



***Effect of Nutritional Knowledge And Dietary Habits On
Nutritional Status Among Adolescent Girl***

Thesis Submitted

by

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بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

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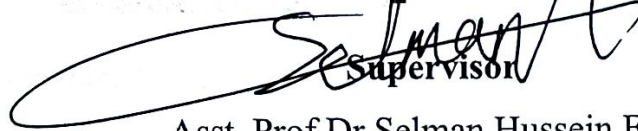
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I certify that this thesis, entitled Effect of nutritional knowledge and dietary habits on nutritional status among adolescent girls., was prepared under my supervision at the College of Nursing at the University of kerbala in partial fulfillment of the requirements for the degree of master in nursing sciences.



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Dedication

My father, who was always with me spiritually.

My Mother, brothers, and sisters for their love,
support, and encouragement

Dear friends and every person who gave me
opportunity to go on the right way...

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Abstract

For healthy eating habits in adolescents and behavior to prevent health issues that may persist into adulthood. Use body Mass Index (BMI) percentiles is to determine nutrition status of adolescents to assess the nutritional knowledge and adolescent dietary in girls, Investigate the dietary and identify relationship between of nutritional status and their demographic data for adolescent girls.

A descriptive study was 400 the students are from middle and secondary schools in the Kerbala region, City, Iraq participated in a cross-sectional study, between September 26th, 2023, and may 27th, 2024, data were gathered. An instrument for self-reporting was used to collect data. The administered questionnaire collected data, about nutritional knowledge and dietary habits and nutritional status in the adolescent's girls student. the mean age of the students was for female adolescent students is group of 16-19 years. That 61% of female adolescents have normal weight and 20.2% of female adolescents have underweight but 12% of them have overweight. The half of female adolescents having fair level of knowledge while healthy nutrition as reported among 65.5%.mother educational level, mother educational level, and family monthly income.

The eating habits and level of knowledge of adolescent's girls do not effect of the nutritional status, and most of them have healthy eating habits, while about one fifth of them have unhealthy eating habits, and more than a third of them had an abnormal body mass. Which indicates the importance of involving them in healthy awareness programs about healthy nutrition and ways to maintain a normal level of body mass.

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List of Abbreviations

Items	Meaning
ASA	The American Stroke Association
D.f	Degree of Freedom
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders
e.g.	For Example
et al	Others
F	Frequency
Fig.	Figure
H.S.	High Significant
NASPE	The National Association for Sport and Physical Education
NICE	National Institute for Health and Clinical Excellence
No.	Number
PA	Physical Activity
PHIAC	The Public Health Interventions Advisory Committee
R.S.	Relative sufficiency
SCRI	Salford Centre for Research and Innovation
SD	Standard deviation
SES	Socioeconomic Status
Sig	Significance
SPSS	Statistical Package of Social Sciences
Std	Standard Deviation
UK	United Kingdom
UNICEF	United Nations Children's Fund
US	United States
WHO	World Health Organization

List of Symbol

Symbol	Meaning
%	Percentage
=	Equal to
&	And
-	Minus
±	Minus/plus
>	More than

Chapter One

Introduction

Chapter One

1.1. Introduction:

Adolescents undergo enormous physiological (rapid growth changes during puberty such as physical activity lean tissue accretion) and social processes (cultural and gender norms; acceptable work types, free time activities, early marriages, and physical activities; changes in access to processed & unhealthy food markets; food supply deficits at household level) that require an adequate and diverse diet (Nathan ,2020).

Adolescence is a time when young individuals begin to make decisions about their lifestyle and pick up habits that usually stick with them into adulthood. Adolescence therefore seems to be the best period to affect decisions and changes in behavior and attitudes (Al-Yateem,2017).

Adolescence is a time of fast growth and the emergence of traits associated with secondary sex. Adolescents' rapid physical growth causes them to engage in more physiological activities and require more energy to meet their demands than they did during earlier developmental periods. The most significant meal in an adolescent's diet is breakfast. Adolescence depends on consuming enough protein from plants and animals. Adolescents' diets need to include vitamins and minerals such iodine, calcium, and iron. Fruits and vegetables are the best sources of vitamins, while dairy products and milk are the finest sources of calcium (Alavi,2013).

Healthy eating habits in adolescents and children habits are more likely to grow up healthy and intellectually developed, and they are also less likely to experience urgent health problems like learning and work impairment (Sotuneye, 2017).

Poor eating habits during the adolescent years include skipping meals, especially breakfast, and consuming high-dense, fatty, sugary fast food as the main meal of the day. Other bad eating habits include eating meals with little to no fruit or vegetable content, skipping meals frequently,

and consuming large amounts of sweetened beverages (Maponya, 2020).

Adolescent nutrition is a significant factor in determining the health of a country. Sadly, teenagers have historically been viewed as a low-risk group for bad nutrition and health, and as such, they frequently receive less attention. This stage of life is the basis for improved health in the next generation, which surpasses that of the parent generation (Rani, 2016).

Access to resources and dietary expertise are essential for long-term improvements in nutrition and health. Healthy behaviors should be learned and adopted during adolescence to help prevent a variety of health and nutritional issues later in life. Teenagers can more easily receive health care and nutrition information through their education, leisure activities, and the media than they will later in life. In particular, female adolescents' healthy habits and understanding of health and nutrition will be crucial to preserving the health and nutrition of their families in the future (Alam, 2010).

Because children and pregnant women receive the majority of medical attention in poor nations, teenagers' health needs are not sufficiently examined or met. Nonetheless, the rising incidence of obesity globally has brought focus to the food habits of young people and adolescents. It has been noted that due of their poor eating habits; teenagers are more likely to become overweight or obese, as well as more vulnerable to chronic illnesses and lifestyle disorders. Adolescence is a time of increasing physical growth, brain development, hormonal changes, and increased food requirements for growth and development, therefore proper nutrition is essential (Kamanu, 2019).

The dietary needs throughout this stage of growth also rise significantly in comparison to the years before. In addition to providing enough calories during this stage, the diet should also include vital components and nutrients including protein, vitamins, and minerals needed for growth. Adolescence brings with it increased needs for energy and

nutrients, including vitamin B6, B9, B12, A, and C, due to both physical and nutritional growth. Because they are crucial for energy metabolism, thiamin and riboflavin are significant in this cycle (Doustmohammadian, 2013).

A person's attitude and conduct while selecting foods that will impact their nutritional status are influenced by their level of nutritional awareness. A person's nutritional status improves with increasing nutritional understanding. Adolescents who consume more food than they need will face a number of nutritional issues, including both too little and too much nutrition (Lestari, 2018).

The notion of nutritional status evaluation encompasses a vast array of features and uses. From a medical perspective, it is critical to understand the nutritional state of the greatest proportion of the population, particularly with regard to vulnerable populations like the elderly and various groups with particular diseases, in order to obtain a prognosis and the ability to act to prevent complications by intervening throughout the course of the disease (Fernandez, 2023).

Consumers can learn about nutrition from a variety of sources, including dietary standards, national nutrition regulations, and food cultures that may influence how they absorb or are exposed to nutrition information. A range of instruments have been employed worldwide to assess nutrition knowledge, with the majority of research employing specialized instruments designed for particular study population (Bhawra, 2023).

Adolescent diets are negatively impacted and fail to meet the recommended food and nutrition guidelines for optimal health due to a lack of knowledge in receiving, understanding, and implementing fundamental food and nutrition information to make healthy food choices. Studies suggest that developing food literacy skills, such as comprehending food and nutrition, can enhance individuals' readiness to adhere to a nutritious diet habits (Brown, 2021).

Food practices, such as meal plans, eating customs, and food purchases, assist individuals in adhering to dietary guidelines. In addition to consuming a minimum of five servings of fruits and vegetables each day, a healthy diet should restrict fat, sugar, and salt from regularly eaten foods like soft beverages, instant noodles, and processed foods. Choosing healthy cooking techniques for meals at home and at restaurants should also be part of these habits. In terms of the perceived health effects of unhealthy eating, the effectiveness of eating healthily, and teenage food preferences, knowledge improves positive attitudes(Liu, 2022).

Adolescent malnutrition raises the risk of disease and premature death for many boys and girls in developing countries. When looking at the number of healthy years lost due to impairment among teenagers aged 10–19 in 2019, iron deficiency anemia ranked second. To help keep teenagers healthy, you can take folic acid and iron supplements. It is recommended to deworm regularly in areas where hookworm and other intestinal helminths are common in order to prevent micronutrient deficiencies, such as iron insufficiency. It is estimated that in 2016, just around 20% of the world's adolescents were physically active enough to meet the World Health Organization's standards. Adolescent girls are more likely than boys to be physically inactive are, and this problem affects the whole world (WHO, 2020).

The acquisition of nutrition and health knowledge is of paramount importance in fostering the adoption of healthy food habits, and has been observed to exhibit association with sociodemographic factor Nevertheless the current evidence is Restricted and irregular. Our objective was to assess the level of awareness of nutrition and health information, as well as the factors that influence it, among the people . Additionally, we intended to establish a scientific foundation for implementing focused nutrition education programmer (Yatingetal , 2022).

During the period of late childhood and early adolescents, nutrition has a crucial role in determining the timing and shape of puberty. This has significant implications for adult height, the accumulation of muscle and fat Mass and the likelihood of developing non-communicable diseases in adulthood. Adolescent development is influenced by nutrition that goes beyond just the growth of the musculoskeletal system. It also affects cardiorespiratory fitness, neurodevelopment, and immunity. The prevalence of early adolescent pregnancy in many countries poses a persistent threat to the development and nourishment of female adolescents, resulting in long-lasting repercussions for future generations (Shane et al., 2021).

Normal weight obesity (NWO) is a condition that occurs in individuals with a normal weight (BMI <25 kg/m²) and with excess fat storage that exceeds the recommended levels, as defined by the World Health Organization (>20% for men and >30% for women). Individuals with a body mass index (BMI) below 25 kg/m² may exhibit insulin resistance, hypertriglyceridemia, and excessive blood pressure. The findings of multiple studies have substantiated the correlation between an unhealthy eating pattern and the prevalence of normal weight obesity, while "healthy" dietary patterns are associated with a reduced likelihood of obesity. The study aimed to ascertain the prevalence of normal-weight obesity within the specified group and explore its correlation with eating patterns (Dua et al., 2022).

Individuals' dietary state influences their development and health outcomes, including mental health. Eating disorders (EDs) are mental conditions characterized by persistent disruptions in eating patterns and attitudes towards weight control. These disorders are diagnosed based on psychological, behavioral, and physiological features that are not influenced by medical or psychiatric causes. These psychological issues are prevalent among adolescents (Ahlam and Shikieri, 2022).

During adolescence, individuals start to take on more independence

and self-governance. During the developmental years, adolescents exhibit a heightened susceptibility to the adoption of poor dietary patterns. While this particular demographic is susceptible to certain harmful activities, it also represents a period filled with potential opportunities. anticipate that the implementation of nutrition education interventions during these critical years will yield favorable outcomes for their current state of well-being. The positive effect indicated above will last as individuals go into adulthood as they cultivate positive inclinations towards themselves and their potential families. The introduction of nutrition education among individuals in this specific age group has resulted in significant improvements in both habits linked to nutrition and academic performance (Kameshwary et al., 2020).

Body image is a multifaceted construct that encompasses one's subjective view of one's own size and shape, as well as feelings and immediate experiences. It also includes an element of subjectivity related to one's level of pleasure with one's physical appearance. Body image can be directly or indirectly influenced by the media, the family, and the social environment. The interplay between these factors may encourage exaggerated comparisons with peers and an unrealistic look.. Teenagers are particularly susceptible to these effects due to their unique transitional phase, which is marked by fast physical development and growth (Rankings, 2020).

1.2. Importance of the Study :

The dietary needs throughout this stage of growth also rise significantly in comparison to the years before. In addition to providing enough calories during this stage, the diet should also include vital components and nutrients including protein, vitamins, and minerals needed for growth . Adolescence brings with it increased needs for energy and nutrients, including vitamin B6, B9, B12, A, and C, due to both physical and nutritional growth. Because they are crucial for energy metabolism, thiamin and riboflavin are significant in this cycle (Doust, 2013).

To achieve the nutritional status and dietary habits of teenage girls enrolled in secondary school The World Health Organization (WHO) states that proper energy balance for a healthy weight should be provided by food recommendations for both individuals and populations. This kind of diet should involve consuming less fat overall, consuming more unsaturated fats instead of saturated fats, and avoiding trans fats. In addition, it should involve consuming more fruits, vegetables, legumes, healthy grains, and nuts while consuming less free sugar and sodium .The adolescent stage is when appropriate nutrition is most important. Improving teenage girls' diet is especially crucial, as it will subsequently impact their long-term health (Alavi, 2013).

Adolescents should receive educational interventions to increase their understanding of nutrition and to encourage the dietary and behavioral adjustments necessary to support health throughout life (Yateem, 2017) .

The study may also help identify areas in need of more investigation and contribute to the body of information regarding the food habits and nutrition knowledge of adolescent girls learners. Accurate diagnosis will enable the department to create specialized nutrition education, maximizing resources (Maponya, 2020) . The goal of the study was to help teenagers adopt a balanced diet and reduce their risk of non-communicable illnesses and malnutrition (Kamanu, 2019) .

The results could potentially direct further research towards the best ways to educate adolescents about food literacy. The findings of this study may serve as a guide for researchers, public health experts, and policy makers as they create curriculums and programs on food and nutrition to counteract the fall in food literacy (Brown, 2021).

1.3. Statement of the Problem:

Identifying how knowledge of nutrition and pattern of dietary effect of nutritional status among adolescent girls. Being well informed about

nutrition is one of the few factors that can be changed to influence eating habits. It also helps to build the resilience to external factors that can lead to unhealthy eating patterns causes malnutrition, and stop or postpone the onset of non-communicable diseases in teenage girls .

Adolescents' snacking, meal skipping, and dieting habits have risen since eating healthily is not prioritized. Regular meals, which should include a wider variety of foods and healthier options to fulfill the increased demand for energy and nutrients during this time, are hampered by snacking

Poor health nutrition knowledge is essential to health literacy. Therefore, current, high-quality research is required to guide public health policy and community nutrition education.

1.4 .objectives of the study:

1. assess the nutritional knowledge among adolescent girls.
2. To investigate the dietary habits among adolescent
3. To determine the effect of nutritional knowledge and dietary habits on nutritional status
4. To identify relationship between of Nutritional status and demographic data of adolescent girls.

1.5 Research Hypotheses:

Hypothesis: There will be affect between nutritional knowledge and dietary habits on nutritional status among adolescent girls.

Null hypotheses: the national knowledge and dietary habits have not effect on nutritional status.

1.6. Definition of Terms:

1.6.1. Nutritional knowledge:

A. Theoretical Definition:

Term Nutrition knowledge pertains to the comprehension of ideas and procedures around nutrition and health, such as diet , illness, health, and

dietary guidelines and recommendations (Lestari, 2018). It is a significant factor in determining diet-related behavior and has the power to affect consumers' capacity to recognize and control what foods are healthy (Spronk, 2014).

B. Operational Definition:

Nutrition knowledge awareness of adolescent is girls to know is diverse food that contains all the essential nutrients that the body needs. Healthy foods include six food groups, which include proteins, carbohydrates, the fat, main vitamins , minerals and water.

1.6.2. Dietary habits:

A. Theoretical Definition:

Dietary habits are characterized as "the customary choices made by an individual or group of individuals about the foods they eat. Numerous factors influence food choices, but socioeconomic and demographic characteristics are particularly important and have been thoroughly studied (Stosovic, 2021).

B. Operational Definition:

Dietary habits is defined as the behavior or methods used in dietary practice of adolescents depends on a combination of psychological, social and economic factors.

1.6.3. Nutritional status:

A. Theoretical Definition:

Nutritional status describes how a person's health is affected by the nutrients they consume and use. Achieving adequate nutritional status requires consuming enough, but not too much, energy sources, vital nutrients, and other food ingredients free of contaminants or toxins (Fernandez, 2023).

B. Operational Definition:

Nutritional status of adolescent girls is determined through which

adolescent girls nutritional status can be described and is evaluated by measuring using body mass index BMI, and the quality of some foods that the individual eats, which are important for growth.

Chapter Two

Review of Literature

2.1. Overview about nutrition :

Nutrition is food intake viewed in relation to the body's nutritional needs. Adequate nutrition is essential for human survival. Good nutrition is essential for good health. Poor nutrition can lead to a weakened immune system, increased susceptibility to illness, impaired physical and mental development, and reduced productivity. Nutrition influences the development process at every stage of the life cycle, from conception to death. Freedom from hunger, malnutrition is a fundamental human right, and its reduction is a prerequisite for human and national development (WHO, 2023).

There are six classes of nutrients that the body needs to function and maintain its overall health. These are carbohydrates, lipids, proteins, water, vitamins and minerals. The food also does not contain any nutrients that could be harmful (such as cholesterol, colors and preservatives) or beneficial (such as antioxidants). All eleven organ systems of the human body require nutrients to fulfill their specific biological functions. Lack of energy means lack of efficiency at work. General health and the ability to carry out all basic life processes are promoted by nutrients. Without them, organ systems would fail, humans would be unable to reproduce, and the race would die out. In this section, we will discuss some of the key nutrients that support specific functions of organ systems (Koh & Owen, 2012)

An important factor in preserving longevity and overall health is body composition. Numerous factors, such as genetics, environment, and lifestyle choices, might have an impact on it. For nutritionists to properly assess nutritional status and track changes after dietary interventions, body composition evaluation is a critical tool. Humans naturally gain more fat as they get older, but their lean mass—specifically; their muscle and bone mass—gradually decreases as well. A high percentage of body fat puts a person at risk for heart disease, type 2 diabetes, various cancers, and early

mortality. Decreases in skeletal muscle mass raise the possibility of developing sarcopenia, whereas significant drops in bone mineral density indicate osteopenia and osteoporosis (Clifton and Susan, 2021).

Crop yield is positively impacted by essential nutrients that have specific physiological functions in all living systems, such as the maintenance of protein synthesis and structure, gene expression, enzyme structure, energy production, the Krebs cycle, carbohydrate metabolism, photosynthesis, auxin metabolism, pollen formation, and resistance to pathogen infection. Thus, zinc levels in the soil have a significant impact on both the quality and quantitative production of crops. Almost all crops, calcareous soils, heavily farmed soils, paddy soils, poorly drained soils, peat soils, sodic and saline soils, high-accessibility phosphorus and silicon soils, sandy soils, extensively weathered acid soils, and coarse-textured soils have zinc deficiencies. Copper and phosphorus both have an antagonistic effect on zinc. Lack of zinc can harm plants (Suganya et al., 2020).

Cereals and legumes are rich in macro- and micronutrients, but they also include anti-nutritional elements. Edible crops contain major anti-nutritional components such as tannins, saponins, phytic acid, gossypol, lectins, protease inhibitors, amylase inhibitors, and goitrogens. Due to decreased nutrient bioavailability, anti-nutritional agents mix with nutrients to become the main cause for worry. Other variables that decrease protein digestibility and mineral absorption include phytates and trypsin inhibitors, which are primarily found in cereals and legumes. One of the main elements that lowers the bioavailability of different grain and legume components is anti-nutrients. Mineral deficiencies and micronutrient malnutrition can be brought on by several reasons. The levels of these anti-nutrient factors can be lowered using a variety of conventional techniques and technology. Numerous processing (Mrinal et al., 2020).

When considering the effects of industrialization, over processing of

food, cultural and technical shifts, urbanization, climate change, and mental problems, nutrition is thought to play a significant role. Nutritional psychiatry, psycho-dietetics, and neuropsychiatry are terms that have emerged in the literature due to the realization that diets and complementary foods include vital elements and phytochemicals that may have an impact on brain and mental health. These scientific concepts include the use of specific nutraceuticals to correct nutritional deficiencies, the mechanisms underlying the effect and potential application of diet for modulating particular neurobiological pathways, and the effects of different nutrient qualities on mental health. It is commonly acknowledged (Nursel and Saniye ,2023).

2.2. Nutrition status for adolescent's girls:

Because adolescents represent the next generation, it is important to monitor their nutritional status during this transition period. Assessing the nutrition of adolescent girls from a tea plantation community in a poor neighborhood of a poor state may help benefit from health improvements. This study examined factors associated with nutritional status of adolescent girls from low socioeconomic status agricultural sectors such as tea plantations .Any deficiency or inadequate nutrition can lead to poor nutrition, which can further impact growth and development (Pompy, 2019).

The nutritional status of an individual is influenced by various direct factors, such as their dietary choices, level of physical activity, morbidity rates, and occurrence of early pregnancy. These factors are linked to the individual's ability to access and utilize high-quality services, their knowledge, attitudes, and behaviors, as well as other personal characteristics like physical and emotional well-being, school attendance, peer networks, and empowerment. Family elements, including socio-demographic and economic status, as well as social factors such as land availability and habits, are influential in shaping individuals' circumstances (Maponya, 2020).

It is crucial to tackle the dietary issues faced by adolescents, as their

nutritional state has a detrimental impact on the future generation, particularly girls. The nutritional condition of adolescents is marked by stunting, underweight, and deficiencies in essential micronutrients. Frequent infections throughout early infancy, along with insufficient nutritional intake to fulfil the heightened nutrient demands for rapid growth and development in adolescence, are closely linked to this phenomenon. Adolescents have reduced vulnerability to diseases and encounter fewer life-threatening ailments compared to children and adults, resulting in lower rates of death and morbidity (tabitha, 2016).

The most reliable way to determine nutritional status is by taking measurements of height, weight, body mass index (BMI), and hip and waist circumferences. These measurements are very necessary since they allow for the easy assessment of large sample sizes in a shorter amount of time and money. BMI is commonly used to estimate the prevalence of overweight and obesity in the population. Measuring waist circumference has been shown to be an effective method for determining a person's risk for diseases linked to obesity, such as cardiovascular disease. Research has demonstrated a strong correlation between waist circumference and intra-abdominal fat mass, which is subsequently linked to an atherogenic lipoprotein profile. Estimating dietary and nutritional needs is another quick method of determining a population's nutritional condition (Nisha and Varsha, 2016).

There are a plethora of features and uses for the notion of nutritional status evaluation. Medical professionals believe that in order to diagnose a patient and prevent complications, it is critical to understand the nutritional status of the greatest proportion of the population, particularly with regard to vulnerable populations like the elderly and various disease-specific groups. Regular nourishment is inadequate for athletes seeking to improve their performance due to their high physical demands (Inge et al., 2014).

Due to the abrupt and unique growth that occurs during this period,

there is also a significant rise in nutritional requirements compared to previous years of expansion. In addition to providing enough calories during this stage, the diet should also include vital components and nutrients including protein, vitamins, and minerals needed for growth. Adolescents have greater needs for energy and nutrients including vitamin B6, B9, B12, A, and C due to their growing bodies and nutritional needs. In this cycle, thiamine and riboflavin are crucial because they are involved in energy metabolism (Aazam et al., 2013).

Adolescent nutrition is essential for healthy growth and development and a need for reaching the full potential of development. Inadequate nourishment can lead to both stunted and delayed growth and poor development. Teenagers go through a time of fast growth and development, sufficient consumption of macro- and micronutrients is essential (Rehana, et al, 2016). Malnutrition among adolescents is a common nutritional problem resulting from poor nutrition and lack of health care. Service in developing countries. In most cases, the home diet consists mainly of basic starches, and there are few of them. Products of animal origin as well as seasonal fruit and vegetables. Solve young people's nutritional problems Girls important because her nutritional status has a negative impact on the future generation. During a transition period, adolescents may no longer benefit from attention and attention, which are generally aimed at minors, but they too may not benefit from the protections associated with adulthood. Adolescents are generally considered to be at low risk for health problems and often receive little health care. Resources and less attention. However, this approach ignores the fact that many health problems arise later can be improved through a healthier lifestyle in adolescence (Yabsira et al, 2018).

Malnutrition in all its forms, especially malnutrition, including underweight for age, too small for age(short stature), too thin for height (wasted) and functional Vitamin and mineral deficiencies are a global phenomenon, but in developing countries it is catastrophic . Young people

are a particularly vulnerable group for malnutrition and its consequences because they are dynamic period of physical growth and mental development. malnutrition begins before birth and lasts until puberty and adult life and can span generations and achievements with short stature, muscle mass and is associated with it muscle strength deficit. Maybe too reduce resistance to infections and other debilitating diseases conditions that reduce productivity (Gebrehiwot et al, .2021).

The primary focus of this study was to examine the growth and development of children and adolescents using anthropometric indices, namely growth curves. Additionally, the study also included an assessment of body composition. Overall, all of the articles satisfied the quality standards, with the exception of six pieces that did not address the limits. The existing body of literature proposes many methodologies and variables that can be employed to assess the nutritional status of children and adolescents across diverse nations. Growth graphs are crucial for evaluating the well-being of children, but their effectiveness is heavily reliant on the specific growth tables employed. While BMI can be useful, it fails to differentiate between body fat and lean mass. The most accurate understanding of anthropometry is contingent upon the utilization of reference values that are applicable to the specific age range of the population under investigation. BIA is a rapid and pragmatic approach; however, the measurement varies across different countries (Aline et al, 2018).

The current recommended criteria measure is dual-energy X-ray absorptiometry, which offers the additional advantage of assessing bone mineral content alongside FM and FFM. This makes it a three-compartment or multi-compartment model. Various other approaches can be employed to evaluate body composition, including the utilization of skinfolds (SKF), body image analysis (BIA), digital image analysis, air displacement plethysmography (ADP), as well as advanced imaging modalities including

computed tomography (CT) and magnetic resonance imaging (MRI) (Clifton et al, 2021) .

2.3. Adolescents:

The young people included in this study are students between the ages of 13 and 18 who attend secondary school. Adopted by the World Health Organization (WHO) and defines an adolescent as any person between the ages of 10 and 19 years. Puberty is an intricate phase of existence marked by swift expansion and maturation, as well as heightened dietary needs. Optimal nutrition is essential for attaining maximum development potential, while insufficient nutrition can lead to hindered linear growth and impaired organ remodeling. In the period of adolescence, approximately 50% of an adult's body weight, 45% of an adult's skeletal weight, and 15% of an adult's height are acquired (Tabitha , 2019).

Girls encounter numerous risks during adolescence, such as dropping out of school, getting married when underage, getting pregnant when still a teenager, having mental and physical health issues, and experiencing abuse based on their gender. The skills and functioning of young people throughout this time have long-term implications on their offspring and communities as a whole, in addition to direct repercussions on the individuals themselves. , interventions that support adolescent girls in realizing their full potential through education, skill development, and postponing marriage and childbearing have the potential to start a positive feedback loop that enhances women's empowerment and health, particularly in the area of child health, and eventually boosts economic growth (Bergstrom , 2023).

A youngster goes through major changes at this time that get them ready for maturity. This stage's rapid growth and development raises the need for energy and nutrients. Furthermore, when an adolescent participates in sports, there are a number of crucial aspects of nutrition to take into account for both growth and athletic performance. Athlete performance and overall

health are greatly influenced by food and lifestyle choices. Teenagers who play sports could therefore gain from understanding the Significance of healthy eating in order to maintain appropriate growth, development, and health while enhancing performance (Marquitta and Safiya, 2014).

Adolescent girls' health and wellbeing need to be safeguarded, not just for their own benefit but also in order for them to grow up to be healthy adolescents and moms of healthy offspring. The teenage growth spurt causes an increase in the need for nutrients during puberty (Kenda ,etal ,2020). Adolescence offers a second window of opportunity to improve children's nutritional condition and prevent the long-term health effects of malnourishment, according to a report issued by (UNICEF). However, nutritional difficulties arise at every stage of a person's life, thus it is important to evaluate and appropriately manage nutritional needs at each stage, particularly for school-age children and adolescents (5 to 15 years old). During this age range, people continue to develop mentally and physically and have the opportunity to correct any dietary deficiencies, which helps to avoid growth, development, and cognitive success from being hampered. It is well known that the early adolescent stage is when significant physical and developmental changes take place. Growth spurts, the maturation of sex organs, secondary sexual traits, and, in light of modern neuroscientific research (Nabeeland Rachel, 2017).

The World Health Organization (WHO) advises kids and teenagers between the ages of 5 and 17 to participate in moderate-to-intense physical activity (PA), primarily aerobic, for at least 60 minutes on average each day of the week. A recent study on teenagers who attend school found that 81.0% of those between the ages of 11 and 17 are not adequately active, meaning they do not fulfill the current daily PA requirements. there have been no appreciable improvements in the trends of physical inactivity among females over the past ten years, with a higher incidence of the condition among girls

in practically all nations worldwide (84.7% versus 77.6% for boys) (Keeva et al., 2021) .

Adolescent depression rates have risen recently, and depressive symptoms are more common at this time, particularly in girls. Adolescent females are more likely than boys to participate in disordered eating behaviors are, accounting for about half of the disordered eating behaviors that occur during this stage of life. Adolescents' heightened depressive symptoms and disordered eating practices have been linked to the perceived difference between the ideal body and one's own body, which is a product of peer, parental, and media influences. The findings are especially strong for adolescent girls. Adolescent longitudinal research, especially those involving females, offers strong empirical evidence supporting the relationship between disordered eating patterns and depressive symptoms that follow body dissatisfaction (Sophia et al., 2022).

Adolescents who engage in regular physical activity (PA) have many advantages for their physical and mental health, including enhanced cardio metabolic health, healthy weight management, cognitive function, psychosocial skills, and emotional wellness. Less than 15% of adolescents worldwide are following the recommended PA requirements, which call for at least 60 minutes of moderate to vigorous physical activity (MVPA) per day, seven days a week, according to a survey of 1.6 million participants. According to this survey, there is a gender gap because teenage girls are less active than teenage boys, especially those who come from lower socioeconomic backgrounds. This is concerning since adolescent females are becoming more obese and developing type II diabetes. In the most impoverished areas, the prevalence of severe obesity is four times greater than (Emma et al., 2021).

Adolescence is characterized by quick physical changes, weight growth, and concomitant body dissatisfaction. Adolescent females are conditioned to compare their own attractiveness to that of their peers and to

gain self-worth from their physical appearance. Additionally, adolescents engage in a peer-driven "appearance culture" wherein they assess one other's physical beauty, hence intensifying the importance of appearance standards. Significantly, in teenagers, body dissatisfaction is linked to the emergence of a variety of psychiatric issues. Even after taking into consideration the impact of depressed symptoms, these still include suicidal ideation, suicide attempts, and concurrent and persistent depression symptoms. Teens who are unhappy with their bodies are more likely to develop eating disorders in the future. Considering the increased incidence of eating disorders and suicidal thoughts (Savannah et al., 2022).

2.4. Growth and development for adolescent girls:

During early adolescence, growth is rapid due to hormonal changes during puberty, but decreases in late adolescence. Girls and boys experience changes not only in height but also in appearance. The average weight gain for an adolescent is between (7 and 30 kg) 15 to 65 pounds. During this period, adolescent girls gain (7 to 25 kg). In girls, height increases rapidly before the first menstrual cycle and maximum height is usually reached 2 to 2.5 years after the first menstrual cycle. The average height gain is 5 to 20 cm (2 to 8 inches). Children begin their growth phase between the ages of 10.5 and 16 and end between the ages of (13.5 and 17.5). The average height of boys is (10 to 30) cm (4 to 12) inches (Theresa Kyle, 2021). Development of secondary sexual characteristics. Hormone levels change during puberty help enable development of secondary sexual characteristics. You understand pubic hair growth; first menstruation (first period for girls) or penis growth (for boys); voice changes (in boys); growing bottle-necked arm hairs; facial hair (for boys); AND increase in oil production. Activity and onset of sweat glands acne (Morgan & Huebner, 2019).

Adolescent girls are known for experimenting, testing boundaries, and breaking parental and social rules. Independence shown by adolescents is

natural phenomenon and positive growth factor, but requires self-control. Parent no longer know when to intervene and how to respond to the warning and worries of their growing children. The healthcare provider becomes a resource for parent. During puberty, increased strength and muscle mass in boys and girls. In addition, the adolescent's skin becomes harder and thicker, and the sweat glands function at adult levels (Theresa, 2021).

Up to 45% of skeletal growth and 15–25% of adult height are attained during the fast-growing and developing stage of adolescence. Because of the rapid growth at this time, there is a major concern about the potential of nutrient deficiencies and other health issues. In size, muscular mass, and fat mass. Teenagers will suffer from this fast development spurt and their adult health as a result of these severe nutritional difficulties (Kiki et al, 2022).

Adolescent growth and development are transformative experiences that profoundly affect an individual's future health and the health of any future progeny. The current generation of adolescents is growing up amid an unprecedented shift in the food environment; they continue to face nutritional problems such as micronutrient deficiencies and food insecurity, and the prevalence of overweight and obesity is rising. In an environment where policy neglect is pervasive, research on nutrition during adolescence has gotten less financing than research in other age groups. This has made it difficult to create nutritional policies that are attentive to the requirements of teenagers. One result has been a lack of a thorough knowledge of the nutritional aspects of teenage development (Shane et al., 2021).

Adolescence is a life stage marked by taproot growth and development that affects future eating patterns and nutritional status. Adolescent females must consume an adequate amount of high-quality nutrients in order to manage their fast growth and other health hazards that raise their nutritional needs. Approximately 25% of the world's population is comprised of adolescents, with the majority residing in developing nations. This age group accounted for more than one-third (38.6%) of Ethiopia's population, placing

the nation third in the world. One crucial phase of the human life cycle is adolescence (Molla et al., 2020).

Adolescence is a time of intense growth and development, reaching 15–25% of adult height and up to 45% of skeletal growth. During this time, there is a significant danger of inadequate nutrition and other health problems because of the rapid increase in stature, muscle mass and fat mass. Adolescents will suffer from this fast development spurt and their adult health as a result of these severe nutritional problems (Gebrehiwot et al., 2021).

There are several explanations offered for this growth and pubertal delay. It is believed that under nutrition and inflammatory indicators have a deleterious influence on the growth hormone (GH)—insulin-like growth factor-1 (IGF-1) axis, which in turn affects metabolic and endocrine processes. Additionally, low gonadotrophin-releasing hormone (GnRH) pulsatile release and disruptions in pubertal development are caused by low levels of the hormone leptin, which can also be a consequence of poor nutrition and low energy reserves in chronic illness (David et al., 2022).

The causes underlying this decline in life happiness include shifting perceptions of life satisfaction issues and mounting social, financial, professional, or familial demands. Peer relationships and other forms of social capital could be among the best indicators of teenage life satisfaction. Adolescence is also a period of social reorientation. Teenagers who are momentarily dissatisfied with their social positions may be inspired to find new ones and form relationships that last a lifetime (Amy et al., 2022).

2.5. Body weight and adolescents girls:

The influence of body weight perception on weight control behavior is a significant factor, surpassing the significance of actual weight, particularly in relation to dietary and activity choices among adolescents. The causes of weight-related behaviors are varied and intricate, and they are

influenced by multiple factors. Certain behaviors are causally linked to overweight or obesity, whereas others arise because of certain factors, and there are correlations between them. These behaviors vary from adopting healthy practices to resorting to extreme self-medication methods such as using diet pills, laxatives, diuretics, or laxatives. Obesity and skewed weight perception have been found to be linked to detrimental health behaviors, including substance use and, in the case of adolescents, suicide ideation and attempts. Adolescents who are at a lower or average body weight (Cheung et al., 2007).

Health experts around the world consider widespread dissatisfaction with weight. Body weight dissatisfaction data is important for planning preventative measures to combat obesity and promote weight loss or maintenance of a healthy weight. Currently there is a fear of fat, a stigmatization of obesity and an idealization of thinness as synonymous with health as or even more important than health. Weight dissatisfaction can lead to the development of eating disorders, harmful weight control strategies, depression, and low self-esteem, and can affect adolescents' physical and emotional development. The aim of this study was therefore to systematically review the literature on the prevalence of weight dissatisfaction among adolescents aged 10 to 19 years (Mariana et al., 2022)

Under nutrition, namely being underweight for age, being too short for age (stunted), being too thin for height (wasted), and being functionally deficient in vitamins, minerals, and other nutrients, is a worldwide problem that is disastrous in poor nations. Adolescents are particularly susceptible to the negative effects of malnutrition since they are going through a dynamic stage of both physical and mental development. Under nutrition causes short stature, lean body mass, and is linked to impairments in muscular power. It begins at birth, continues through adolescence and adulthood, and can persist for generations. Furthermore, it can lessen resistance to infection and other incapacitating illnesses that lower output (Kiki et al., 2022).

Weight misperception is the term used to describe the discrepancy that exists between an individual's perceived and real weight. A wide range of sociodemographic and environmental factors, including gender, body mass index (BMI), ethnicity, socioeconomic position, and media exposure influences teenagers' misperceptions of their weight. A recent study found that, independent of actual weight status, weight misperception was a powerful predictor of body dissatisfaction. Adolescents may therefore develop inappropriate weight control practices, such as purging, fasting, using laxatives or diet pills, as well as reframe maintaining a good food and exercise routine, as a result of erroneous BWP and body dissatisfaction. Liechty. Research indicates that when it comes to predicting participation in healthy weight management, perceived weight is a better predictor than actual weight. Recognizing and controlling this misconception (Gaylis et al., 2022).

Weight misperception is the term used to describe the discrepancy that exists between an individual's perceived and real weight. Teenagers' misperceptions of their weight are influenced by a wide range of sociodemographic and environmental factors, including gender, body mass index (BMI), ethnicity, socioeconomic position, and media exposure. A recent study found that, independent of actual weight status, weight misperception was a powerful predictor of body dissatisfaction. Adolescents may therefore develop inappropriate weight control practices, such as purging, fasting, using laxatives or diet pills, as well as reframe maintaining a good food and exercise routine, as a result of erroneous BWP and body dissatisfaction (Milene et al., 2020).

Early adolescent dissatisfaction with body image (BI) has been linked to lower self-esteem and predicts a variety of problems, including depressive symptoms, an elevated body mass index, a decrease in physical activity, clinical eating disorders, poorer dietary quality, and disordered eating (i.e., following trendy eating patterns and using food as a coping mechanism).

Additionally, weight-loss behaviors, such as diets, food restrictions, and eating habit modification, may also contribute to a distortion of one's own BI. Accordingly, some writers link the following internal BI factors: body dissatisfaction; ideas about the body; ideas of beauty and appearance standards propagated by the media and society; attitude toward oneself and others; and gender disparities and viewpoints (Tort et al., 2021).

Adolescents are highly concerned with their physical appearance and body form, particularly when it comes to being overweight. Accordingly, prejudice against young people whose bodies do not conform to the socially prescribed ideals—a tall, muscular body for boys and a thin body for girls—is linked to body image dissatisfaction (BID), which is defined as an unfavorable assessment of one's own physical appearance resulting from discomfort. Research has shown a strong correlation between BID and eating disorders such as bulimia nervosa and anorexia. However, additional research aims to clarify how BID relates to other kinds of psychological factors, such as depression (Soares et al., 2020).

Overweight (OW) and obesity (OB) are prevalent worldwide, with high-income countries having higher rates of OW/OB than low-income countries. People from diverse racial, ethnic, and cultural backgrounds also face varying effects from OW/OB. Given that 50% of obese school-age children will remain obese as adults, this poses a global public health concern that has to be addressed. Some cancer forms, as well as psychological consequences like anxiety and serious depressive disorders (Guazzelli et al., 2020).

2.6. Socioeconomic status and Nutrition status:

Socioeconomic status influences individuals' health behaviors and contributes to the complex relationship between health and development. Because of this complexity, the relationship between SES and health behavior is not yet fully understood. Socioeconomic status (SES) (e.g.,

income, education, employment, social status) represents a significant barrier to achieving these goals .As a result, people from lower socioeconomic backgrounds are more likely to smoke, consume alcohol, gain excessive weight and have a sedentary lifestyle, which has been consistently observed(Nirmal et al., 2021) .

As different indicators differ can have an impact on eating habits Socioeconomic inequalities in nutrition are well documented 1 - 5 , which explains some of the observed social inequalities in life reserves, although both are positively correlated. Another challenge for SES research is that these indicators are not interchangeable on the Internet .There may be both cumulative effects and unique contributions of each indicator. it is still difficult to directly link these indicators to a specific indicator, but the observed differences in diet quality, SES index(Ala'a et al., 2015).

SES is the measure of an individual's access to resources, including social, human capital, economic, and cultural resources. families who lack sufficient wealth or income to guard against the negative consequences of poor health among adult families fall into this category. Teens from lower socioeconomic backgrounds have been linked to harmful eating habits and are reported to eat a less balanced diet than adolescents from better socioeconomic backgrounds do. This can be the result of more affordable and less expensive meals (Maponya, 2020).

Eating habits have undergone substantial changes because of the country's quick economic growth and rising living levels. In the meantime, the burden that chronic nutrition-related disorders like diabetes, hypertension, and obesity place on people and society as a whole is growing yearly. The available data is quite compelling in indicating that nutritional and dietary status are important factors in the emergence of chronic illnesses. However, information from the Nutrition Survey exposed a number of issues with people's nutrition, including: (a) The majority of Chinese citizens have unreasonable eating habits and a very variable level of health

and nutrition understanding; (b) Unbalanced nutrition intake and an unreasonable diet pattern are prevalent; and (c) more critically (Yating et al., 2022).

2.7. Food pyramid guide for adolescent:

This food pyramid is designed to facilitate the adoption of a nutritious diet. a well-balanced diet encompasses the provision of appropriate quantities of essential nutrients, such as proteins, lipids, carbohydrates, vitamins, and minerals, which are crucial for the maintenance of optimal health . Due to the varying nutritional composition of different foods, it is not feasible to obtain all the necessary elements from a single food source. As per the Healthy Eating Pyramid, it is recommended to consume a diverse range of foods from all food categories and within each food group in order to acquire various essential nutrients and satisfy our daily dietary requirements. Excessive or insufficient consumption of food is detrimental to one's health(sarac and monica ,2020).

In 2011, the United States Department of Agriculture (USDA) introduced a new food guide for the American people in which a circle describes a dish Foods. For people who exercise, the pyramid shape is in line with some training suggestions and may be better. Pyramids suitable for physically active youth as a simple, cost-effective, understandable and user-friendly nutrition education tool. Figure 1.

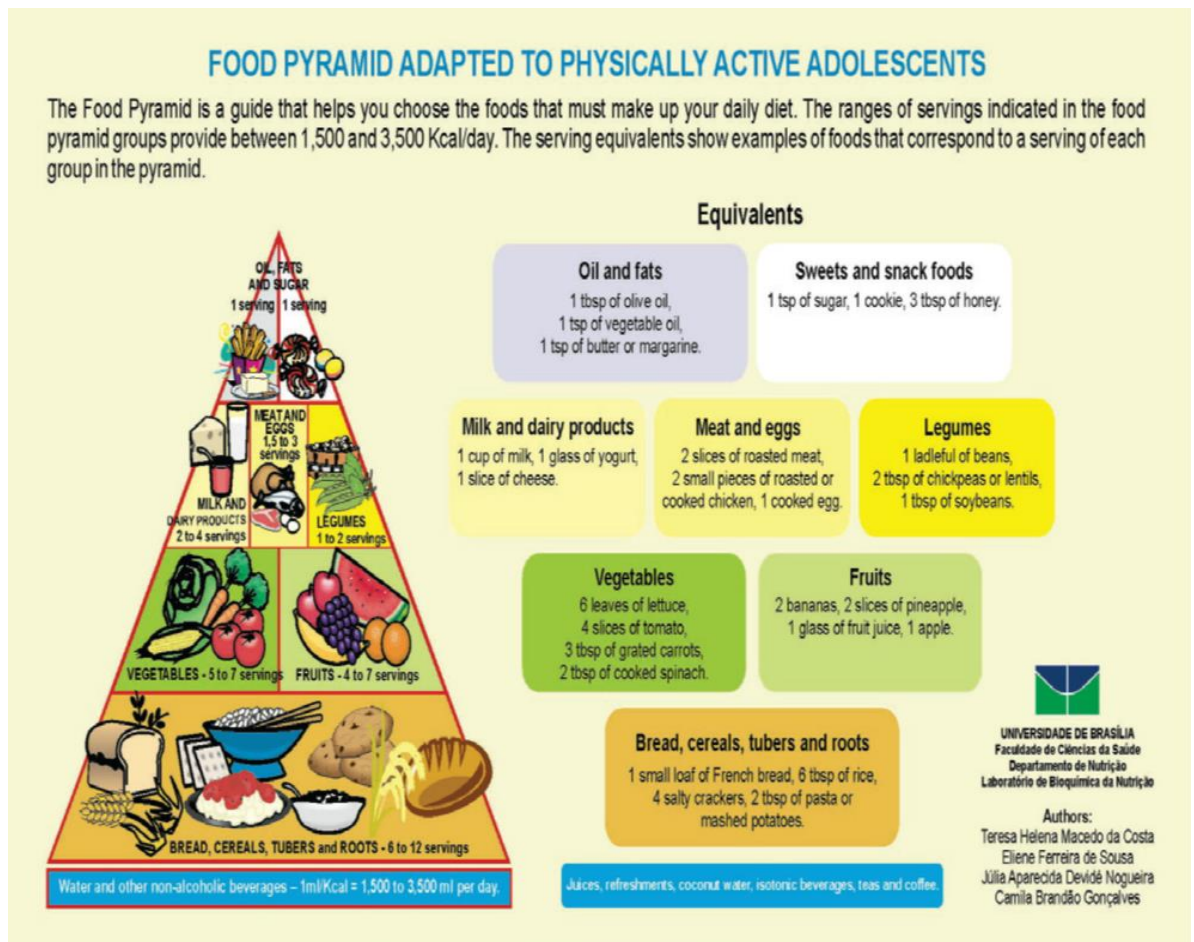


Figure 1. . Pyramids suitable for physically active youth as a simple, cost-effective, understandable and user-friendly nutrition education tool (sarac and butnariu , 2020).

The ancient pyramids represented food groups as a percentage of daily calorie intake and therefore had very limited practical use. Today, recommendations are expressed in food portions, the daily consumption of which provides the necessary nutrients. The current pyramid aims to get the majority of your energy from carbohydrates while limiting fat intake (sarac and butnariu, 2020).

Food-based dietary guidelines (FBDGs) offer recommendations on foods, food groups, and dietary patterns to support general health, encourage healthy eating and lifestyle choices, and prevent chronic diseases. As such, they are a useful tool for developing a more mindful diet based on enduring habits. They can effectively support policymakers, the public, and health

professionals in a variety of sectors, including public health nutrition, agriculture, and nutrition education. But these recommendations are given in a variety of ways, depending on the country and the stage of life that they are intended for. (Corrêa et al., 2022)

There have been 19 Dietary Pyramids since 1992; however, in 2011 My Plate (Figure 2) was developed to replace the US Dietary Pyramid. My Plate is an image of a plate arrangement with a glass that consists of the following five groups: dairy, grains, fruits, veggies, and protein-rich foods. There are a few things that My Plate's representation does well My Plate is more accurate in its recommendations throughout the life cycle because it has been modified to meet the needs of pregnant and lactating women, toddlers, children, adults, and older adults the USDA website also offers a list of recipes and creative ways to follow My Plate; in addition, My Plate recommends 150 minutes a week of moderate to vigorous physical activity. Additional research has revealed that using My Plate to follow (Maria et al., 2021)

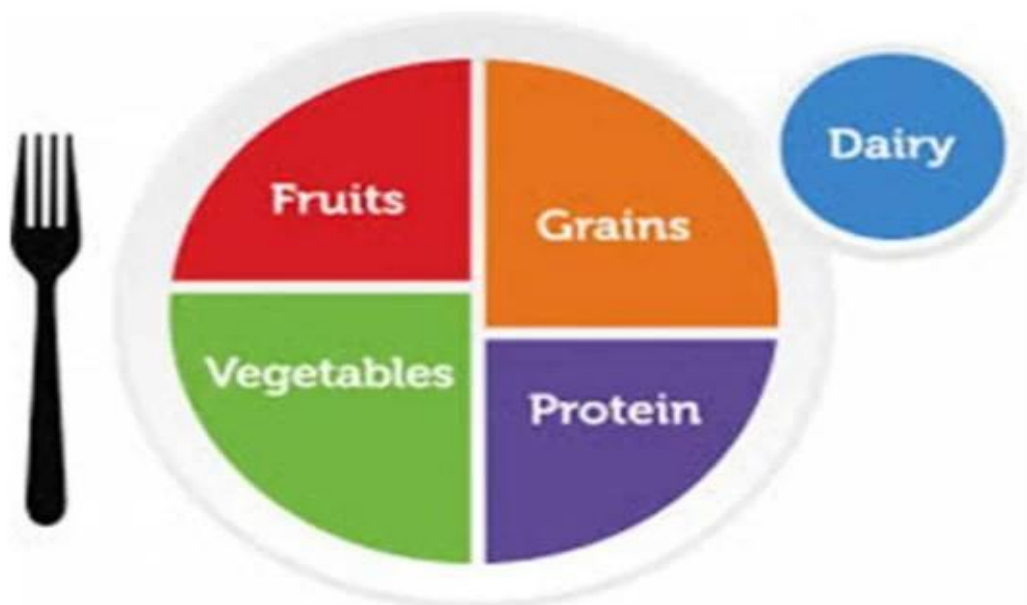


Figure 2 .my plate (Maria et al., 2021)

2.8. Important Vitamins and Minerals for adolescent :

Adolescence provides important opportunities to recognize health-

threatening behaviors and to take and maintain protective measures. Vitamins and minerals help the body maintain its functions. Although they are not a source of energy; participate in the lytic reactions of carbohydrates (CHO), proteins and fats; therefore, they contribute to energy production (Aysel, 2016).

Vitamins and minerals have numerous health benefits, including tissue maintenance, bone and tooth formation, health, serving as cofactors and coenzymes for various enzyme systems, aiding in the regulation and coordination of most body functions, and other biochemical and physiological functions in the body. Humans and other organisms in varying amounts throughout life to coordinate various physiological functions and maintain health essentially require micronutrients (Awuchi et al., 2020).

Vitamins also play an important role in maintaining the health of the body. Most vitamins are not produced by the body itself and must therefore be obtained from food. In general, sufficient vitamin intake is ensured through a healthy diet. In animal studies, vitamin D and calcium have significant antitumor effects. The study observed an inverse association between adolescents' total vitamin D intake and benign proliferative breast disease. In this study, women in the highest quintile of vitamin D intake during puberty had a 21% lower risk of developing benign Proliferative breast disease (Aysel, 2016).

Adequate intake recommendations are intended to ensure that the majority of the population receives amounts that meet their physiological needs. For some vitamins and minerals, the connection between biochemical and physiological functions and their role in clinical outcomes have been demonstrated. Vitamin A, for example, is a component of the pigment rhodopsin found in the retina of the eye, which enables visual processes and prevents blindness (Anne et al., 2020).

Micronutrients, which include vitamins and minerals, are the fundamental components of optimal health. Individuals who are deficient in

these vital nutrients have micronutrient malnourishment, which can lead to severe birth abnormalities, stunted cognitive development, and decreased productivity. Severe malnutrition in micronutrients increases the risk of childhood blindness and maternal and newborn deaths (CDC, 2022).

2.9. The effect of eating carbohydrates in most daily meals of adolescent girls:

Carbohydrates are mainly substrates of energy metabolism and can influence satiety, blood sugar, insulin secretion and lipid metabolism. Their amount and type in the diet influence metabolic reactions. Diets rich in carbohydrates and, in particular, high sugar intake are considered particularly harmful due to their peculiarities related to postprandial metabolism, their effects on the feeling of hunger and satiety and thus on calorie intake and energy balance(Arzija et al., 2022).

The level of intake of fats, proteins and carbohydrates influences the excessive nutritional status. Consuming fats in excess of needs for a long period can lead to obesity. Proteins consumed in quantities beyond the body's needs are converted and stored as fat. Excess carbohydrates in the body are converted into fat and stored in the body, which can lead to weight gain. Teenagers were chosen as the target group because they make up a fifth of all Populations. Youth represent the country's next generation, making them one of the most potential and capable human resources when their nutritional needs are met from the start (Reny et al., 2019).

2.10 .Food Habits and Eating Behaviors in adolescent girls:

Numerous lifestyle factors and suboptimal dietary practices acquired during adolescence have the potential to contribute to the development of severe illnesses in adulthood. The establishment of healthy dietary patterns during adolescence is crucial for facilitating physical growth, promoting psychosocial development, enhancing cognitive function, and mitigating the risk of diet-related chronic illnesses in adulthood. Thus, undernourished

adolescents initiate a detrimental cycle of malnutrition that is transmitted to subsequent generations. Modifiable risk factors for over- and undernutrition include dietary habits. (Manisha et al., 2015).

Previous research shows that adolescents are prone to unhealthy diets and tend to consume high-energy foods, sugary drinks and low levels of fruits and vegetables. Adolescents, especially girls, are at risk of suffering from nutritional deficiencies due to insufficient intake of nutrients necessary for rapid growth and the body's iron requirements during menstruation. On the other hand, excessive nutrition during adolescence can lead to overweight and obesity (Mulia et al., 2019).

This growing concern has led many people to make dietary changes that may pose significant risks to psychosocial development, nutritional status, and the development of eating disorders. A number of factors such as family environment, peer pressure, media habits, body image concerns, socio-cultural and economic context, gender and age lead to them being dissatisfied with their shape and weight (Nadira et al., 2014).

Healthy habits developed during adolescence, such as healthy eating and physical activity, can last a lifetime and help break the cycle of intergenerational malnutrition (Arlette et al., 2023).

Many of them have changed their diets in response to this growing worry, which poses a major risk to nutritional status, eating disorder development, and psychosocial development. People who are unhappy with their body shape and weight do so for a variety of reasons, including their age, gender, familial environment, media habits, peer pressure, and body image concerns (Nadira et al., 2014).

Adolescence is a time when young people begin to make decisions about their lifestyle and pick up habits that usually stick age to impact decisions and changes in behavior and attitudes eating habits and dietary preferences are often developed in childhood, but during adolescence they are further molded by a variety of factors, including classmates'

socioeconomic level, the media, family, and individual nutritional knowledge research (Nabeel and Rachel, 2017).

Dietary habits refer to the range of decisions that individuals or groups should make regarding the kind of foods that are necessary to consume. Eating meals high in proteins, complex carbs, vital fats, vitamins, and minerals is necessary for maintaining a healthy diet. Adolescence and later years might bring with them a number of issues that can be avoided by adopting healthy eating habits. Food groupings including fruits and vegetables, meat and eggs, milk and milk products, starchy foods, legumes, fats and oils, and sugary foods are examples of how the dietary patterns are presented (Maponya, 2020).

Eating habits are formed twice in a person's life: once during infancy and again throughout adolescence. This is significant since dietary habits form the foundation for adequate nutritional intake. Studies conducted globally have demonstrated that teenagers typically consume less fruit, vegetables, dairy, and whole grains than is recommended, but more soft drinks, candy, and fast food than is recommended (Nisha et al., 2016).

It was predicted that male and female students would have different eating patterns. It was further postulated that female students would exercise greater caution when it comes to their diet than male pupils. (Ghedeir et al., 2022).

Additionally, research shows that teenagers are a nutritionally sensitive population due to a variety of factors, such as their high nutritional needs for growth, their dietary and lifestyle habits, their propensity for taking risks, and their vulnerability to outside influences. As a result, promoting good nutrition starting in adolescence is essential for preserving health throughout life (Dongxu et al., 2015).

2.11. Impact of fast food restaurants in adolescent girls:

The term "fast food" is commonly used by the general public to refer

to junk food. The term "junk food" pertains to foods that are considered to be unhealthy or lacking in nutrients. The aforementioned term pertains to a food item that is widely perceived as lacking nutritious value for the human body. Consuming unhealthy food is not only futile but also might have detrimental effects on your well-being. The consumption of unhealthy food has been associated with several health issues, including but not limited to obesity, overweight, diabetes, hypertension, coronary heart disease, stroke, and cancer. The increasing popularity of fast food and junk food can be attributed to their rapidity, widespread accessibility, ease of acquisition, and appealing taste nevertheless, the consumption patterns of fast food or excessive consumption of unhealthy food have detrimental effects on the well-being of children, adolescents, and adults. (Nadira et al., 2014).

Fast food is becoming increasingly popular around the world, both in developed and developing countries. Fast food contains more calories and fat than home-cooked meals. An important time point to assess fast food consumption and identify associated factors is between adolescence and early adulthood, when the risk of overweight and obesity is high Buthainah (Basheer and Eqbal , 2015).

Two major factors have been suggested to contribute to the rise in obesity food supply and marketing practices that drive down prices and increased consumption of highly processed meals and decreased physical activity(Sara , 2023).

Teenagers dine out because they spend more time with friends and less time with their families. Market-sold cooked foods are frequently heavy in trans fats, sugar, and salt. Teenagers frequently buy the tastiest and most readily available food without thinking about what is healthier, leading them to bad eating habits. Dinners consumed at home are healthier than those had elsewhere (Maponya , 2020).

2.12. Eat a snack in adolescent girls:

The definition of a snack might be intricate. Diverse interpretations may arise based on cultural or age-related factors. For instance, in England, the term "snack" encompasses a range of consumption times and is distinct from the phrase "snack". The term "snacking" pertains to the act of consuming specific types of food (Alan, 2019).

Adolescents exhibit a propensity for frequent snacking, wherein the snacks they opt for commonly possess elevated levels of fat, salt, sugar, and calories. Examples of such snacks include chips, cookies, and candy bars, which are prevalent sources of calories but offer less nutritional value for individuals within this demographic. Multiple research indicate that the occurrence of snacking among adolescents varies between 60% and 98%. Obesity refers to the atypical buildup of adipose tissue in various regions of the body. This nutrient is widely favored. (Basheer et al., 2015).

The 35% of adolescent girls in the United States between the ages of 12 and 19 who have BMIs at or above the 85th percentile are overweight or have been diagnosed with obesity. When adolescents are exposed to high-calorie foods, they may feel more motivated to eat unhealthy snacks rather than just to satisfy their energy demands. Previous research has shown that junk food, which is typically high in calories and low in nutrients, is the most preferred snack option among young people, particularly teens. Among the selections are candies, baked goods, ice cream, and fizzy drinks (Karolina et al., 2019)

2.13. The amount of water that should be drunk daily girls need:

Primary Health Care relies on a comprehensive approach to healthcare that covers the patient from "womb to tomb," preventing exposure to all potential risk factors and offering safe water and hygienic facilities. A result of widespread development and significant population migration, there is an

ever-growing demand for clean water and restrooms everywhere. It is a daily requirement that raises concerns if, in addition to residential supplies, there is not a sufficient water supply and a toilet in any area where people migrate (Paul et al., 2020).

Water is necessary for every physiological process. Water consumption could therefore be regarded as one of the most significant consuming practices. Negative physical and psychological effects are linked to under hydration, which is the state of being hydrated while consuming a regular low amount of water. Increased water consumption may be a useful preventive measure to lower the risk of chronic kidney disease, diabetes, obesity, and cardio metabolic disease, all of which have been related to under hydration. Negative emotional states, exhaustion, and deficiencies in higher-order cognitive function are also associated with underhydration. The incidence and detrimental effects of dehydration highlight the need for more study to uncover the driving forces behind hydration practices and to guide public health initiatives aimed at promoting increased water consumption (Amy et al., 2021).

2.14. Adolescent Need to eat fruits and vegetables daily. :

Based on the 2020-2025 Dietary Guidelines for Americans, it is recommended that individuals incorporate fruits and vegetables into their dietary regimen in order to mitigate the likelihood of developing diet-related chronic ailments, including cardiovascular disease, type 2 diabetes, some types of cancer, and obesity. An optimal diet is crucial for promoting healthy development during adolescence, particularly as positive behavior's exhibited by adolescents can persist into adulthood (CDC, 2023).

Fruits and vegetables are essential to lowering the burden of disease and risk factors that could lead to nutrition-related illnesses. It is necessary to consume 400g of fruits and vegetables, which can be divided into five servings of 80g each. This can be divided into three fruits and two vegetables

or three veggies and two fruits each day. According to a research, roughly 25% of Bahraini adolescents regularly ate fruits and vegetables. Revealed that teenagers in the United States were eating 3.5 servings of fruit and vegetables on average per day (Maponya , 2020) .

Just 2.1% of respondents satisfied the standard for vegetable consumption and the recommendation for fruit eating (2). The CDC examined information from the 2017 national and state Youth Risk Behavior Surveys (YRBSs) to update the 2013 data. The analysis included information on the overall percentage of kids who met intake recommendations as well as breakdowns by sex, school grade, and race/ethnicity. In the country, the median frequencies of consuming fruits and vegetables were 0.9 and 1.1 times per day, respectively. Using previously developed scoring algorithms, 7.1% of kids nationwide fulfilled USDA dietary requirements for fruits (95% confidence interval [CI] = 4.0–10.3) and 2.0% for vegetables (upper 95% confidence limit = 7.9) (CDC, 2023).

Inadequate diet of fruits and vegetables throughout adolescence raises the risk of chronic disease in teenagers both now and in the future, and it also indicates inadequate consumption in adulthood. A health behavior model of change that takes into account the intrapersonal, interpersonal, and environmental elements that affect teenagers' engagement in dietary behaviors is the most effective way to guide research and intervention activities .However, these aspects are not sufficiently taken into consideration in the popular preventive health behavior models that are used to describe the food habits of adolescents. In a cross-sectional national sample, the current study investigated the usefulness of the Information-Motivation-Behavioral Skills (IMB) model, a comprehensive and predictive model, for explaining adolescent girls consumption of fruits and vegetables. Among the study's assumptions was the relationship between health information and the desire to eat fruits and vegetables (Sasha et al., 2020).

To prevent chronic diseases, the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) recommend consuming at least g of fruit and vegetables per day, which is equal to ≥ 2 servings of fruit and ≥ 3 servings of vegetables (excluding potatoes and other starchy tubers) (WHO 2003). The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) define inadequate vegetable consumption as less than three times per day and insufficient fruit consumption as less than twice per day (State Indicator Report on Fruits and Vegetables). In order to manage linked issues including obesity and teenage weight loss, as well as to maintain a healthy body weight, it is essential to stick to the recommended daily consumption of fruits and vegetables (F&V) (Reza et al., 2020).

Considering that eating habits developed in childhood or adolescence may persist into adulthood, it seems sense to learn about the health advantages of consuming fruits and vegetables as early as possible. This could help to delay the emergence of chronic diseases in maturity. Numerous research have shown a connection between F&V use and psychological problems. According to an analysis of 35 studies, knowledge, social support, and self-efficacy were all highly predictive of adult F&V use. Research conducted in India revealed that unfavorable home and school food environments, inadequate school food policies, parents' and school canteen employees' ignorance of nutrition and healthy meal preparation, etc., were major obstacles to encouraging teenagers to eat healthily. Studies conducted in Japan have shown that optimistic outlooks, self-efficacy (Environ , 2020).

Research on the efficacy of lifestyle behavior interventions (e.g., promoting fruit and vegetable consumption) for teenagers in low- and middle-income countries is lacking, despite the fact that these methods have been successful in high-income countries. Since many lifetime lifestyle decisions are established throughout adolescence, this developmental stage is critical because it may have a major impact on the present NCD epidemic

that is observed in adulthood (Sandra et al., 2020).

Adolescents all throughout the world frequently engage in unhealthy eating behaviors linked to NCDs, such as consuming less fruits and vegetables. It is recommended by the World Health Organization (WHO) that teenagers eat five or more servings of fruits and vegetables each day. The Global School-based Student Health Survey indicates that while most teenagers globally consume more fizzy drinks and ready-to-eat processed foods high in fat, they also tend to consume fewer fruit and vegetables than is advised. According to data from the Global Alliance for Improved Nutrition, over half of Bangladesh's school-age adolescents consume fruit less frequently than once a day. According to a recent meta-analysis, the number of obese adolescents in Bangladesh has been rising substantially in recent years. This underscores the urgent need to promote a healthy lifestyle within this ephemeral age group (Marium et al., 2021).

2.15. Nutrition knowledge about adolescents need:

Nutritional knowledge refers to facts, information, and skills about nutrition and healthy eating that a person has acquired through experience or education. Ideal for poor eating habits in adolescence that can have an impact on adulthood. Promoting nutritional knowledge among young people is crucial and can, on the one hand, improve their dietary habits and lifestyles and, on the other hand, reduce the incidence of obesity-related lifestyle diseases throughout their lives. Knowledge about nutrition is not enough to change eating habits. It is therefore important to promote positive attitudes towards healthy eating among young people (Tabitha, 2016).

Good nutrition knowledge enables you to recognize nutritional values and improve eating behaviors and practices. Plus reliable nutritional information and a variety of facts. Young people's nutritional knowledge depends on their awareness and practices regarding food and its sources. As sources, young people primarily prefer family members, friends, the Internet,

television, medical professionals and textbooks . Several studies have shown that online resources are popular, although their use and reliability vary among adolescents (Satyajit, 2020).

There is a relationship between nutrition knowledge and attitude. This statement was supported by studies which indicated that nutrition knowledge and attitudes are significant and positively correlated; that is, the more the knowledge about nutrition the greater the positive attitude towards it. However, nutrition knowledge and attitudes had no impact on dietary practice (Marquittaetal., 2014) .

Research indicates that adolescents' dietary practices are positively impacted by their knowledge of nutrition. showed that youngsters are more likely to have healthy eating patterns if they are more knowledgeable about nutrition. This has also been reported by Packman, who stated that youngsters must be taught about nutrition in order for them to embrace a healthy lifestyle. Teenagers with greater nutrition awareness are more likely to follow healthy eating habits (Maponya, 2020).

Promoting youth nutrition is overdue and should be combined with health care on the one hand, and food security programs on the other hand. However, schools offer many options Improving nutrition: formal learning, particularly gardening, cooking and nutrition (Yabsira et al ., 2018) .

According to a thorough review on nutrition knowledge and dietary intake, athletes generally possess sufficient nutrition knowledge, but this does not always translate into appropriate nutrition practices (Spronk et al., 2015).

The Health Belief Model states that an individual's view of their health determines how willing they are to alter their health-related behaviors. This suggests that information should be a potent tool for changing athletes' attitudes toward nutrition and, consequently, habits; sadly, prior research has demonstrated that this was not the case. In many nations, medical students also have this condition(Normah et al., 2021) .

2.16. Healthy way to eat:

Adequate nutrient intake is crucial at all stages of life, but particularly during adolescence, not only to enable rapid growth and physiological development, but also to lay the foundation for good health later in life. The steady increase in life expectancy means that today's young people will live long and productive lives. The quality and quantity of food consumed in early adolescence has long-term effects on health and well-being throughout life. Leading nutrition experts have emphasized that societies should prioritize the nutritional needs of young people and provide them with clear dietary guidelines and nutrition interventions (Aoibhín , 2023).

The primary constituents of a nutritious diet encompass fruits, vegetables, whole grains, dairy products, and protein sources. Dairy recommendations include lactose-free milk, fortified soy drinks, and low-fat or fat-free milk. Soy and animal-based milk beverages have a greater nutritional content compared to other plant-based beverages. Foods that are rich in protein include Lean meats and poultry, seafood, eggs, legumes such as beans, peas, and lentils, soy products, nuts, and seeds. (CDC, 2020).

Adopting a nutritious diet during adolescence may have a major positive impact on one's long-term health. The development of a database on the nutritional status of adolescents is necessary because the improvement of human health is the ultimate goal of nutritional assessment. This will enable governmental and non-governmental organizations to create and implement targeted policies and programs for the well-being of adolescents (Nisha and Varsha , 2016) .

Adolescents do not consume enough of these nutrients as recommended. In the Irish setting, 94% of teenagers have been found to have insufficient vitamin D intakes, while 67% consume less calcium than is advised. There are serious worries about the future effects on bone health for Irish teenagers, given the evidence of decreased dairy product consumption

and poor supplement intake. There is a chance to make up for lost growth and inadequate nutrition during adolescence, which could potentially mitigate the effects of undernutrition and stunted growth during childhood. The brain is always growing and changing (Aoibhín , 2023).

Nutrition policy is dependent on consumer knowledge since public education and dietary recommendations shape people's behavior and help them make healthier decisions. Nutrition knowledge (NK) is one of the factors influencing an individual's food intake among the factors determining their meal choices (Maria et al., 2021).

The significance of a healthy diet as one of the key components of a healthy lifestyle has been highlighted in recent years. Furthermore, there is evidence linking improved health outcomes to proper nutrition. Improving dietary intake increasing awareness is one approach to encourage a healthy diet. Consequently, halting the progression of long-term illnesses including cancer, type 2 diabetes, obesity, stroke, and cardiovascular diseases is crucial. In Turkey, chronic respiratory diseases, diabetes, cancer, and cardiovascular diseases account for 87.5% of all fatalities. According to a Turkish survey, 80.9% of instructors need nutritional education since they lacked enough (Negin and Neslişah, 2021).

The practitioner will gain by maintaining a healthy diet. Everyone should adopt a good eating habit, but especially those who are close to you. It is crucial that everyone comprehends health-related issues. Adhering to a healthy living regimen has proven to be an effective strategy for weight loss in healthy lifestyle programs. For a healthy diet and medical care to benefit the body, they must adhere to the right criteria (Nor et al., 2021).

2.17. Body mass index in adolescents:

Body mass index is a height-adjusted measure of body weight, computed by dividing body weight in kilograms by the square of height in meters (kg/m²). While BMI is commonly regarded as a metric for body fat,

it can be argued that it serves as a surrogate measure of body fat due to its focus on overweight individuals rather than those with excessive fat. Nevertheless, research has indicated a positive association between BMI and alternative methods of assessing body fat, including underwater weighing and dual-energy X-ray absorptiometry. The interpretation of BMI for children and adolescents between the ages of 2 and 20 is contingent upon the child's age and gender, as the level of body fat varies with age and is influenced by gender. BMI-for-age categories and corresponding percentiles are

Weight Status	BMI
Underweight	Below 18.5
Normal	18.5 – 24.9
Overweight	25.0 – 29.9
Obese	30.0 and Above

CDC. Body mass index (BMI) is the most often used metric for determining nutritional status, according WHO guidelines (Ghedeir et al., 2022).

The most widely used, affordable, and noninvasive method for measuring body size and proportion that researchers have access to is anthropometry. This method has been extensively used to evaluate the nutritional state of people from various (Peeyush , 2014)

In order to assess whether a teenager needs to be sent to a therapeutic feeding center due to severe undernutrition, the World Health Organization advises following clinical criteria. IN order to determine the frequency of acute undernutrition in a community, body mass index (BMI)-for-age is now the recommended method by the WHO. The BMI of each teen that is measured is contrasted with BMI of US reference population individuals of the same age and sex. Malnourished adolescents are those who fall below the fifth centile, or a locally set cut-off point. Furthermore, the WHO guidelines outline a procedure to correct, at least partially, for any variations

in the maturation ages of the reference and survey populations BA (Woodruff and A Duffield, 2020).

Teenagers' body weight perception (BWP) is becoming more widely acknowledged as a significant predictor of their eating patterns and methods of managing their weight. Previous studies show that teenagers who identify as underweight or of normal weight but who actually feel themselves as overweight are more likely to suffer from eating disorders, engage in poor weight-management practices, and experience sadness. These false beliefs are probably influenced by our culture's admiration for the model-like bodies that are frequently featured in the media and periodicals. Adolescents who are overweight, on the other hand, do not usually think of themselves as overweight and are not likely to follow appropriate weight-controlling habits like food and physical activity. This implies that teenagers frequently misjudge their weight condition, regardless of reality (Gaylis et al., 2020).

Body mass index (BMI) is a metric that is computed by mathematical operations that use a person's height and weight to determine their health state. The measurement of body mass index (BMI) is commonly employed to assess the likelihood of acquiring long-term health issues such as diabetes, hypertension, depression, and cancer. If a person's BMI is within a certain range, they can be classified into one of four groups. Researchers and doctors utilize this information to inform patients and the general public about possible health concerns that fall within a given category. Researchers are still assessing the relationships between waist circumference and health predictability, as well as the correlation between BMI and chronic illness. This study's expansion delves into the connection between childhood BMI and childhood (Deepesh et al., 2022).

Asserts that as people age, the distribution of people who are normally weighed declines. He stated that it is not implausible for overweight people to develop obesity as they age. This is because age and weight have a positive correlation. Additionally, there is a connection between an individual's

lifestyle and their advancing years. As they age, they spend less time playing sports and more time on social media and other online platforms that strongly advise against engaging in outdoor activities. It has been suggested in other studies that overweight teenagers enjoy staying inside and doing things like playing video games on computers, watching television, and napping for extended periods. Because of the reduction in physical activity, BMI rises (Nor Anis et al., 2021).

2.18. Nutrition Knowledge and Dietary Habits among Adolescent :

It has been demonstrated that understanding nutrition positively affects diet adolescent girl's behaviors greater scores on nutrition knowledge were substantially correlated with greater food variety scores; for example, adolescents in the medium food variety score category scored 62.5%, whereas those in the low food variety score category scored 58.3% (Maponya , 2020) .

The best time to start forming healthy habits that will last a lifetime is around adolescence girls. In addition, it is adolescent's experience the time when disorders that manifest in maturity are most likely to emerge numerous things that could endanger their health during their periods of growth and development. Malnutrition is one of these variables that negatively impacts teenagers' mental and physical development . Adolescents in underdeveloped nations typically struggle with malnutrition, obesity, and other chronic illnesses, as well as inadequate or unhealthy eating patterns and lifestyle choices(Normah et al ., 2021)

Adolescent girls need to enhance their knowledge, attitudes, and practices around the same things, and one useful way to do so is through educational intervention. To improve the health of adolescent girls now and in the future, more work has to be done to raise awareness of this. Standing. Health care providers, particularly those working in schools, need to be

aware of this health issue affecting this age group and provided with the resources they need to analyze, intervene, and routinely review it arranging (Nesrin et al., 2021).

One of the most important ways to improve health is by consuming a healthy diet. A healthy diet consists of an abundance of fruits and vegetables, foods high in minerals and vitamins, and a mix of natural and fresh foods. It also entails consistent dietary and behavioral patterns, which are good for promoting and preserving psychological and physical well-being. A variety of individual and communal (social and environmental) elements influences eating healthfully. Over the past few decades, Saudi Arabia's eating habits have changed significantly due to the country's rapidly expanding socioeconomic standing among the populace and government. Several age groups have been impacted by these notable changes in lifestyle, particularly children and young people (Sami et al., 2020).

Nutrition policy was dependent on consumer understanding since education and dietary recommendations provide information to the public, which shapes people's behavior and helps them make better decisions. When it comes to factors that influence an individual's dietary choices, nutrition knowledge (NK) is regarded as one of the elements influencing the consumption of food. The General Nutrition Knowledge Questionnaire which was created and approved by Parameter and Wardle, was extensively utilized in a variety of contexts and population groups to examine the effects of the NK effect (Maria et al., 2021).

2.19. Theoretical framework:

A psychological viewpoint on human behavior known as social cognitive theory places special emphasis on the vital role that social environments play in self-regulation, learning, and motivation. In order to keep this article focused, the discussion is restricted to the social cognitive theory put forth by Bandura (1986), Bandura (1997), and Bandura (2001).

This is because there are other social cognitive theoretical viewpoints. This idea is widely applicable not only in psychology but also in other domains including business, education, and health. The predictions of the theory have been put to the test in numerous investigations under various conditions.

Although this page refers to "social cognitive theory," "Bandura's theory," and "Bandura's social cognitive theory," other individuals who have made substantial contributions to the theory's development, testing, and expansion include Zimmerman, (Dale and Maria, 2020).

2.20. Pervious related studies:

First Study:

The study of (Ban, 2003) year reported in under the title (Knowledge , attitudes , and practices of adolescent school girls towards dietary habits and physical activity) conducted in Baghdad Across sectional study. A large proportion of adolescent females do not practice healthy dietary habits. The majority of the older adolescents rarely consume milk. While breakfast skipping was more among the younger girls. A significant relation was found between having a housewife mother and eating the morning meal . Eating the main three meals regularly was significantly higher among the 12-15 year olds .It was found that fun was the main motivational factor for exercise participation among adolescent females . Another interesting finding was that , the satisfaction with body weight was significantly lower among the 16-18 year olds . Also the level of satisfaction was significantly associated with the BMI.

Second study:

Reported in the study of (Inge et al., 2014)year under the title(Relationship between knowledge and dietary intake in adults mean age 18 year). A systematic search using the terms nutrition knowledge, diet knowledge or food knowledge and energy intake, feeding behavior, diet, eating, nutrient intake, food intake and food consumption was conducted by

one researcher (I. S.) from the earliest record until November 2012. In order to identify any other studies that were not included in the database search, a manual examination of the reference lists of the included publications was performed. The findings of the bulk of the studies (65%: 63.6%) and 71.4%) indicated statistically significant, positive, albeit weak ($p < 0.05$), correlations between increased nutrition knowledge and food intake, particularly in relation to increased consumption of fruits and vegetables. Nevertheless, there was a significant disparity in the quality of the studies, and the representation of people from lower socio-economic backgrounds was restricted, since the majority of participants were female with tertiary education.

Third study:

The study about (Eating habits and nutritional status among adolescent school girls) by a (Manisha et al., 2015) research study was undertaken in a rural area in West Bengal. The calculated mean age was 13.33 ± 1.09 years. The respective prevalence rates of thinness, overweight or obesity, and stunting were found to be 16%, 11.4%, and 20.7%. A notable correlation was observed between various age cohorts, the intake of roots and tubers, cereals, puffed rice, green non-leafy vegetables, fatty foods, frequenting fast food establishments, skipping meals, experiencing hunger, engaging in physical activity, attending nutritional education classes, and attempting to alter their weight, in relation to the nutritional status of adolescent females.

Fourth study:

Study reported by (Tabitha , 2016) year reported in their study under the title (Nutrition Knowledge, Dietary Practices And Nutrition Status Of Secondary School Adolescents (13-18 Years) conducted in In Ruiru Sub County, Kenya). A total of 216 adolescents were enrolled in this cross-sectional study. The findings of the study indicate that teenagers attending secondary schools in Ruiru Sub County had a commendable level of

nutrition knowledge. The level of nutrition knowledge shown a positive correlation with the progression of adolescence, with girls demonstrating marginally higher scores in nutritional knowledge as compared to boys. The diet of adolescents is characterised by a significant consumption of cereal-based foods and a limited intake of foods with high biological value in terms of protein. A disparity existed between knowledge and practice. Despite possessing a solid understanding of nutrition, adolescents, particularly females, tend to engage in suboptimal dietary habits such as skipping meals, particularly lunch, and consuming fewer than two litres of water per day. The majority of adolescent students exhibit adequate food habits by consuming three meals every day. The students' most poor dietary pattern was the omission of meals, particularly lunch and snacking.

Fifth study:

The study reported by (Nabeel and Rachel, 2017) under the title (Nutritional knowledge and habits of adolescents aged 9 to 13 years) conducted in the (Sharjah, United Arab emirates) A cross-sectional study. Data were collected from 300 adolescents aged 9–13 years attending 4 private schools. using a validated self-administered questionnaire. Most students (86%) had poor nutritional knowledge, especially in key areas: nutritional terms, what constitutes healthy snacks and foods, daily nutritional requirements and components of food(e.g. fibre, fat, sugar). Only 34% of the students had healthy eating behavior: 33% had eaten none or vegetable only in the previous week, 25% had eaten unhealthy snacks 3 or more times, 19% had eaten frequently or daily at fast food outlets, and had skipped breakfast frequently or daily.

Sixth study:

Reported the study (Otuneye et al., 2017) under the title (Relationship between dietary habits and nutritional status among adolescents) conducted study in Abuja municipal area council of Nigeria,

poor dietary habits were identified among the adolescent. Malnutrition especially stunting and wasting was identified among those that skipped meals and took little fruits and vegetables.

Seven study:

Reported the study(Sri et al., 2018) under the title Prevalence of Nutritional Status and Dietary Habits among Adolescent) conducted in in Urban Area in Medan, (North Sumatera, Indonesia) . This research is an analytic study with cross sectional approach. Total sample is 400 adolescents aged 12-19 years old from 4 schools. Conclusion of study Malnutrition in adolescence has become a serious public health problem in North Sumatera Province especially in Medan City because of its high prevalence (23.3%) that it was above the National Prevalence (11.1%). Dietary habits associated with nutritional status in adolescent primarily breakfast, consumption of meat foods and vegetable (p <0.05). It is necessary to immediately do a nutritional intervention to reduce the incidence of underweight and improve the quality of life of adolescents in the future.

Eight study:

The study of (Cunningham et al., 2020) reported under the title (Adolescent Girls' Nutritional Status and Knowledge, Beliefs, Practices, and Access to Services) A study was undertaken in Nepal. Younger adolescents had the highest frequency of underweight, whereas moms had a prevalence of overweight/obesity that was twice as high as the other two groups. A greater proportion of younger teenagers were attending school, whereas a smaller number possessed a cell phone or had access to radio. The stage of adolescence was found to have varying effects on exposure, knowledge, and behaviors across thematic domains.

Nine study:

In the study of (Maponya , 2020) titled "Assessment of Nutrition Knowledge and Dietary Practices of Adolescent Learners Aged 13-18 Years

Old," researchers conducted a study in Polokwane Municipality, located in the Limpopo Province of South Africa. The objective of this study was to assess the level of nutrition knowledge and dietary patterns among adolescent learners residing in the Polokwane Municipality. The socio-demographic status of adolescent learners was initially established by the researcher. The data indicated a higher number of female respondents compared to male respondents. The period ranged from 17 to 18 years. The numbers are 0 and 11. The primary aim was to assess the nutritional literacy of adolescent students. The findings indicated that teenage learners possessed sufficient information regarding nutrition, whereas their understanding in this area was found to be inadequate. The prevailing nutrition knowledge inquiries among adolescent learners revolve around the detrimental effects of consuming high-sugar snacks, the necessity of a moderate quantity of salt for optimal health, and the importance of consuming sugar and sugar-containing meals in moderation. The secondary aim of this study was to ascertain the eating habits of adolescent students. In the current investigation, a significant majority of participants (74.0%) reported consuming breakfast prior to attending school. The prevailing suboptimal dietary habits indicated by adolescent learners encompassed the subsequent: 38.7% of individuals consumed soft drinks between 4 and 7 times per week, while 82.6% did not consume legumes weekly. The primary aim of this study was to investigate the correlation between the level of nutrition knowledge and the eating behaviours exhibited by adolescent learners. The results indicated a lack of correlation between individuals' understanding of nutrition and their adherence to dietary practices. The knowledge questionnaire revealed that a mere 11.6% of learners reported consuming five or more fruits and vegetables on a daily basis, whilst a mere 8.01% indicated consuming fruits and vegetables seven times a week. Approximately 72.65% of adolescent learners acknowledged the veracity of dry beans, peas, and lentils being a nutritious alternative to meat, although a

mere 2.7% indicated consuming legumes seven times per week. The results of the study also indicated a correlation between individuals' understanding of nutrition and their adherence to dietary practices. A majority of respondents (26.24%) expressed the view that excessive consumption of meat should be avoided, although a smaller proportion (9.2%) indicated that they consume meat and meat alternatives on weekly basis .

Ten study:

The study of (Kiki et al, 2022) about (Adolescent Knowledge, Attitudes and Practices of Healthy Eating) conducted study in Hong Kong Families. Among adolescents from low-income families in Hong Kong, the key KAP gaps regarding healthy eating were: insufficient knowledge of recommended daily servings or allowances of specific food types; Perceived reduced vulnerability to developing non-communicable diseases (NCDs) as a result of bad eating habits, unhealthy snacking and meal selections in restaurants, and inadequate intake of fruits and vegetables (FVs). Efforts to encourage healthy eating should demonstrate the amount of daily servings in practical terms, such as a fistful of fruit. They should also highlight the immediate and tangible benefits that adolescents can experience, such as improved skin condition and enhanced sports performance.

Additionally, they should provide practical guidance on making healthy food choices in various realistic situations, such as ordering burgers with less sauce. Furthermore, they should encourage more frequent consumption of fruits and vegetables, including during breakfast, lunch, and as snacks. Lastly, they should encourage adolescent participation in food preparation. These measures have the potential to enable adolescents to develop and maintain good eating habits that can be maintained throughout their adult lives.

Chapter Three

Methodology

Methodology

In the present chapter that will covers current study's methodology and design. Administrative arrangements, ethical considerations, the study's context, its sample and sampling, its constraints, data collection methods, the instrument's reliability and validity, the pilot study, and the data analysis are also discussed.

1.2. Design of Study:

The researchers in this study used a descriptive \correlation design. the research was using the instrument of the study, carried out by interview questioner among middle and secondary schools in Kerbala City, Iraq , through period from September 26th/ 2023 to May 27th / 2024 to determine the effect of nutritional knowledge and dietary habits on nutritional status among adolescent Girls .

3.2. Administrative Arrangements:

Before gathering study's data, the following formal permissions were requested from the appropriate authorities:

1. Research protocol and official approval to carry out the study obtained from University of Kerbala/College of Nursing.
2. The College of Nursing's Ethics Committee assessed the study's title, design, and questionnaire (which included questions Effect of Nutritional Knowledge and Dietary Habits on Nutritional Status among Adolescent Girls) before agreeing to proceed with the study (appendix A).
3. The licenses were obtained from the Holly Kerbala Province's Directorate General of Education(appendix B2).
4. Additionally, the student's agreement to engage in the study after being informed of its goals and value and having been assured that any information submitted will be kept private, research purposes, and used only for scientific (autonomy and privacy) (appendix C).

3.3. Ethical Considerations:

One of more crucial things the researcher must adhere to and follow when doing the study is their ethical commitments. The study gained ethical approval from the Ethical Research Committee offered by the College of Nursing at the University of Kerbala (appendix A). The participants were given information pertaining to the objective the participants' consent was obtained during the data collection phase of the study. Students provided their consent to complete the forms. The translation of consent forms from English to Arabic was undertaken due to the prevalence of Arabic as the local language. The purpose of this was to guarantee that female students comprehended the nature of the study and the nature of their agreement. The participants were given a clear explanation about the intended purpose of the information that was collected. The participants were guaranteed confidentiality, protection of their identity, and guidance on how the findings would be shared. Data collection was conducted during periods of leisure to guarantee little disruption to regular classes. Participants were not obligated to provide their names in order to maintain confidentiality and protect the integrity of the data. The study carried the potential risk of privacy infringement. We made a commitment to uphold.

3.4. Setting of the Study:

Six girls' schools secondary in Holly Kerbela city selective randomly , which include this study was formation the following subjects:

1. Maysloun Girls' Secondary School.
2. AL -Wisal Girls' Secondary School.
3. Al-Ba'aa AL-Rasoul Girls' Secondary School.
4. Al-Rabaa AL-Adawiya Girls' Secondary School.
5. Kerbala Girls' Secondary School.
6. AL-Najah Girls' Secondary School.

3.5. Sample and Sampling:

It involved anon-probability/convenience a sample of (400) secondary school student. The study chosen (10) student in random way from every (100) student to serve the sample size. During class time, the student's had (10) to (20) minutes to complete the questionnaires. Therefore, 430 would be the suggested number of samples. There were 30 samples that withdrawal from the study .the total sample was 400.

3.6. Methods of Data Collection:

From December 20th , 2023 to February 4th, 2024 data collection, took place in kerbala holy center secondary schools. The study employed a quantitative research methodology, questionnaire by interview that had been pretested. The administered questionnaire collected data. About nutritional knowledge and dietary habits and nutritional status in the adolescents girls student.

3.8.1. All participants in the study take between (10) and(20)minutes.

3.8.2. There were 14 items about the Nutritional Knowledge and 6 questions about dietary habits in the student ,questionnaires about Weight and height were measured the body mass index to determine the nutritional status of adolescent girls .

3.7. Study Instrument of the study :

3.7.1. Study Questionnaire:

Study Questionnaire : The scale was reconstructed from the scale (Nabeel Al-Yateem, et al., 2017, Maponya Thabo Daniel, 2020) that goals to explains the study's goals and significance by get answers of study questions. The questionnaire is considered one of the means to help in collecting data the contribute to achieving the expected results of the study .It is organized into four sections, using the following scales to support , of nutritional knowledge and dietary habits ,nutritional status and sociodemographic among female adolescent students. Will find out the

association among nutritional status and sociodemographic characteristics of female adolescents students.

Section 1: This section covers information on secondary school students' socio-demographic characteristics, including their age, School grade, Residency, Level of education Mother and Father. Occupation of Mother and Father, Monthly Income.

Section 2: 14 items in this section are used to assessment of the nutritional-related knowledge among female adolescents students.

Section3: This segment, which consists 6 item assessment of dietary habits among female adolescents

Section4: This segment, which consists measurement nutritional status by body mass index .

3.8. Validity of the Questionnaire:

The questionnaire's validity must be ensured by checking that it has all the components required for analysis and that the words and language are clear enough for anyone using it to understand.

The face validity was tested by presenting the instrument to (11) expert (appendix F) from various fields as:

Faculty members from University of Kerbela/ Collage of Nursing(5).

Faculty members from University of Kerbela/ Collage of Medicine (1).

Faculty members from University of Wartith Al-Anbiya/ Collage of(1).

Faculty members from University of Babylon/ Collage of Nursing(1) .

Faculty members from University al ameed/Collage of Nursing(1) .

Faculty members from University of bagaded /Collage of Nursing(1) .

Faculty members from University kufa /Collage of Nursing(1).

in order to increase its validity, interviewees were asked for their thoughts and recommendations on each of the study questionnaire items in terms of how well they fit the context of the study population, how well they were organized with the dimensions of the variables that have been allocated, and the relevance of the text of the study.

3.9. Polite study:

To evaluate the consistency, authenticity, clarity, and efficacy Regarding the study tool, It all started with a pilot study. This validated the mean duration required to gather data for each participant, which can be approximated due to the interview protocols employed for data collection and probable difficulties in identification. The aforementioned objectives were aimed as being achieved by the :

Pilot study:

1. The creation and evaluation of adequate research equipment.
2. Determining whether an instrument is feasible
3. Identifying potential logistical problems brought on by the suggested methodology.
4. Recognizing potential logistical problems brought on by the suggested methodology.
5. Calculate the length of time the researcher spent collecting the data.

In Holy Karbala Province, a pilot study was carried out with ten secondary school pupils. Later, the pilot study sample was dropped from the study's initial sample. This study was conducted to ensure the consistency and reliability of the study instrument, its intelligibility and efficiency, the variables under consideration were definite, and the requisite duration for data collection for each participant could be determined using interview protocols, while also facilitating the identification of potential challenges.

Results of Pilot Study:

1. The survey is accurate.
2. Between 10 and 15 minutes were needed to complete the questionnaire.
3. The instrument items were clear and identify nutritional knowledge and dietary habits were understood.

The questionnaire reached its final form after passing the following stages:

1. Deciding which information will be gathered via the questionnaire in accordance with the research questions.
2. Selecting the questionnaire's approach and structure.
3. Determining the kind of criteria that dictates the kind of questionnaire
4. Giving the questionnaire to the supervisor so that he can share his thoughts and views about how it was developed and how it could be improved in light of those findings.
5. Putting the questionnaire in front of various expert panels to get their Feedback and insights on how to improve it in light of what they said.
6. Having a sample of 10 students complete the questionnaire in order to conduct a reliability test on it.
7. Finishing the questionnaire, printing it, going over it, and then distributing it according to the same procedure.

3.10. Questionnaire's Reliability:

Reliability in nursing research pertains to the dependability and precision of the research tool, such as a questionnaire or interview, in generating consistent outcomes when employed in the identical circumstances on multiple occasions (NSF Consulting, 2021). An instrument that is dependable is crucial for generating accurate outcomes, indicating that the instrument accurately assesses the intended measurement (Nicoll et al., 2023). In the present study, the researchers determined the internal consistency kind of reliability. This form of dependability assesses the consistency between distinct components of the instrument. . Edwin stated, "It measures the consistency within the instrument and questions on how well a set of items measures a particular characteristic of the test. Single items within a test are correlated to estimate the coefficient of reliability". (Edwin, 2019).

The internal consistency of the items was assessed using Cronbach's alpha coefficient. which calculated through Utilization of Statistical Package In the context of the Social Science Programme, IBM SPSSversion 26.0 as

referred in (Table: 3-1) on a sample of (10) participants that are selected randomly.

The reliability analysis of the instruments (N=10) is presented in Table 3-1.

Scales	No. of Items	Cronbach`s alpha	Evaluation of Internal Consistency
Knowledge	14	0.740	Pass
Nutritional health habits	6	0.858	Pass

The Cronbach's alpha shows good evaluation for knowledge scale (0.740), while shows very good evaluation for nutritional health habits scale (0.858); these findings Indicate that the questionnaires exhibited a satisfactory degree of internal consistency and an equivalent level of measurability.

3.11. Ranging and Scoring:

Nutritional knowledge scale:

A dichotomous scale was employed to assess the elements of the scoring instrument for the nutritional knowledge measure. The scoring system consisted of two categories: correct answer (1) and erroneous response (3). The estimation of the overall nutritional knowledge score involved the calculation of the range score, which was obtained by subtracting the minimum score from the maximum score. This range score was then divided into three levels and assigned the following scores: Poor (0 – 4.66), Fair (4.67 – 9.33), and Good (9.34 – 14.).The estimation of knowledge level for each question in the scale was conducted by determining

the cutoff threshold for the mean score. The scores were then categorised into three levels: Poor (0-0.33), Fair (0-0.67), and Good (0-0.68).

Dietary Habit scale:

In order to assess the elements of the instrument, a 3-point Likert scale was employed to measure the dietary habits scale. The scoring process for each behaviour was as follows: Consuming breakfast prior to attending school: never (1), occasionally (2), and consistently; abstaining from breakfast: never (3), occasionally (2), and consistently (1); consuming snacks and fast food: did not consume (3), 1-2 times (2), and 3 or more times (1); consuming fruits and vegetables: did not consume (1), 1-2 times (2), and 3 or more times (3). To evaluate the overall score of dietary habits, the range score was calculated by dividing the mean of the total scores by the range between the least and highest scores. The range score was then divided into three levels: Poor (6-10), Moderate (10.1-14), and Good (14.1-18). The assessment of each dietary habit was determined by determining the threshold for the average score and categorizing it into three levels: Poor (1–1.66), Moderate (1–2.33), and Good (2.34–3).

3.12. Statistical analysis :

3.12. 1. Analysing data:

Examining data is a crucial stage in nursing research, when several techniques are used to depict and evaluate material collected by the researcher. The selection of the analytical technique the analysis of numerical data in quantitative research involves the use of descriptive and inferential statistics, which vary depending on the properties of the collected data. (O'Connor, 2020) The examination and understanding of the data were analysed using SPSS, version 26.0, a statistical software specifically designed for social sciences.

3.12.2.Descriptive Statistical Tests :

Frequency (f): According to Kenny and Keeping (2022), the frequency

of an event in statistics refers to the count of occurrences of the event within an experiment or research. The study employed a methodology to delineate the sociodemographic attributes of adolescent females, alongside their knowledge levels and food patterns.

Percentage (%): In mathematics, a percentage is a numerical value or ratio expressed as a fraction of 100. The calculation of a percentage involves the division of a given value by the entire, followed by multiplication by 100. Consequently, a percentage can be defined as a fraction expressed as a part per hundred. The symbol % is used to symbolize it. (Shwetha, 2023). The study aimed to assess the sociodemographic features, knowledge levels, and eating habits of female teenagers.

variables. By Myers et al. (2003), . It was used to determine the relationship among female adolescents' nutritional status with their sociodemographic characteristics.

Chapter:Four

Study Results

Chapter Four: Study Finding

This chapter provides a detailed examination of the sample's socio-demographic characteristics as female students. It also discusses their levels of nutritional knowledge and dietary habits. As well as nutritional status. This chapter also determines the effect of nutritional knowledge and dietary habits on nutritional status among female adolescent students. Finally, this chapter will find out the association among nutritional status and sociodemographic characteristics of female adolescents students.

The statistical processes were utilised to analyse the findings of the current investigation, which were thereafter organised and interpreted. The results are derived from the sample replies to the study instrument.

Table (4-1): Participant distribution based on socio-demographic characteristics

List	Characteristics	F	%	
1	Age M±SD= 15.4 ± 1.26	12 – 15 years	199	49.8
		16 – 19 year	201	50.2
		<i>Total</i>	400	100
2	School grade	Intermediate	131	32.8
		Secondary	269	67.3
		<i>Total</i>	400	100
3	Residency	Rural	4	1
		Urban	396	99
		<i>Total</i>	400	100

f: Frequency, %: Percentage, M: Mean, SD: Standard deviation

The analysis provided in table 4-1 is descriptive in nature. indicates the mean Age requirement girls Adolescent students is ,**15.4 ± 1.26** years in which 50.2% of them associated with age group of 16-19 years.

The schools grade reveals that 67.3% of female adolescents are from secondary schools' classes while 32.8% of them are from intermediate

school classes. Regarding residency, the majority of female adolescents reported that they residents in urban (99%) and only three of them are resident in rural (1%).

Table (4-2): Participants categorised based on their distribution Mother and Father Educational level.

Level of education	Mother		Father	
	F	%	F	%
Doesn't read & write	13	3.3	12	3.0
Read & write	43	10.8	34	8.5
Primary school	80	20.0	63	15.8
Intermediate school	91	22.8	64	16.0
Secondary school	57	14.3	86	21.5
Diploma	44	11.0	48	12.0
Bachelor	56	14.0	63	15.8
Post graduate	16	4.0	30	7.5
Total	400	100.0	400	100.0

f: Frequency, %: Percentage

This table shows that educational level for female adolescents' mother refers to intermediate school as reported by highest percentage (22.8%) while the highest percentage among fathers refers to secondary school graduation (21.5%)

Table (4-3): Participants categorised based on their distribution Mother and Father Occupation .

Occupation	Mother		Father	
	F	%	F	%
Housewife / Unemployed	283	70.8	181	45.2
Governmental Employee	117	29.2	219	54.8
Total	400	100.0	400	100.0

f: Frequency, %: Percentage

This table indicates that 70.8% of female adolescents' mothers are housewives and only 29.2% of them are working as governmental employee, while among their fathers; 54.8% of them are working as governmental employee and 45.2% are working with free works.

Table (4-4): Participants categorised based on their distribution to their Socioeconomic Status (Monthly Income).

Monthly Income (Iraqi Dinars)	F	%
Less than 300,000	95	23.8
300,000 – 600,000	73	18.3
601,000 – 900,000	93	23.3
901,000 – 1,200,000	66	16.5
1,201,000 – 1,500,000	73	18.3
Total	400	100.0

f: Frequency, %: Percentage, M: Mean, SD: Standard deviation

This table displays the family monthly income for female adolescents; the findings reveal that highest percentage of adolescents living in families with low moderate monthly income as reported by 23.8% with income less than 300, 000 Iraqi dinars.

Table (4-5): Assessment of the Nutritional-related Knowledge among Female Adolescents Students (N=400)

List	Knowledge	Scale	f (%)	M	Assess.
1	It is important to maintain the body's energy balance to maintain a healthy body weight	Incorrect	41(10.2)	0.90	Good
		Correct	359(89.8)		
2	Energy comes from the food and fluids we eat	Incorrect	46(11.5)	0.88	Good
		Correct	354(88.5)		
3	We can get calories from one cup of butter or one cup of rice.	Incorrect	129(32.2)	0.68	Fair
		Correct	271(67.8)		
4		Incorrect	74(18.5)	0.81	Good

	According to the food pyramid guide, we should eat more than one type of food	Correct	326(81.5)		
5	The body needs a little salt to be healthy	Incorrect	91(22.8)	0.77	Fair
		Correct	309(77.2)		
6	It is healthy to snack on foods that contain a lot of sugar	Incorrect	200(50)	0.50	Fair
		Correct	200(50)		
7	Eating many different types of foods is healthier than eating only a few types of them	Incorrect	171(42.8)	0.57	Fair
		Correct	229(57.2)		
8	It is impossible to get all the vitamins and minerals we need from food, so we need to take vitamin and mineral tablets	Incorrect	215(53.8)	0.46	Poor
		Correct	185(46.2)		
9	Lentils, peas and dried beans are healthy options to eat instead of meat	Incorrect	192(48)	0.52	Fair
		Correct	208(52)		
10	We should eat as much as we want every day	Incorrect	245(61.2)	0.39	Poor
		Correct	155(38.8)		
11	Eating starches in most daily meals causes weight gain	Incorrect	120(30)	0.70	Fair
		Correct	280(70)		
12	The amount of water that should be drunk daily is 4 to 6 cups	Incorrect	132(33)	0.67	Fair
		Correct	268(67)		
13	There is no need to eat fruits and vegetables daily	Incorrect	137(34.2)	0.66	Fair
		Correct	263(65.8)		
14	Eating many different types of foods is key to a healthy way of eating	Incorrect	144(36)	0.64	Fair
		Correct	256(64)		

M: Mean, Assess: Assessment

Poor= 0 – 0.49, Fair = 0.50 – 0.79, Good= 0.80– 1

This table displays the nutritional knowledge of female adolescent students. The mean scores indicate a range of knowledge levels, from low to fair to good. Specifically, they demonstrate a good degree of understanding in most of the items. 1, 2, and 4. and fair level of knowledge among items 3, 5, 6, 7, 9, 11, 12, 13 and 14 while they are showing poor level of knowledge among items 8, and 10.

Table (4-6): Overall Assessment of Nutritional Knowledge among Female Adolescents

Knowledge	F	%	M	SD	Assessment
Poor	35	8.8	9.15	2.059	Fair
Fair	262	65.5			
Good	103	25.8			
Total	400	100			

f: Frequency, %: Percentage, M: Mean for total score, SD: Standard Deviation for total score Poor= 0 – 6, Fair= 7 – 10, Good= 11 – 14

The data indicates that 65.5% of female adolescents possess a fair degree of knowledge regarding healthy nutrition, with a mean score of 9.15 \pm 2.059.

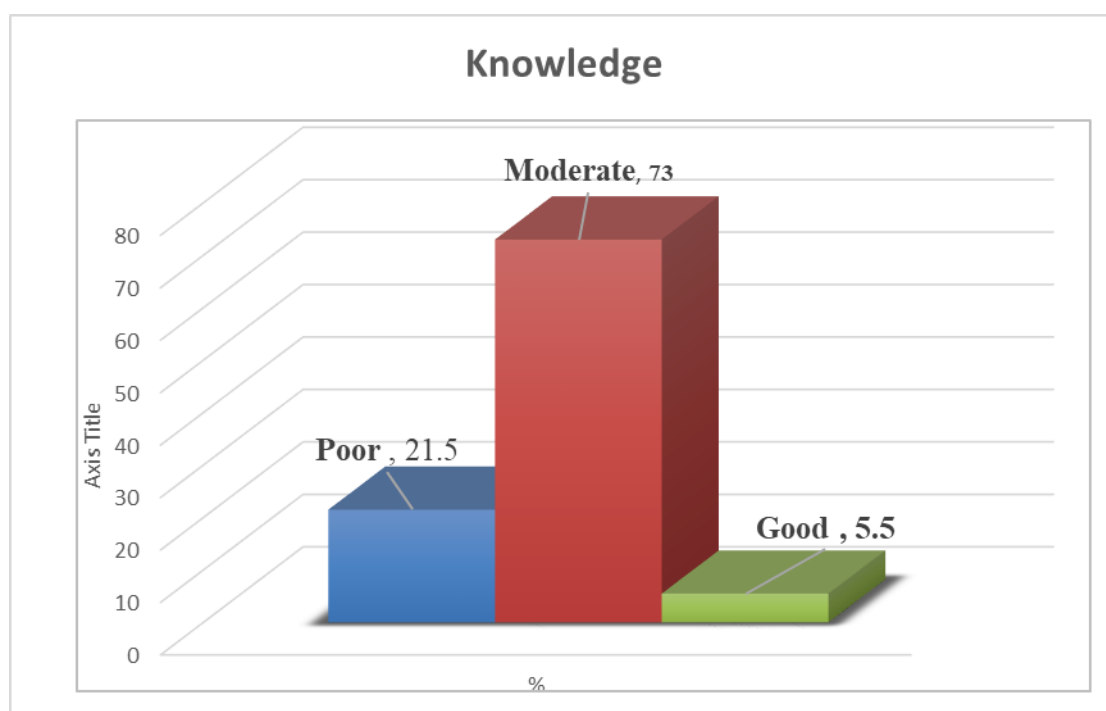


Figure (4-1): Overall Level of Nutritional Knowledge among Female Adolescents Students (N=400).

This figure shows that 65.5% of female adolescents have fair level of knowledge and 25.8 % have good level of knowledge while, only 8.8 % have

poor level of knowledge.

Table (4-7): Assessment of the Dietary Habits among Female Adolescents Students (N=400)

List	Dietary habits	Scale	f (%)	M	Assess.
1	Do you eat breakfast before going to school?	Never	125(31.2)	1.87	Poor
		Sometimes	203(50.8)		
		Always	35(18)		
2	How often do you not eat breakfast?	Always	69(14.8)	2.05	Moderate
		Sometimes	262(65.5)		
		Never	79(19.8)		
3	How often do you eat snacks such as candy and chocolate?	3 time or more	177(44.2)	1.64	Poor
		2-3 times	191(47.8)		
		Didn't eat	32(8)		
4	How many times did you eat fruit last week?	Didn't eat	56(14)	2.36	Moderate
		2-3 times	144(36)		
		3 time or more	200(50)		
5	How many times did you eat vegetables last week?	Didn't eat	60(16.1)	2.34	Moderate
		2-3 times	144(15)		
		3 time or more	196(36)		
6	How many times have you eaten fast food from restaurants?	3 time or more	171(42.8)	1.71	Poor
		2-3 times	174(43.5)		
		Didn't eat	55(13.8)		

M: Mean, Assess: Assessment Poor= 1 – 1.9, Moderate = 2– 2.4, Good= 2.5– 3

This table presents the dietary habits among female adolescents; the finding indicates that adolescents associated with poor dietary habits regarding eating breakfast before going to school, eating snacks as candy and chocolate, and eating fast food from restaurants; while they are associated with moderate dietary habits regarding eat breakfast, fruits and vegetable

more than three times.

Table (4-8): Overall Assessment of Dietary Habits among Female Adolescents

Habits	F	%	M	SD	Assessment
Poor	86	21.5	11.96	1.819	Moderate
Moderate	292	73			
Good	22	5.5			
Total	400	100			

f: Frequency, %: Percentage, M: Mean for total score, SD: Standard Deviation for total score Poor= 6 – 10, Moderate= 11 – 14, Good= 15 – 18

This table demonstrates that female adolescent having moderate dietary habits as reported among 73% of them ($M \pm SD = 11.96 \pm 1.81$).

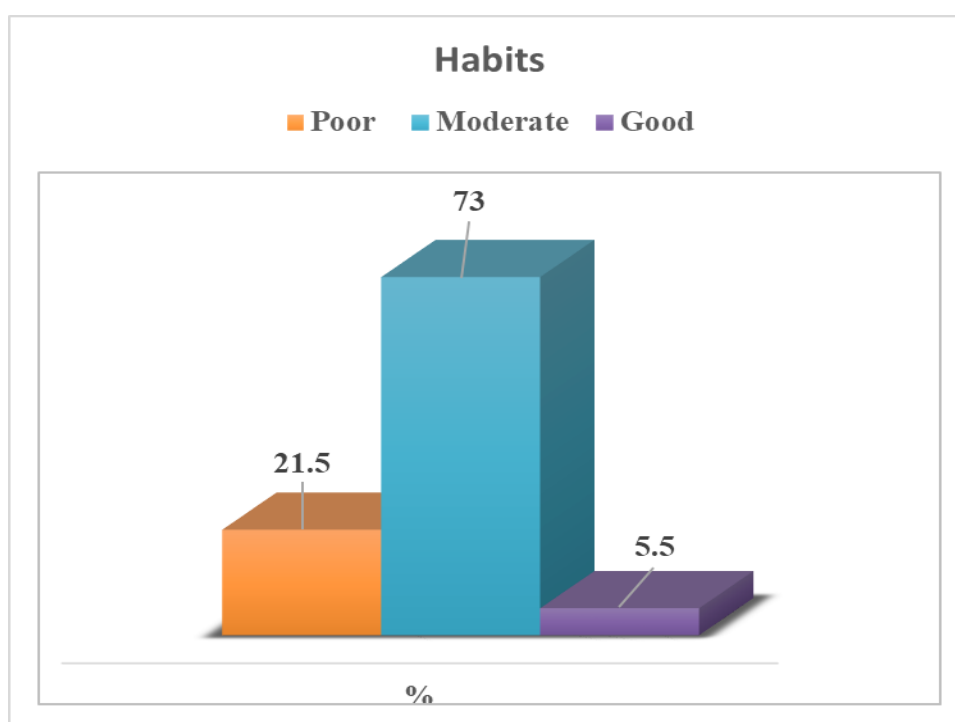


Figure (4-2): Overall Level of Dietary Habits among Female Adolescents Students (N=400)

This figure shows that 73% of female adolescents are associated with moderate dietary habits.

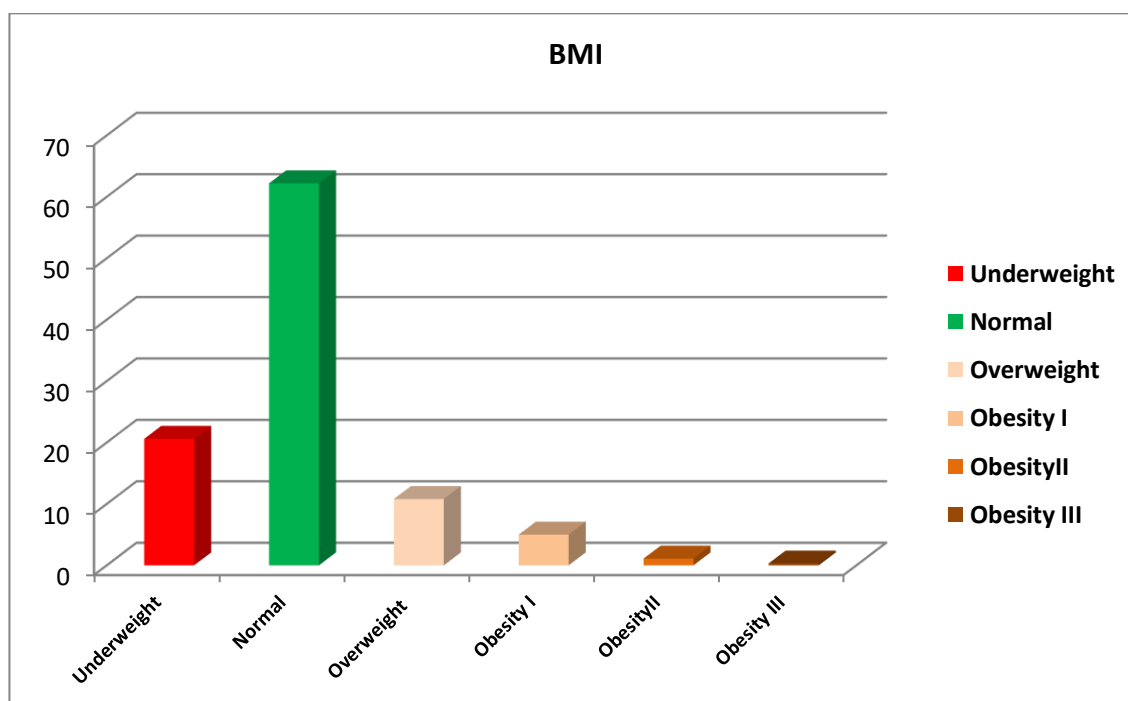
Table (4-9): Participants categorised by distribution to their Body Mass Index

Body mass index	Reference range *	F	%
Underweight	< 18	81	20.2
Normal	18.5 – 24.9	244	61.0
Overweight	25 – 29.9	48	12.0
Obesity I	30 – 34.9	18	4.5
Obesity II	35 – 39.9	8	2.0
Obesity III	≥ 40	1	0.3
Total		400	100

f: Frequency, %: Percentage, M: Mean, SD: Standard deviation

*World Health Organization

This table displays that 61% of female adolescents are ,with normal age while 20.2% reported with underweight and 12% reported with overweight.

**Figure (4-3): Body Mass Index of Female Adolescents Students (N=400)**

This figure shows that 61% of female adolescents have normal weight and 20.2% of female adolescents have underweight but 12% of them have

overweight.

Table (4-10): Effect of Nutritional Knowledge on Dietary Habits among Female Adolescents Students (N=400).

Knowledge Habits	Unstandardized Coefficients		Standardized Coefficients	t	p-value	Sig.
	B	Std. Error	Beta			
Eating breakfast before going to school	-.076	.046	-.093	-1.656	.09	N.S
Didn't eating breakfast	-.092	.051	-.096	-1.817	.07	N.S
Eating snacks	-.017	.050	-.018	-.333	.73	N.S
Eating fruits	-.091	.046	-.115	-1.964	.05	S
Eating vegetables	-.114	.047	-.147	-2.432	.01	S
Eating fast food	.031	.045	.038	.694	.488	N.S
Overall dietary habits	.090	.095	.079	.948	.344	N.S

B: Regression coefficient, t: t-statistics, P: Probability, Sig: Significance, N.S: Not significant, S: Significant, H.S: High significant

The purpose of this table is to present that nutritional knowledge among adolescent female adolescents does affect the eating habits of fruits and vegetables through significant differences, while it did not effect on most other eating habits, as evidenced by the presence of non-significant differences between eating habits and the overall result.

Table (4-11): Effect of Nutritional Knowledge on Nutritional Status (Body Mass Index) among Female Adolescents Students (N=400)

Model	Unstandardized Coefficients		Standardized Coefficients	t	p-value	Sig.
	B	Std. Error	Beta			
k1It is important to maintain the body's energy balance to maintain a healthy body weight	-.153	.155	-.055	-.988	.324	N.S
k2Energy comes from the food and fluids we eat	.321	.149	.121	2.156	.032	S

k3 We can get calories from one cup of butter or one cup of rice.	.255	.098	.141	2.587	.010	H.S
k4 According to the food pyramid guide, we should eat more than one type of food	.004	.121	.002	.031	.976	N.S
k5 The body needs a little salt to be healthy	.184	.110	.091	1.680	.094	N.S
k6 It is healthy to snack on foods that contain a lot of sugar	-.072	.094	-.043	-.766	.444	N.S
k7 Eating many different types of foods is healthier than eating only a few types of them	-.003	.095	-.002	-.037	.971	N.S
k8 It is impossible to get all the vitamins and minerals we need from food, so we need to take vitamin and mineral tablets	.018	.089	.011	.204	.838	N.S
k9 Lentils, peas and dried beans are healthy options to eat instead of meat	-.020	.091	-.012	-.218	.828	N.S
k10 We should eat as much as we want every day	.000	.093	.000	.002	.998	N.S
k11 Eating starches in most daily meals causes weight gain	.023	.102	.013	.227	.820	N.S
k12 The amount of water that should be drunk daily is 4 to 6 cups	-.050	.098	-.028	-.509	.611	N.S
k13 There is no need to eat fruits and vegetables daily	.212	.101	.119	2.097	.037	S.
k14 Eating many different types of foods is key to a healthy way of eating	.040	.098	.022	.402	.688	N.S
Total Knowledge	.181	.132	.120	1.378	.169	N.S

B: Regression coefficient, t: t-statistics, P: Probability, Sig: Significance, N.S: Not significant, S: Significant, H.S: High significant

The purpose of this table is to present that nutritional knowledge among adolescent female adolescents about item 2,3 and 13 affected their nutritional status through significant differences, while the level of knowledge about the other items did not affect their nutritional status, as evidenced by the presence of non-significant differences between eating habits and the overall result

Table (4-12): Correlation among Nutritional Knowledge, Dietary Habits, and Nutritional Status (Body Mass Index) among Female Adolescents Students (N=400)

Correlation		Dietary habits	BMI	Knowledge
Dietary habits	Correlation Coefficient	1.000	-.004	-.088
	Sig. (2-tailed)	.	.935	.078
BMI	Correlation Coefficient	-.004	1.000	.018
	Sig. (2-tailed)	.935	.	.715
knowledge	Correlation Coefficient	-.088	.018	1.000
	Sig. (2-tailed)	.078	.715	.

This table indicates that there is no significant link reported among nutritional knowledge among female adolescents and their dietary habits and nutritional status.

Table (4-13): Relationships between Female Adolescents' Nutritional Status and their Age

Age	Body Mass Index							Relationship
	Underweight	Normal	Overweight	Obesity I	Obesity II	Obesity III	Total	
12 – 15 year	52	109	21	10	7	0	199	$r^* = .032$
16 – 19 year	29	135	27	8	1	1	201	P-value= .523
Total	81	244	48	18	8	1	400	Sig= N.S

r^* = point biserial correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant,

S= Significant, H.S= High significant

This table demonstrates that there are no significant relationships between nutritional status and age among female adolescent students.

Table (4-14): Relationships between Female Adolescents' Nutritional Status and their School Grade.

Grade	Body Mass Index							Relationship
	Underweight	Normal	Overweight	Obesity I	Obesity II	Obesity III	Total	
Intermediate	35	70	18	2	6	0	131	$r^* = .032$
Secondary	46	174	30	16	2	1	269	P-value= .518
Total	81	244	48	18	8	1	400	Sig= N.S

r^* = point biserial correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant

This table demonstrates that there are no significant relationships has been reported between nutritional status and school grade among female adolescent students.

Table (4-15): Relationships between Female Adolescents' Nutritional Status and their Residency.

Residency	Body Mass Index							Relationship
	Underweight	Normal	Overweight	Obesity I	Obesity II	Obesity III	Total	
Rural	0	3	1	0	0	0	4	$r^* = -.020$
Urban	81	241	47	18	8	1	396	P-value= .683
Total	81	244	48	18	8	1	400	Sig= N.S

r^* = point biserial correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant

This table demonstrates that there are no significant relationships. has been reported between, nutritional status and ,residency among female adolescent students.

Table (4-16): Relationships between Female Adolescents' Nutritional Status and their Mothers' Education.

Mother's education	Body Mass Index							Relationship
	Under	Normal	Overwe	Obesity	Obesity	Obesity	Total	
Doesn't read & write	3	7	2	1	0	0	13	$r^s = -.042$ P-value= .406 Sig= N.S
Read & write	10	24	3	2	3	1	43	
Primary school	14	52	9	5	0	0	80	
Intermediate school	19	52	13	6	1	0	91	
Secondary school	10	39	6	2	0	0	57	
Diploma	9	25	7	1	2	0	44	
Bachelor	16	32	6	0	2	0	56	
Post graduate	0	13	2	1	0	0	16	
Total	81	244	48	18	8	1	400	

r^s = Spearman correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant

This table demonstrates that there are no significant relationships between nutritional status and Level of mothers of education among female adolescent students.

Table (4-17): Relationships between Female Adolescents' Nutritional Status and their Fathers' Education

Father's education	Body Mass Index							Relationship
	Underwe i	Normal	Overwei o	Obesity I	Obesity II	Obesity III	Total	
Doesn't read & write	3	8	1	0	0	0	12	$r^s = .081$ P-value= .105 Sig= N.S
Read & write	10	20	2	0	1	1	34	
Primary school	8	44	9	2	0	0	63	
Intermediate school	11	39	9	5	0	0	64	
Secondary school	24	48	7	6	1	0	86	
Diploma	9	29	9	1	0	0	48	

Bachelor	11	38	8	2	4	0	63
Post graduate	5	18	3	2	2	0	30
Total	81	244	48	18	8	1	400

r^s = Spearman correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant

This table demonstrates that there are no significant relationships between nutritional status and level of father education among female adolescent students.

Table (4-18): Relationships between Female Adolescents' Nutritional Status and their Mothers' Occupation .

Mother's occupation	Body Mass Index							Relationship
	Underwe ight	Normal	Overwei ght	Obesity I	Obesity II	Obesity III	Total	
Housewife	60	172	31	15	4	1	283	$r^* = .032$
Employee	21	72	17	3	4	0	117	P-value= .523
Total	81	244	48	18	8	1	400	Sig= N.S

r^* = point biserial correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant,

This table demonstrates that there are no significant relationships between nutritional status and mothers' occupation among female adolescent students.

Table (4-19): Relationships between Female Adolescents' Nutritional Status and their Fathers' Occupation

Father's occupation	Body Mass Index							Relationship
	Underwe ight	Normal	Overwei ght	Obesity I	Obesity II	Obesity III	Total	
Free work	40	105	22	11	2	1	181	$r^* = .000$
Employee	41	139	26	7	6	0	219	P-value= .997
Total	81	244	48	18	8	1	400	Sig= N.S

r^* = point biserial correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant

This table demonstrates that there are no significant relationships between nutritional status and fathers' occupation among female adolescent students.

Table (4-20): Relationships between Female Adolescents' Nutritional Status and their Family Monthly Income

Income	Body Mass Index							Relationship
	Underweight	Normal	Overweight	Obesity I	Obesity II	Obesity III	Total	
Less than 300,000	20	59	8	7	1	0	95	$r^s = -.011$ P-value= .834 Sig= N.S
300,000 – 600,000	11	49	9	3	1	0	73	
601,000 – 900,000	19	56	12	1	4	1	93	
901,000 – 1,200,000	12	38	12	4	0	0	66	
1,201,000 – 1,500,000	19	42	7	3	2	0	73	
Total	81	244	48	18	8	1	400	

r^s = Spearman correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant.

This table demonstrates that there are no significant relationships has reported between nutritional status and family monthly income among female adolescent students

Table (4-21): Relationships between Overall Assessment of Nutritional Knowledge among Female Adolescents and Their Demographic Data (N=400)

Variables		Sum of Squares	Df	Mean Square	F	P.value	Sig.
Age	Between Groups	2.008	2	1.004	4.068	.018	H.S
	Within Groups	97.989	397	.247			
	Total	99.997	399				
Grade	Between Groups	1.061	2	.530	2.420	.090	N.S
	Within Groups	87.037	397	.219			

	Total	88.098	399				
Residency	Between Groups	.014	2	.007	.709	.493	N.S
	Within Groups	3.946	397	.010			
	Total	3.960	399				
Mother Educational level	Between Groups	26.140	2	13.070	4.112	.017	H.S
	Within Groups	1261.900	397	3.179			
	Total	1288.040	399				
Father Educational level	Between Groups	22.034	2	11.017	3.246	.040	S.
	Within Groups	1347.526	397	3.394			
	Total	1369.560	399				
Mathers' Occupation	Between Groups	.515	2	.257	1.037	.356	N.S
	Within Groups	98.583	397	.248			
	Total	99.098	399				
Fathers' Occupation	Between Groups	.866	2	.433	2.098	.124	N.S
	Within Groups	81.912	397	.206			
	Total	82.777	399				
Family Monthly Income	Between Groups	20.499	2	10.250	5.190	.006	S.
	Within Groups	783.998	397	1.975			
	Total	804.498	399				

This table demonstrates that there are significant relationships between overall assessment of nutritional knowledge amidst female adolescents and their age, mother educational level, mother educational level, and family monthly income. While there is no significant relationship between overall assessment of nutritional knowledge among female adolescents and their other demographic variables.

Chapter Fifth

Discussion

Chapter Fifth: Discussion

Nutrition knowledge and healthy eating habits are important in the nutritional status. In this chapter, discuss the impact of nutritional knowledge and eating habits on adolescent's girls in secondary schools in Kerbala.

5.1. Assessment of nutritional knowledge among female adolescents' students:

According to the current study's findings that more than half of female adolescents having fair level of knowledge about healthy nutrition as reported among 65.5% of them. This finding is agree with (Nabeel and Rache, 2017) in Sharjah, United Arab emirates which reported that The vast majority of the pupils (86%) have inadequate understanding of nutrition, whereas not a single one possessed exceptional knowledge. This findings is disagree with (Farjana et al, 2020) in Bangladesh, which reported that ,The nutritional knowledge score of adolescent girls indicates a moderate level of approximately 57.1%.

Another study is disagree with (Manijeh Alavi et al, 2013) that reported that the majority of the amount of knowledge surrounding adolescent nutrition is intermediate, with 41.2 percent of individuals possessing this level of expertise.

5.2. Assessment of Dietary Habits among Female Adolescents:

According to the present study's findings that female adolescent having moderate dietary habits as reported among 73% of them .The findings of the study disagree with (Otuneye et al.'s, 2017) study in Nigeria, which showed that a portion of the individuals exhibited poor dietary habits by often missing meals, with a prevalence of 9.5% and a statistically significant p-value 0.000.

In addition, the findings in the present study were consistent with previous studies. with Tabitha (2016) in Kenya, which reported that The respondents exhibited good levels of knowledge, however none of them achieved an outstanding level. .

Another study is disagree with(Nabeel and Rachel ,2017) in the (United Arab Emirates) found that 86% of students lacked basic nutrition knowledge.

5.3. The Nutritional Status (Body Mass Index) among Female:

Over twelve of the students who participated in the present study were obese or overweight, whereas only 20.0% of the sample was underweigh , Although a sizable portion of the study population more than half are normal weight .The study is consistent by (Netra et al .,2023) in Bangalore that reported of the pupils surveyed, 52.4% had a normal body mass index, while 13.3% were obese and 16.6% were in the pre-obesity category.

Another study is disagree with(Cunningham et al ., 2020).That reported underweight was highest in younger adolescents.

5.4. Effect of Nutritional Knowledge on Dietary Habits among Female Adolescents Students:

The study indicates that nutritional knowledge among adolescent female adolescents does affect the eating habits of fruits and vegetables through significant differences, while it did not effect on most other eating habits, as evidenced by the presence of non-significant differences between eating habits and the overall result.

This finding is consistent with Tabitha 2016 in Kenya which reported that the majority of the sample in regarding to nutritional knowledge among adolescent female adolescents does affect the eating habits of fruits and vegetables through significant differences, while it did not effect on most other eating habits, as evidenced by the presence of non-significant differences between eating habits and the overall result.

Another study is agree with (Maponya ,2020) the reported that the majority they eating habits and nutrition expertise were unrelated. In the knowledge questionnaire, just 11.6% of students said they ate five or more servings of fruits and vegetables daily, and only 8.01% said they ate them seven times a week.

5.5.Relationships between Overall Assessment of Nutritional Knowledge among Female Adolescents and Their Demographic Data:

The study's findings showed that there is significant relationship between overall assessment of nutritional knowledge among female adolescents and their age, mother educational level father educational level.

In a 2014 study, Marquitta and Safiya discovered that when comparing knowledge scores across gender, age range, highest education level, and family monthly income, there were no significant differences. While there is no significant relationship between overall assessment of nutritional knowledge among female adolescents and their other demographic variables.

Similar to previous research (Alavi et al., 2014), this study found that participants' demographic and socioeconomic status had no effect on their nutrition knowledge.

5. 6. Conclusion:

Optimizing growth and good health throughout adolescence and reducing the risk of chronic diseases later in life are both supported by a healthy, balanced diet. , the researcher came to the following conclusions:

1. The socio-demographic characteristics of the recent research shows that the majority average age for female adolescent students with age group of 16-19 years, furthermore, the majority of participants are female adolescents are from secondary schools' classes, majority are living

residents in urban ,their family's monthly income was less than 300.000 Iraqi dinar .

2. This study sought to estimate more than half of female adolescents having fair level of knowledge about healthy nutrition and with poor dietary habits regarding eating breakfast before going to school, eating snacks as candy and chocolate, and eating fast food from restaurants.
3. The study showed nutritional knowledge among adolescent female adolescents does affect the eating habits of fruits and vegetables through significant differences, while it did not effect on most other eating habits, as evidenced by the presence of non-significant differences between eating habits and the overall result.
4. Indicated that the nutritional state most of the adolescent female have normal weight that mean poor dietary habits not Correlation of nutritional state.
5. The finding of study show is significant relationship between overall assessment of nutritional knowledge among female adolescents and their age , mother educational level, mother educational level, and family monthly income. While there is no significant relationship between overall assessment of nutritional knowledge among female adolescents and their other demographic variables.

5.7. Recommendations:

Given that adolescence is a time of rapid physical and mental development characterised by increased dietary needs, the following are some suggestions made by the researchers:

1. It is important to cater to the requirements of adolescent girls in the school community by developing and promoting integrated nutrition interventions and health-related services.
2. Educate health extension workers, regular facility staff, the entire community, and teens themselves about the importance of adolescent girls' nutrition and ensure they have access to sufficient and diverse food options.

3. Developing and implementing educational programmers to enhance the well-being of educators and students by means of health promotion, health education, and raising awareness about the importance of good nutrition and eating habits, such as consuming fruits and vegetables first thing in the morning, avoiding sugar and fast food, and so on.

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Appendix

Appendix A

Ethical Consideration

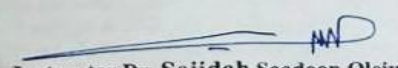
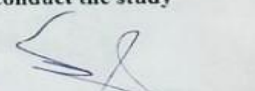


Ethical Consideration

Ministry of Higher Education and Scientific Research
University of Karbala / College of Nursing
Scientific Research Ethics Committee



UDK.CON.23.001
Ethical Committee Code:
Date: 5/11/2023

Research Ethical Approval Form

Title of the research project			
In the English language		In the Arabic language	
Effect of Nutritional Knowledge and Dietary Habits on Nutritional Status among Adolescent Girls		تأثير المعرفة الغذائية والعادات الغذائية على الحالة التغذوية بين الفتيات المراهقات	
Data About the Main Researcher /Student:			
Full Name	Scientific Title	Mobile Number	Email
Huda Thiar Mhson	Master student	07714434417	almossayhuda@gmail.com
Data About the Co-author /Supervisor:			
Full Name	Scientific Title	Mobile Number	Email
Dr. Selman Hussain Faris	Ass. Professor	07716503934	selmanhussain2015@gmail.com
Study objectives			
1. To assess the nutritional knowledge among adolescent in girls. 2. To assess the dietary habits among adolescent girls. 3. To investigate the dietary habits among adolescent girls. 4. To determine the effect of nutritional knowledge and dietary habits on nutritional status among adolescent girls. 5. To identify relationship between demographic data and nutritional status.			
Time and Setting of the Study			
September 2023-August 2024/ Secondary school			
Study Design			
Descriptive correlational study			
Sampling method and sample size			
Non probability/convenience; 500 Student.			
Statement of Ethical Commitment			
The study will be conducted in accordance with what was mentioned in the protocol above and to commitment that all rules set by the ethical committee are followed in present research process. The researcher also makes a commitment to abide by ethical principles, moral values, law and instruction of the institutions. There is no bias will be during collecting the data, gender, regional aspects and is totally impartial and objective. The researcher will have taken an informed consent from the participants, and provide clarifications and information about the study to the sample members. The researcher deals with the data of the sample members in complete confidentiality.			
Name and signature of the researcher			
Recommendation of the College's Research Ethical Committee			
<input checked="" type="checkbox"/> Agreement to conduct the study		<input type="checkbox"/> Disagreement to conduct the study	
 Instructor Dr. Sajidah Saadoon Oleiwi Member		 Ass. Prof. Dr. Zeki Sabah Musjhb Member	
 Ass. Prof. Dr. Ghazwan Abdalhussein Member		 Ass. Prof. Dr. Hassan Abdullah Athbi Chairman of the Committee	

Appendix B

Administrative Agreements

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية التمريض
شعبة الدراسات العليا

Republic of Iraq
Ministry of higher education & scientific research
University of Karbala
College of Nursing
Graduate studies Division

العدد: د.ع/ 327

التاريخ: 2023 / 11 / 5

الى / مديرية تربية كربلاء المقدسة
م / تسهيل مهمة

تحية طيبة...

يرجى التفضل بالموافقة على تسهيل مهمة طالبة الدراسات العليا / الماجستير (هدى ثائر محسن) في كليتنا للعام الدراسي (2023-2024) لغرض جمع العينات الخاصة برسالتها الموسومة:

" تأثير المعرفة الغذائية والعادات الغذائية على الحالة التغذوية بين الفتيات المراهقات "

" Effect of Nutritional Knowledge and Dietary Habits on Nutritional Status among Adolescent Girls "

مع التقدير **

أ.م.د. سلمان حسين فارس الكريطي
معاون العميد للشؤون العلمية و الدراسات العليا
2023 / 11 / 5

جامعة كربلاء - كلية التمريض
شعبة الدراسات العليا

نسخة منه الى:
- مكتب السيد معاون العميد المحترم.
- شعبة الدراسات العليا.

العنوان: العراق - محافظة كربلاء المقدسة - حي الموظفين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq
website:

Appendix B1

Administrative Agreements

Republic of Iraq
Ministry of Education
Directorate General of Education
in Holy Karbala Province

جمهورية العراق
وزارة التربية
المديرية العامة للتربية
في محافظة كربلاء المقدسة
قسم الاعداد والتدريب/البحوث والدراسات

العدد/
التاريخ/
٢٠٢٣/

الى / إدارات المدارس المتوسطة والاعدادية في مركز المحافظة كافة
م/ تسهيل مهمة

تحية طيبة.....
إشارة الى كتاب جامعة كربلاء ذي العدد د.ع/ ٣٢٧ في ٢٠٢٣/١١/٥
يرجى تسهيل مهمة طالبة الماجستير (هدى ثامر محسن) في كلية التمريض للعام الدراسي (٢٠٢٣-٢٠٢٤)
لغرض انجاز متطلبات رسالتها الموسومة (تأثير المعرفة الغذائية والعادات الغذائية على الحالة التغذوية
بين الفتيات المراهقات) على ان لا تتضمن متطلبات البحث القيام بأي معالجة او فحص طبي والاكتفاء بملئ
الاستبانة المطلوبة فقط.

خدمة للعلم والمعرفة مع التقدير.

د. علي حسين محمد
ع / المدير العام
٢٠٢٣/١١/٦

قسم الادارة

نسخة منه الى :-

- مكتب السيد المدير العام/ للتفضل بالعلم.....مع التقدير.
- السيد معاون الاداري/ للتفضل بالعلم.....مع التقدير.
- السيد معاون الفني/ للتفضل بالعلم.....مع التقدير.
- قسم التخطيط التربوي/ لنفس الغرض اعلاه.....مع التقدير.
- قسم الاعداد والتدريب / شعبة البحوث والدراسات/ ب ٢ نسخ مع المرفق.
- الملف العامة.

www.karbala.edu.iq الموقع الالكتروني
info@karbala.edu.iq البريد الالكتروني
العنوان / كربلاء المقدسة - حي الاسكان - تقاطع الاصلاح

Appendix C

Questionnaire of the Study

رقم الاستبانة

تحية طيبة...

عزيزات الطالبات يشرفني ان اضع بين ايديكن استبيان لدراسة:

Effect of nutritional knowledge and dietary habits on nutritional status among adolescent girls.

اثر المعرفة الغذائية والعادات الغذائية على الحالة التغذوية لدى الفتيات المراهقات
إجابتك ستكون ذات قيمة كبيرة لإسهامكم في البحث العلمي، جميع المعلومات التي تقدمها ستبقى في سرية تامة ولن يتم استخدامها لأي غرض آخر غير البحث الحالي. راجين منكن ملئها بحرص وعناية، والتأكد من الاجابة على جميع الاسئلة لان الاجابات الناقصة (ترك سؤال) تؤدي إلى إلغاء الاستمارة

نشكركن على مشاركتكن في هذا البحث ومساعدتكن في تحقيق أهدافه

لا

نعم

هل توافقين على المشاركة؟

إذا كانت الاجابة بنعم رجاء أكملني الاستبيان

الباحثة هدى ثائر محسن
كلية التمريض / جامعة كربلاء
ماجستير تمريض الصحة المجتمع
إشراف/ أ.م.د. سلمان حسين فارس

القسم الأول: المعلومات الديموغرافية

الإجابة			الصفة
			1. العمر
	اعدادية		2. الصف
			3. مكان الإقامة
			ريف
			مدينة
	دبلوم		4. الحالة التعليمية للام
	بكالوريوس		لاتقرا ولا تكتب
			تقرا وتكتب
	دراسات عليا		شهادة ابتدائية
			شهادة متوسطة
			شهادة اعدادية
	دبلوم		5. الحالة التعليمية للاب
	بكالوريوس		لايقرا ولا يكتب
			يقرا ويكتب
	دراسات عليا		شهادة ابتدائية
			شهادة متوسطة
			شهادة اعدادية
	موظف		6. مهنة الاب
	موظفة		كاسب
			7. مهنة الام
			ربة بيت
	-1,201,000 1,500,00		8. مستوى الدخل الشهري للأسرة (بالدينار العراقي)
	أكثر من 1,501,000		أقل من 300,000
			-300,000 600,000
			-901,000 1,200,000

القسم الثاني: المعرفة التغذوية

خطأ	صح	الفقرات
		1. من المهم الحفاظ على موازنة طاقة الجسم للمحافظة على وزن جسم صحي.
		2. الطاقة تأتي من الغذاء والسوائل التي نتناولها.
		3. ممكن أن نحصل على السعرات الحرارية من كوب واحد من زبد أو كوب واحد من الأرز.
		4. وفقا لدليل الهرم الغذائي يجب أن نتناول أكثر من نوع واحد من الطعام.
		5. يحتاج الجسم إلى القليل من الملح ليكون بصحة جيدة.
		6. من الصحي تناول وجبة خفيفة من الأطعمة التي تحتوي على الكثير من السكر.
		7. ان تناول الكثير من أنواع الأطعمة المختلفة أكثر صحة من تناول أنواع قليلة فقط منها
		8. من المستحيل الحصول على كل الفيتامينات والمعادن التي نحتاجها من الطعام، لذلك نحن بحاجة إلى تناول أقراص الفيتامينات والمعادن
		9. يعتبر العدس والبازلأء والفاصوليا الجافة هي خيارات صحية يتم تناولها بدلا من اللحوم
		10. يجب ان يكون الاكل بقدر ما نريد كل يوم.
		11- أن تناول النشويات في معظم الوجبات اليومية تسبب زيادة الوزن
		12. ان كمية الماء التي يجب شربها يوميا هي 4 إلى 6 أكواب
		13- ليست هناك حاجة لتناول الفواكه والخضروات يوميا
		14. ان تناول العديد من أنواع الأطعمة المختلفة هو مفتاح الطريقة صحية لتناول الطعام

القسم الثالث العادات الغذائية:

1. هل تتناول وجبة الإفطار قبل الذهاب إلى المدرسة؟

نعم لا

2. كم مرة لم تتناول وجبة الإفطار؟

يوميًا أحيانًا أبداً

3. كم مرة تناولت وجبات خفيفة مثل الحلوى والشوكولاتة؟

مرة - مرتين 3 مرة - أكثر لم اتناول

4. كم مرة أكلت الفاكهة الأسبوع الماضي؟

مرة - مرتين 3 مرة - أكثر لم اتناول

5. كم مرة أكلت الخضار الأسبوع الماضي؟

مرة - مرتين 3 مرة - أكثر لم اتناول

6. كم مرة تناولت طعامًا من الوجبات السريعة من المطاعم

مرة - مرتين 3 مرة - أكثر لم اتناول

القسم الرابع الحالة الغذائية

1- القياسات البشرية للمراهقين

1. الوزن /kg

2. الطول /cm

2- مؤشر كتلة الجسم

النحافة BMI اقل من 18.5

الوزن طبيعي BMI بين 18.5 / 24.9

زيادة بالوزن BMI بين 25 - 29.9

السمنة BMI من 30 فما فوق

Appendix D Expert's Panel

ت	اسم الخبير	اللقب العلمي	التخصص	مكان العمل	عدد سنوات الخدمة
1.	علي كريم خضير الجبوري	استاذ	تمريض صحة نفسيه وعقليه	جامعه كربلاء كليه التمريض	32
2.	وسام جبار قاسم	استاذ	تمريض صحة مجتمع	جامعه بغداد كليه التمريض	30
3.	سلمى كاظم	استاذ	تمريض صحة مجتمع	جامعه بابل كليه التمريض	30
4.	خميس بندر عبد	استاذ	تمريض أطفال	جامعه كربلاء كليه التمريض	25
5.	علي عبد الرضا ابو طحين	استاذ دكتور	طب الاسره والمجتمع	جامعه كربلاء كليه طب	25
6.	مرتضى غانم عداي	استاذ	تمريض صحة مجتمع	جامعهوارث الانبياء كليه التمريض	18
7.	حسن عبدالله عذبي	استاذ مساعد	تمريض بالغين	جامعه الكربلاء كليه التمريض	21
8.	منصور عبد الله فلاح	استاذ مساعد	تمريض صحة مجتمع	جامعه والكوفة كليه التمريض	19
9.	غزوان عبد الحسين	مساعد استاذ	تمريض صحة مجتمع	جامعه كربلاء كليه التمريض	9
10.	رضا محمد لفته	استاذ مساعد	تمريض صحة مجتمع	جامعه العميد كليه التمريض	8
11.	حقي اسماعيل منصور	استاذ مساعد	تمريض صحة مجتمع	جامعه كربلاء كليه التمريض	7

Appendix E

Approval of the linguistic expert

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية التمريض
شعبة الدراسات العليا

Republic of Iraq
Ministry of higher education & scientific research
University of Karbala
College of Nursing
Graduate studies Division

إقرار الخبير اللغوي

أشهد بأن الرسالة الموسومة :

" تأثير المعرفة الغذائية والعادات الغذائية على الحالة التغذوية بين الفتيات المراهقات "

" Effect of Nutritional Knowledge and Dietary Habits on Nutritional Status among Adolescent Girls "

قد جرى مراجعتها من الناحية اللغوية بحيث أصبحت بإسلوب علمي سليم خالي من الأخطاء اللغوية ولأجله وقعت .

توقيع الخبير اللغوي : م.د. هوراء ع. ع.
الإسم و اللقب العلمي : م.د. هوراء جبار راضي
الإختصاص الدقيق : اللغة الانكليزية / علم اللغة / Sociopragmatics
مكان العمل : جامعة كربلاء كلية التمريض العلوم الإنسانية
التاريخ : 2024 / 5 / 27

العنوان : العراق - محافظة كربلاء المقدسة - حي الموظفين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq
website: nursing.uokerbala.edu.iq

Appendix F

Statistical expert's approval

Republic of Iraq
Ministry of higher education & scientific research
University of Karbala
College of Nursing
Graduate studies Division



جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية التمريض
شعبة الدراسات العليا

إقرار الخبير الإحصائي

أشهد بأن الرسالة الموسومة :

" تأثير المعرفة الغذائية والعادات الغذائية على الحالة التغذوية بين الفتيات المراهقات "

"Effect of Nutritional Knowledge and Dietary Habits on Nutritional Status among Adolescent Girls"

قد تم الإطلاع على الأسلوب الإحصائي المتبع في تحليل البيانات و إظهار النتائج الإحصائية وفق مضمون الدراسة و لأجله وقعت .



توقيع الخبير الإحصائي

الإسم و اللقب العلمي : د. د. سحر عبد الرحمن عبد السيد

الإختصاص الدقيق : إحصاء تطبيقي

مكان العمل : جامعة كربلاء | كلية لإدارة الاقتصاد

التاريخ : ٢٥ / ٤ / 2024

العنوان : العراق - محافظة كربلاء المقدسة - حي الموظفين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq

website: nursing.uokerbala.edu.iq

المستخلص

من أجل العادات الأكل الصحية لدى المراهقين والسلوك لمنع المشكلات الصحية التي قد تستمر حتى مرحلة البلوغ, استخدام النسب المئوية لمؤشر كتلة الجسم هو تحديد الحالة التغذوية للمراهقين, لتقييم المعرفة الغذائية والعادات الغذائية لدى فتيات المراهقات والتحقيق في العلاقة الغذائية وتحديد العلاقة بين الحالة التغذوية بين الحالة التغذوية وبياناتها الديموغرافية للفتيات المراهقات.

اجريت دراسة وصفية على 400 طالبة من المدارس المتوسطة والثانوية في كربلاء العراق, شاركة في الدراسة المقطعية خلال الفترة من 26 سبتمبر 2023 الى 27 مايو 2024, تم استخدام اداة لابلاغ الذاتي لجمع البيانات من قبل فتيات المراهقات. قام الاستبيان بجمع البيانات حول المعرفة والعادات الغذائية والحالة التغذوية لدى الطالبات المراهقات وكان متوسط العمر للطالبات المراهقات هو مجموعة 16-19 سنة ان 61% من الفتيات المراهقات يتمتعن بوزن طبيعي 20.2% من المراهقات يعانين من نقص الوزن و12% منهن يعانين من وزن الزائد نصف من المراهقات لديهن مستوى لابس به من المعرفة والتغذية الصحية كما ورد 65% المستوى التعليمي للام والدخل الشهري للأسرة والعادات الغذائية لدى فتيات مراهقات لا تؤثر على الحالة التغذوية .

العادات الغذائية والمستوى المعرفي لدى الفتيات المراهقات لا تؤثر على الحالة التغذوية, وأغلبهن يتمتعن بعادات غذائية صحية, بينما حوالي 5% لديهن عادات غذائية غير صحية, وأكثر من ثلثهن لديهن مؤشر كتلة جسم غير طبيعية, مما يدل على أهمية إشراكهم في برامج التوعية الصحية حول التغذية الصحية وطرق الحفاظ على مستوى طبيعي من كتلة الجسم.



جامعة كربلاء
كلية التمريض

تأثير المعرفة الغذائية والعادات الغذائية على الحالة التغذوية لدى
الفتيات المراهقات

بواسطة

هدى ثائر محسن

الى

مجلس كلية التمريض

جامعة كربلاء

وهي جزء من متطلبات نيل درجة الماجستير في علوم التمريض

بإشراف

أ.م.د. سلمان حسين فارس

الكريطي