifting of mood, or calming of stressed 'nerves'; or food preferences can equally be a result of the current emotional state, e.g. increased intake of sweet, high-fat foods. Additionally, emotions of high arousal or intensity, especially negative ones, can suppress appetite and food intake in some people, e.g. decreased appetite when stressed (Babicz-Zielinska 2016). Macht (2018) has identified three types of eaters, each responding differently in their eating habits to emotional states of high arousal or intensity. Restrained eaters demonstrate enhanced food intake when subjected to any emotions, negative or positive ones, due to impairment of cognitive eating control. Emotional eaters tend to regulate their negative emotions by eating sweet and high-fat foods. In normal eaters, emotions affect eating in congruence with their cognitive and emotional characteristics. This highlights the role of individual differences in predicting how emotions affect eating habits. Motives are emotions, wishes or physiological needs that act as incitements to a behaviour (Gedrich 2018, Babicz-Zielinska 2016). There are a number of motives that work together during food choice decisions including hedonistic

values of foods, maintaining health or well-being, keeping weight down, saving money, convenience of eating and food preparation, familiarity, ethical concern, affiliation to a social group and representing social status (Fotopoulos et al., 2019). Although there might be rational motives for a certain food choice behaviour, e.g. the desire to be healthy, they do not always result in proper eating habits (Babicz-Zielinska, 2018).

Closely linked to the concept of motives are attitudes. Attitude refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question. Attitude is, amongst other factors, predicted by the combination of motives (Ajzen, 2019). Attitude research is widely applied to identify attitudes towards healthy eating (Sun 2018) and food products (Roininen et al., 2019). It aims to shed light upon the rational cognitive processes which influence food choice behaviour (Connor 2019). Both food motives and food/health attitudes are considered to have a mediating role among the effects of biology on behaviour (Connor & Armitage 2017, Sun 2018). They are shaped on the basis of cultural values and have been shown to differ across countries (Rozin et al., 2019). Other psychosocial factors contributing to the understanding of consumer and food choice behaviour include perception, thinking, learning, values, beliefs, intentions and involvement (Gedrich 2018).

Social environments and cultural practices are powerful influences on the individual's food choice behaviour. The cultural background is perhaps the best indicator for food preferences and choice as it determines what might appear on the plate and when. Thus, the culture provides the foundation for rules of cuisine and appropriateness of food that have been developed within a unique combination of environment, ritual and belief

systems, community and family structure, human endeavour, mobility, plus economic and political systems (Mela 2019). There are not only differences with respect to cuisine and food, but also in terms of what constitutes an appropriate meal, the order of serving, table manners, the social organisation of a meal, food and ritual, the meaning of food in life and social intercourse (Rozin, 2018). The culture consequently shapes ideals, identities and roles involved in the concept of food choices (Devine et al., 2019). For example, the French value the pleasurable and social aspects of eating, plus certain food quality issues as well as health. The English are more likely to consider convenience and organic/ethical issues surrounding food as important factors that influence their food choices (Pettinger et al., 2018). Similarly, women tend to make healthier food choices than men due to greater concern about physical appearance and stronger beliefs in healthy eating (Wardle et al.,2018), and older people are more inclined to base food choice decisions on health considerations than the younger generation (Chambers et al., 2018).

Food constitutes a binding agent that is able to make connections across geographical and symbolic boundaries (Debevec & Tivadar 2018). Most eating takes place in the company of others, although meals do not always involve eating with others and certain eating occasions, such as breakfast, may be solitary affairs (Sobal & Nelson 2017). Shared eating satisfies a need for interaction and reinforces social ties (Simmel 1949). Eating relationships are established with families, groups, networks, organisations, communities and other social units (Sobal et al. 2018). Social modelling plays an important role within families where children's diets are affected by the types of food eaten by their parents, and their eating-related attitudes show similarities (Brown & Ogden 2018). On the other

hand, teenagers gradually gain control over their food choices and mostly adopt eating habits from their peers (Contento et al., 2019). The presence of other people during meals also influences food consumption. This phenomenon is referred to as social facilitation (De Castro, 2017). Research has shown that people tend to eat bigger meals and larger amounts of food when they are with other people (De Castro, 2020). Another concept related to meal sharing is commensality, which describes how eating partners are selected and excluded. Within a commensal unit such as family, friends, work colleagues or neighbours, individual food choices are negotiated or managed in conjunction with others. These commensalities also provide a social structure for everyday life (Sobal & Nelson, 2018).

2.4 Conceptual Framework of Eating Habit and Choice of Food Behaviour among Adolescents

The framework above, theorizes the determinants that could drive the food choice of adolescent girls into nutritional knowledge, economic factors, environmental factors, social factors, psychological factors and physiological factors. Food choice was defined in this context as healthy when the adolescent girl's food intake was characterized by cereals, fruits and vegetable three times or more in a week. *Nutritional Knowledge*: The nutritional information an adolescent girl receives can influence her to make informed decision when selecting her diet. This knowledge on nutrition can drive adolescent girls to make healthy food choice or eat diverse foods. The nutritional knowledge includes knowledge about the health benefit of the foods, knowledge about the sources of nutrients in the diet and cooking skills (Okoro et al., 2017). *Economic factors*: Economic factors

can play significant role in influencing the kind of foods an adolescent girl eats. The cost of the food, the income of their parents, availability of foods and the advertisement of the foods are some of the economic factors that can drive the food choice of adolescent girls (Soyer et al., 2018). *Environmental factors*: The environment in which an adolescent girl finds herself can influence her food choice. The location, seasonality, on-site eating facilities, and time constraint are some of the environmental factors that can affect the food selection and diet diversity of adolescent girls (Okoro et al., 2017). *Social factors*: Societal influence can determine the choice of foods an adolescent girl eats. Social factors such as friends, family norms and traditions, social media and network, and social class of the adolescent girl can drive her food choice (Epuru & Shammry, 2018; Okoro, Musonda & Agumba, 2017).

Psychological factors: The beliefs and feelings of an adolescent girl can change her attitude towards foods and eating behaviours. The cultural beliefs, mood and perceived body image of the adolescent girl can influence her selection of foods (Epuru & Shammry, 2018; Okoro et al., 2017). *Physiological factors*: Adolescent girls need nutrient to stay healthy to enable their organs to function well. Hunger and satiety drive an individual to obtain energy and nutrients for survival and proper functioning of the body. The sensory aspects of foods such as taste, aroma, palatability or appearance can trigger adolescent girls to eat some particular foods to obtain nutrients to meet their physiological needs ("Child and adolescent nutriton", 2016; Soyer et al., 2018). The above mentioned factors can influence adolescent girl/girls to make healthy or unhealthy food choice which in turn can affect their physiological, cognitive, and reproductive development.

2.4.1 Applications of the Conceptual Framework for Understanding Eating Behaviour and Food Choice Behaviour of Adolescents

As opposed to the food choice process model above, this model has been deductively developed by reviewing and conceptualising the literature, and not inductively using qualitative research methods. Moreover, it served as a theoretical framework for further quantitative studies related to adolescent food consumption patterns (Bauer et al., 2019). However, other researchers have used the model qualitatively, for example to explain food choices in Irish children and teenagers (Fitzgerald et al. 2010) and to identify barriers of healthy eating among teenagers (Stevenson et al., 2017).

In fact, complex theoretical frameworks aiming to explain influences on food choice behaviour among children and teenagers are still scarce. Livingstone & Helsper (2018) has extended the work of Story et al. (2002) based on a literature review on the effect of advertising on children and adolescent eating behaviour, but criticised it for the lack of emphasis on the interaction between the different levels of influences. On the other hand, Vereecken et al., (2018) have endorsed the model for its complexity and integration of multiple settings and factors. Compared to the food choice process model, this theoretical framework lacks depth, detail and specificity, particularly in terms of the mental processes involved in food choice decisions and description of factors influencing these. It puts more emphasis on environmental aspects of dietary behaviour and how proximate or distant they are to food choice behaviour of children or teenagers.

2.5 Theoretical Framework of Eating Habit and Food Choice Behaviour of Adolescent

There are a variety of approaches to study the understanding of food choice behaviour resulting from the various disciplines involved. Each discipline brings with it its own set

of issues and methodological perspectives. In order to convey a sense of the different approaches taken, a brief overview of selected theories and models about food choice behaviour from a socio-psychological and socio ecological perspective is provided. These theories and models provide a framework for individual and environmental determinants of food choice behaviour respectively. Subsequent to these, multi-level frameworks of food choice behaviour integrating both perspectives are presented. It should be noted that most of these theories and models have been developed in Western societies and may require considerable adaptation with respect to cultural issues and concerns to serve well in other contexts.

2.5.1 Social Psychological Models

Social psychological models focus on the rational and cognitive influences underlying behavioural decision-making. A cognitive approach to food choice emphasises the importance of an individual's cognitions in predicting and regulating behaviour, although behaviours are thought to be influenced by a number of factors. Thus, most models incorporate other components such as attitude to a given behaviour, risk perception, perceptions of severity of the problem, the costs and benefits of a given behaviour, self-efficacy, past behaviour and social norms (Ogden 2020). The two main models used to conceptualise influences on food choice behaviour are the theory of reasoned action and its successor the theory of planned behaviour, and social cognitive theory.

2.5.2 Theory of Reasoned Action (Ajzen & Fishbein 1980) and the Theory of Planned Behaviour (Ajzen, 1991)

The theory of reasoned action (TRA) states that individual performance of a given behaviour is primarily determined by a conscious intention to perform the behaviour, and intention is predicted by attitude and subjective norms (Ajzen & Fishbein 1980). Behaviour intention is defined as the motivation required to perform a behaviour: the stronger the intention of performing a behaviour, the more likely will be its performance (Fishbein & Ajzen 1975). Attitude represents a summary evaluation of a psychological object captured in such attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant and likable-dislikeable (Ajzen 2001). Subjective norm is defined as perceptions of social pressure to perform a behaviour. These factors are again influenced by beliefs: beliefs about the outcome of the behaviour in the case of attitudes, and beliefs about what other people think the person should do in the case of subjective norm (Ajzen & Fishbein 1980, Shepherd 2018).

Facing criticism that the theory would only deal with 'pure volitional behaviours', which are simple behaviours that are solely dependent on the formation of an intention, Ajzen (1991) extended the TRA to the Theory of Planned Behaviour (TPB). TPB adds the concept of perceived control over the opportunities, resources and skills necessary to perform a behaviour Perceived behavioural control refers to people's perception of the ease or difficulty of performing the behaviour of interest. It predicts intention and can also have a direct impact on behaviour. As with attitude and subjective norm, perceived behavioural control also is influenced by beliefs (Ajzen 1991, Shepherd 2008).

2.5.3 Social Cognitive Theory (Bandura, 1986)

Social Cognitive Theory (SCT) explains behaviour by a reciprocal model in which environmental influences, personal factors and behaviour continually interact. It is an approach that emphasises the role of social modelling, where people learn not only through their own experiences, but also by observing the actions of others and the results of those actions. According to SCT, human motivation and action are extensively regulated by forethought (Bandura, 1986). A number of key constructs are important for understanding food choice behaviour including personal characteristics (demographics, personality), emotional arousal, behavioural capacity (knowledge and skills), self-efficacy (individual's confidence in his or her ability to perform a behaviour in various situations), expectation/expectancies (anticipated outcome of a behaviour), self-regulation, observational learning, and reinforcement (consequences that affect the probability a behaviour will be tried again) (Redding et al., 2020). Reciprocal determinism constitutes a principle of SCT. This means that a person can be both an agent for change and a responder to change. In other words, the environment shapes, maintains and constrains behaviour, but people can play an active role in it (Glanz & Bishop 2020).

2.5.4 Application of Socio Psychological Models in Eating Habits and Food Choice Behaviour Research

There have been several applications of social psychological models to predict both specific and more general food choices. For example, the TRA has been used to predict

fat intake (Shepherd & Towler, 2017) and to examine the extent to which cognitions relate to the intentions of following a healthy diet conceptualised as a diet low in fat and rich in fibre (Barker et al., 2017). More often, studies have applied the TPB to determine fish consumption (Verbeke & Vackier 2005), skimmed milk (Raats et al., 2017), adolescent food choice behaviour (Dennison et al., 2019), and more recently organic food purchase (Arvola et al., 2018). Social cognitive theory has primarily been used to predict food choices in older children and teenagers (Resnicow et al., 2017, Cullen et al., 2020). Despite its wide use, social psychological models have been questioned for being an appropriate measure in predicting food choice. Even though people have intentions to perform behaviour, it does not mean that the behaviour is performed per se. This specifically, concerns more global dietary behaviours (e.g. fat intake), whereas relatively clearly defined behaviours (e.g. fruit and vegetable consumption) are predicted reasonably well. Another argument is that a cognitive approach assumes that behaviour results from a rational thought and does not consider the affective component of behaviours as well as those behaviours that are more habitual. Additionally, attitudes towards behaviours might be multidimensional and not simply positive or negative. This issue could stem from the fact that quantitative methods and devised questionnaires rather than qualitative methods are most frequently applied. And finally, while external social influences are recognised in the form of subjective norm (TRA, TBP) and observational learning (SCT) in these models, they do not provide the context in which the behaviour takes place (Connor & Armitage 2017, Shepherd 2018, Ogden 2020).

2.5.5 Social Ecological Models

In recent years, there has been growing interest in, and application of, socio ecological models in food choice behaviour research, mainly due to the rising prevalence of obesity and the need thereof, to better understand people's relationships to their environments. This has come along with a shift in emphasis from individually orientated to environmentally based analysis of health behaviour (Stokols, 2016). The socio ecological model recognises the interwoven relationship between individuals and their environment and posits that behaviour has multiple levels of influences including intrapersonal (biological, psychological), interpersonal (social, cultural), organisational, community, physical environmental and policy (Sallis et al., 2018). The most influential model in social ecology is Bronfenbrenner's ecological system theory, which has also provided the foundation for subsequent ecological models.

2.5.6 Ecological System Theory (Bronfenbrenner, 1979, 1986, 1994)

Bronfenbrenner's ecological system theory is based on the principle that human development can only be understood within the ecological system in which growth occurs. The ecological system encompasses several levels of environment that either influences a child or is influenced by the developing child. A key concept is the reciprocal interaction around the child and the components of the different systems, which are persons, objects and symbols in its immediate environment. Bronfenbrenner conceives the environment as a set of nested structures moving from the innermost microsystems to mesosystems to ecosystems to finally the outside macro-systems. The microsystem is the principal setting in which child development takes place. This is

where the child experiences most activities, social roles and interpersonal relations with the people and institutions around it such as teachers, parents and peer group. The mesosystem refers to the relationships occurring between different parts of the microsystems, for example linkages among family, school and friends. The ecosystem consists of settings in which the child is not directly involved, but events occur that indirectly influence the immediate setting in which the child lives, such as a parent's work. The macro-system constitutes the overarching pattern of all systems characteristic of a given culture, referring to the belief systems, customs and lifestyles of a society. Bronfenbrenner extended the model to the chronosystem which incorporates changes or consistency over time (Bronfenbrenner 1979, 1986, 1994).

2.5.7 Application of Socio Ecological Models in Eating Habits and Food Choice Behaviour Research

Socio ecological models are believed to provide comprehensive frameworks for understanding the multiple and interacting determinants of food choice behaviours, particularly among children. Although not a longstanding tradition, socio ecological models have been used to predict environmental influences on food choice among schoolchildren (Bauer, et al. 2018, Brown & Landry-Meyer 2017), childcare providers' food and mealtime decisions (Lynch & Batal 2018), barriers to fruit and vegetable intake (Robinson 2008), and childhood overweight (Davison & Birch 2019). They have been recommended for application in understanding the nutrition environment (Glanz, Sallis, Saelens & Frank, 2017), obesity (Egger & Swinburn 2017) and health promotion research (Economos & Irish-Hauser 2017, Sallis et al. 2018).

Socio ecological models contrast social psychological models in that they aim to identify broader levels of influence rather than specific variables, and their underlying mechanisms by which they are thought to affect behaviour. Therefore, these models have been criticised for their lack of specificity about critical influences important for behavioural change and their vagueness in how influences across different systems interact. Another weakness is that research based on socio ecological models is more demanding and expensive than individual behavioural research. Finally, socio ecological models have been viewed as shifting the individual responsibility to the society level (Sallis et al. 2008).

2.5.8 Multi-Level Frameworks of Eating Habits and Food Choice Behaviour

There is no doubt that food choice behaviour is determined by both individual and environmental factors. In an effort to combine existing socio psychological and socio ecological theory, comprehensive frameworks and models specifically designed to explain food choice behaviour have been developed in recent years (Shepherd 1985, Furst, Connors, Bisogni, Sobal & Falk 1996, Devine, Connors, Bisogni & Sobal 1998, Nestle et al. 1998, Krebs-Smith & Kantor 2001, Wetter, Goldberg, King, Sigman-Grant, Baer, Crayton, & Warland 2001, Story et al. 2002, Livingstone, Robson & Wallace 2004, Contento 2007, Sobal & Bisogni 2009). These models differ in the way they have been generated, deductively or inductively, and their complexity of understanding food choice behaviour. Some have been designed for specific populations or food groups, while others aim to conceptualise overall food consumption. However, they are all trying to integrate factors related to the food itself, to the individual and to the environment in

which the food choice is made. The two models relevant to this research are presented here.

2.5.9 Food Choice Process Model (Sobal & Bisogni 2009)

The food choice process model has been inductively developed by Furst et al. (2016) seeking to provide a holistic perspective of the factors influencing the way people construct food choices. It has been verified (Falk et al. 1996) and elaborated (Bisogn et al., 2007, Devine et al. 1998, Connors et al., 2001) later on with the intention to shift the focus to the food construction process (Sobal & Bisogni, 2009). The food choice process model consists of three major components that operate together when people construct food choices: life course, influences and personal system. The life course embeds food choice decisions within the context of time and accounts for people's life course experiences and events they had prior to current food choice decisions. It does not only refer to developmental aspects of life but also to different life course stages including food trajectories (persistent thoughts, feelings, strategies and actions over the life span), transitions/turning points (a shift in a person's life that leads to changes or continuation of dietary behaviour), timing (when transition or turning points occur), and contexts (environments in which life course changes take place).
The life course forms the foundation for the operation of influences shaping food choice decisions. These influences fluctuate over time, interact with each other, and impinge on the personal food system where food choices are constructed. They are grouped into five categories: ideals, personal factors, resources, social factors and contexts. Ideals are the standards people use as reference points to evaluate food choices. They are culturally

learned and reflect the concept of food and eating that people have, for example ideals about adequate meals, appropriate manners and health. Personal factors represent individual characteristics informing food choice decisions and behaviours. They involve physiological (e.g. genetic, sensory), psychological or emotional (e.g. preferences, personality, mood), and social (e.g. gender roles, identity) characteristics. Resources are the tangible and intangible capital people have for making food choices. Tangible capital refers to physical assets including income and equipment, whereas time, skill and knowledge are considered intangible capital. People's food choices are also influenced by social factors which are the relationships and social roles built around food and eating, for example families, groups, networks, communities and organisations. These can either constrain or facilitate food choice decisions. And contexts are the broader physical and social environments such as economic conditions, climate, policies and mass media in which the food choice decisions take place. Influences are dynamic and change over time and situations. They feed into the individual's personal food system where they are cognitively translated into food choices. Personal food systems include the processes of developing food choice values (e.g., taste, cost, health, convenience, relationships), negotiation and balancing of food choice values, classification of foods and situations, and strategies, scripts and routines to expedite food choices in recurring situations.

2.5.10 Applications of the Eating Habits and Food Choice Process Model

The food choice process model as its entire concept has not been broadly applied yet, but it has been and is constantly revised and elaborated. For example, Jastran et al. (2009) recently investigated the concept of eating routines among working adults. Jabs et al.

(2007) sought to get an understanding of how employed mothers constructed time for food provisioning for themselves and their families. Of interest were also the food choice strategies that different populations develop with respect to spill over of work onto food choices and family roles (Devine et al., 2003, Devine et al., 2006), the way people conceptualise and manage healthy eating (Falk, Sobal, Bisogni, Connors & Devine 2001) or how evening meals are constructed (Blake, Bisogni, Sobal, Jastran & Devine 2008). Bisogni, Connors, Devine & Sobal (2002) examined the role of identity in food choice and how it evolved over the life course. Another study explored how people categorised foods for different contexts (Blake, Bisogni, Sobal, Devine & Jastran 2007). Although not an exhaustive list, it is notable that most of the studies aim to get insights into the mental processes underlying the construction of food choice decisions depending on setting, context and situation. The food choice process model differs from social cognitive models in that it views the food choice process as reflective and conscious, as well as habitual and automatic, which can be regarded as one of its major strengths. It further offers various aspects of dietary behaviour that draws out findings from individual disciplines with respect to other factors and can potentially be applied in clinical practice, community and policy work. Despite its complexity, the authors cite the absence and lack of depth on specific factors as the model's limitation. In addition, it has been designed for application in Western cultures and therefore assumes multiple food options (Sobal et al. 2006). Even though the model seems applicable to children once they have acquired the cognitive skills to make food value negotiations, it has primarily been developed for use in adults.

2.6 Empirical Framework of Eating Habits and Food Choice Behaviour of Adolescents

Surveys find that adolescents have good knowledge about healthy eating practices. A meta-analysis of the literature on children, adolescents and adults found that nutrition knowledge and dietary behaviour were only weakly associated (r = 0.10; Axelson et al., 2018). A similar lack of association has also been observed in recent studies (e.g. Brown et al., 2000). For example, the majority of adolescents in a British Nutrition Foundation (Goldberg, 2017) survey claimed to like fruit and vegetables and to eat them often (52% of 11- to 13-year-olds and 55% of 13- to 16-year-olds). However, although fruit and vegetable consumption amongst these groups could be higher, both age groups showed a high awareness that they should be eating at least five portions of fruit and vegetables a day. Of the 11–13-year-olds, 97% of girls and 84% of boys knew that they should eat this, whilst 97% of girls and 93% of boys in the 13–16 year age group were aware of this. Research indicates that beliefs about food and weight may be more important than knowledge in altering food-related behaviours. For example, Nowak and Buettner (2017) found that the food intake of Australian adolescents was more related to their food beliefs and concerns than to their knowledge of nutritious food. Similarly, Story and Resnick (2018) found that despite being aware of the health consequences of eating food high in fat, sugar and salt, adolescents ate these foods because of their taste and convenience. Self-reported food preferences or liking have been found to be one of the strongest predictors of adolescents' food choices, both in the UK (e.g. Shepherd and Dennison, 2016) and elsewhere (e.g. Woodward et al., 2016). According to Birch (2019), food preferences are formed as a result of early childhood experiences with food, positive and

negative conditioning, food exposure, and genetic predispositions (e.g. sensitivity to sour tastes). In turn, taste has emerged as the motivational factor with the greatest influence on food preference (e.g. Norton et al., 2000). Focus groups of American adolescents have shown that adolescents rated taste and the appearance of food as primary factors that influenced their food selection (Neumark-Sztainer et al., 2019). Adolescents also said that following a healthy diet was difficult because taste was very important to them, with 'junk' food tasting better than more healthy foods, such as vegetables. Similarly, American adolescents reported that taste, followed by hunger and price, were the most important factors in their choice of snacks from vending machines (French et al., 2019). In contrast, health and nutrition do not rank as important influences on food choice in adolescents (Story et al., 2018). For example, Horacek and Betts (1998) found that only a quarter of American college students were motivated by health or weight when making dietary decisions. Research which compared the students motivated by health concerns with the majority of college students who were motivated by other factors (e.g. hunger) found those motivated by health concerns ate less fat and had higher nutrient intakes than their peers (Neumark-Sztainer et al., 2019). It seems that eating behaviours are related to other health-related behaviours amongst adolescents (Cusatis and Shannon, 1996). For example, Neumark-Sztainer et al. (2017) found that boys and girls who engaged in health-promoting behaviours, such as tooth-brushing, exercise and seat-belt use, were less likely to have unhealthy eating behaviours than those engaging in risk-taking activities, smoking and problematic school behaviours. In general although adolescents are concerned about school, family and friends, they do not tend to worry about healthy eating. According to Neumark-Sztainer et al. (2019) and Story and Resnick

(1986), adolescents tend to display a lack of urgency in responding to health-related dietary consequences. Indeed, other studies indicate that nutrition becomes more important with age (e.g. Glanz et al., 2018). There has been little consistent evidence of associations between personality factors and dietary behaviour but research on food choices in young children, and on attitudes in children and adults, has demonstrated the existence of individual differences in food neo-phobia (Mac Nicol et al., 2017). In a study of Scottish adolescents, Mac Nicol et al. (2017) found that a tendency to fussy/picky attitudes and high food neo-phobia, defined as an individual's unwillingness to try new food, was more common in girls than boys and associated with a lack of dietary knowledge, neuroticism, lower socioeconomic status and the consumption of unhealthy foods. However, it is unclear, from this cross-sectional study, whether food neo-phobia and pickiness should be regarded as causes or consequences of dietary behaviour. Further longitudinal research is required to establish the contribution of personal characteristics to individual differences in adolescents' food choices.

2.7 Factors Influencing the Eating Habits of Adolescents in Fahiakobo and Kwamekrom Communities of Bibiani

Body image is defined as the mental representation of the body's shape, form and size, which changes under biological, psychological, social and cultural influences (Eisenberg et al., 2017). Body image is influenced by perception, emotions, physical sensations, and is not static, but can change in relation to mood, physical experience and environment. Because of adolescents' significant physical changes, their body image perception may be highly dynamic in this period, and adolescents are at higher risk of experiencing body

image concerns than children (Croll, 2018). This can lead to body dissatisfaction: a person's negative thoughts and feelings about his or her body. Discrepancy between the self-perceived body appearance and the desired ideal body image is considered to be at the core of body dissatisfaction (Banfield & McCabe, 2019). Adolescents dissatisfied with their bodies have been previously found to have higher ratings of peer stress and lower self-esteem (Murray et al., 2019) and are also more likely to report eating disturbances (Gutiérrez et al., 2017). Moreover, body image dissatisfaction has been found to be a major predictor of eating disorders (Keery, & Thompson, 2018; Neumark-Sztainer et al., 2016). It may thus lead to anorexia or bulimia. In short, adolescents with body image concerns are at higher risk of serious health problems.

2.7.1 Parental Influence and Eating Habits in Adolescents

Parents play an important role in the development of a healthy lifestyle and healthy eating habits of their children (van der Horst et al., 2017). Different ways regarding how parents influence the eating patterns of their children have been identified. Firstly, parents shape the eating habits of their children by providing the food. Strong associations between the availability and accessibility of healthy/unhealthy food and the eating habits of children have been documented by previous research (Patrick & Nicklas, 2015; van der Horst et al., 2017). More specifically, adolescents who reported the availability of fruit and vegetables at home showed higher consumption of these types of foods than others (Pearson et al., 2019). Moreover, the availability of soft drinks at home has been shown to be associated with frequent consumption of these drinks (Denney-Wilson et al., 2019). Secondly, the parent-child interaction and parental behaviour have been identified as

being strong promoters of healthy eating habits. This interaction has been shown to be expressed in a variety of mechanisms, such as modelling of food related behaviours by parents (Boutelle et al., 20017; Pearson et al., 2019), family mealtimes (Hammons & Fiese, 2011) or applying parental rules (Lindsay et al., 2017). Given the importance of parents in shaping adolescents' eating patterns, the family environment should be one of the main targets of preventive activities aimed at improving eating patterns in children and adolescents.

2.7.2 School Environment and Eating Habits in Adolescents

The school environment has been recognised as one of the best settings for promoting healthy eating habits and healthy body weight (Foster et al., 2020). Since a substantial proportion of adolescents' lives are spent at school and they consume at least one meal and several snacks there, this environment is ideal for enhancing healthy eating in adolescents.

Modification of the school food environment was found to have a positive impact on eating behaviours (Driessen et al., 2018; Kessler, 2016). Schools can improve adolescents' eating patterns by a variety of strategies, such as influencing food availability, social norms, policy development or pricing (Lytle & Fulkerson, 2020). This suggests the need for early implementation of preventive programs based on a whole school approach with the involvement of parents (Peralta, Dudley, & Cotton, 2016).

2.7.3 Eating Habits in the Context of Problem Behaviour in Adolescents

Based on the 'syndrome of problem behaviours' theory, different adolescent problem behaviours, such as alcohol consumption, substance use or delinquent behaviour, cluster together. This theory suggests that several problem behaviours in adolescence may be determined by similar psycho-social factors (de Looze et al., 2017, Klein Velderman et al., 2015). Several specific categories of factors, such as biological and genetic factors, the social environment, the perceived environment and personality and behavioural factors were proposed as determinants of problem behaviours (Jessor, 2019). In line with this, particular factors, such as family background, influence of a peer group or the wider environment, were found to be predictors of multiple health risk behaviours (de Winter et al., 2016; Dusseldorp et al., 2018; Klein Velderman et al., 2017). Although unhealthy eating habits do not appear to be part of the problem behaviour syndrome (Neumark-Sztainer et al., 2017), this type of health compromising behaviour should be viewed in the context of this syndrome. More specifically, adolescents' health compromising behaviours, which include unhealthy eating habits, seem to create a separate cluster which is highly correlated with other types of problem behaviour (van Nieuwenhuizen et al., 2019). To conclude, unhealthy eating habits during adolescence are strongly associated with other types of problem behaviour, but the mechanisms behind this relationship remain not fully clarified.

2.8 Factors Influencing Food Choices of Adolescents in Fahiakobo and Kwamekrom Rural Communities of Bibiani

Food choice is a complex interplay of many factors in an individual's environment (Soyer et al., 2018) and it is controlled by several factors such as culture, personal, economic, social and emotional factors (Bargiota et al., 2017). People make their food selections based on several reasons; these include nutritional knowledge acquired, social factors, psychological factors, economic factors, environmental factors and physiological factors (Okoro et al.,2015).

2.8.1 Nutrition Knowledge and Health

Having adequate knowledge on nutrition is relevant in keeping up balanced and healthy diet (Calella et al., 2017). The knowledge people have on food can influence its consumption. They are able to make better food choices when they are well informed about the nutrient content of foods, dietary requirements and food preparation ("Factors affecting food selection"). Previous study by Bargiota et al., (2017) showed that adolescents made food choices based on the nutritional knowledge they had acquired. The knowledge they had, evoked their interest to purchase foods that had low total calories, low amount of fats and also they paid attention to the expiring date of foods. Klutse (2017), also found that the adolescents had knowledge on the nutrient content of the foods they consumed. In Epuru & Shammry (2018), unhealthy dietary pattern and inadequate nutritional knowledge affected the food choices and dietary preference among students in Saudi Arabia. The findings by Ensaff et al., (2017) indicated that the adolescents had incomplete knowledge on plant-based diet and the health benefits of

plant-based foods; hence these did not encourage the consumption of plant based diet. On the contrary, some studies have reported discrepancies between the knowledge on healthy eating and practice. Adolescents did not put into practice the knowledge they have on healthy foods. (Kigaru et al., 2017; Kotecha et al., 2013). The consumption of certain foods and/or less of other kind of foods may stem from an individual health condition. People avoid certain foods because of the reactions they may encounter. These reactions may include swelling, vomiting, diarrhoea, itches and skin rashes, wheezing, headaches and disturbed sleep ("Factors affecting food selection", n.d). Adamu et al., (2018) reported that the study participants would not eat specific foods because they were allergic to such foods. In Bargiota et al., (2013), 22% of the adolescents reported that, they made their food choices mainly on health concerns.

2.8.2 Social Factors

Peer influence, family and the mass media are key factors that determine food choices of people. There is peer influence during the adolescence period (Jahan & Shakil, 2017;

Hashmi, 2019). In order for adolescents to feel belonging among their peers, they tend to eat foods recommended by their peers without considering the nutritional value of the food (Majabadi et al., 2016; "Factors affecting food selection", n.d). Even though adolescents may have knowledge on healthy and unhealthy diet and the consequences associated with practicing unhealthy diet, they are likely to make unhealthy choices when they are with their peers (Kotecha et al., 2017).

Amos, Intiful, & Boateng (2018) found higher significant association between peer influence and eating habit of adolescents. They further explained that peer influence was the main predictor of unhealthy eating habits of adolescents, since they spend most of their time with their peers at home and school. They tend to eat foods recommended to them by their peers. This study is consistent with a study by Epuru & Shammry (2018), where 60% of student prefer to eat with their peers often. Furthermore, a study among adolescents in rural areas found higher consumption of junk foods among adolescents who ate with their peers, from the school and on site facilities such as canteen (Bargiota et al., 2017). Moreover, studies have shown that parents can control the diet of their children. A study conducted by Adamu et al, (2017) to determine the effect of dietary patterns on the nutritional status of upper primary school children in the Tamale Metropolis revealed that 94% of the adolescents consumed foods for supper made by their parents whereas 4% ate foods of their choices. In addition, 51.5% of the adolescents ate foods for lunch chosen by their parents, 28.6% made their own food choices for lunch and 16.2% bought foods that they could afford. The food choices of the adolescent were influenced by the socioeconomic status of their parents. Bargiota et al., (2017) revealed that a higher proportion (93%) of the adolescents' food choices were controlled by their parents and it was more pronounced in younger adolescents. In addition they noticed in their study that adolescents whose mothers were younger were eating out more often than those whose mothers were older.

On the contrary, Amos, Intiful, & Boateng, (2017) found no correlation between parental influence and adolescents eating habit. The media is pivotal in an individual food choice. Foods that are advertised by the media are introduced as healthier nevertheless; they are

of low nutritional value compared to the unprocessed or less processed form ("Factors affecting food selection", n.d).

2.8.3 Psychological Factors

Psychological factors are complex and it varies among individuals based on lifestyle and upbringing. Psychological factors like former encounter with foods, beliefs and values have continual effect on food choice whereas food selection based on emotion, self-concept and attitude can vary on daily basis ("Factors affecting food selection", n.d). The foods that people consume are associated with their beliefs, culture and religion. Some foods are widely consumed by people from certain culture and religion while other foods are prohibited by certain culture and religion. In Adamu et al. (2017), 37.8% of the adolescent detested certain foods because of their religion. Another study in Saudi Arabia among students revealed that psychological factors such as emotions and the attractiveness of the food influenced them to eat foods than the physiological hunger mechanism (Epuru & Shammry, 2018). Nutrition in adolescence is critical because the psychological changes and development of their personality affect their dietary habit (WHO, 2016).

2.8.4 Economic Factors

The price and accessibility of foods can determine the kind of foods people afford to buy. Abdulkarim et al., (2018) revealed that higher access to fast foods and cheap sweetened drinks were contributing factors to the prevalence of over nutrition among adolescents in Nigeria. A study by Adamu et al. (2017) showed that money was the main determinant

that prevented majority (78%) of participants from eating breakfast. Also, the cost of food influenced the food choice of adolescents in Turkey (Soyer et al., 2018). Canales & Hernández, (2016) found that adolescents considered the price of foods when making their food selection.

2.8.5 Environmental Factors

The environment where an individual finds himself or herself plays amajor role in their choice of food. The choice of foods that people make can be ascribed to their food system. In the low income countries, there may be variations in the foods consumed by people in the rural and urban areas. The people in the rural areas are more likely to rely on their self-production and spend on staple when they run out of their produce. Unlike the urban areas, a lot of people are not involved in food production so they depend much on markets and shops, for this reason, the majority eat a lot of processed foods (Chang & Ruel-bergeron, 2016).The kind of foods available in a particular season can make people resort to those foods. A study among adolescents in Tamale showed that, the adolescents ate mango because it was in season (Adamu et al, 2017). In addition, availability of on-site facilities such as fast food shops, school tuck-shops, food stores and sellers in the neighbourhood may be key factors influencing adolescent decision making towards foods (Steyn, 2020). Also time constraint can affect the food choices of adolescents. Despite the knowledge adolescents have on healthy food habits, time constraint is one of the impediments to better their food selection (Kotecha et al., 2018). Some studies have shown that adolescents skipped breakfast because of time constraint (Klutse, 2017; Buxton, 2018).

2.8.6 Physiological Factors

Physiological factors influence an individual's intake and preference for food. Hunger can trigger a person to eat to meet their physiological needs ("Child and adolescent nutrition", 2016). The selection and rejection of some specific foods may depend on the sensory perception of the food, which may comprise the physical appearance of the food, presentation, smell and texture ("Factors affecting food selection", n.d). Taste is one of the key elements that influence adolescents' food selection. Taste preference can influence adolescents to select certain foods over healthier ones. (Ensaff et al., 2017). Adolescents may not eat certain foods because of its unpleasant taste and aroma (Adamu et al., 2017). In Canales & Hernández, (2016), the adolescent made their food selections based on the sensory properties rather than the effect it will have on their weight. It has been reported that sensory aspect of foods influenced the food choice of adolescents in Turkey (Soyer et al., 2018).

2.9 Health Effects of Eating Habits and Food Choices on Adolescents in the Fahiakobo and Kwamekrom Rural Communities in Bibiani

Modern feeding habits have brought a number of life threatening nutritional disorders to Africa. These include: obesity, hypertension, diabetes mellitus, cancer and cardiovascular disorders.

2.9.1 Obesity

Obesity is becoming more common as the African population leave their traditional feeding habits to embrace the modern ones. Due to urbanization, people have changed

their lifestyles and feed mostly on snacks. In addition, they use high amounts of fat and sugar, which predisposes them to obesity. The traditional diet is high in complex carbohydrates, as well as pulses and vegetables, lowering the risk of obesity.

2.9.2 Diabetes Mellitus

According to the Kenya Diabetes Association, a third of Kenyan population is suffering from diabetes. Diabetes mellitus has been defined as a disease characterised by raised glucose concentration in the blood, as a result of deficiency or diminished effectiveness of insulin.10 There are two types of diabetes mellitus: Type 1-insulin dependent diabetes mellitus (IDDM) and Type 2 – non insulin dependent diabetes mellitus (NIDDM). Both types of diabetes have similar symptoms that include polyuria, polydipsia, and polyphagia. Sugary or starchy foods such as chocolates, cakes, biscuits, bread and potatoes elevate the levels of sugar in the blood, if the body output of insulin is too low or the insulin produced is ineffective, the blood sugar remains high. This condition is referred to as hyperglycaemia, which is a risk factor for type 2 diabetes mellitus. By observing healthy feeding habits, maintaining healthy weight and by being physically active one can reduce the risk of type 2 diabetes and also control type 1diabetes. Taking reduced fat dairy foods, cutting down visible fats and oils, eating more fruits and vegetables, reducing fatty nutrient poor snack foods and reducing alcohol intake will help to reduce the chances of developing diabetes mellitus.

2.9.3 Hypertension

As earlier mentioned, obesity is closely linked to the modern urban foods. The packaged snacks such as crisps, peanuts and chips contain a lot of salt, which is a risk factor for hypertension.

2.9.4 Cardiovascular Diseases

Although coronary heart disease (CHD) is responsible for the death of many Africans every year, it's primarily a disease that is associated with the 'western' type of diet and lifestyle. Untraditional diets, as said earlier, contain a lot of fats and simple sugars. These diets have been linked to diseases of affluence.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the methodology of the research. It describes the research design that was used, the independent and dependent variables, location of the study and the target population. The sample, sampling techniques, research instruments, data collection methods and data analysis methods have also been discussed.

3.1 Research Design

Durrheim and Painter (2006) define research design as a "strategic framework, a plan that guides research activity to ensure that sound conclusions are reached." This involves plans for data collection, the instrument for gathering information, how information gathered would be processed and analysed to give meaning to the research findings. The research design used for this study was the combined approaches of a cross-sectional survey. A cross-sectional study had the advantage of giving the ability to rate the occurrence of knowledge and attitude, among the study's sample, at this specific point in time (Polit & Beck, 2010). This method was used to gain an insight into the research problem and to identify the factors affecting eating habits and food choice behaviour among adolescents.

3.2. Population of the Study

A population is defined as all elements (individuals, objects and events) that meet the sample criteria for inclusion in the study (Basil 2003). The study population consisted of adolescents in Fahiakobo and Kwamekrom rural communities of Bibiani.

3.3. Sampling Procedure and Sampling Size

Sampling is the process whereby a researcher chooses his/her sample. This involves the statistical method of obtaining representative data or observations from a group. This was done in a predetermined manner. Subjects included in the sample were selected based on a specific criterion. Five staff members and ten students were selected from each school bringing the total sample to forty-five; thus fifteen staff and thirty students. The population of adolescents in Fahiakobo and Kwamekrom rural communities in Bibiani is one thousand, one hundred and eighty-one (1,181) and since only a sample was desired, a sample size of five hundred adolescents (500) was randomly selected to be used to represent the population based on the authority from Nwana (1992) and Sanders (1990). According to Nwana (1992) and Sanders (1990), if the size of the population is a few hundreds, a 40% or more sample will do; if several hundreds, a 20%; if a few thousands, 10%; and if several thousands, 5% or less sample size will do. Based on the above-cited criteria, less than 5% of the students and staff were chosen.

3.4 Sources of Data Collection

3.4.1 Primary Data

The primary data refer to data consisting of data and information obtained by the researcher directly from the case study through structured questionnaires administered to adolescents in Fahiakobo and Kwamekrom rural communities. These questionnaires will provide accurate answers to the research questions of this study. There were questionnaires for the adolescents in these rural communities in Bibiani which were semi-structured; consisting of both open and closed-ended questions. The questionnaire had

two sections. Section A required the respondents to give general information about him/ herself. Section B dealt with the concept of eating habits and food choice behaviour among adolescents. The first stage of research included gathering information on the adolescents' details, which was completed by using the questionnaires as a sample frame. The participating respondents were initially approached physically to obtain their consent to participate in this research. A spread sheet was maintained to keep record of all the participants who agreed to participate with detailed contact. All the participating respondents that had agreed to participate were identified by a code number assigned to each questionnaire to maintain their privacy and confidentiality (Yin, 2003). In total, five hundred (500) respondents agreed to be included in the research. The total time period provided to the participants to complete and return the questionnaires was one week.

3.4.2 Secondary Data

The secondary data consist of literature materials by well-known writers and authors in the field of eating habits and food choice behaviour among adolescents and other related topics. Information was gathered from published sources, (books, articles and course literature with useful information for the study), the internet and some information from the adolescents.

3.5 Data Collection Instrument

According to Creswell (2005) no single technique or instrument may be considered to be adequate in itself in collecting valid and reliable data. Therefore, two major tools were used to obtain adequate and reliable information for this study. These include interviews

and questionnaires of both structured and semi-structured nature. This study used data collection tools which involve observation, interview and questionnaires. According to Kothari (2004), a questionnaire is a method of collecting data which uses a set of questions for collecting data. In this method data is collected with the help of questions. Through this method, selected respondents of this study had to answer questions on their own and bring back to the researcher. Both structured and semi structured questions were used in helping the researcher to get answers and relevant information from respondent.

3.6 Research Instruments

Data was collected using structured questionnaire which were specifically designed for this study. Questionnaires were justified on the basis of the fact that they would enable the coverage of a wide area and extensive contents within a short period of time. Questionnaires are prepared set of questions (or measures) to which respondents or interviewees record answers. Using questionnaire, the same set of questions are expected to be answered by all the respondents. The design of the questionnaire will affect the response rate and the reliability and validity of the data collected.

3.7 Validity and Reliability

Saunders et al (2007) noted that validity and reliability constitute the credibility of a study. Validity refers to the extent to which a measure reflects the concept it intends to measure. If the measures used actually measure what they claim to, and if there are no logical errors when drawing conclusions from the data, the study is said to be valid (Trochim, 2005). The validity of this study is embedded in the fact that the data that was

gathered directly addressed the issues raised in the research questions. With a well-calculated approach to sampling, the interviews of management and the administering of questionnaires to staff, the findings of the study reflect the general situation of relationship between performance assessment and appraisal system and development of basic schools. For employee value perceptions, the only way to assess this data was to survey the employees directly (McEachern 1998).

Neuman (2006) identifies internal and external consistency as measures of reliability. This study can be replicated to achieve the same results within the prevailing timeframe. The steps employed to gather data were rational and reinforced each other.

3.8 Data Analysis

The first stage was the manual editing of the collected data to detect errors and omissions that would compromise low quality standards. This was also to check whether all the questions requiring answers had been answered to ensure accuracy, consistency and completeness of the responses.

The next task involved the coding of the questionnaires by assigning numbers to them. Variables were defined for each of the questions on the questionnaire. After the data had been entered, there was the electronic editing of the data where exploratory data analysis was used to check whether all the data sets were valid.

Finally, as a descriptive survey, statistical tools such as the Statistical Package for Social Scientist (SPSS), Statistical Analysis software, simple measures of central tendencies (that is ratios and percentages) were used together with summarized statements and opinions of respondents. For ease of conceptualization and enhanced visual appreciation

of the data to be analysed, some of the data has been displayed in charts, tables and graphical forms. These form the basis of this study. The chart and graph were used interchangeably. The aim was to improve graph ease and reduce repetitiveness and boredom.

3.9 Ethical Consideration

As this study requires the participation of human respondents, certain ethical issues were addressed. The consideration of these ethical issues is necessary for the purpose of ensuring the privacy as well as the safety of the participants; this is because in Ghana most information that comes to the public is different from what is actually happening on the ground. Among the significant ethical issues that were considered in the research process included consent and confidentiality. In order to secure the consent of the selected participants, the researcher relayed all-important details of the study, including its aim and purpose. By explaining these important details, the respondents were able to understand the importance of their role in the completion of the research. The confidentiality of the participants was ensured by not disclosing their names or personal information in the research. Only relevant details that helped in answering the research questions were included.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Demographic Characteristics of Respondents

Every research finding must have a background analysis of the demographic characteristics of the respondents involved in the findings. This is to show the nature of the respondents as to how the socio-economic background of the respondents is. These socio-economic backgrounds indicate the cultural and gender issues of the respondents involved in the findings. The cultural issues of the respondents are a cross-sectional issue that includes their occupation, religion, marital status among others, while the gender issue involves the gender characteristics of the respondents which include both male and female. Major research findings pay particular attention to the background information or the demographic characteristics of the respondents. This is to give the findings a fair indication of the analysis as how these characteristics will affect the entire project. The positioning of the entire findings is very significant since the demographic characteristics or the background information has an impact and effect on the analysis.

4.1.1 Gender of Respondents

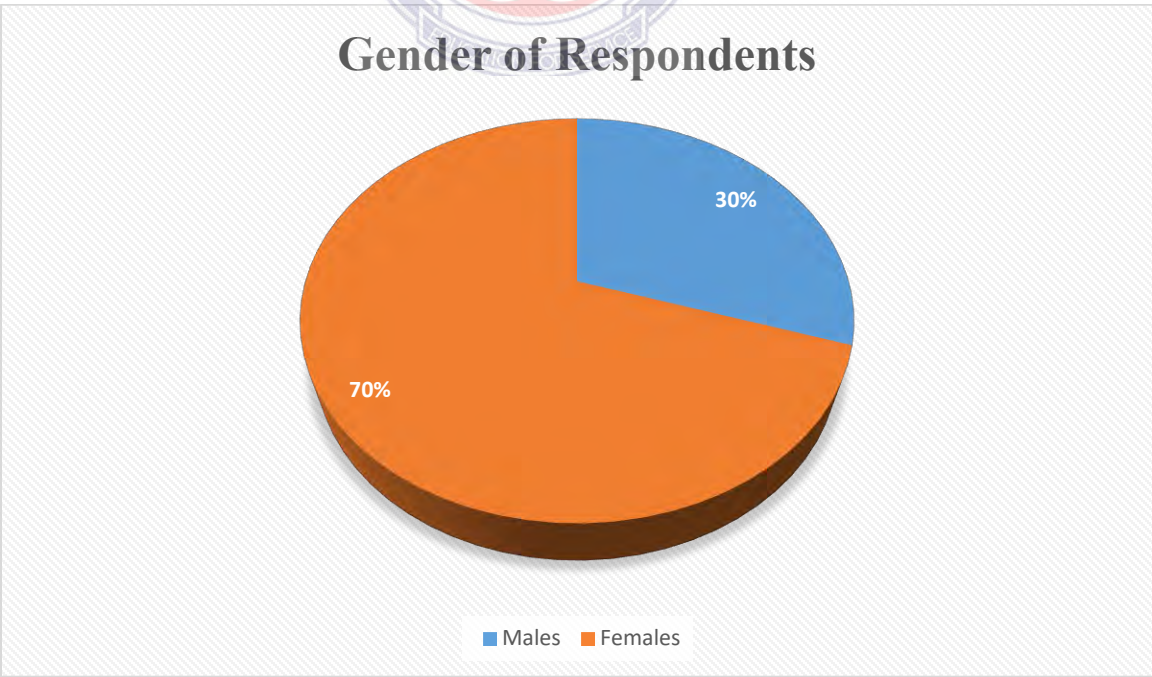
The consumption of food varies among boys and girls. From the study it is clear that unhealthy eating habits is common among adolescent girls than boys, consequently affecting their nutritional status and reproductive health. The issue of gender was of much concern when applying the interview guide. In furtherance of the entire work, the gender issue must ensure a fair balance of the responses from the respondents. The gender issue gives a clearer overview of the entire analysis since the research itself involved human

beings. These must be categorised in order for the findings to be fair, and for the responses to be precise in terms of accuracy. The respondents included students and staff which comprised both males and females. From the findings it is observed that three hundred and (350) of the respondents were females representing 70% while one hundred and fifty (150) respondents were males representing 30%.

Table 4.1 Gender Distribution of Respondents

Variables (Gender)	Frequency (N)	Percentages (%)	Cumulative Percentages (%)
Male	150	30%	0.3 (30%)
Female	350	70%	0.7 (70%)
Total	500	100	1 (100%)

Source: Field Work, 2022



Source: Field Work, 2022

4.1.2 Age of the Respondents

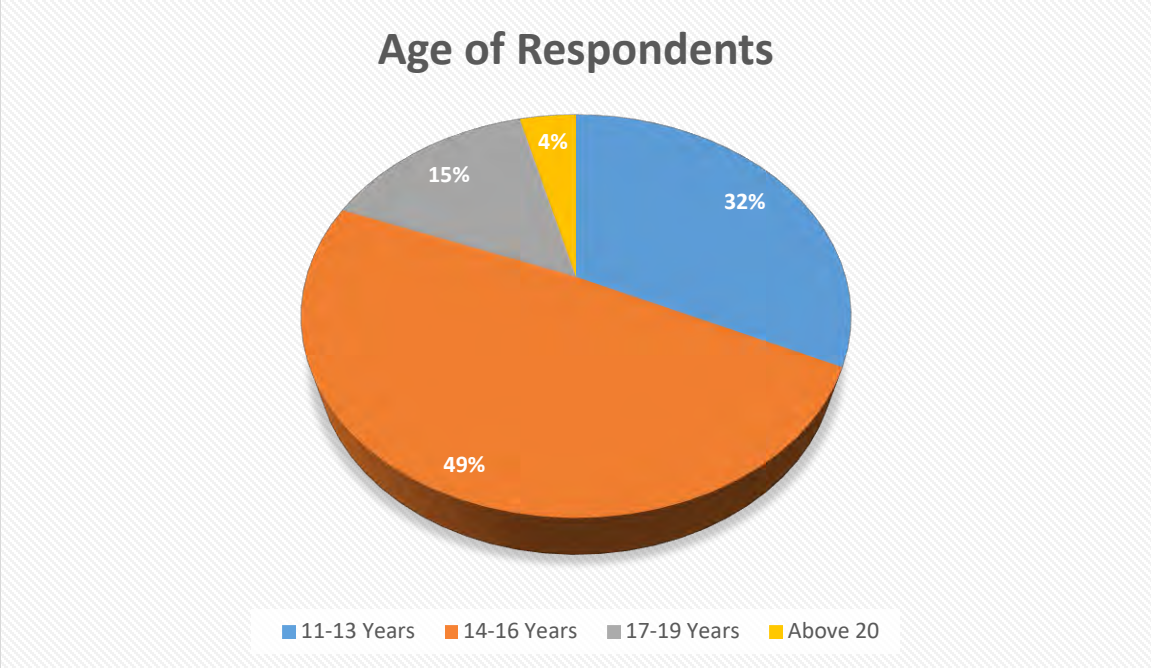
Critical to any research findings is the age of the respondents. The age of the respondents plays an important role in the research because it helps the researcher to know the means to structure the questionnaire and know how to conduct the interview. Since the ages of the respondents are not always known, it is always important that the researcher assumes his respondents within a bracket of age category. Very relevant to this study, the research findings categorise the ages of the respondents within a certain frame of importance.

From the study it was observed that one hundred and sixty (160) respondents representing 32% were within the ages of 11-13 years, while two hundred and forty five (245) respondents representing 49% were within the ages of 14-16 years. Seventy five (75) respondents representing 15% were within the ages of 17-19 years while twenty (20) respondents representing 4% were 20 years and above. These age categories included all the respondents needed for the study.

Table 4.2 Age Distribution of Respondents

Variables (Ages)	Frequency (N)	Percentages (%)	Cumulative Percentages (%)
11-13 years	160	32%	0.32 (32%)
14-16 years	245	49%	0.49 (49%)
17-19 years	75	15%	0.15 (15%)
Above 21 years	20	4%	0.04 (4%)
Total	500	100	1 (100%)

Source: Field Work, 2022



Source: Field Work, 2022

4.2 Validity and Reliability

Validity indicates the degree to which the instrument measures the constructs under investigation (Mugenda & Mugenda, 1999). It indicates the extent to which a set of test items can be treated as measuring a single latent variable (Cronbach, 1951). Cronbach alpha was used to test the reliability of the instruments. This study considered a Cronbach alpha of 0.7 as the threshold for reliability. The Cronbach alpha ranges from 0-1 and the closer to 1, the greater the consistency.

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alpha of 0.7 as the threshold for reliability. The Cronbach alpha ranges from 0-1 and the closer to 1, the greater the consistency.

Table 4.3 Reliability Statistics

Cronbach's Alpha	N of Items
0.985	3

Source: Field Work, 2022

4.3 Descriptive Statistics

Primary data collection method was used for the study. Data collected were used to calculate the variables used in the analysis. Table gives the summary descriptive statistics of the dependent and independent variables of the sample.

Table 4.4 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
FIEH	500	1.00	5.00	2.6855	1.58848
FIFC	500	1.00	5.00	2.3065	1.36882
HEFHC	500	1.00	5.00	2.2800	1.39310
Valid N (listwise)	500				

Source: Field Work, 2022

From the table, it is observed that all the variables have both observation number of five hundred (500) and a maximum value of five (5) respectively. The standard deviation of all the variables is 1.58, 1.36 and 1.39 respective values which is a very determinant value.

4.4 Regression Analysis

Table 4.5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.993[a]	0.985	0.985	0.17004

Table 4.6 ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	954.055	2	477.028	16498.692	0.000[b]
	Residual	14.370	497	0.029		
	Total	968.425	499			

Source: Field Work, 2022

Table 4.7 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.065	0.015		-4.288	0.000
	FIEH	0.114	0.015	0.130	7.522	0.000
	FIFC	0.884	0.018	0.869	50.448	0.000

Source: Field Work, 2022

The multiple regression analysis has been carried a sample of five hundred (500) and data considering effects of eating habit and food choices as a dependent variable and the remaining independent variables to test below hypothesis.

To test this, Pearson product moment and correlation coefficient multiple regression analysis were employed. The correlation coefficient shows that there is a positive relationship between factors influencing eating habit and food choices of adolescents and the effects of eating habits and food choices on adolescents ($r=0.985$, $p>.01$) as shown in table 4.3. The multiple hierarchy regression analysis was used to test the predictability of factors that affect eating habits and food choices and the dependent variable which is the effects of eating habits and food choices on the health of the adolescents. The result of the regression analysis showed factors influencing eating habits and food choices of adolescents is a predictor of the variable rate of health effects of such eating habit and food choices on adolescents. ($\beta=.869$, $p<.01$) as represented in table 4.5.

4.5 Discussion of Findings

Factors Affecting Eating Habits and Food Choices of Adolescents

The finding of the study showed that adolescent eating behaviour and food choice significantly and positively predicted increase in health effects on these adolescents. This implies that as respondents perceive eating habits and food choice to be positive, they tend to have an increased desire to control of their health.

This finding supports that of Bauer et al. (2019) who reported that effective and good eating habit and food choices is essential to control adolescent health risk. Likewise, this study concurs with the finding of Stevenson et al. (2017) which revealed that a significant and positive relationship existed between effective and good eating habit and food choices and adolescent good health effects. The finding of this study is also aligned with that of Vereecken et al., (2018) whose findings revealed that bad eating habit and food choices increased adolescent poor health risk. Likewise, this finding is similar to that of Soyer et al. (2018) who discovered that the existence of a positive and good eating habit and food choices decreased poor health risk among adolescents.

This is not surprising since research has shown that effective and quality food choice has a positive impact on adolescents' health. Also, Epuru and Shammry (2018) found that eating habit and quality food choices among adolescent significantly and positively predicted good health performance among adolescents.

This finding can be explained using the Theory of Reasoned Action (Ajzen & Fishbein 1980) and the Theory of Planned Behaviour (Ajzen, 1991). According to this theory, in reaction to positive initiating actions by a party, the other party responds by reciprocating positively (Ajzen, 1991). The Planned Behaviour theory suggests that if more is invested

in a manner that benefits the other party, a joint anticipation will arise to reciprocate the positive behaviour (Beck, 1978). This means that good and quality health among adolescent will reciprocate the positive treatment from the organisation by exhibiting positive behaviours. Therefore, adolescents' who perceive good and quality health to be interested in their welfare are likely to reciprocate the gesture by engaging in very good eating habit and pursuing quality food choices in terms of balance diet. In this study both primary and secondary data were used as methods of data collection.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

Factors Affecting Eating Habits and Food Choices of Adolescents

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5.2 Conclusions of the Study

Dietary inadequacies among adolescents can have a negative effect on their reproductive health, growth and well-being, thus making them malnourished. Malnutrition among adolescents is of great concern because of its repercussion on their health during childhood and in future. Double burden of over-nutrition and under-nutrition is common in this age group (Kotecha et al., 2018). A study in Nigeria reported a double burden of malnutrition (28.8%) among adolescents (Abdulkarim et al., 2018). In Ghana, Appiah-Kubi & Laar, (2018) reported that the prevalence of overweight, stunting and thinness among adolescents were 6.9%, 50.3% and 19.4% respectively. Another study by Adamu, Adjei, & Kubreziga, (2012), showed that 10% of adolescents were underweight, 7% were at a risk of becoming overweight and 4% were at risk of overweight. Food choice is a complex process and it may require more or less consideration (Vabø & Hansen, 2019).There are several parameters which influence adolescents in making their

food choices and these include food attributes, food habits and experience (Ensaff et al., 2019). Adolescent eating habits are driven by personal and environmental influence (World Health Organization, 2018). The purpose of the study is to examine factors affecting eating habits and food choices of adolescents living in the Fahiakobo and Kwamekrom rural communities of Bibiani in the Western North Region of Ghana. The objectives of the study are to examine the factors influencing the eating habits of adolescents in Fahiakobo and Kwamekrom communities of Bibiani, examine the factors influencing food choices of adolescents in Fahiakobo and Kwamekrom rural communities of Bibiani and identify the health effects of eating habits and food choices on adolescents in the Fahiakobo and Kwamekrom rural communities in Bibiani. The research design used for this study was the combined approaches of a cross-sectional survey. The population of adolescents in Fahiakobo and Kwamekrom rural communities in Bibiani is one thousand, one hundred and eighty-one (1,181) and since only a sample was desired, a sample size of five hundred adolescents (500) was randomly selected to represent the population. . In this study, both primary and secondary data were used as methods of data collection. This study used data collection tools which involved observation, interview and questionnaires. As a descriptive survey, statistical tools such as the Statistical Package for Social Scientist (SPSS), Statistical Analysis software, simple measures of central tendencies (that is ratios and percentages) were used together with summarized statements and opinions of respondents. For ease of conceptualization and enhanced visual appreciation of the data to be analysed, some of the data has been displayed in charts, tables and graphical forms. These form the basis of this study. The

chart and graph were used interchangeably. The aim was to improve graph ease and reduce repetitiveness and boredom.

The finding of the study showed that adolescent eating behaviour and food choice significantly and positively predicted increase in health effects on these adolescents. This implies that as respondents perceive eating habits and food choice to be positive, they tend to have an increased desire to control their health. It would be recommended that adolescents are guided on healthy eating habits with the assistance of guidance coordinators in their schools, parents, teachers, and dieticians.

5.3 Recommendations of the Study

Based on the findings, the following recommendations are given;

It is recommended that adolescents are guided on healthy eating habits with the assistance of guidance and counseling coordinators in their schools, as well as by parents, teachers, and dieticians. School authorities should influence the food items allowed to be sold at the canteen, shops and any others selling points within the school environment. This will directly or indirectly guide the adolescents on the right choices of food. Guidance and counseling sections that are occasionally organized by the counseling unit of the schools should be planned holistically to make room for dieticians and nutritionists to talk to students on good eating habits and good choice of diet.

Peers being a great influence in the life of the adolescent, as far as eating habits is concerned, should require a lot of concern from parents. Parents should show keen interest in what their adolescents eat. Parents must provide the needed information on diet

to their children. If they are not sure, a dietician can help by planning meals and structuring the eating habits of the family and the adolescents.

The Ghana Health Service, and other health organizations and agencies must organize educational programs to promote healthy eating habits and right choices of diet. Such programs could be held at village centres, in schools, churches/mosques, on television and any other available adolescents' media- juvenile newspapers and TV channels, the social media.

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QUESTIONNAIRE

AKENTEN APPIAH-MENKA UNIVERSITY OF SKILL TRAINING AND ENTREPRENEURIAL DEVELOPMENT (AAMUSTED-KUMASI)

MASTER OF TECHNOLOGY IN CATERING AND HOSPITALITY

QUESTIONNAIRE GUIDE

Dear respondent,

I am a Post-graduate student of Akenten Appiah-Menka University of Skill Training and Entrepreneurial Development. This questionnaire is aimed at collecting data for the study **"Examine Factors Affecting Eating Habits and Food Choices of Adolescents Living in the Fahiakobo and Kwamekrom Rural Communities of Bibiani in the Western North Region of Ghana."** This data is purely for academic reasons and would be conducted in a confidential manner. The researcher therefore assures you that no part of this information given would be used for any other purpose. Please read the statement carefully and check the number that corresponds to your choice. Please be as candid as possible. The survey takes approximately 5 minutes to complete. Many thanks for your time.

Section A: Demographic Profile of Respondents

Instruction: Please answer the following questions by ticking or providing answers in the appropriate spaces provided.

1. Gender. a) Male [] b) Female []
2. Please indicate your age?
    a) 11-13 years [] b) 14-16 years [] c) 17-19 years [] d) 20 years and above []

3. Level of Education

   a) Primary [] b) JHS [] c) SHS/VOTECH d) Tertiary []

   e) Others []

4. Rank:

   a) Student [] b) Teaching Staff [] c) Non- teaching staff []

   d) Others []

Factors Influencing the Eating Habits of Adolescents in Fahiakobo and Kwamekrom Communities of Bibiani

On a scale of 1 to 5, to what extent do you agree and disagree with the following statements about factors influencing the eating habits of adolescents?

(5 = Strongly Disagree, 4= Disagree, 3= Neutral, 2= Agree, 1= Strongly Agreed)

	5	4	3	2	1
Parental Influence					
School Environment					
Behavioural Problem					
Social Factors					

Factors Influencing Food Choices of Adolescents in Fahiakobo and Kwamekrom Rural Communities of Bibiani

On a scale of 1 to 5, to what extent do you agree and disagree with the following statements about factors influencing food choices of adolescents?

(5 = Strongly Disagree, 4 =Disagree, 3 =Neutral, 2 =Agree, 1 = Strongly Agree)

	5	4	3	2	1
Social Factors					
Psychological Factors					
Economic Factors					
Environmental Factors					

Health Effects of Eating Habits and Food Choices on Adolescents in the Fahiakobo and Kwamekrom Rural Communities in Bibiani

On a scale of 1 to 5, to what extent do you agree and disagree with the following statements about health effects of eating habits and food choices on adolescents

(5 = Strongly Disagree, 4= Disagree, 3= Neutral, 2= Agree, 1= Strongly Agree)

	5	4	3	2	1
Obesity					
Diabetes Mellitus					
Hypertension					
Cardiovascular Disease					