UNIVERSITY OF CAPE COAST

INVESTIGATING THE EATING PATTERNS OF JUNIOR HIGH SCHOOL ADOLESCENTS IN THE MFANTSEMAN MUNICIPALITY

ESTHER ADWOA FYNN

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BY

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OCTOBER 2022

DECLARATION

Candidate's Declaration

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

Candidate's Signature …… Date……

Name: Esther Adwoa Fynn

Supervisor's Declaration

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

Supervisor's Signature…… Date……

Name: Dr. Augustina Araba Amissah

ABSTRACT

The purpose of the study was to investigate the nutritional status of Junior High School (JHS) adolescents in Saltpond Township of the Mfantseman Municipality. Three research questions and two hypotheses guided the study. The study employed a quantitative approach with a descriptive survey research design. A simple random sampling was used to select six schools from ten schools and Purposive sampling was used to select 289 participants comprising 102 males and 187 females. A closed ended questionnaire was used to collect data for the study. The data was analysed with descriptive statistics (frequency counts and percentages), inferential statistics (two sample t-test) whiles some data was presented in pictorial form (bar chart). The study found that JHS adolescents in Saltpond Township did not eat balanced diet; they had inconsistent meal patterns; they had negative dietary preferences; there was no statistically significant difference between the gender of JHS adolescents in Saltpond Township and their balanced diet intake; and there was no statistically significant difference between gender and the dietary preferences of JHS adolescents. The study recommended that parents should make a conscious effort to provide balanced meal for their wards when they are going to school; parents should provide adequate financial resources to cater the balanced and full meal provision of their adolescent children; teachers should create awareness on the nutritional needs of adolescents; and teachers should educate adolescents on the harmful effects that the adopted negative dietary preferences have on their life now and in the later years.

KEYWORDS

Adolescents

Junior High School

Meal Pattern

Balanced diet

Nutritional Status

Dietary Preference

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DEDICATION

To my husband, Reverend Charles Kwesi Fynn and children Ewuresi, Kobby, Esi Ayeyi and Esi Aseda Fynn.

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LIST OF ACRONYMS

ADHD	Attention Deficit Hyperactive Disorder
CDCP	Centre for Disease Control and Prevention
GDHS	Ghana Demographic and Health Survey
IRB	Institutional Review Board
JHS	Junior High School
SPSS	Statistical Package for the Social Sciences
UCC	University of Cape Coast
WHO	World Health Organisation
WHOFS	World Health Organisation Fact Sheet

CHAPTER ONE

INTRODUCTION

Overview

This research looked into the eating pattern of junior high school adolescents in the Mfantseman Municipality. This chapter of the work provides a brief background to the study. The problem is clearly stated in this chapter and the purpose for conducting this research is also pointed out. Other issues such as the significance of the study, the limitations and delimitation as well as the way the work was organised have all been dealt with in this chapter.

Background to the Study

Throughout the course of one's life, nutrition serves as a crucial pillar of one's health and development (Alamgir et al., 2018). At the adolescent stage which is characterized by rapid growth and development, proper food with adequate nutrition is essential for physical growth, survival, mental development, health and wellbeing (Taghizade et al., 2015). Healthy eating during adolescence has become important because nutritious foods have the tendency to support the rapid significant growth and development of adolescents (Savige et al., 2007). At these stages of development, the nutritional status of individuals should be carefully considered. According to Koivusilta et al. (2006), intake of nutrients such protein, carbohydrate, fat, vitamins, and minerals all have an impact on adolescents' sexual maturity, growth and function. Conversely, an excessive diet may be harmful to one's health by making one more susceptible to non-communicable diseases (Akpan et al., 2013). Nutrition has a similar significance in human life as "fuel" does

in a car. When your cells don't receive the necessary nutritional fuel, they become slow and inadequate. Your cells are like microscopic energy-producing machines, and much like machinery, they need to be regularly maintained to be in excellent operating order (McClellan, 2011).

While adolescents need proper nutrition to enhance their growth and development, a study revealed that, despite the fact that farming and fishing are the main occupations of the residents in the Mfantseman area, poverty has had a particularly negative impact on their diet and nutrition. This may be attributed to the reason that their major consumed food is carbohydrate, that is full of starch such as, yam, gari, cocoyam, fufu, banku etc. (Akaguri, 2014). In addition to poverty, other detrimental factors found to have negative effect on nutrition are ignorance and illiteracy which results in inadequate knowledge about food arrangement, the way to consume the necessary diet at appropriate time and inadequate knowledge of nutrition (Akaguri, 2014). Geissler et al. (2016) highlight the need for assessment for professional training in nutrition education at the Federation of African Nutrition Societies' 2nd FANUS 2011 meeting, which was held in partnership with Ghana Nutrition Societies at the information conference center in Accra (NEAC).

Many food-related issues affect young people, including malnutrition, obesity, and hunger (Dressler & Smith, 2013). According to Black et al. (2013), micronutrient deficiencies are a major, underlying risk factor contributing to the worldwide burden of disease. A large percentage of adolescents in the South East Asia region are chronically malnourished, while those who come from wealthy social classes are more likely to be obese (Schmidhuber, 2004). Chronic malnutrition, including anemia is a risk factor

during pregnancy in adolescents. However, the prevalence of iron deficiency and iron deficiency anemia is higher in adolescents whiles females are more vulnerable than males (Christian & Smith, 2018).

The Global School-Based Student Health Survey estimates that 4% of girls between the ages of 13 and 15 are underweight. One in five girls aged 5 to 19 and almost one-third of their male counterparts are underweight, making South Asia the region with the highest prevalence of moderate and severe underweight. Obesity has increased globally, with Africa showing the largest proportional increase (NCD risk factor Collaboration, 2017). As such adolescent malnutrition is a global issue but is deemed as catastrophic in developing countries (Knijff, 2021). In East Africa, undernutrition has grown to be a significant public health issue (Raru et al., 2022).

Adolescent malnutrition is more common in sub-Saharan Africa (15–58%) than in other African nations (WHO, 2013). According to Aryeetey et al. (2017), more than one-third of children and adolescents in Ghana in 2010 were overweight or obese, while approximately 20 percent of students at Mfantseman Junior High School were obese (Alicke et al., 2017). Children who lack money or other resources also experience food insecurity, which limits their access to food, in addition to obesity. In 2012, 10 percent of households with children in Ghana experienced food insecurity (Kaur et al., 2015). One in six Mfantseman children is thought to be at risk of being hungry, and 10 percent of homes there are categorized as food insecure (Kaur et al., 2015).

Aside the need for adolescents to get proper nutrition to enhance their growth and development, Ziegler et al. (2021) asserted that the stage of

Adolescence is significant developmental period whereby adolescents gain self-directed control over parent-directed control over their eating. Adolescents attain autonomy over their own diet preferences which forms their general eating behaviour. There is evidence that adolescent eating patterns reflect adult eating patterns as a link has been established between them (Devine, 2005; Lien et al., 2001). Therefore, adolescence is a stage of development that requires individuals to gain a good eating behaviour to ensure their holistic development. The nutritional intake of adolescents in exercising their autonomy over their eating is a critical concern. This is because a good eater must be a good man, for a good eater must have a good digestion, and a good digestion depends upon a good conscience (Disraeli, 2020). Since autonomy development happens in many contexts throughout this stage of life, including food choice and eating behaviour, knowing the adolescent perspective is crucial. (Yeager, et al., 2018; Stok et al., 2015). Hence, the need to explore the nutritional status of adolescents is essential so that they will be able to meet the nutritional needs and have smooth transition during this critical stage of life. Amidst the foregoing, it becomes necessary for the study to explore the nutritional status of JHS adolescents in Saltpond Township of the Mfantseman Municipality.

Statement of the Problem

Rapid growth and development are characteristics of the adolescent era of life. It is a crucial stage of one's life characterized by physical growth, emotional growth, social growth and cognitive growth (WHO, 2014). The nutritional status of pupils at this critical stage of life is important since nutritional needs increases during this stage of life and proper nutrition is s

significant at this pivotal time in their lives (Croll et al., 2011). Therefore, all the specific areas that grow and develop rapidly during the adolescence stage can be at risk if proper nutrition is not ensured during this period. In line with this assertion, Roba et al. (2016) asserted that the absence of proper diet can result in delayed sexual maturity, low learning ability due to lack of concentration and slow growth. Related studies have identified that nutrition affects pupils' thinking skills, behaviour, and health (Busch et al., 2014; Shamsuddin et al., 2017). In, addition, a link has also been established between nutrition and behaviour (Asigbee et al., 2018).

Access to proper nutrition has been revealed to result in adequate growth and development. A study found that having breakfast can improve a student's psychosocial wellbeing, lessen aggressive behaviour, school suspensions, and discipline issues (Osher et al., 2014). Additionally, studies have indicated that eating a diet rich in protein, carbohydrate and glucose enhances students' memory, focus, and energy (Moralista, 2016). In this vein, dietary diversity has depicted to be a suitable method to assess nutrient intake adequacy of individuals, including adolescents (Mirmiran et al., 2004). Adolescents' nutrition is a critical area for research; thus, globally, majority of adolescents live in developing countries which makes it essential to explore and monitor their nutritional status (Owusu et al., 2007). Also, during adolescence, the puberty growth spurt requires an increase in their nutrient requirements (Eisenstein et al., 2000). However, several studies reviewed usually focused on nutrition and academic performance (Frisvold, 2015; Weiser et al., 2016) with little emphasis on adolescents' nutritional status. Literature available to the researcher suggest that it appears no research has

been conducted within the Mfantseman municipality on the eating patterns of JHS adolescents. This creates a research gap in this area. Therefore, this study investigated the eating patterns of JHS adolescents in the Mfantseman Municipality.

Purpose of the Study

The purpose of the study was to explore the nutritional status of Junior High School adolescents in Saltpond Township in the Mfantseman Municipality. Specifically, the study explored:

1. the extent JHS adolescents eat balanced diet.
2. the meal patterns of JHS adolescents.
3. the dietary preference of JHS adolescents.

Research Questions

The research questions formulated to guide the study are:

1. To what extent do JHS adolescents eat balanced diet in the Mfantseman Municipality?
2. What are the meal patterns of JHS adolescents in the Mfantseman Municipality?
3. What is the dietary preference of JHS adolescents in the Mfantseman Municipality?

Research Hypothesis

The research hypotheses formulated to guide the study were the following:

1. H_o: There is no statistically significant difference between gender and the extent JHS adolescents eat balanced diet in the Mfantseman Municipality.

2. H_o: There is no statistically significant difference between gender and the dietary preferences of JHS adolescents in the Mfantseman Municipality.

Significance of the Study

The findings of this study will help to educate the Mfantseman Municipality on the need for good nutrition and also help parents to make a conscious effort to provide balanced meals for their wards (adolescents) when they are going to school or monitor and supervise the food that is consumed by their wards especially when their wards make their own food choice at school.

Also, it will inform parents and teachers on the need to create awareness on the nutritional needs of adolescents which enhances their holistic growth and development during this period of life, and enable teachers to make a deliberate effort to educate adolescents on the harmful effects that the adopted negative dietary preferences have on their life now and in later years.

Furthermore, it will add to knowledge and compliment the knowledge documented on nutrition in relation to adolescents. It will also be of value to the state and the local government in their effort to promote good health and nutritional services to pupils in Mfantseman Municipality in the Central Region of Ghana. Lastly, the findings of this study will form the basis on which other studies on nutrition status would be built.

Delimitations of the Study

The research is delimited to only Junior High School Pupils in Saltpond Township, Mfantseman Municipality in the Central Region of Ghana. It will be limited to only public JHS. It will focus on only the nutritional status of the adolescent pupils.

Limitations of the Study

It may be likely that some of the adolescents were influenced by their peers when responding to the questionnaire. That is, the probability of giving the same response as a peer sitting on the same desk could be possible. Also, some of them were feeling reluctant to answer the questionnaire because they felt giving out information will let their peers become aware of their personal issues. The researcher was able to overcome the limitations by explaining the purpose of the study and the need to provide honest responses while answering the questionnaire. They were also assured of confidentiality and anonymity.

Operational Definition of Terms

Adolescence: Adolescence is the transition period from childhood to adulthood which ranges from the age 10 to 20.

Adolescent: Adolescent is a person whose age ranges from 10 to 20 and is transitioning from childhood to adulthood.

Nutritional Status: Nutritional status is the balance that exist between nutrients the food consumed and how the body optimises its usage.

Balanced Diet: Balanced diet is the intake of food which consist of all the five main food groups (grains, protein, vegetables, fruits and dairy).

Meal Pattern: Meal pattern denotes the systematic mode of consuming food during a specified time in a day.

Dietary Preferences: the specific mode or diet which is usually chosen by adolescents.

Organization of the Rest of the Study

Chapter Two dealt with a review of related literature on the study. The review consisted of the theoretical framework of the study, conceptual review,

and empirical review. In the third chapter, a description of the methodology that was used for the study (that is, research design, population, sample and sampling technique, data collection instrument, data collection procedures, ethical consideration, data processing and analysis) was provided. Results and discussion of data collected was done in Chapter Four. Finally, a summary, conclusion, recommendations, and areas for further research was presented in Chapter Five.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter presents a review of literature which highlights on theoretical framework, conceptual review and empirical review. The theoretical framework focused on both the adolescent eating behaviour model of Story et al. (2002) and food choice process model by Sobal et al. (2006). Under the conceptual review, concepts that were reviewed are concept of nutrition and nutritional status, the concept of adolescence, balanced diet, meal patterns, and dietary preferences. Under the empirical review, related studies focused on nutritional status, nutrition, health and growth, influence of nutrition on performance, factors that influence nutritional status, balanced diet, meal pattern and dietary preferences.

Theoretical Frameworks

The study adopted the adolescent eating behaviour model of Story et al. (2002) and food choice process model by Sobal et al. (2006).

Adolescent Eating Behaviour Model

Despite the importance of healthy eating during adolescence, many adolescents' diets do not meet national nutrition guidelines, such as the Dietary Guidelines for Americans or the Food Guide Pyramid. Story et al. (2002) developed a model of the factors that have influence on the eating behaviours of adolescents based on the perspectives of ecological perspective theory by Bronfenbrenner's (1979) and Bandura's (1986) social cognitive theory. The theory has widely been recognised and used by several researchers in relation to exploring the diet and health of adolescents.

The model was constructed based on four main factors that influence the eating behaviour of adolescents. The four influences of adolescents' eating behaviours include intrapersonal/individual influences, interpersonal influences, physical environmental influences and macrosytem/societal influences which are discussed below:

Intrapersonal/Individual influences: interpersonal or individual influences connotes the innate trait and beliefs possessed by a person. They include the biological factors, psychological elements, lifestyle influences and behavioural influences of an individual. The biological influences are hunger and satiety, psychological influences include beliefs, attitudes, knowledge and food preferences whiles lifestyle influences are perceived barriers as time and convenience and the behavioural influences are weight-control behaviours and meal patterns.

Interpersonal influences: Intrapersonal influences constitute the interaction that an individual has with people other than him/herself. The interaction and relationship that exist is linked to influence on the eating behaviour of the individual through reinforcement, perceived norms and modelling. The adolescent has an interpersonal relationship between family, peers and friends.

Physical environmental influences: this type of influence focuses on the physical attributes of the environment which will depict the availability of food and accessibility to food. The food that might be found in a specific context cannot be easily accessible in another context. Therefore, the choice of food adolescent make is due to the type of food that are available and

accessible to them within a given context which will later contribute to adolescents' eating behaviour.

Macrosytem/Societal influences: the societal influence describes the mode of adapting one's behaviour to meet the demands of a specific social environment. Adolescents are social beings; therefore, their eating habits are significantly influenced by society in which they live. Roles and indicators of such influence are cultural beliefs about food, advertisement of food, laws and policies of food, production and distribution systems of food (Sobal et al., 2006).

Implication of the Influences of Adolescent Eating Behaviour Model

The eating behaviours of adolescents are shaped through the relationship and interactions that exist between the four influences. This is because every individual has his/her own personal characteristics that will affect his eating behaviour. However, those personal characteristics alone cannot be used to shape one's eating behaviour but will be directly influenced by intrapersonal influences (family and peers) societal influences (cultural norms of eating) and physical environment influences (availability and convenience).

Adolescence is a significant stage that brings about a number of physiological and psychological changes that often have an impact on dietary requirements and eating habits (Moreno et al., 2010), since most of them gain autonomy over their food choice (Ziegler et al, 2020) their eating behaviours do not develop without any association with the other three influences outlined by Story et al. (2002). Therefore, the family eating behaviour is associated with the eating behaviour of children (Wood-Wright, 2009) whereas, Rea et al.

(2019) opined that the type of food an individual either eat or do not eat is link with social, political or religious influences. All the influences will shape the eating behaviour the adolescent will develop during this crucial stage of life. As such, the World Health Organization (2005) asserts that nutritional issues in adolescents may be caused by dietary deficiencies, which may be connected to physiological, psychological, and socioeconomic factors in the presence of additional nutritional demands imposed by growth sprouts during adolescence.

The Food Choice Process Model

Eating is necessary for survival and health, and is a universal activity that involves many different food choice decisions. Food choice decisions are often seen as mundane and arbitrary, but they may also be viewed as significant and symbolic. Food choice decisions have not been well examined by the diversity of perspectives used to study decision making. Food choice decisions are frequent in contemporary post-industrial societies. Food has become almost universally available and accessible, so that it can be acquired almost anywhere, anytime, by anyone. The onslaught of options for making food choice decisions leads many people to experience too many eating opportunities, which some label as a “the tyranny of choice”. Some food choice decisions do not lead to eating, but people still need to make a decision not to eat. People engage in multiple eating and drinking episodes per day and each eating episode requires many types of decisions including whether, what, where, when, with whom, how long, how, and how much to eat. Research has estimated that most people make over 220 food decisions per day. That food choice decision making is a frequent and expected part of everyday life demonstrates that it a salient and important topic that needs careful analysis.

Food choice decisions are multifaceted, incorporating a great variety of food behaviours. These food behaviours include several stages of food handling, each of which may have different decision processes. Acquiring food procures foodstuffs and foods from personal production, markets, institutions, or interpersonal exchanges. Preparing food involves transforming raw materials into edible foods using a variety of techniques to change the form, temperature, and wetness/dryness of foods. Serving food arranges the eating setting, presents foods, and distributes it to individuals who are eating. Eating involves the intake and ingestion of food. Giving away food shares it with others who are not present. All of these stages involve storage, where foodstuffs, ingredients, and foods are saved and protected between stages. Finally, cleaning up is typically a necessary behaviour that follows the food preparation and eating behaviours. This figure illustrates how food behaviour is a multifaceted process that involves multiple, interrelated decisions. For example, a decision about what to eat is often linked to a decision about where to get the food and how to prepare it. A decision about acquiring food may be linked to decisions about where to store the food and how to serve it.

The food choice process model by Sobal et al. (2006). The theory posits that there are differences in how each individual develops his/her dietary preference based on the choices he/she makes. The food choice process model describes how people construct their food choice based on life course, influences and personal food systems.

Life Course: Life course explains the diversity of individuals' food choice through their past and current experiences. The model reveals that the food choice of individuals is a dynamic process that evolve based on one's

stage of life (infancy, childhood, adolescence) and development (growth and maturation). Concepts that relate to food choice in one's life course are trajectories, timing, transitions and contexts (Devine, 2005).

Personal food systems: Personal food systems denotes the mental processes of understanding and translating influences upon one's food choices into how and what one eats in a specific situation (Connors et al., 2001). Personal food systems depict the mode that trade-offs, options and boundaries are constructed in the process of making food choices (Sobal et al., 2006). That is the process of developing one's own food ideals. Additionally, it operationalizes how a person perceives impacts on food choices in various circumstances (Connors et al., 2001).

The food choice process model goes on to explain that these components frequently contend for prioritizing within the personal food system depending on their importance in each setting and the creation of eating and food-choice strategies.

Influences: One's specific dietary preferences are the result of a variety of influences. These influences are grouped by the food choice process model into five categories: ideals, personal considerations, resources, social factors, and situations (Sobal et al., 2006). Each of these categories of effects interacts with the others, is operationalized in the individual's own food system when they carry out particular eating behaviours, and is embedded within and changes over the course of a person's life as they make food choices.

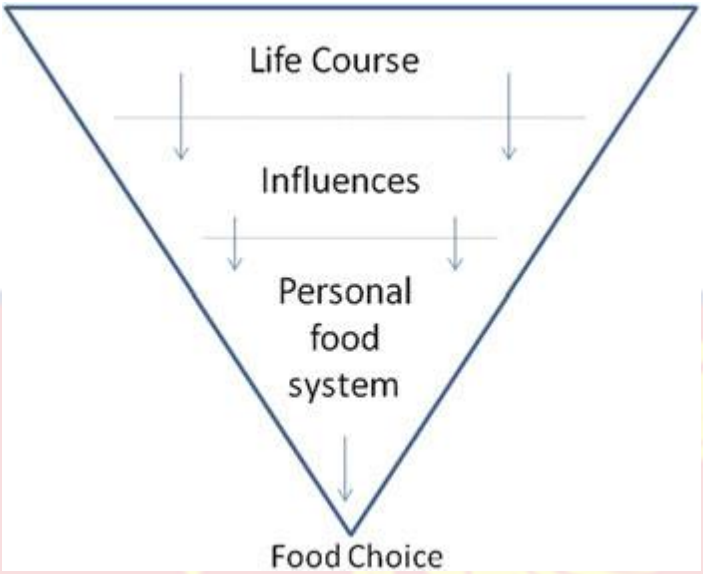

Figure 1: Food Choice Process Model – Adopted from Brečić, Gorton & Barjolle (2014)

Food choice decisions are situational. Food behaviours involve not only decisions about the food, but also decisions about other aspects of a situation in which the food behaviour occurs, such as location, social, time, or other activities. For example, acquisition decisions involve which and how much food to acquire where, when, and how; preparation decisions involve when, how, and where to transform foods in which combinations and amounts; serving decisions involve how much, where, and when to serve foods to different people; eating decisions involve what, when, where, and how much food to consume; storage decisions involve how, where, and how long to keep foods; giving away decisions involve whether, when, where, and how much to share with other people not present; and cleaning up decisions involve how, when, and where to clean up after each stage of the process. All of these situational considerations are incorporated into food and eating decision making, making it a contextualized process.

Food choice decisions are dynamic, changing over historical time and individual time. The food choice decisions of earlier generations were very

different than those faced today and will differ in new ways in the future. Food historians identify how the food system has changed decisions options over time. People engage in different food choice decisions as they undergo personal development and pass through situations and settings in the course of their lives. The dynamism of food choice also occurs on a shorter temporal scale, with food choice decisions varying across the cycles of days, weeks, seasons, and years. Even short episodes and events include changing moods for food choice decisions.

Food choice decisions are complex because they involve many different considerations about what, when, where, and with whom to eat. Deciding what to eat may be involve a simple choice between few food options (e.g., sandwich or pizza) or require selection among many alternative options (e.g., a buffet with dozens of types of foods) and also may involve judgment using few attributes (e.g., taste and health) or consider many attributes (e.g., taste, health, convenience, cost, ethics, ecology, and others). Deciding when to eat may simply involve choosing whether to eat a snack immediately or not eat anything, or be more complex by considering whether to eat a snack in relationship to past, present, and future snacks and meals. Deciding where to eat may consider a single setting (e.g., a cafeteria), or evaluate a multitude of settings (e.g., cafeteria, vending machine, restaurant, and others).

Deciding with whom to eat may involve the simpler procedure of dining alone in isolation, or be more complex in deciding to dine with others, which involves multiple deciders making a joint decision. The complexity of decision-making is being examined on many fronts in the social and

behavioural sciences, and the complexity of food choice decisions poses a major challenge to application of single and simple theoretical models.

Implication of the Food Choice Process Model

The food choice process model describes how the food choice of every individual's life course is developed based on interacting variables which include influences and personal food systems. The food choice of a life course (adolescence) is developed based on the growth and developmental needs of individuals as they achieve self-directed eating. The nutritional status at this critical stage is important because Einstein et al. (2000) argued that the relationship between eating, growth and development are intertwined and inseparable and forms the potentiality of every human being. Therefore, if adolescents' food choice developed leads to unhealthy eating behaviour, it will cause dire consequences on the holistic growth and development of adolescents. This is because the food choice developed will be linked to their dietary preferences, consumption of balanced meal and their meal patterns. Whereas, food choice that accommodates good eating behaviour will ensure an optimal transition through proper growth and development. As argued by Onis (2000) growth represent the most common indictor of nutritional status during adolescence, and it serves as the foundation for the clinical monitoring of the pubertal maturation process. That is, in assessing the health of individuals, growth is used as a yardstick (World Bank, 1998).

Conceptual Review

Concept of Nutrition and Nutritional Status

It is the science of how the body uses the components of food to grow, develop, and work properly. At the most basic level, nutrition is about eating a

regular, balanced diet. Good nutrition helps fuel your body. The foods you eat supply the nutrients your body needs to maintain your brain, muscle, bone, nerves, skin, blood circulation, and immune system. Butler (2020) defines nutrition as "the study of nutrients in food, how the body uses them, and the relationship between diet, health and diseases". Nutrition in this definition is seen as the assimilation by living organisms of food materials that enable them to grow, maintain themselves and reproduce. This means that for living organisms to maintain themselves, they need to be fed. Nutrition relates to how people control the risk of diseases through their daily food consumption and the effect of consuming nutrient either adequately or inadequately.

Nutritional status is the balance between the nutrients that are consumed and expended during the processes of growth and health maintenance (Eto, 2014). According to Huhmann (2017), nutritional status simply means the absence or presence of malnutrition. Malnutrition results from any disorder associated with one's nutritional status which involves disorders attributed to high or low nutrient intake and impaired nutrient metabolism. Gaining inadequate nutrient leads to under nutrition while excess acquisition of nutrients results in over nutrition. Gaining less (undernutrition) has its dire consequences which include being susceptible to infections and high risk of anaemia. Also, it leads to behavioural abnormalities and poor mental development (Martins et al., 2011).

According to WHO Fact Sheet [WHOFS], (2021) undernutrition is classified into stunting, wasting and underweight whiles overweight is sometimes referred to as obesity. Stunted means one is viewed as too short for his/her age, while individuals who are too thin in terms of their height are seen

as wasted and an individual who is underweight possesses low weight for his or her age. The nutrition of individuals is associated with non-communicable disease such as cancers, stroke, diabetes, high blood pressure and others (WHOFS, 2021).

Concept of Adolescence

Eisenstein et al. (2000) posit that adolescence is the stage of transition between childhood and adulthood which falls within the ages of 12-20 years, and it is distinguished by puberty's quick body changes as well as the drives for mental, emotional, and social development. Roba et al. (2016) also stipulated that adolescence marks the transitioning from childhood to adulthood between the ages of 10-19 years in the life of an individual. Adolescent stage has been grouped into three by Salmela-Aro (2011) to include early adolescence (11 years-13 years), middle adolescence (14-17) years and late adolescence (17–19) years). Reicks et al. (2015) termed the period of 10-14years as early adolescence. This stage of life symbolizes a rapid growth of growth and development which should be adequately enhanced through quality and proper food so as to attain the required nutrients for their reproductive maturity, mental and physical growth and development (Patanwar & Sharma, 2013). Adolescence is also a time of physiological and psychosocial transformation, when roles and responsibilities are defined and dietary demands shift (Das et al., 2018; Patton et al., 2016). Significant changes which take place during and after pubertal spurt include gaining body fat (higher in females), changes in body composition, and muscle mass (higher in males), internal organ development, particularly that of the circulatory and

respiratory systems, as well as other physical changes such as alterations in metabolism and enzymatic fluctuations (Eisenstein et al. 2000).

Balanced Diet

A balanced diet constitutes the intake of nutrients from the five main group in its requisite amount to promote growth. The five food groups include; grains, vegetables, fruits, dairy and protein. Also, Krans (2020) defined a balanced diet as a diet constituting the daily calories derived from whole grain, fruits, vegetables, lean protein and dairy in their right proportion. Fletcher (2019), stipulates that balanced diet is food derived from all the five food groups which meets the entire nutritional needs of an individual. In relation to balanced diet, the United States Department of Agriculture recommended that half of one's food intake daily should constitute both fruits and vegetables whiles the other half should be made up of grains, protein and dairy. The five main food groups which constitute balanced diet are grains, vegetables, fruits, dairy and protein.

Grains

The consumption of grains in one's diet is universally recognized. Hess et al. (2012) stipulated that "dietary guidance universally supports the importance of grains in the diet." Grains can be categorized into two forms which are refined and whole grains. Refined grains are the type of grains which are processed by removing their outer shell and the germ. When grains are refined, the bran layers are partially or completely removed during processing, lowering the amount of fibre and micronutrients present (Jones et al., 2020). Slavin (2000) opined that refined grains contain only the endosperm while whole grain constitute the germ, bran, and endosperm.

According to Seal et al. (2016), grains are noted for providing dietary fibre, phytochemicals, plant protein, vitamins and minerals. Although grains are beneficial, whole grains have been identified to contain more fibre and protein than refined grains. Consequently, whole grains are linked to a lower risk of developing chronic diseases (Helnaes et al., 2016). In this vein, U.S. Department of Health and Human Services advised that there is the need to have higher consumption of whole grain than refined grain. Examples of whole grains are oats, sorghum, fonio, millet, brown rice, whole wheat pasta and barley whiles refined grains include white flour and white rice. Some benefits of grains are; they provide high energy when consumed due to their starchy staple form (Antonio, 2005), they serve as an important source of fibre, iron, selenim and folate.

Fruits

Plenty of fruits should be included in a balanced diet. Fruits are usually regarded as tasty and they can be used to make appropriate dessert or snack since they are rich in natural sugars. On the other hand, Mauseth (2014) asserted that not all fruits are sweet but some fruits are non-sweet in their raw state, which include olives and lemon. Fruits are packed with essential nutrients for growth and their daily consumption is recommended. Amao (2018) defined fruit "as the mature ovary of a plant or the succulent edible part of woody plants" (p. 33). According to Fletcher (2019), in order to acquire the nutritional value of fruits, they should be consumed in whole instead of extracting the juice. She further opined that, aside consumption of fresh whole fruit, frozen fruit and fruits canned in water but not syrup keeps its nutritional value. Some common fruits found in Ghana are mangoes, pineapples, oranges,

soursop, passion fruit, avocado, pawpaw, lime, banana, cashew, dates, tangerines, apples, grapes strawberry, plum, kiwi and watermelon. Some of these fruits are found in specific seasons whiles most of them are widely distributed in the nation all year round.

Some specific colours of fruits are widely associated with specific nutritional benefits which are; the red coloured ones such as watermelon are highly known for their antioxidant properties which reduces the risk of stroke, cancer and heart diseases (Amao, 2018). The ones which have yellow colour in nature such as pineapple and passion fruit contains carotenoids which are known to aid in the maintenance of eye health, whereas brown and white fruits contain Phytochemicals which have antibacterial and antiviral properties as well as potassium, be-ta glucans and fibre. These fruits are known for improving metabolism and promoting digestive tract health (Penn Medicine, 2018). Examples include dates and banana. Blackwood (2022) argued that green fruits which include apples and kiwis are high in antioxidant and vitamin C which typically boost the immune system when consumed.

Some general benefits of fruits include ensuring a healthy digestive system through provision of fibre (Dreher, 2018), decreasing the development of kidney stones (Ruel et al., 2004), stimulating memory recall by improving the proper functioning of the brain (Mintah et al., 2012), the intake of fruits leads to lower risk of cardiovascular diseases due to its fibre content (Slavin & Lloyd, 2012) and its ability to sustain the functioning of the body (Organic Facts, 2018), reducing the risk of Alzheimer's disease (del Río-Celestino & Font, 2020).

Vegetables

Vegetables remain one of the common food items since they are produced in almost 200 countries globally; their production is enhanced through diverse physio-geographical and climate conditions which has always been attributed to its accessibility globally (Varadaraju & Patel, 2019). As cited in Amao (2018), the UC vegetables Research Centre defines vegetables as the edible portions of a plant that can be eaten such as the leaves, stem, tubers, roots and bulbs. The sweet and fleshy product of a tree or other plant that contains seed and can be eaten as food. Globally, vegetable production is estimated at 486 metric tons (Rubatzky & Yamaguchi, 2012). Many vegetable commodities meet human caloric demands because of the carbohydrates they contain, and legume crop are especially valuable source of essential amino acids and protein. Thousands of healthy phytochemicals have been shown to be present in vegetables in addition to the 14 vitamins and 16 minerals. Varadaraju and Patel (2019) argued that vegetables contribute a major source of nutraceuticals for well-balanced human diet.

At least 402 vegetables are farmed and sold commercially worldwide, according to a global assessment (Dias, 2012). They represent 69 families and 230 genera. Fletcher (2019) grouped vegetables into the following categories; starchy vegetables (green peas), leafy greens (lettuce), red/orange vegetables (red pepper and carrot), peas and beans (lentils) and other vegetables (beetroot and mushrooms). Varadaruju and Patel (2019) also classified them into leafy vegetables comprising 53 percent of the total, followed by fruit vegetables (15percent), and roots and tuber vegetables (17percent). Vegetables have also been grouped solely based on their colours to include the following; red and

purple vegetables such as tomatoes and eggplant respectively reduces the risk of osteoporosis and diabetes (Butler, 2018). Brown and white vegetables such as garlic, mushroom and ginger contain significant amount of potassium and are known for decreasing cholesterol and controlling the electrical activity of the heart and muscles (HealthSite, 2018). Also, Vegetables which are orange and yellow in nature such as carrot and butternut squash contains carotenoids which are known to aid in the maintenance of eye health. According to Singh et al., (2001), the leafy green vegetables such as cabbage and lettuce contains vitamins, fibre and minerals which aid in reducing mental decline and heart diseases.

It is recommended that vegetables intake should be from each of the categories or subgroups in order to acquire different nutrients. Vegetables may be eaten when cooked or in its raw state. The nutritional value of some vegetables is degenerated when cooked while cooking methods such as deep frying them may be unhealthy. Vegetables are required to form at least a third of one's daily food intake. As such, they can be used for side dish, salad, roasted, soup, or in juices and smoothies.

Some of the general benefits associated with consuming vegetables are; reduction in the risk of cardiovascular disease in humans (Mullie & Clarys, 2011) and the ability to lower the risk of chronic diseases when consumed frequently in its adequate amounts. Consumption of vegetables in their sufficient quantities, phytochemicals available in them considerably aid in defending living cells from chronic illnesses (Palermo et al., 2017; Signh & Rao, 2012). Additionally, it has been linked to better gastrointestinal health, a lower risk of heart attack, some types of cancer, and chronic illnesses like

diabetes (Da Silva Dias & Imai, 2017; Dias, 2012). Vegetable phytonutrients have been shown to reduce the risk of chronic diseases like cancer.

Protein

Proteins are natural organic compounds in the form of amino acids (Butler, 2020). The amino acid in protein constitutes a total number of 22 that are all required by the body to function properly (Johnson, 2018). Protein needs can be calculated at 12 to 15 percent of total calories for females and 15 to 20 percent for males during the pubertal spurt, which typically corresponds with the peak energy needs (Einstein et al., 2000). Proteins are derived from both animal and plant sources. Plant-based protein include soy, nuts, beans, legumes etc. while animal-based protein are meat, dairy products such as milk and cheese, fish and others. Some animal-based protein usually offer complete source of protein whiles most plant-based proteins usually lacks one or more of amino acids and makes an incomplete source of protein (Pimpin et al., 2018).

Importance of Proteins include its ability to develop and maintain muscle mass and wound healing. It helps in regulating the concentration of acid in the blood, it balances fluids, the conveyance and storage of nutrients and boost the immune system (Wu, 2016).

Dairy

Diary constitutes food produced from milk. According to Diet Plate diary is any food from milk products derived from animals or produced in mammary glands. Source of dairy are milk, cheese, yogurt, nut, ice cream and others. Diet plate outlined types of dairies to include milk which is considered as the base form in dairy which is derived from lactating animals; cream as a

type of dairy is a processed milk which involves the separation of fat from milk; butter is also acquired as further fat is extracted from cheese; and yogurt which is a type of dairy obtained from fermentation of cream or milk in lactic bacteria. Dairy food consists of diverse nutrients which include vitamin D, proteins, and calcium. It is recommended that people who have adopted vegan diet should consume alternatives of dairy products like oats, coconut, flaxseed, almond, and soy-based milk. There are two groups of dairy food intolerances which include cow milk protein intolerance and lactose-intolerance (Givens, 2020). Individuals who are lactose-intolerant can obtain calcium from other sources such as soy-based products.

Importance of dairy include maintenance of bone health (Riley et al., 2014). Locatelli and Bianchi (2014) reported that milk contribute to maintaining bone matrix in later life and aids in the total nutrition of children. Dairy intake in childhood reduces the risk of stunting and chronic diseases in later life and serves as a source of Vitamin D fortification which reduces the risk of developing rickets in children (Givens, 2020).

Fat

Fat is found in milk products in the form of glycerides. Some benefits of fats are aiding organs in the production of hormones, lubricating joints, permitting the body to absorb some specific vitamins, maintaining brain health and reducing inflammation (Butler, 2020). Although fat intake is beneficial to nutritional health, too much fat is associated with obesity, increased in cholesterol level and liver diseases (Einstein et al., 2000). Unsaturated fats such as olive oil, soybean oil is regarded healthier than saturated fats which are derived from animals (Butler, 2020).

Meal Patterns

Leech et al. (2015) defines meal pattern as the eating forms of people which strives on a given period of time and include main meal (breakfast, lunch or dinner) and small-sized meal (snack and supper). The time associated with main meals are 6:00am – 10:00am, 12:00pm-3:00pm and 6:00-10:00pm for breakfast, lunch and supper respectively. Small sized meal like snack, constitute any meal consumed outside the aforementioned time period (Duffey et al., 2013).

Breakfast is consuming food within two hours' time period of waking up and not later than 10 am in the morning (Giovannini et al., 2008). Breakfast connotes any food which is taken at the beginning of the day, being in the form of liquid or solid (Jeyakumar & Ghugre, 2017). According to Spence (2017) breakfast is the most important meal of the day since it provides energy and sustenance. He further argued that there exists diversity in the kinds of food that constitute breakfast due to cultural differences. However, there appears to be a consistency among cultures on some of the types of items to consume when starting the day (Cloake et al., 2017). Riley et al. (2014) asserted that although breakfast is conceptualized differently based on the food consumed it should constitute an important moment for children's daily intake. The Idaho School Nutrition Reference guide (2018) recommended that breakfast should consist of different whole grain, milk, meat or meat alternative and fruits and vegetables so as to obtain variety of nutrients.

According to Sivaramakrishnan and Kamath (2012), nutritious breakfast has been identified to provide an individual with a quarter of his daily nutrient requirement. Yang et al. (2006) views regular breakfast intake as

a contributor to healthy health status and lifestyle for every individual. Some of the importance attributed to eating breakfast include; aiding in developing healthy eating habit (Gajre et al., 2008), reducing the risk of obesity and restoring energy to the brain after the night fast (Blondin et al., 2016). Mulan and Singh (2010), found that breakfast consumption improves affective and behavioural components. Breakfast has an influence on the mood of every individual and it enhances better motivation (Benton et al., 2001). Blake and Hobson (2016) suggested some food that positively enhances the mood to include chocolate from raw cocoa, egg, smoked salmon, oats, beans and pulses, dried fruits, yogurt and others.

On the other hand, skipping breakfast has some surprisingly serious health consequences (Spence, 2017). Some of the negative effects associated with skipping breakfast are high body mass index (BMI) (Keski-Rahkonen et al., 2003), depressive symptoms, stress and catching cold (Smith, 2003). Also, not eating breakfast and eating of unbalanced breakfast has been found to have a negative influence on cognitive performance of school aged children (Wesnes et al., 2003). Improvement of cognitive performance is especially essential among school age children (Adolpus et al., 2013).

Lunch is the afternoon meal one consumes. Lunch is noted for providing an estimated amount of 30 percent of a person's daily energy needs (Benelam & Stanner, 2015). Lunch should constitute food from all the five main group to be regarded as healthy (Palumbo, 2021). Importance of eating lunch include raising the blood sugar level and help in sustaining one's energy throughout the day (Park et al., 2012) and keeping the metabolism active. The skipping of lunch is associated with obesity because people who skip lunch

frequently eat more to compensate for the meal loss during dinner (Park et al., 2012). Dinner is the last main meal that is eaten for the day. It is food which is part of a main meal and eaten in the evening. Dinner has been identified to be consumed after five o'clock in the evening (Larson, 2021)

Snacks are simply termed as food that are consumed in between meals. Johnson and Anderson (2010) posit that it has no unified definition globally. According to Chaplin and Smith (2011) intake of small portion of food frequently or any food that is considered as light or eaten between meals can be seen as a snack. Snacks can be consumed after breakfast, after lunch or after supper (Keats et al., 2018). According to Duffey et al. (2014), a snack is any item ingested in addition to the three main meals (breakfast, lunch, dinner). Before breakfast, a mid-morning snack, a mid-afternoon snack, and before bedtime were the predetermined snack times (late night). They include pastries (chips, meat pie, spring rolls), biscuits, soft drink (malt, coke), energy drink or fruits. Snacks are made up largely of salty snacks, sweets and sweetened beverages among adolescents (Sebastian et al., 2008). Healthy snack intake is highly recommended because Farsad-Naeimi et al. (2020) revealed a substantial association between the use of sugar, sugar sweetened beverages, and attention deficit hyperactivity disorder (ADHD). As a result, it is highly advised to eat healthy snacks. The eating of snack after breakfast was linked with having a better mood (Benton, 2001). Some basic characteristics of snack by Chaplin and Smith (2011) include:

1. Snack consumption is not driven by hunger.
2. Its intake does not fill up the consumer.
3. It is simple to eat.

4. It can be consumed quickly.
5. It is made up of small quantity of food.
6. It is eaten in between meals.
7. It is consumed multiple times every day.

Dietary Preferences of Adolescents

According to Einstein et al (2000), the practice of eating little or a lot does not mean one is eating well. Thus, eating well is one's ability to select better foods that balance caloric gains and losses while providing the necessary nutrients to ensure a faster rate of growth. The adolescent's own curiosity about the different nutrient groups and how to establish his or her food choice routine in order to achieve a diet that is healthy, balanced, and appetizing to the palate may be stimulated by hunger and satiety sensations, as well as the distinction between appetite, gluttony, and voracity. The dietary preferences of adolescents usually result in exhibiting maladaptive eating behaviour due to the autonomy they gain over their food choice at this stage. Some of these maladaptive behaviours include adoption of monotonous diet, frequent fast food and snack intake, development of addiction to unhealthy food while rejecting healthy foods, less intake of nutrients due to meal skipping or magic diet, Excessive avidness to eat which is linked with the use of soft drinks or alcoholic drinks, (Einstein, 2000), meal skipping (Nicklas et al., 2001), binge eating (Pearson et al., 2011) and substance use behaviour (Allen et al., 2012). Several situations may influence the dietary preference of adolescents and have an influence on their nutritional status. Such situations may include inadequate financial resources, advertisement of food by the media, lack of time to prepare food, symbolic value of food within a particular

context and characteristics of food. In line with the aforementioned influence, sensory preferences, availability, and satiety (Southgate, 1991), peers, parents, and the surrounding environment (Story et al., 2002) are some prominent dietary influences.

Factors that Influence Adolescents' Dietary Preferences

Hunger and Satiety

Hunger and satiety which are one's physiological need justify the basic influence of one's food consumption. Energy is needed by every individual in order to survive and satisfy one's satiety. The macro-nutrients (protein, fat, carbohydrate) provide diverse strength of satiety signal (healthy living, 2006). Among the macro-nutrient, protein is found to have the highest satiety (Stubbs, 1996). Although macro-nutrient intake has distinguished satiety, an essential satiety signal is linked with the portion size or volume of food consumed by an individual.

Peer Influence

As adolescents achieve autonomy over their food choices, they are prone to be influenced by their peers which makes them to usually have little regard for healthy foods (Seymour et al., 1997). Adolescents' perceptions and decisions about food have been found to be influenced by age-based traits, particularly in the context of schools, such as a heightened vulnerability to peer pressure (Maxwell, 2002; Andersen et al., 2016; Macchi et al., 2017). Although the adolescence stage is critical, they have poor eating behaviours (Pendergast, 2016). Adolescents are identified to have preference for junk food due to peer pressure (Granner et al., 2004). The symbolic value of food described by peers influences their dietary preferences. For instance, the eating

of junk food represents a belongingness to a peer group (Stead et al., 2011). Adolescents preferred the intake of soft drinks than fruits which was a common dietary behaviour among them (WHO, 2016).

Media Influence

The media is a powerful force which has a vibrant influence on the lives of people (Amos et al., 2012). Although television has several roles, such as a constant source of stimulation, serving as an information channel about the outside world and people (Salmon et al., 2005), it can mislead people as well. Aside television, other media channels can be beneficial and at the same time have negative influence on the lifestyle of individuals especially their eating behaviour. A study done in Turkey found that the advertisement of food products mainly focused on unhealthy foods such as confectionary and beverages with high sugar content. Averagely, media has a significant influence on girls than boys (Thomsen et al., 2002). This is because the lifestyle of girls is easily influenced by their decision to be on diet because of fashion magazine they access or role models they imitate on media (Levine & Smolak, 2002). In line with the stipulation of Levine and Smolak (2002), a study conducted by Field et al. (2001) found that the females were influenced by body images presented in magazines which aroused in them the desire to lose weight and be on diet. Moreover, on the average, media is usually accessed by the youth (Ata et al., 2007). Also, the advertisement made by the media usually focus on snacks, fast food and unhealthy food which served as a hindrance to intake of healthy foods such as fruits and vegetables since the advertisement results in craving towards inexpensive and tasty food. Therefore, the exposure female adolescents gain from watching television

influences their dietary preferences than males. This is because, McCabe and Ricciardelli (2003) found that pressure from media has high influence on females than males. As such, they adopt unhealthy dietary preferences which include fast food and is regarded as a barrier to healthy dietary preference of eating fruits and vegetables as they triggered a craving towards tasty and inexpensive unhealthy food (Monge-Rojas et al., 2005; Lautenschlager & Smith, 2007).

The negative eating behaviours established to be higher in females than males cannot be due to several factors other than media influence. The perception of one's body image during adolescence is found to be higher in females than males as they pay more attention to the changes that occur in their body which result in eating disorder (McCabe and Ricciardelli, 2003; Wiseman et al., 2004). The Youth risk Behaviour Survey found that adolescents were discontent with their body shape and weight, however, the number of female adolescents trying to lose weight was higher than male adolescents who wanted to lose weight (Centre for Disease Control and Prevention, 2006). Similarly, females were usually identified to be dissatisfied with their body image than males during adolescence (Ata et al., 2007). They further found that the dissatisfaction arises through pressure they receive from friends and sometimes family. Consequently, in order to attain a specific desired body image, they tend to adopt eating behaviours which strives on negative dietary preferences.

Also, in achieving the desired body image during adolescence period, females resort to negative measures whiles males do not. As males body image focus on gaining masculinity whiles females body image revolves

around losing weight, males adopt strategies which include taking of food supplement and regular exercise of the body whiles females tend to engage in meal skipping (McCabe & Ricciardelli, 2003)

Cost of Food

Undoubtedly, cost remains a significant influence of dietary preferences. The cost of food is important to any consumer. The cost of food could be determined as low or high based on the financial resources owned by a person, it thrives on income and socio-economic status of a person. However, access to adequate financial resources does not automatically lead to consumption of quality food but one's accessibility to diverse type of food is bound to increase. Irala-Estevez (2000) found that low-income earners had low intake of fruits and vegetables whiles mostly consuming unbalanced diet. Thus, fruits and vegetables are usually regarded as prohibitively expensive (Dibsdall, 2003). Adolescents rely on their parents for money to feed themselves at school. As such in purchasing food they become cost conscious (Ziegler et al., 2021). The influence of cost as a factor that determines the dietary preferences of adolescents led to obesity (Watts et al., 2014). French (2003) found that obesity was increasing due to the high consumption of fat and sugar which provide dietary energy at low cost.

Characteristics of Food

The general sensory characteristics of food include smell, taste, texture, appearance and others. Basically, high fat and sweet foods possess greater level of sensory appeal, although most tend to have a source of nourishment in terms of pleasure (Healthy living, 2006). The characteristics of food is linked with its palatability and have an effect on its intake. Among the

sensory characteristics of food, taste is regarded as the significant influence of dietary choice. In line with this assertion, Iatridis et al. (2018) argued that a like for sweetness or dislike for bitterness is an innate human trait. However, taste preferences are gained through one's experiences which are influenced by one's beliefs, expectations and attitudes (Clarke, 1998). The taste of food was highly significant influence for adolescents' dietary preferences (Bawajeeh et al., 2020). As such, adolescents' preference of fried foods to boiled food could be highly correlated to the taste of food based on the cooking method. Johnson et al. (2002) argued that adolescents selected food based on their taste rather than their nutrient content.

Availability and Convenience

People consume some specific food because they were brought up eating them and find them comforting (Amos et al., 2012). As such, the familiar foods will always be available and be conveniently ready to consume. Parents who are regarded as the major influence in the lives of their adolescent children have some specific food they wish their children can eat. In this vein, the food choice of parents will affect that of adolescents at the home since the parents will make the prescribed food available and convenient at home. In relation to parent's food choice and adolescent food choice, Wood-wright (2009) found that US families made fruits and dairy available to their children during dinner.

Knowledge of Food

The knowledge individuals have about food influences their food choice. Possessing adequate knowledge about specific type of food will enhance its high consumption. Knowledge of food and modest dietary

behaviour are not highly correlated because one's knowledge about health are a waste when the person is unsure of the application of knowledge (Healthy living, 2006). The dietary behaviour of grown-ups is associated with their educational level (Kearney et al., 2000).

Empirical Review

Nutritional Status

Roba et al. (2016) found in their study that most adolescents were identified to be thin or under nourished as few of them were overweight. That is, 34 percent were under nourished whiles 33% were overweight. In a similar study, Azupogo et al. (2020) identified that there was a stagnation in under nutrition of adolescents in 2003, 2008 and 2014.

Nutrition, Health and Growth

Nutrition has influence on the health of individuals. Thus, Ransom and Elder (2003) identified in a study that adolescents who were found to be undernourished were more vulnerable to diseases. A study conducted by He et al. (2004) in the USA revealed that women who ate fruits and vegetables frequently had lower risk of obesity. Also, a study conducted by Yang et al. (2006) in Taiwan identified a link between eating patterns and overweight in adolescent. Adolescents who usually ate breakfast had lower risk of being overweight than breakfast skippers. It was found that, adolescents who were identified to be overweight remained overweight in early adulthood stage (Nittari et al., 2019) and had increased risk of cardiovascular diseases (Sinaiko et al., 2005). A study by Roba et al. (2016) identified that adolescents who had monotonous diet pattern were found to be wasting and thin than those who consumed diversified foods daily.

Dias (2012) revealed an association between nutrition and health. An estimated rate of 11 percent of strokes and 31 percent of ischemic heart disease worldwide are caused by unbalanced diets with poor vegetable intake. According to the 2007 World Health Report, unbalanced diets with low vegetable intake, low consumption of complex carbohydrates, and low consumption of dietary fibre were estimated to cause approximately 2.7 million deaths annually and were among the top 10 risk factors for mortality. These findings are consistent with those of Dias (2012).

Sharourou et al. (2018) asserted that dietary anaemia, mainly caused by iron deficiency, is the most common type of anaemia and is the easiest to treat. Nutrition was also linked with developing anaemia. Azupogo et al. (2020) found in a study conducted in Ghana using nationally representative data from the 2003, 2008 and 2014 Ghana Demographic and Health Survey (GDHS) that according to the WHO criterion, there existed the prevalence of anaemia in all the surveys whereas, anaemia was highly prevalent in adolescent girls in Ghana.

Influence of Nutrition on Performance

Mousa et al. (2016) revealed a statistically significant difference between performances in mathematics score of adolescents who had anaemia than those who did not have anaemia in Egypt. Baiden et al. (2020) also found that food insecurity influenced school attendance by being a dominant predictor of absenteeism among adolescents at a JHS in Ghana. Shinde et al. (2021) found in a study that iron and folic acid supplementation resulted in higher reading ability in adolescents. They further revealed that dietary

diversity was associated with haemoglobin which aided in improving the mathematics ability of adolescents.

Factors that Influence Nutritional Status

Some prominent factors that influence nutritional status are level of education, parents' occupation and poverty.

Level of Education

A study conducted in Ghana by Doku et al. (2011) identified that adolescents who had parents with higher educational background ate breakfast daily. Roba et al. (2016) also found a statistically significant difference between the educational level of the parents of adolescents and their nutritional status. Thus, adolescents who had illiterate parents had poor nutrition as compared to their peers who had parents who had college level of education. Also, mothers who had primary education raised adolescents who became under nourished than mothers with college level education. In line with the above findings, a study conducted in Ghana by Wiafe et al. (2020) revealed that dietary iron intake was higher in adolescents who had guardians with formal education than those adolescents brought up by guardians without formal education. Azupogo et al. (2020) revealed in a study that adolescent girls who had no formal education or primary education were thin than those who had higher educational qualification.

Parents' Occupation

A study conducted in Ghana by Doku et al. (2011) found that father's occupation had no influence on adolescents' breakfast eating, their physical activity and their fruits and vegetables consumption. Roba et al. (2016) identified that adolescent girls from daily labourer fathers were twice more

likely to be undernourished compared to those adolescent girls from merchant fathers.

Poverty

Owusu et al. (2007) identified poverty as a factor that undermines secondary school adolescents' intake of balanced diet. Roba et al. (2016) found that the prevalence of under nutrition was due to shortage of balanced meal as a result of originating from a poor family in Ethiopia. Thus, 15.6 percent of adolescents from poor homes experienced intake of unbalanced meal. Also, Mousa et al. (2016) revealed that adolescents who had suffered from anaemia had parents with low-income level.

Balanced Diet

Owusu et al. (2007) found that adolescent students at the secondary school in Ghana consumed snack such as soda, fried foods and candy to the neglect of fruits and vegetables. A similar study conducted in Ghana by Doku et al. (2011) revealed that adolescents neither consumed fruits nor vegetables daily. A study conducted in Nigeria by Afolabi et al. (2013) revealed that wheat flour-based foods and soft drinks were among the common snacks consumed by university students. Roba et al. (2016) found that most of the adolescents did not consume an egg within a week. Olumakaiye et al. (2010) reported based on the findings of a study that adolescents had low intake of fruits and vegetables in their diet. On the other hand, Ziegler et al. (2021) identified that adolescents preferred eating fruits and vegetables. According to Krolner et al., (2011), a significant number of adolescents do not adhere to WHO's recommendation of consuming 400 grams of fruits and vegetables daily. That is, Roba et al (2016) revealed in a study that adolescents' food

intake consisted of mainly carbohydrate to the neglect of protein food and dairy. Therefore, adolescents always consumed grains, root and tubers while their consumption of meat, dairy products, egg and meat were very low.

Meal Pattern

A study conducted in Ghana by Doku et al. (2011) found that most adolescents did not eat breakfast daily. This is because less than 60% of adolescents ate breakfast daily. A study by Amos et al. (2012) revealed that girls in Ghana have unhealthier eating habits than boys. Therefore, Parmar et al. (2017) found that males usually consumed breakfast than females. A similar study conducted in Turkey by Sönmez and Nazik (2019) revealed that the number of female students who skipped meals was higher than male students at the university level. Also, Wiafe et al. (2020) identified an association between meal skipping and dietary iron intake in adolescents. That is, adolescents who skipped meals had low dietary iron intake than those who did not skip meals. On the other hand, a study conducted by Wiafe et al. (2020) in Ghana identified that most (70%) adolescents ate more than three times daily. It was further identified that most adolescents skipped meals and the meal they usually skipped was lunch.

Dietary Preferences

Buxton (2014) found that adolescents in Ghana have unhealthy eating patterns. Wiafe et al. (2020) found that adequate dietary iron intake was higher in males than females. Roba et al. (2016) revealed that most adolescents had monotonous diet pattern. Alicke et al. (2017) identified that the eating of fast foods and processed foods led to overweight and obesity. In a study by Jeyakumar and Ghugre (2017) conducted in India approximately

50% of adolescents did not eat any solid food during breakfast. They further found that 99 percent of adolescents had inadequate breakfast intake.

Factors Associated with Dietary Preferences

A study conducted in Ghana by Owusu et al (2007) revealed that adolescents preferred eating carbohydrate food that could satisfy their hunger such as gari, kenkey and rice frequently. Further, inadequate knowledge and poverty were some factors associated with the dietary preference of adolescents in Ghana. Ziegler et al (2021) found that adolescents' dietary preferences were consumption of mixed dishes (such as sandwiches and pizza), crunchy and salty snacks (such as chips and popcorn), fruits and vegetables, and sweets (such as candy and cookies). Buxton (2014) found that the consumption of soft drink gained special consideration among adolescents because they possessed high density energy level due to their high sugar content. A study conducted in Costa Rica by Monge-Rojas et al. (2005) found that prominent factors associated with adolescents healthful eating are sensory attribute, cost and satiety of food, peer influence, knowledge of food, easy accessibility to unhealthy food at school, outcome expectancies, convenience and time considerations media influence and parental control.

Khunti et al. (2008) revealed that factors which determine healthy eating lifestyle of pupils in the United Kingdom include, peer influence, hunger satisfaction, the cost of food and the risk of wasting money. A similar study conducted by Fitzgerald et al. (2009) in Australia found that peer and adult expectancy, media advertisement of food, time constraint, and easy access to unhealthy food, convenience and sensory attributes are factors influencing eating behaviour of children. A study conducted by Ishak et al.

(2019) in assessing adolescents' perceptions of eating habits in Malaysia found that adolescents had understanding of healthy and unhealthy food. Thus, fried food was regarded as unhealthy whiles boiled food, fruits and vegetables were seen as healthy food. A study conducted by Gellar et al. (2007) found that peer influence was a likely cause of higher eating habits among student adolescents. Thus, Fitzgerald et al. (2009) revealed that learners' choice of food was determined by foods that were deemed as socially accepted by peers in the school which were usually unhealthy such as carbonated drink, sweets and chocolate whereas fruits and vegetables was hardly part. Another study in the US by Evans et al. (2006) identified that, peers had their own symbolic value of foods, therefore, it was revealed in the study that the frequent eating of fruit symbolised old age and those who ate them were mocked by their peers.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter presents the research methods that were adopted for the study. The research methods are presented under the following subheadings: research design, study area, population of the study, sample and sampling procedures, data collection instrument, validity of research instrument, reliability of research instrument, data collection procedures, ethical consideration, and data processing and analysis.

Research Design

The quantitative approach specifically a descriptive survey research design was employed by the researcher in this study. The descriptive survey design is a non-experimental study design which is used to investigate a phenomenon as it occurs naturally whiles measuring exposure and outcome at the same time (Grove et al., 2015). In order to observe, describe, and record a situational element as it naturally occurs, descriptive design is used. Descriptive research design, according to Leedy and Ormrod (2005), is researching and obtaining data from or about groups of people in order to state their responses or answers, with the ultimate objective of generalizing to the entire population. According to Amedahe (2002), the goal of descriptive research is to accurately describe people's and processes' actions. The study was conducted with a high level of objectivity with the descriptive approach.

The design has advantages that encourage researchers to apply. One advantage is the possibility to observe the phenomenon in a completely natural and unchanged natural environment. Also, it is relatively cheap and less time-

consuming compared to different designs. However, the descriptive survey design has some disadvantages that are worth knowing. In descriptive survey studies, the problem of the reviews cannot be tested or verified statistically. Also, descriptive studies do not help identify the cause of the described phenomenon. That is, the descriptive design cannot help the researcher to establish a causal relationship between variables. Therefore, the design was adopted to explore the nutritional status of Junior High School Adolescents in Saltpond Township in the Municipality, Central Region of Ghana.

Study Area

The study was conducted in Saltpond in the Mfantseman Municipality, Central Region of Ghana. The main occupation of the people is fishing. The study area consists of schools which were established to prepare pupils for the second cycle institutions and the world of work as a whole.

Figure 1: Map of Saltpond

Population

The population of a study is usually termed as the group of people about whom a researcher wants to draw conclusions (Babbie & Mouton, 2005). The population for the study constituted all adolescents at the JHS in Ghana. The target population constitutes the entire group of objects or people the study is interested in to generalise the findings of the study (Onen, 2020). The target population for the study constituted all adolescents at the JHS in Mfantseman Municipality, Central Region. The accessible population refers to the portion of the target population to which a researcher has reasonable access and from which a sample can be drawn.

The accessible population for the study was all JHS adolescents in the Saltpond Township in Mfantseman Municipality. The target population for the study was estimated to be 6348. The accessible population of the study was estimated around 1007 adolescents at the JHS level in Saltpond Township in the Mfantseman Municipality.

Sample and Sampling Procedure

A sample refers to a carefully chosen subset of entities that consist of the population whiles sampling is the process of selecting a proportion of the population to represent the entire population (Amedahe & Gyimah, 2018). The study sampled a total of 289 pupils from six out of ten schools using a sample size computation formula (Sample Size = N / (1 + N*e^2) according to Yamane cited in Udelson & Frank (2007) from JHS one to JHS three. The study used both simple random and purposive sampling techniques in selecting the required sample size for the study. A simple random sampling was used to select six schools from the total number of 10 schools in the Saltpond Township. The simple random sampling method was used because it provided

all the JHS schools in the Saltpond Township equal chance to be selected without sampling bias. The purposive sampling was used to select pupils from the selected schools. The criteria for inclusion were that the pupil must be an adolescent, thus must be have an age ranging from 10-20 years.

Data Collection Instrument

A self-designed instrument was employed during data collection. The instrument was a well-structured questionnaire which contained close ended questions. The responses on the questionnaire were both two- and four-point Likert-type scale. The questionnaire was organized into four sections (A-D). Specifically, Section A was on the demographic characteristics of respondents comprising the age, gender and others. Section B was about the extent JHS adolescents eat balanced diet. Section C focused on the meal pattern of JHS adolescents. Section D focused on the dietary preference of JHS adolescents.

Validity of Instrument

Validity is the measure of the accuracy of the findings obtained from a study (Heale, 2015). Content and construct validity of the research instrument was ensured by the researcher. The items in the data collection instrument based on the specific objectives of the study. Furthermore, the researcher gave the developed tool to the supervisor for modification of items, assessment and approval of the instrument.

Reliability of Instrument

Reliability is the degree to which research method produces stable and consistent results. The researcher achieved internal consistency of the final questionnaire using Cronbach's Alpha coefficient by using SPSS software version. Hinton et al. (2004) have suggested four cut-off points for reliability,

which include excellent reliability (0.90 and above), high reliability (0.70-0.90), moderate reliability (0.50-0.70) and low reliability (0.5 and below).

Pre-Test

The questionnaire was pre-tested at Bakatsir Methodist JHS and Jacob Wilson Sey M/A in Cape Coast Metropolis, Central Region of Ghana since they share similar characteristics as the participants that will be used for the study. Thirty pupils from JHS one, two and three were engaged in the pre-testing of the research instrument. A Cronbach alpha coefficient of 0.823 was achieved after the research instrument was pre-tested. Pre-testing helped the researcher to make necessary modifications and corrections to make necessary correction in the item construction, typographical errors, ambiguous words and statement, complex wordings and others in order to achieve the content validity of the research instrument. Essentially, the purpose of pre-testing the instrument is to make it possible to have a data collection instrument that will elicit reliable data for the study (Fraser et al., 2018).

Data Collection Procedure

A well-structured closed ended questionnaire format was designed for the study. Permission was sought from the headteachers and teachers in the selected schools. Also, the pupils were informed about the study and its purpose before administering the instrument. It took a period of three weeks to administer the questionnaires in the selected schools. The data collection was done from 26th July to 12th August 2022. The administered questionnaires were collected after completion by the respondents on the same day. The research participants were guided through the filling of the questionnaire. The service of a research assistant was employed during the administration of the

research instruments. Fifteen minutes was given to each pupil to fill the questionnaire. The return rate of the questionnaire was 100 percent..

Ethical Consideration

The current study considered a number of ethical issues. First, the researcher obtained ethical clearance from the Institutional Review Board (IRB), UCC, for clearance to conduct the study. The researcher required permission from the school's head by giving out an introductory letter. Also, the researcher gave the sampled population what the study is about. The researcher obtained informed written consent from both teachers and pupils before distributing the questionnaires. The respondents were made aware that their participation was voluntary, and they were free to end their engagement at any time during the study. Efforts were made to maintain confidentiality of the responses.

Data Analysis Plan

Quantitative data analysis for this study was done using Statistical Package and Service Solutions (SPSS) version 21. Both descriptive and inferential statistics was used to analyse data obtained. The demographic data was analysed with frequency counts and percentages. Research question one which assessed the extent pupils eat balanced diet was analysed with the use of descriptive statistics such as the frequency count and presented with a bar chart. Research question two which focused on the meal patterns of JHS adolescents was analysed with frequency counts and percentages and presented with a bar chart. Research question three which focused on the dietary preferences of JHS adolescents was analysed with the use of frequency counts and percentages. The two research hypotheses were tested with inferential statistics, precisely two sample t-test.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the results and discussion of the study. The three research questions were presented with frequency distribution table and pictorial representation. Specifically, research question one was analysed with frequency counts and a bar chart to describe the responses, research question two was analysed with frequency counts and percentages and research question three was analysed with frequency counts and percentages whiles the hypothesis was analysed with inferential statistics (Two sample T-test).

Demographic Data of Participants

This section presents the demographic data of JHS adolescents who participated in the study. The demographic data of JHS adolescents include gender, age, food supplement taken, the number of times they eat, their spending money, their favourite fruit and status of taking food to school are presented in Table 1-7.

Table 1: Gender of Participants

Gender	Frequency (f)	Percentage (%)
Male	102	35.3
Female	187	64.7
Total	289	100

Source: Fynn (2022)

Table 1 shows that the total number of JHS adolescents who participated in the study was 289. Females were the majority group (64.7%) of the participants used for the study and males represented the minority group (35.3%) of participants involved in the study.

Table 2: Age Range of JHS Adolescents

Age (years)	Frequency (f)	Percentage (%)
9-12 years	5	1.7
13-16 years	188	65.1
17-20 years	96	33.2
Total	289	100

Source: Fynn (2022)

Table 2 depicts that 65.1% JHS adolescents fell within the age range of 13-16 years, 33.2% of them fell within the age range of 17-20 years and 1.7% had an age range from 9 -13 years. Most of the participants involved in the study were JHS adolescents whose ages fell between 13-16 years.

Table 3: Intake of Food Supplement

Items	Frequency (f)	Percentage (%)
Yes	81	28
No	208	72
Total	289	100

Source: Fynn (2022)

Table 3 indicates that 72 percent of JHS adolescents had not taken any food supplement whiles 28 percent had taken food supplement within the month. It can be inferred that the majority of JHS adolescents in Saltpond Township in Mfantseman Municipality did not take food supplement.

Table 4: Number of Times Participants Eat

Items	Frequency (f)	Percentage (%)
Once daily	1	0.4
Twice daily	148	51.2
Thrice daily	140	48.4
Total	289	100

Source: Fynn (2022)

Table 4, shows that 51.2% of JHS adolescents ate twice daily, 48.4% of them also ate thrice daily and only 0.3% adolescents ate once daily. It can be seen that the most of JHS adolescents in Saltpond Township in the Mfantseman Municipality ate twice a day whiles only one adolescent ate once a day.

Table 5: Spending Money of Participants

Money (Ghana Cedis)	Frequency (f)	Percentage (%)
3	118	40.8
2	53	18.3
4	48	16.6
5	29	10.0
2.50	23	8.0
3.50	11	4
6	3	1.0
7	3	1.0
1	1	0.3
Total	289	100

Source: Fynn (2022)

It is shown in Table 5 that 118 (40.8%) participants received three Ghana cedis as spending money, 18.3% responded they had two Ghana cedis as their spending money, 16.6% also received four Ghana cedis 10 percent received five Ghana cedis whiles the remaining 14.1% participants received either one cedi, two cedis fifty pesewas, three cedis fifty pesewas, six cedis or seven cedis as spending money. The table showed that the least spending money received by JHS adolescents in the Saltpond Township while in school was one cedi whereas the highest spending money was seven cedis.

Table 6: Favourite Fruit of Participants

Items	Frequency (f)	Percentage (%)
Mango	78	27
Banana	59	20.4
Orange	39	13.5
Apple	27	9.3
Pawpaw	21	7.3
Pineapple	19	6.6
Grapes	16	5.5
Watermelon	8	2.8
Coconut	8	2.8
Blackberry	7	2.4
Pear	7	2.4
Total	289	100

Source: Fynn (2022)

Table 6 indicates that 27 percent of the participants' favourite fruit was mango, 20.4% of the participants liked banana, 13.4% had orange as their favourite fruit and the remaining 39.1% participants had either apple, pawpaw, pineapple, grapes, watermelon, coconut, blackberry or pear as a favourite fruit.

Table 7: Participants Intake of Food to School

Item	Frequency (f)	Percentage (%)
Yes	20	6.9
No	269	93.1
Total	289	100

Source: Fynn (2022)

It can be seen from Table 7 that the majority of JHS adolescents constituting 93.1% did not take food from the house to school whiles only 6.9% took food from the house to school. As such, majority of the JHS

adolescents bought food to eat since they did not take food from the house to school.

Results

Do JHS Adolescents Eat a Balanced Diet?

Research Question One: To what extent do JHS adolescents eat a balanced diet in Saltpond Township in Mfantseman Municipality?

To investigate the extent JHS adolescents ate a balanced diet, five items were formulated to elicit their responses. The results are presented in Figure 2.

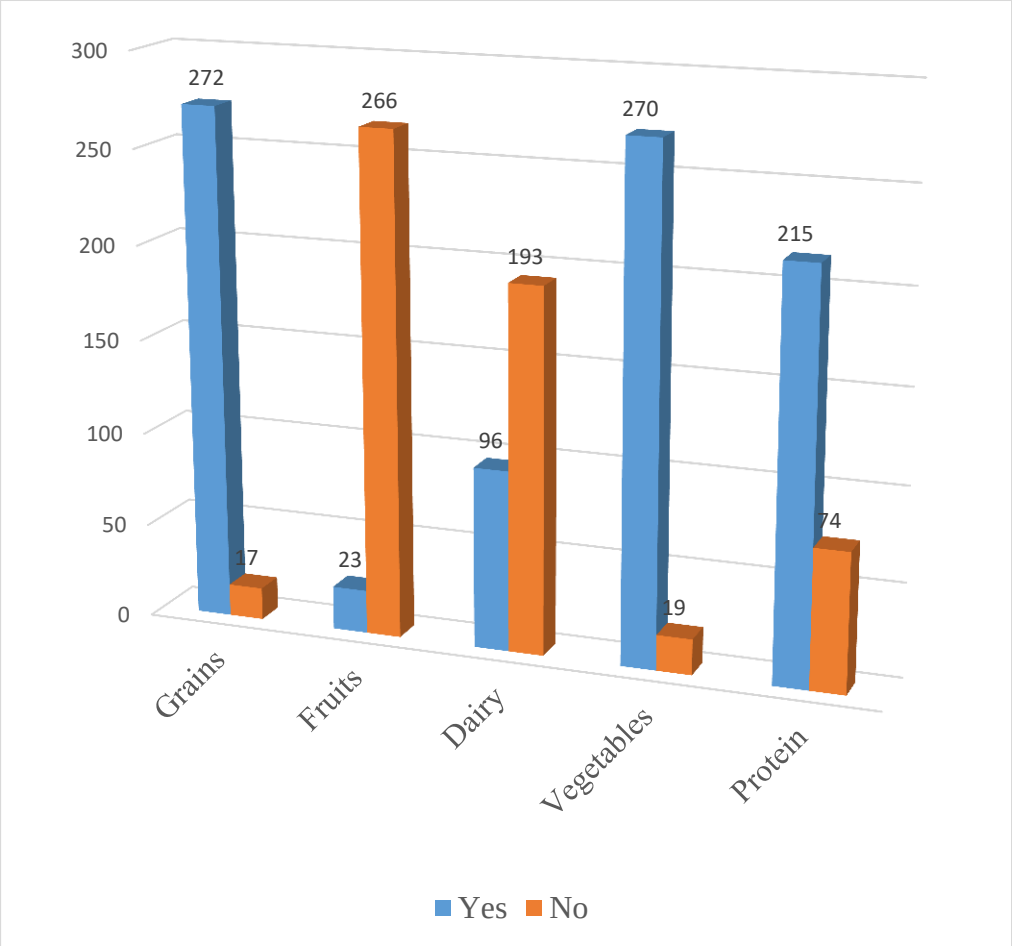

Figure 2: Balanced Diet Intake of JHS Adolescents

Source: Fynn (2022)

Figure 2 indicates that JHS adolescents did not eat balanced diet every day because they did not consume foods from all the five main food groups. The figure depicts that 94.1% ate grains everyday whiles 5.9% of them did not eat grains every day, and only 8 percent ate fruits everyday whiles 92 percent did not eat fruit every day. In terms of dairy intake, 33.2% ate dairy food products everyday whiles 66.8% did not eat any dairy food product every day. Also, 93.4% JHS adolescents ate vegetables everyday whiles 6.6% did not eat vegetables every day and 74.4% ate protein everyday whiles 25.6% did not consume any protein food every day. It is evident that majority ate grains and vegetables whiles majority of them did not eat fruit.

Meal Patterns of JHS Adolescents in Mfantseman Municipality.

Research Question Two: What are the meal patterns of JHS adolescents in Saltpond Township in Mfantseman Municipality?

The study investigated the meal patterns of JHS adolescents in Saltpond Township in Mfantseman Municipality. The result is presented in Figure 3.

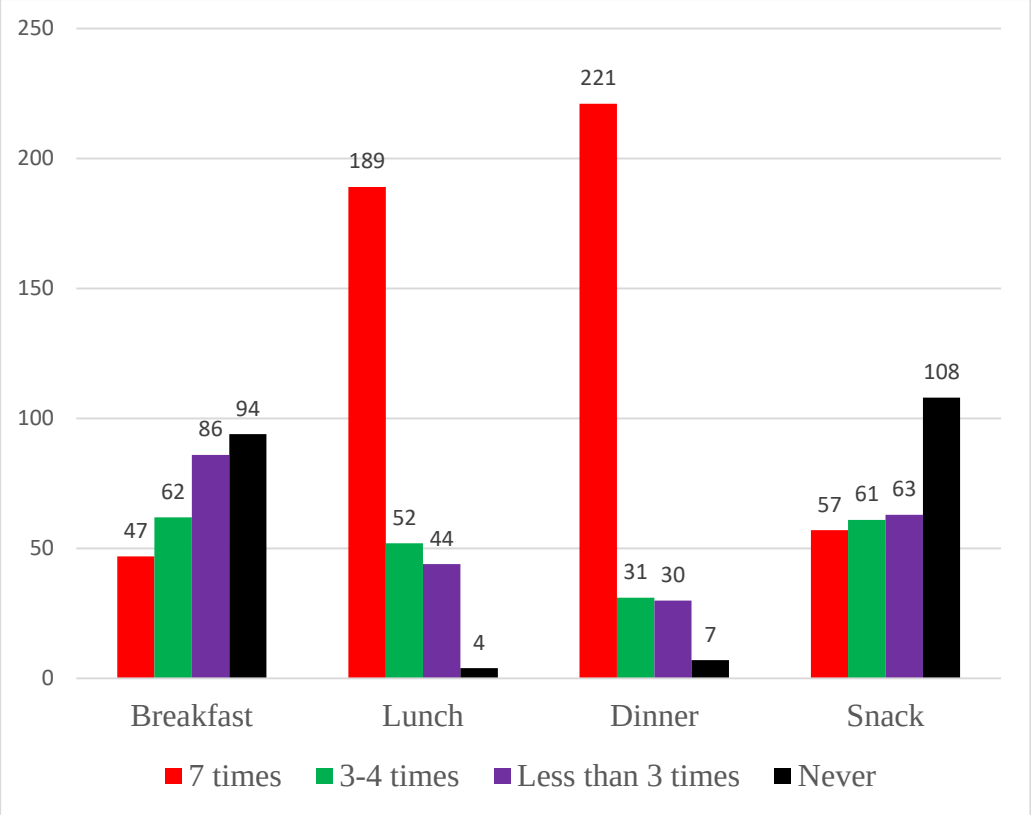

Figure 3: Meal patterns of JHS Adolescents in Saltpond Township

Source: Fynn (2022)

Figure 3 shows that majority of JHS adolescents in the Saltpond township excluded breakfast from their meal patterns as 32.5% never ate breakfast within the week. Figure also shows that 29.8% of the adolescents ate breakfast less than three times in a week with 21.5% eating breakfast 3-4 times in a week while 16.3% ate breakfast 7 times in the week. Also, taking lunch was part of the meal pattern of JHS adolescents because a majority of them ate lunch during the week. Thus, most of them constituting 65.4% JHS adolescents ate lunch 7 times a week, 15.2% ate lunch less than three times a week, 18 percent ate lunch 3-4 times a week whiles only 1.4% of them never ate lunch in the week. Additionally, the meal pattern of JHS adolescents included dinner. Majority of JHS adolescents representing 76.5% ate dinner 7 times a week, 31(10.7%) ate dinner 3-4 times a week, and 10.4% of them also

ate dinner less than three times a week whiles only 2.4% JHS adolescents never ate dinner in a week. Lastly, a sizeable number of JHS adolescents did not include snacks as part of their meal pattern. This is seen in Figure 3 that shows that about 37.4% JHS adolescents never ate a snack in a week, 21.8% ate snacks less than three times in a week, 21.1% also ate snacks 3-4 times in a week and only 19.7% ate snack 7 times in a week.

Meal Patterns of JHS Adolescents in Saltpond Township in the Mfantseman Municipality.

The study probed into the meal patterns of JHS adolescents. The results are presented in Table 8.

Table 8 Meal Patterns of JHS Adolescents

Item	7 times F (%)	3-4 times F (%)	Less than 3 times F (%)	Never F (%)
How many times do you eat these grains in a week?				
Rice	147 (50.9)	91 (31.5)	46 (15.9)	5 (1.7)
Maize	91 (31.5)	105 (33.3)	83 (28.7)	10 (3.5)
Millet	25 (8.7)	35 (12.1)	106 (36.7)	123 (42.6)
Wheat	4 (1.4)	21 (7.3)	135 (46.7)	129 (44.6)
Oat	9 (3.1)	21 (7.3)	95 (32.9)	161 (55.7)
How many times do you eat these dairy food in a week?				
Milk	38 (13.1)	65 (22.5)	140 (48.4)	46 (15.9)
Yogurt	5 (1.7)	30 (10.4)	84 (29.1)	170 (58.8)
Cheese	3 (1.0)	-	35 (12.1)	251 (86.9)
How many times do you eat these protein food in a week?				
Fish	119 (41.2)	78 (27.0)	71 (24.6)	21 (7.3)
Egg	51 (17.6)	99 (34.3)	106 (36.7)	33 (11.4)
Meat	78 (27.0)	92 (31.8)	58 (20.1)	61 (21.1)
Beans	64 (22.1)	86 (29.8)	98 (33.9)	41 (14.2)
How many times do you eat these fruits in a week?				
Orange	54 (18.7)	114 (39.4)	89 (30.8)	32 (11.0)
Pineapple	25 (8.7)	69 (23.9)	121 (41.9)	74 (25.6)
Banana	24 (8.3)	70 (24.2)	120 (41.5)	75 (26.0)
Apple	3 (1.0)	17 (5.9)	102 (35.3)	167 (57.8)
How many times do you eat these vegetables in a week?				
Cabbage	18 (6.2)	53 (18.3)	114 (39.4)	104 (36.0)
Onion	186 (64.4)	78 (27)	17 (5.9)	8 (2.8)
Tomato	193 (66.8)	76 (26. 3)	17 (5.9)	3 (1.0)

Carrot	17 (5.9)	40 (13.8)	118 (40.8)	114 (39.4)
How many times do you consume these snacks in a week?				
Pastries (chips, meat pie, spring rolls)	43 (14.9)	98 (33.9)	118 (40.8)	30 (10.3)
Soft drink (malt, coke)	45 (15.6)	74 (25.6)	111 (38.4)	59 (20.4)
Energy drink (rush, storm)	14 (4.80)	49 (17.0)	49 (17.0)	174 (60.2)
Alcoholic Drinks	3 (1.0)	-	28 (9.7)	258 (89.3)
Fruits	10 (3.5)	53 (18.3)	201 (69.6)	25 (8.7)
Vegetables	10 (3.5)	32 (11.1)	149 (51.6)	98 (33.9)

Source: Fynn (2022)

Table 8 indicates that rice and maize were the grains that were frequently eaten by JHS adolescents. Many JHS adolescents constituting 50.9% ate rice seven times a week, 31.5% also ate rice 3-4 times a week whiles the remaining 17.6% of them either ate rice less than three times or never ate rice in a week. Again, 31.5% JHS adolescents reported that they also ate maize seven times a week and 33.3% of them ate maize 3-4 times a week while the remaining 32.2% JHS adolescents ate maize less than three times or neither ate maize in a week. On the other hand, most JHS adolescents did not eat millet, wheat, or oat during the week. About 42.6% JHS adolescents never ate millet in a week, 36.7% of them reported that they ate millet less than three times in a week, whiles 44.6% never ate wheat in a week, 46.7% ate wheat less than three times weekly and 55.7% also did not eat oat in a week.

The Table also shows that JHS adolescents' weekly consumption of dairy food was low. This is because more than fifty percent never ate cheese or took yogurt in a week representing 86.9% and 58.8% respectively. Less

than half of JHS adolescents consumed milk in a week. Only 13.1% consumed milk seven times in a week, 22.5% of them consumed milk 3-4 times while 48.4% consumed milk less than three times and 15.9% never consumed milk in a week.

Again, the results show that less than half of the JHS adolescents ate protein food daily during the week. That is, only 41%, 17.6%, 27%, 22.1% of them ate fish, egg, meat and beans seven times a week respectively. In addition, the Table shows that the fruit intake of JHS adolescents was very low. However, orange was the fruit that was sometimes eaten with apple being the least fruit eaten by JHS adolescents. Thus, 39.4 % ate oranges 3-4 times in a week, 18.7% ate oranges daily in a week whiles the remaining 41.8% ate an orange less than three times or never ate orange in a week. Whereas 57.8% JHS adolescents never ate apples in the week, 35.3% ate them 3-4 times weekly, and only 6.9% ate apples either three to four times or seven times a week. Also, pineapple and banana were fruits that were less eaten by JHS adolescents. Only, 32.5% ate both pineapple and banana more than four times weekly whiles 67.5% ate them less than three times or neither ate them in a week.

Moreover, Table 8 indicates that JHS adolescents consumed some vegetables such as onion and tomatoes whiles they did not eat green leafy vegetables like cabbage and carrot. Most ate onion frequently that is, 64.4% and 27% ate it seven times weekly and 3-4 times a week respectively whiles only 8.7% neither ate onion nor ate it less than thrice in a week. Again, 66.8% ate tomatoes seven times a week, 26.3% ate them three to four times a week and the remaining 6.9% JHS adolescents neither ate tomatoes nor ate them

less than three times in a week. On the other hand, the majority of JHS adolescents constituting 80.2% and 75.4% respectively either ate carrots or cabbage or ate them less than three times per week.

In terms of snacks, Table 8 shows that their consumption of pastries was higher than their intake of soft drinks, energy drinks, alcoholic drinks, fruits and vegetables. Aside from pastries and soft drinks, less than forty percent of JHS adolescents ate other snacks less than three times a week. That is, 48.8% of JHS adolescents ate pastries more than three times a week, 41.2% drank soft drinks more than three times a week, 21.8% took energy drinks more than three times in a week, 21.8% ate fruits for more than three times in a week, 14.5% ate vegetables for more than three times in a week, and 1.0% drank alcoholic drink as a snack for more than three times in a week.

Dietary Preferences of JHS Adolescents in Saltpond Township in the Mfantseman Municipality.

Research Question Three: the study sought to explore the dietary preferences of JHS adolescents in the Mfantseman Municipality. The obtained data was analysed to answer the research question and it is presented in Table 9.

Table 9: What are the Dietary Preferences of JHS Adolescents?

Item	Yes F (%)	No F (%)
I consider meals that can satisfy my hunger but are not nutritious	218 (75.4)	71 (24.6)
I eat meals that are affordable but not nutritious	227 (78.5)	62 (21.5)
I prefer meals that are advertised on the media but are not nutritious	139 (47.1)	150 (51.9)
I choose meals because of their nice	133 (46)	156 (54)

flavour		
I eat a particular food based on its appearance	139 (48.1)	150 (51.9)
I prefer to eat fried food to boiled food such as fish, yam, egg	170 (58.8)	119 (41.2)
I like to eat fried foods such as yam, chips, eggs, etc.	193 (66.8)	96 (33.2)
I prefer to eat homemade food	164 (56.7%)	125 (45.3%)
I like sweet foods such as candy, soft drinks, etc.	174 (60.2)	115 (38.4)
I prefer to eat fast-food	83 (28.7)	206 (71.3)
I prefer to eat food that is also eaten by friends at school	164 (56.7)	125 (43.3)

Source: Fynn (2022)

The results indicate that JHS adolescents in Saltpond Township had negative eating preferences. The majority of them agreed that they have a preference for food that could satisfy their hunger but was not nutritious. That is, most of them constituting 75.4% ate food that was not nutritious but could satisfy their hunger whiles 24.6% did not eat food that could satisfy their hunger but was not nutritious. Also, majority of JHS adolescents representing 78.5% of them reported that they preferred meals that were affordable but not necessarily nutritious whiles 21.5% did not prefer to eat such types of meals. Again, 58.8% JHS adolescents preferred to eat fried food over boiled food such as fish, yam, egg, etc. whiles 33.2% did not prefer to eat fried food over boiled food. Moreover, 66.8% respondents said that they like to eat fried foods such as yam, chips, eggs, etc. and only 33.2% of them did not like fried foods. Pertaining to the source of food, JHS adolescents preferred homemade food as 56.7% said they ate such food whiles the remaining 43.3% said otherwise. In

terms of eating sweet food such as candy, soft drinks and others, 60.2% had a preference for such food whiles 38.4% did not like to eat sweet food. Another dietary preference of JHS adolescents was eating food that was also eaten by friends. Thus, 56.7% preferred to eat foods that were usually eaten by friends whiles 43.3% did not prefer to eat foods that were eaten by friends.

Research Hypotheses

Two hypotheses guided the study. First is, there is no statistically significant difference between gender and the extent JHS adolescents eat a balanced diet in Saltpond Township in Mfantseman Municipality. Second is, there is no statistically significant difference between gender and the dietary preference of JHS adolescents in Saltpond Township in Mfantseman Municipality. The two hypotheses were formulated in a null form. The null hypothesis indicated that there was no statistically significant difference which signifies that there was no difference between the means. The hypotheses were analysed with the use of a two-sample t-test. The alpha level of significance established for Levene's test was 0.05. As such, if the obtained significance value is higher than the established significance level, it shows that equal variances were assumed so the variances for the two groups are the same. Whereas, if the Levene's test sig value is less than the established alpha level of significance, it indicates that equal variances were not assumed hence the variances between the two groups were not the same. After establishing the variance for the two groups based on the Levene's test sig value, an obtained Sig. value which is less than 0.05 will indicate that the result is statistically significant hence, there is a difference between the means whiles if the

obtained Sig. value is greater than 0.05, it will depict that the result is statistically not significant hence, there is no difference between the means.

An inference can be made for the first hypothesis that, an obtained Sig. value which is less than 0.05 will indicate that there is a difference between gender and the extent JHS adolescents eat a balanced diet in Saltpond Township in Mfantseman Municipality. Whereas, an obtained Sig. value greater than 0.05 will show that there is no difference between gender and the extent JHS adolescents eat a balanced diet in Saltpond Township in Mfantseman Municipality. For the second hypothesis, an obtained Sig value which is less than 0.05 will show that there is a statistically significant difference between gender and the dietary preference of JHS adolescents in Saltpond Township in Mfantseman Municipality whiles an obtained Sig Value greater than 0.05 will indicate that there is no statistically significant difference between gender and the dietary preference of JHS adolescents in Saltpond Township in Mfantseman Municipality. The results of the hypotheses are presented in Tables 10 and 11 respectively.

Research Hypothesis One: there is no difference between gender and the extent JHS adolescents eat a balanced diet in Mfantseman Municipality.

The hypothesis was to find out if there was no statistically significant difference between gender and the extent JHS adolescents in Saltpond Township in Mfantseman Municipality eat a balanced diet.

Table 10: Difference in Gender and the Extent JHS Adolescents Eat Balanced Diet

	Levene's test for equality of variance		Test for equality of means		
	F	Sig	T	Df	Sig(2-tailed)
Equal variances assumed	0.485	0.487	0.783	287	0.434
Equal variances not assumed			0.901	284.685	0.368

Source: Fynn (2021)

It is shown from Table 10 that the sig value for Levene's test is 0.487 and it is higher than the alpha level of 0.05 which indicates that the variances for the two groups were the same. The results indicate there was no statistically significant difference between males (M=7.18, SD=0.98) and females (M=7.04, SD=1.64); t (287) =0.783, p=0.434 (two-tailed). Therefore, it was inferred that there was no difference between the balanced diet intake of males and females JHS adolescents. The null hypothesis was accepted based on the obtained results.

Research Hypothesis Two: there is no statistically significant difference between gender and the dietary preference of JHS adolescents in Saltpond Township in Mfantseman Municipality.

Gender and the dietary preference of JHS adolescents in Saltpond Township in Mfantseman Municipality.

Table 11: Difference between gender and the dietary preference of JHS adolescents

	Levene's test for equality of variance		Test for equality of means		
	F	sig	T	Df	Sig(2-tailed)
Equal variances assumed	5.549	0.019	0.227	287	0.782
Equal variances not assumed			0.293	241.623	0.770

Source: Fynn (2022)

The results show that the sig value for Levene's test is 0.019 and it is less than the alpha level of 0.05 which indicates that the variances for the two groups were not the same. Also, based on the Levene's test, it was established that the variances for the two groups were not the same, so it indicates that there was no statistically significant difference between the two groups. This is because there was no difference between males (M=15.31, SD=1.75) and females (M=15.25, SD=2.10); t (241.6) =0.293, p=0.770 (two-tailed). Therefore, there was no difference between dietary preferences of males and females JHS adolescents in Saltpond Township. Amidst, the null hypothesis was accepted based on the results.

Discussion

This section focuses on the discussion of the findings of the study. The discussion is based on the research questions and research hypotheses that guided the study.

Research Question One: To what extent do JHS Adolescents Eat a Balanced Diet in Saltpond Township in the Mfantseman Municipality?

The research question was formulated to investigate the extent JHS adolescents in Saltpond Township in the Mfantseman Municipality ate balanced diet every day. Five items were formulated under this research question. The results of the study revealed that JHS adolescents did not eat a balanced diet on daily basis. That is, JHS adolescents did not eat fruits and dairy food products every day but their main daily food intake constituted only grains, vegetables and protein foods. They are said to not eat a balanced diet although they ate food from three food groups from the five main food groups as Fletcher (2019) was of the view that a balanced diet is a food derived from

all the five food groups which meet the entire nutritional needs of an individual. In agreement with the views of Fletcher (2019), Krans (2020) also asserted that a balanced diet is a diet constituting the daily calories derived from whole grains, fruits, vegetables, lean protein and dairy in their right proportion.

In the opinion of the researcher, the absence of a diet made up of all the five food groups will undermine the nutritional status of JHS adolescents and will have a negative impact on their optimal growth and development. This is because the adolescent stage of life is a critical stage that requires proper nutrition as it is a stage of life during which there is rapid growth of growth and development which should be adequately enhanced through quality and proper food to attain the required nutrients for their reproductive maturity, mental and physical growth and development (Patanwar & Sharma, 2013). As such, Eto (2014) argued that nutritional status connotes the balance that exists between the consumption of nutrients and their expenditure of them in the processes of growth and health maintenance. Huhmann (2017), concurred by opining that nutritional status simply means the absence or presence of malnutrition and malnutrition results from any disorder associated with one's nutritional status which involves disorders attributed to high or low nutrient intake and impaired nutrient metabolism.

However, the results identified that JHS adolescents in Saltpond Township did not eat balanced diet everyday which will cause low nutrient intake and will likely lead to a lack of balance between the consumption of nutrients required during the adolescent stage. It appears that undernutrition is very rampant during the adolescent stage as Azupogo et al. (2020) also found

in a study conducted in Ghana that there was a stagnation in undernutrition of adolescents in 2003, 2008 and 2014. Martins et al. (2011) argued that gaining less (undernutrition) has dire consequences which include being susceptible to infections, high risk of anaemia, poor mental development and behavioural abnormalities. Aside from the aforementioned consequences, being undernourished will manifest through an individual either being stunted, wasted or underweight (WHOFS, 2021). A study conducted by Roba et al. (2016) revealed that most adolescents were identified to be thin or undernourished as few of them were overweight.

Although daily balanced diet intake is essential to ensure holistic growth and development at the adolescent stage, the current study found that JHS adolescents in Saltpond Township did not eat balanced diet every day. According to Savadatti (2021, p 206), "adolescence originates growth and demands for nutrition, adolescents need complete nutrition for achieving proper growth potential." Their inadequate intake of a balanced diet might be due to their adopted eating behaviour during the adolescent stage. In buttressing this assertion, the adolescent eating behaviour model of Story et al. (2002) stipulates that the eating behaviours of adolescents are shaped through the relationship and interactions that exist between four influences (intrapersonal/individual influences, interpersonal influences, physical environmental influences and macrosystem/societal influences). Most adolescents gain autonomy over their food choice (Ziegler et al., 2020) therefore their eating behaviours do not develop without any association with the influences outlined by Story et al (2002). Also, nutritional problems among adolescents can arise from the result of dietary inadequacies which

may be related to physiological, psychological and socioeconomic factors in the presence of additional nutritional demands imposed by growth sprouts during adolescence (WHO, 2005).

Several studies regard adolescence as a period of physiological and psychosocial change during which nutritional needs are changing and new roles and responsibilities are established (Das et al., 2017; Patton et al., 2016), healthy eating, thus a balanced meal is essential to support rapid growth development in adolescence (Adesina et al., 2012). However, aside from eating to support growth and development, it is essential for adolescents to develop healthy eating behaviour which focuses on balanced diet intake when they achieve autonomy over their food choices. This is because, when adolescents develop a specific eating behaviour that focuses on eating an unbalanced diet as found in the study, it may impact their eating behaviour in their adult years (Pederson, 2013) and lead to a higher risk of attaining chronic and metabolic diseases in the later years (Thana'Y et al., 2019).

Research Question Two: What are the Meal Patterns of JHS Adolescents in Saltpond Township in the Mfantseman Municipality?

This research question focused on investigating the meal patterns of JHS adolescents in Saltpond Township. Ten questions were set to investigate their meal pattern. They were asked questions about the extent they consumed main meals and snacks in a week. Also, they were asked about some specific foods they usually consumed in a week during their main meal and snack period. The results of the study revealed that JHS adolescents have inconsistent meal patterns. That is, they usually skipped breakfast and did not

often eat a snack during the week whiles they ate lunch and dinner consistently in the week.

The results of the study revealed that JHS Adolescents in Saltpond Township were breakfast skippers. Breakfast consumption is significant as it makes an important nutritional impact on one's nutritional status (Utter et al., 2007). Adolescents who eat breakfast can make better choices in selecting food to eat throughout the day than breakfast-skippers since breakfast skippers fail to compensate during eating other meals during the day (Nicklas et al., 2000). Also, studies have identified a link between meal patterns and obesity, especially in eating breakfast (Boutelle et al., 2002; Yang et al., 2006). However, the results of the current study found that JHS adolescents skipped eating breakfast. Contrary to this finding, Wiafe et al. (2020) revealed that most adolescents skipped meals and the meal they usually skipped was lunch. Other similar studies conducted by Doku et al. (2011) and Jeyakumar and Ghugre (2017) findings are congruent with the findings of the study which identified that most adolescents did not eat breakfast daily.

Out of the three main meals, the current study found that JHS adolescents skipped only one of them, that is breakfast which is considered as significant of them all. Conforming to the assertion, Spence (2017) stipulated that breakfast is the most important meal of the day. This is because a nutritious breakfast has been identified to provide an individual with a quarter of his daily nutrient requirement (Sivaramakrishnan & Kamath, 2012). Therefore, Yang et al. (2006) view regular breakfast intake as a contributor to healthy health status and lifestyle for every individual. Some positive effects of consuming breakfast have been established. Mulan and Singh (2010), found

that breakfast consumption improves affective and behavioural components. Benton et al. (2001) also argue that breakfast has an influence on the mood of every individual and it enhances better motivation. Therefore, if the mood of the JHS adolescents is not better due to breakfast skipping, they are likely to exhibit disruptive behaviours such as fighting in school.

Though regarded as an essential nutritional contribution to dietary quality and overall health, it is the meal that is commonly skipped among the three main meals (Utter et al., 2007; Penuela, 2009) and the findings of the current study concur. According to Spence (2017) skipping breakfast has some surprisingly serious health consequences. Some of the negative effects associated with skipping breakfast are depressive symptoms, stress and catching a cold (Smith, 2003) and high body mass index (BMI) (Keski-Rahkonen et al., 2003).

Moreover, not eating breakfast has been found to have a negative influence on the cognitive performance of school-aged children (Wesnes et al., 2003). It should be noted that improvement of cognitive performance is especially essential among school-age children (Adolpus, et al., 2013). This is because the academic success of students is dependent on their cognitive ability. The cognitive ability of JHS adolescents will be undermined since they were found to skip breakfast.

Finally, on the negative consequences associated with skipping a meal, thus, breakfast, Wiafe et al. (2020) identified an association between meal skipping and dietary iron intake in adolescents. That is, adolescents who skipped meals had low dietary iron intake than those who did not skip meals. Iron deficiency (anaemia) has an effect on the academic performance of

students. Congruent to this assertion, Mousa et al. (2016) revealed a statistically significant difference between performances in mathematics scores of an adolescent who had anaemia and those who did not have anaemia in Egypt. Shinde et al. (2021) also found in a study that iron and folic acid supplementation resulted in higher reading ability in adolescents. Sharourou et al. (2018) asserted that although dietary anaemia which is mainly caused by iron deficiency is the easiest to treat but the most common type of anaemia. Nutrition was also linked with developing anaemia. It is highly essential for adolescents to avoid skipping meals especially breakfast. Due to inconsistency in meal patterns among adolescents, it is not surprising that Azupogo et al. (2020) found in a study conducted in Ghana using nationally representative data from the 2003, 2008 and 2014 GDHS that according to the WHO criterion, anaemia was prevalent in all the surveys with high prevalence in adolescent girls in Ghana.

Again, the results of the study found that JHS adolescents did not consume snack frequently every day. Although the results of the study indicated that the snack intake of JHS adolescents was low, the food they usually consumed as a snack was pastries and soft drinks to the neglect of healthy snacks such as fruits and vegetables. Consistent with the finding, a study conducted by Afolabi et al. (2013) revealed that wheat flour-based foods and soft drinks were among the common snacks consumed by university students in Nigeria. Ziegler et al. (2021) found that adolescents preferred eating cookies and pizza. From the opinion of the researcher, adolescents ate snacks that were not healthy. This is because a significant relationship was

found between the consumption of soft drinks and ADHD (Farsad-Naeimi et al., 2020).

In terms of the specific food JHS adolescents consumed within the five main food groups (grains, dairy, protein, fruits and vegetables) in the week, the results of the study showed that in terms of the grains they consumed, they ate rice and maize always in the week whiles they sparingly consumed oat, wheat and millet in the week. Some of the food such as oat which had very low consumption has been regarded as very healthy food. Blake and Hobson (2016) identified oat as food that positively enhances one's mood. Also, the results showed that JHS adolescents did not consume dairy products frequently during the week however, milk was the main dairy product they sometimes consumed than yogurt and cheese. Buttressing the findings of the study, Roba et al (2016) identified that adolescents had low consumption of dairy products. For protein food, JHS adolescents consumed fish and eggs whiles they did not eat beans and meat frequently during the week. In congruence to the findings, Roba et al. (2016) found that adolescents did not consume meat frequently, however, the consumption of eggs found in the current study contradicts the findings of Roba et al who reported that adolescents' egg intake was low.

In terms of fruits, they usually ate oranges than pineapple, banana and apples on occasions they ate fruits since JHS adolescents did not consume fruits daily. This finding is consistent with the findings of a study conducted in Ghana by Doku et al. (2011) that adolescents did not consume fruits daily. The findings of the study contradict the findings of Ziegler et al. (2021) who reported that adolescents preferred eating fruits every day. The contradiction

of the study's findings may be due to the different contexts where the study was conducted. This is because a similar study conducted in Ghana by Doku (2011) identified the same outcome while the study conducted by Ziegler et al. outside Ghana produced contradictory results. The results of the study showed that JHS adolescents consumed vegetables every day, however, they consumed vegetables such as tomatoes and onions than carrots and cabbage. Contrary to the findings of the study, Doku et al. (2011) identified that adolescents did not eat vegetables every day.

Based on the results of the study, it is evident that adolescents have adopted a particular meal pattern that appears to be monotonous. This is because they preferred to eat some specific kinds of foods from the main food groups whiles their consumption of other foods from the same food groups were very low. For instance, in terms of vegetables and fruits, they were found to eat only onions and tomatoes always to the neglect of carrots and cabbage whiles they ate oranges and did not eat apples, banana and pineapple. The findings concur with the food choice process model by Sobal et al. (2006) which posits that there are differences in how each individual develops his/her dietary preference based on the choices he/she makes. That is, the food choice of individuals is a dynamic process that evolves based on one's stage of life. Therefore, the particular choice JHS adolescents made in selecting some specific kinds of food while disregarding the others from the same food group might be due to their current stage of life and other interacting variables which include influences and their personal food systems.

Research Question Three: What are the Dietary Preferences of JHS Adolescents in Saltpond Township in the Mfantseman Municipality?

The research question was set to explore the dietary preferences of JHS adolescents with eleven questions. The results of the study showed that JHS adolescents in Saltpond Township had negative eating preferences. That is, they agreed that they had a preference for food that could satisfy their hunger which was not nutritious; they preferred to eat meals that were affordable but were not nutritious; JHS adolescents said that they liked to eat fried foods such as yam, chips, egg, etc., therefore, they preferred to eat fried food than boiled food such as fish, yam, egg, etc.; they had a preference for eating sweet food such as candy, soft drink and others and they preferred to eat food that was usually eaten by friends.

The results of the study identified that JHS adolescents in Saltpond Township had a preference for food that could satisfy their hunger but were innutritious. Generally, energy is needed by every individual in order to survive and satisfy one's satiety and adolescents are not exempted. However, different food provides varied satiety and has their own cost. The macro-nutrients (protein, fat, carbohydrate) provide diverse strength of satiety signals (healthy living, 2006). Among the macro-nutrient, protein is found to have the highest satiety (Stubbs, 1996). However, the findings of the study indicated that among the five food groups however from the findings of the study, adolescents preferred eating grains (carbohydrates) than protein food. This may be because they felt eating grains (carbohydrates) could satisfy their hunger.

In consonance with the assertion, a study conducted in Ghana by Owusu et al (2007) revealed that adolescents preferred eating carbohydrate food that could satisfy their hunger such as gari, kenkey and rice frequently. Roba et al. (2016) also revealed in a study that adolescents' food intake consisted mainly of carbohydrates to the neglect of protein food. Therefore, adolescents always consumed grains and tubers while their consumption of eggs and meat was very low. Aside from the consumption of carbohydrate foods such as grains, which could satisfy their hunger, the results of the study indicated that JHS adolescents often consumed soft drinks which could be attributed to the fact that they have high energy density due to their high sugar content and could satisfy their hunger but was not nutritious. Buttressing this finding, Buxton (2014) found that the consumption of soft drinks gained special consideration among adolescents because they possessed high-density energy levels due to their high sugar content.

The results of the study also showed that JHS adolescents in Saltpond Township preferred to eat meals that were affordable but were not nutritious. Though JHS adolescents did not take food to school and were not part of the school feeding programme, they were given inadequate spending money. The findings of the study indicated that they were given spending money which ranged from one cedi to seven cedis whiles most of them reported that their spending money was three cedis. It appears the inadequate spending money was associated with JHS adolescents' preference for food that was not nutritious but was affordable. In line with this assertion, Khunti et al. (2008) revealed that the cost of food was among the main factors which determined the healthy eating lifestyle of pupils in the United Kingdom. French (2003)

found that obesity was increasing due to the high consumption of fat and sugar which provide dietary energy at a low-cost whiles fruits and vegetables were usually regarded as prohibitively expensive.

In purchasing food, adolescents become cost conscious (Ziegler et al., 2021), hence, adolescents had to rely mainly on an unhealthy diet due to the cost of food. The inadequate spending money given to adolescents which affected their dietary preference negatively could also be linked to poverty as Owusu et al. (2007) found that poverty was among the prominent factors associated with the dietary preference of adolescents in Ghana.

Again, the results of the study revealed that JHS adolescents in Saltpond Township liked to eat fried foods such as yam, chips, eggs, etc. therefore they preferred to eat fried food over boiled food such as fish, yam, eggs, etc. the findings of the study concur with the findings of Owusu et al. (2007) as they found that adolescent pupils at the secondary school in Ghana consumed fried foods to the neglect of fruits and vegetables. Similarly, Buxton (2014) revealed in a study that adolescents at the JHS in Ghana opted for high fatty foods since they preferred to eat food such as yam and egg when fried than when they are boiled. Adolescents' preference for fried foods over boiled food could be highly correlated to the taste of a food based on the cooking method. Johnson et al. (2002) argued that adolescents selected food based on their taste rather than their nutrient content.

Although adolescents might have knowledge of healthy food which promoted a healthy lifestyle, they could not overlook the taste of food since taste is regarded as a significant influence on dietary choice. A study conducted by Ishak et al. (2019) in assessing adolescents' perceptions of eating

habits in Malaysia found that adolescents had an understanding of healthy and unhealthy food however taste was a major barrier to eating healthy food. Thus, fried foods were regarded as unhealthy whiles boiled foods, fruits and vegetables were seen as a healthy food but vegetables were seen as not tasty.

Moreover, the results of the study reported that JHS adolescents in Saltpond Township had a preference for eating sweet foods such as candy, soft drinks and others. The findings of the study corroborate the findings of a study conducted by Ziegler et al. (2021) that adolescents' dietary preferences were consumption of sweets (such as candy and cookies). The characteristics of food is linked with its palatability and have an effect on its intake. Iatridi et al. (2018) argued that a liking for sweetness or dislike for bitterness is an innate human trait and sweet taste is a powerful stimulus. However, excessive intake of sweet food which are sugary have negative implications such as a likelihood to develop obesity in adolescent (Malik, 2006), poor health conditions, shortfalls in other nutrients and metabolic abnormalities (Johnson et al., 2009).

A study has revealed that soft drinks which were a sweet food had a link with higher BMI (Elfhag et al., 2007) and the eating of sweet food which contains added sugar has been associated with raising blood pressure in adolescents (Nguyen et al., 2009). In line with the aforementioned negative consequences of consuming sweet food, Frary et al. (2004) found in a study that the consumption of sweet food especially sugar-sweetened drinks negatively inhibited calcium intake; Johnson et al. (2009) identified that increased consumption of sugar leads to a reduction in the consumption of

iron, zinc and Vitamin A; Schulze (2004) also identified intake of sweet food as an increased risk of type 2 diabetes in young adults.

In regard to the dietary preferences of JHS adolescents in Saltpond Township, the results of the study revealed that they preferred to eat food that was usually eaten by friends. Peer influence is at its peak during the adolescent years and the results of the study have established the presence of peer influence on the dietary preferences of adolescents. Usually, peer influence has a negative impact on the dietary preferences of adolescents and the finding of the current study is no exception as JHS adolescents in Saltpond Township had a preference for fried foods and sweet foods. Buttressing this claim, a study conducted by Gellar et al. (2007) also found that peer influence was a likely cause of higher eating habits among student adolescents.

It is possible that the food choice of adolescents was determined by their life course as adolescents. Therefore, Evans et al. (2006) identified that adolescent peers had their own symbolic value of foods, hence, he revealed in a study conducted in the US that the frequent eating of fruit symbolised old age and those who ate them were mocked by their peers. Similarly, Fitzgerald et al. (2009) identified that young learners' choice of food was determined by foods that were deemed as socially accepted by peers in the school and were usually unhealthy such as carbonated drinks, sweets and chocolate whereas fruits and vegetables were hardly part.

Difference between Gender and the Extent JHS Adolescents Eat Balanced Diet in Saltpond Township in the Mfantseman Municipality.

The hypothesis was formulated to investigate if there existed any significant difference between gender and the extent JHS adolescents eat a

balanced diet in Saltpond Township in the Mfantseman Municipality. After the hypothesis was tested, the results indicated that there was no statistically significant difference between gender and the extent JHS adolescents ate a balanced diet in Saltpond Township in the Mfantseman Municipality. Though the results of the study identified that there was no difference between the balanced diet intake of females and males, some previous studies have mostly identified nutritional deficiencies among females than males. Azupogo et al. (2020) found in a study conducted in Ghana using nationally representative data from the 2003, 2008 and 2014 GDHS that according to the WHO criterion, there existed a prevalence of anaemia in all the surveys with high prevalence in adolescent girls in Ghana. Similarly, Wiafe et al. (2020) found that adequate dietary iron intake was higher in males than females. The aforementioned nutritional deficiencies suggest that females did not eat a balanced diet. In the opinion of the researcher, the current study did not find any difference in the extent JHS adolescents eat a balanced diet in relation to gender because the study found a low balance diet intake for most if not all the participants of the study.

Difference between Gender and the Dietary Preference of JHS Adolescents in Saltpond Township in the Mfantseman Municipality.

The hypothesis was tested to identify if there was a statistically significant difference between gender and the dietary preference of JHS adolescents in Saltpond Township in the Mfantseman Municipality. The results of the study revealed that there was no difference between gender and the dietary preference of JHS adolescents in Saltpond Township in Mfantseman Municipality. Thus, the dietary preferences of both females and

males were the same. Differences between the dietary preference of both males and females were not established, however, other studies have reported contradictory findings. Amos et al. (2012) revealed that girls in Ghana have unhealthier eating habits than boys. Parmar et al. (2017) found that males usually consumed more breakfast than females. Similarly, a study conducted in Turkey by Sönmez and Nazik (2019) revealed that the number of female students who skipped meals was higher than male students at the university level. It is evident that females had more negative dietary behaviours than males.

The negative eating behaviours established to be higher in females than males can be due to several factors. Perception of one's body image during adolescence as they pay more attention to the changes that occur in their body which result in eating disorders (McCabe & Ricciardelli, 2003; Wiseman et al., 2004). The Youth Risk Behaviour Survey found that adolescents were discontent with their body shape and weight, however, the number of female adolescents trying to lose weight was higher than male adolescents who wanted to lose weight (Centre for Disease Control and Prevention [CDC], 2006). Similarly, females were usually identified to be more dissatisfied with their body image than males during adolescence (Ata et al., 2007). They further found that the dissatisfaction arises through the pressure they receive from friends and sometimes family. Consequently, in order to attain a specific desired body image, they tend to adopt eating behaviours that strive on negative dietary preferences.

Also, in achieving the desired body image during adolescence period, females resort to negative measures whiles males do not. As males' body

image focus on gaining masculinity whiles females' body image revolves around losing weight, males adopt strategies that include taking food supplement and regular exercise of the body whiles females tend to skip meals (McCabe & Ricciardelli, 2003)

Moreover, on average, media is usually accessed by the youth (Ata et al., 2007). It has been affirmed that media has a significant influence on girls than boys (Thomsen, Weber, and Brown, 2002). This may be because the lifestyle of girls was easily influenced by their decision to be on diet because of fashion magazines they access or role models they imitate on media (Levine & Smolak, 2002). In line with the stipulation of Levine and Smolak (2002), a study conducted by Field et al. (2001) found that the females were influenced by body images presented in magazines which aroused in them the desire to lose weight and be on diet.

Again, the advertisement made by the media usually focuses on snacks, fast food and unhealthy food which served as a hindrance to the intake of healthy foods such as fruits and vegetables since the advertisement results in a craving for inexpensive and tasty food. Therefore, the exposure female adolescents gain from watching television influences their dietary preferences more than males. This is because McCabe and Ricciardelli (2003) found that pressure from media has a high influence on females than males.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents the summary, conclusions and recommendations of the study. It also suggested areas for further research.

Summary

The purpose of the study was to investigate JHS adolescents' nutritional status in Saltpond Township in the Mfantseman Municipality. Three research questions and two hypotheses were set to achieve the study. A quantitative approach with a descriptive survey research design was adopted for the study. Simple random and purposive sampling techniques were used to select participants for the study. A total number of 289 participants constituting 102 males and 187 females were involved in the study. A closed-ended questionnaire was used to collect data for the study. The three research questions were analysed with the use of descriptive statistics with pictorial representation, specifically, research question one was analysed with frequency counts and represented with a bar chart, research question two was analysed with a representation of bar chart and frequency counts and percentages and research question three was analysed with frequency counts and percentages whiles the hypothesis was analysed with inferential statistics (Two sample T-test).

Key Findings

The following were the key findings based on the research questions and the hypotheses:

1. JHS adolescents in Saltpond Township did not always eat a balanced diet. They consumed grains, vegetables and protein every day but not dairy food products and fruits.
2. JHS adolescents in Saltpond Township had inconsistent meal patterns such as missing breakfast and snacks but ate only lunch and dinner.
3. JHS adolescents in Saltpond Township had negative dietary preferences. They preferred to eat food that was affordable but innutritious, they preferred fried food over boiled food, they had a preference for sweet food consumption and they preferred foods that were eaten by their friends.
4. There was no statistically significant difference between the gender of JHS adolescents in Saltpond Township and their balanced diet intake.
5. There was no statistically significant difference between gender and the dietary preference of JHS adolescents in Saltpond Township in Mfantseman Municipality.

Conclusions

From the findings, the following conclusions were drawn:

1. JHS adolescents did not always eat a balanced diet because they had the autonomy to make their food choice at school since their parents gave them money to buy food and did not prepare meals for them to take to school.
2. The meal patterns of JHS adolescents were inconsistent due to reports of inadequate financial resources.

3. The negative dietary preference of JHS adolescents was due to the influence of peer pressure and poor supervision from parents and guardians.
4. Both females and males were malnourished since they did not eat a balanced diet.
5. Both males and females had developed unhealthy eating lifestyles as they all had negative dietary preferences.

Recommendations

Based on the findings and conclusions drawn from the study, the following recommendations were made:

1. Parents should make a conscious effort to provide balanced meals to their wards (adolescents) when they are going to school or monitor and supervise the food that is consumed by their wards especially when their wards make their own food choice at school.
2. The government should extend the school feeding programme to cover pupils at the JHS level so that adolescents can have access to nutritious meals that will keep the students in school. This will solve their problem associated with inadequate financial resources and their desire to eat food eaten by their friends.
3. Parents and guardians should provide social support to adolescents so that they would not be easily vulnerable to peer influence that have a negative effect on their nutrition during adolescence when they become more peer-oriented.

4. Teachers and parents should create more awareness on the nutritional needs of adolescence which enhances their holistic growth and development during this period of life for JHS adolescents.
5. Teachers should make a deliberate effort to educate adolescents on the harmful effects that the adopted negative dietary preferences have on their life now and in their later years.

Suggested Areas for Further Research

1. Future studies should employ a mixed-method approach to obtain varied information regarding the nutritional status of adolescents. This is because the qualitative aspect of the mixed method approach will help delve deeper into the problem through the narratives of the research participants.
2. Future studies should also investigate the impact of nutritional status (undernourished or over nourished) on adolescents.
3. Further studies can also be conducted to focus on adolescents at all the other educational levels in Ghana aside from Junior High School Adolescents.

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APPENDICES

APPENDIX 'A'

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

FACULTY OF EDUCATIONAL FOUNDATIONS

DEPARTMENT OF BASIC EDUCATION

QUESTIONNAIRE FOR PUPILS

Dear pupil,

This questionnaire aims at investigating the nutritional status of Junior High School Pupils Adolescents in Saltpond Township. This questionnaire would like to solicit for your opinions and views. Anything written will be used solely for academic purposes and would be confidential. Please provide genuine answers to the items.

Section A: Background Information

The statement provided below seek information about you.

Gender: Male [ ] 2.Female [ ]

Age: 10-13 years [ ] 14-17Years [ ] 18-20 [ ]

Have you taken any food supplement in the past month? Yes [ ] No [ ]

How many times do you eat in a day? ……
How much is your spending money? .....
Do you like fruits? ……
What is your favourite fruit? .....
Do you Take Food to School? Yes [ ] No [ ]

Section B: The Extent JHS Adolescents Eat Balanced Diet

Please provide an answer by ticking (√) in the box provided.

To what extent do JHS adolescents eat balanced diet?

	Item	Yes	No
1.	Do you eat grains every day? (maize, rice, millet)		
2.	Do you eat fruit every day?		
3.	Do you eat any dairy products (milk, cheese, yoghurt and others) every day?		
4.	Do you eat vegetables every day?		
5.	Do you eat protein food like fish, egg or meat every day?		

Section C: The Meal Patterns of JHS Adolescents.

Please provide an answer by ticking (√) in the box provided.

What are the meal patterns of JHS adolescents?

	Item	7 times	3-4 times	Less than 3 times	Never
6.	How many times do you eat breakfast in a week?				
7.	How many times do you eat lunch in a week?				
8.	How many times do you eat dinner in a week?				
9.	How many times do you eat snack in a week				
10.	How many times do you eat these grains in a week?				
	Rice				
	Maize				
	Millet				
	Wheat				
	Oat				
11.	How many times do you eat these dairy food in a week?				
	Milk				

	Yogurt				
	Cheese				
12.	How many times do you eat these protein food in a week?				
	Fish				
	Egg				
	Meat				
	Beans				
13.	How many times do you eat these fruits in a week?				
	Orange				
	Pineapple				
	Banana				
	Apple				
14.	How many times do you eat these vegetables in a week?				
	Lettuce/Cabbage				
	Onion				
	Tomato				
	Carrot				
15.	How many times do you consume these Snacks in a week?				
	Pastries (chips, meat pie, spring rolls)				
	Soft drink (malt, coke)				
	Energy drink (rush, storm)				
	Alcoholic Drinks				
	Fruits				
	Vegetables				

Section D: Dietary Preference of JHS Adolescents.

Please provide an answer by ticking (√) in the box provided.

What are the dietary preference of JHS adolescents?

	Item	Yes	No
16.	I consider meals that can satisfy my hunger but are not nutritious		
17.	I eat meals that are affordable but not nutritious		
18.	I prefer meals that are usually advertise on the media but are not nutritious		
19.	I choose meals because of its nice flavour		
20.	I eat a particular food based on its appearance		
21.	I prefer to eat fried foods to boiled food such as fish, yam, egg		
22.	I like to eat fried foods such as fried yam, chips, etc.		
23.	I like sweet foods such as candy, soft drink etc.		
24.	I prefer to eat homemade food		
25.	I prefer to eat fast food.		
26.	I prefer to eat food that are also eaten by friends at school		

Thank You