

## Assessment of Nutritional Knowledge and Behavior in Adolescents

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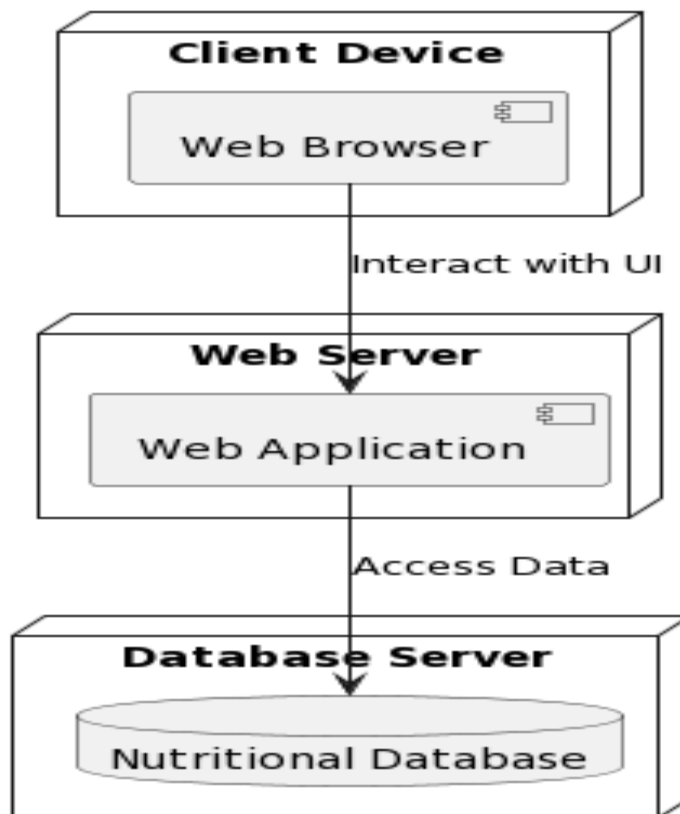
**Abstract:** With a particular emphasis on private school environments, the purpose of this research was to conduct an exhaustive evaluation of the nutritional knowledge and behavior of adolescents in the Emirate of Sharjah, United Arab Emirates. A sampling procedure consisting of two stages was utilized, with the pupils being those between the ages of 9 and 13 who had gained parental consent. In addition to anthropometric data, the research addressed fundamental elements of adolescent nutrition by making use of proven tools in English. These tools included a Nutritional Knowledge Questionnaire and a Dietary Behavior Assessment. The findings provided valuable insights into dietary habits, knowledge gaps, and the influence of socio-cultural factors on the decisions that people make regarding their nutrition. It was noted that there were barriers, such as language limitations and bias in the sample process. In the future, there will be an emphasis placed on longitudinal studies, varied sample, language inclusion, exploration of the school environment, and technological interventions. This research makes a significant contribution to the expanding body of information on the topic of nutrition in adolescents. It lays the groundwork for treatments that are more specifically focused and helps shape healthy food patterns.

**Keywords:** Adolescents, Nutritional Knowledge, Dietary Behavior, Private Schools, Two-Stage Sampling, Parental Consent, Validated Tools, Nutritional Knowledge Questionnaire, Dietary Behavior Assessment.

### I. Introduction

The adolescent years are a crucial time period that are characterized by fast development in all aspects of brain, body, and emotions. Therefore, it is vital to study and evaluate the nutritional knowledge and practices of teenagers throughout this time because the nutritional needs of adolescents are at their peak during this phase. Nutrition is an essential component in the formation of long-term health outcomes, especially about the regulation of development and cognitive function, as well as the avoidance of chronic diseases [1]. To throw light on potential areas of concern and find opportunities for focused interventions, the purpose of this study is to conduct a complete evaluation of the nutritional knowledge and practices of adolescents. Teenagers are frequently subjected to a wide variety of dietary factors, which may include the

habits of their families, the encounters they have with their peers, and the widespread influence of the media. As a consequence of this, it is absolutely necessary to evaluate their nutritional knowledge and practices in order to establish measures that are effective in promoting health [2].



**Figure 1. Block Depicts the Overview of Assessment of Nutrition**

Within the population of adolescents, the primary objective is to close the gap between their nutritional knowledge and their actual dietary patterns. This will pave the way for interventions that are informed and that encourage better lifestyles. By gaining an understanding of the factors that influence food choices, gaining an understanding of the prevalent nutritional misconceptions, and assessing the impact of socio-cultural influences, the purpose of this study is to contribute to the formulation of evidence-based strategies that promote optimal nutrition during this crucial stage of life [3]. As we delve deeper into the complexities of teenage nutrition, the purpose of this research is not only to uncover issues, but also to highlight opportunities for education and intervention. It is hoped that the outcomes of this study will provide policymakers, educators, and healthcare professionals with information that will guide the development of focused programs that empower teenagers to make informed and health-conscious food choices. During the adolescent years, it is common for people to experience health problems that involve excessive consumption of foods that are high in calories [4]. These problems can result in either obesity or nutritional deficiencies because of inadequate intake or poor dietary choices. Over the course of the last three decades, the prevalence of obesity among teenagers has

increased by a factor of more than four. Obesity and nutritional inadequacies among teenagers have serious long-term effects, including the predisposition of these individuals to develop cardiovascular disease, type 2 diabetes, stroke, a variety of malignancies, osteoarthritis, and the possibility of a negative impact on their academic performance. It is important to note that obesity and dietary deficiencies frequently coexist side by side, resulting in a twofold burden, such as shortages in iron and zinc. The evidence suggests that preventative efforts can reduce the prevalence of obesity among teenagers by boosting their understanding of healthy nutrition, encouraging active lifestyles, and altering attitudes toward healthier behaviors. Schools serve as crucial platforms for interventions in this regard. The period known as adolescence is a crucial time when lifestyle preferences become more firmly established, making it an ideal time to influence behavioral shifts. Personal nutritional knowledge, exposure to the media, financial situation, peer relationships, and family dynamics are some of the elements that might influence dietary patterns and choices during adolescence. Dietary patterns and choices are primarily formed during childhood, but they undergo additional refining during this stage of development. Dietary habits have been drastically affected because of rapid urbanization and the adoption of Westernized lifestyles in the United Arab Emirates (UAE) and other Gulf Cooperation Council (GCC) states [5]. This has led to an increase in the intake of unhealthy snacks and fast food among adolescents. There is a concerning prevalence of overweight and obesity among the Emirati population, as well as poor levels of physical activity, particularly among females who live in metropolitan areas. Considering that adolescence is the time when habits and behaviors are formed that will last a lifetime, as well as the fact that the nutritional landscape in the UAE is constantly shifting, it is imperative that educational and healthcare institutions pay close attention to this matter. It is absolutely necessary to provide targeted treatments with the goal of instilling healthy lifestyles and adaptable habits in children at a young age. However, in order to construct effective programs that are tailored to the local environment, baseline data reflecting the existing knowledge and attitudes of teenagers regarding good eating are absolutely necessary [6].

## **II. Literature Review**

The body of research that was examined includes a wide variety of studies that investigate the nutritional knowledge and habits of teenagers. One study focused on the prevalence of obesity and anemia among children attending public schools in Rabat [7]. The findings of this study provided important insights into the dual health difficulties that adolescents experience when living in urban settings. In addition, the World Health Organization (WHO) published a discussion paper in 2005 that detailed the problems and difficulties associated with the nutrition of adolescents. The study emphasized the significance of addressing nutritional concerns during this crucial period of life. In another study, the issue of micronutrient intake and status among teenage girls in Mozambique was investigated [8]. The findings of this study brought to light the implications that poor dietary practices have for public health. The importance of vitamin A deficiency in teenagers was brought to light by research, which raised questions about whether or

not this nutritional condition is uncommon or underdiagnosed. In addition to bringing a nuanced viewpoint to the current body of research, this study highlights the importance of increased awareness and diagnostic vigilance about the status of vitamin A in individuals of this age range [9]. There was a study that was conducted in the United States that investigated the dietary profiles of first-generation South Asian Indian adolescents. The findings of this study provided vital insights into the nutritional habits of this group [10]. There was a presentation that emphasised the severity and prevalence of the problem of childhood obesity in 2015. The presentation included comprehensive overviews of those findings. Furthermore, data from global health observatories were provided on obesity. These data provide a country-by-country view on the age-standardized prevalence of obesity, which is vital for comprehending the worldwide epidemiology of this health concern [11]. These studies focused on certain micronutrients, such as vitamin D and iron, and brought attention to deficits in these nutrients as well as the potential health consequences that they may have on teenagers [12]. In Spanish teenagers, studies that investigated the association between the quality of breakfast and the incidence of overweight and obesity shed light on the impact that breakfast habits have on weight status. The gender-specific effects of the connection between family meals and body mass index (BMI) among teenagers were discovered through research that was conducted [13]. Research was conducted on children aged 9 to 13 years old to investigate the association between body mass, the frequency of eating, and the consumption of breakfast [14]. The findings of this research contributed vital insights into the intricate connections that exist between eating habits and weight status during the adolescent years [15]. Finally, a study was conducted to investigate the demographic and attitude-based elements that determine the quality of a diet. The results of this study provided a comprehensive understanding of the factors that influence the nutritional choices made by adolescents.

### **III. Sampling**

A total of four private schools were included in the selection process for participants, which took place within the Emirate of Sharjah in the United Arab Emirates. It was a conscious decision to concentrate on the private school system because it offers teaching in English as the medium of instruction, which meant that pupils would be able to demonstrate their command of the language. The lack of certified Arabic versions for the instruments that were chosen was the primary factor that led to the choice to take use of tools written in English. It is important to note that, in contrast to the public education system in the UAE, which is gender-segregated, private schools offered convenient access to both male and female students within the same educational environment. We used a sampling procedure that consisted of two stages. The Sharjah Educational Zone was one of the key authorities that were contacted in order to obtain a list of all of the private schools in Sharjah, which totaled eighty people. With the help of the True Random amount Generator software, which can be found on the internet at <https://www.random.org/>, four numbers were chosen at random from among the total amount of numbers that were allotted to each institution. After that, the same automated software was used to select classes at random

from each of the four schools. This was done to ensure that the selection process was limited to only classes that contained students who were in the age range of nine to thirteen years old. The initial selection consisted of selecting four classes from each institution, with an average of twenty-five students in each class. In order to obtain the parents' consent for their child's involvement in the study, information regarding the study was conveyed to them. Based on the initial phase of this process, a response rate of 41% was achieved, with 162 participants being selected from the total of 400 individuals who were invited to participate. The class selection procedure was repeated to achieve the requisite sample size. This resulted in the recruitment of an extra 138 participants out of the approximately 400 individuals who were invited to participate, which led to a response rate that was comparable to the initial one.

#### **IV. Interviewing Participants**

Following the completion of the two-stage sampling process, all of the students who were enrolled in the selected classes and who were between the ages of 9 and 13 and who had provided their parents with a consent form that was both valid and signed were subject to consideration for participation in the study. Exclusion from participation was granted to students who either failed to return the consent form or were unable to finish the questionnaire that was part of the study. Following the return of the signed consent form, school nurses addressed the students who were eligible for the study in order to provide them with information regarding the goal of the study, the nature of their participation, and the instructions for completing the survey. Those students who indicated that they were willing to take part in the study were given the choice to either finish the questionnaire right away at school or when they got home from school at a later time. When it came to the second scenario, pupils were given an envelope and given instructions to return the questionnaire to the office of the school nurse. A single reminder was sent out to those students who chose to take the survey at home. There were 58 students who selected this option, and each of them needed to be reminded individually. Following the reminder, seventeen students, or 29 percent, were able to successfully return their questionnaires that were finished.

#### **V. Data Collection Tools**

The data collection tools utilized in this study were designed to comprehensively assess the nutritional knowledge and habits of adolescents. The tools were developed in English, as no validated Arabic versions were available at the time. The following instruments were employed:

##### **A. Nutritional Knowledge Questionnaire:**

This questionnaire aimed to evaluate participants' understanding of fundamental nutritional concepts, including the food pyramid, macronutrients, micronutrients, and the role of various foods in a balanced diet. It consisted of multiple-choice, true/false, and open-ended questions.

**B. Dietary Behavior Assessment:**

This tool focused on assessing the dietary behaviors of adolescents, exploring aspects such as eating patterns, food choices, portion sizes, frequency of consuming specific food groups, and the prevalence of certain habits like snacking or skipping meals.

**C. Anthropometric Measurements:**

Height, weight, and body mass index (BMI) were measured to provide objective indicators of participants' physical health. These measurements contribute valuable data regarding the impact of dietary habits on adolescents' overall well-being.

**D. Consent Form:**

A consent form was provided to parents or guardians, explaining the purpose of the study, the nature of their child's participation, and seeking their permission for inclusion in the research. Only participants with a valid signed consent form were included in the study.

Tool Name	Purpose	Format	Administered by	Language
Nutritional Knowledge Questionnaire	Evaluate understanding of fundamental nutritional concepts	Multiple-choice, True/False, Open-ended	Researcher/School Nurse	English
Dietary Behavior Assessment	Assess dietary behaviors including eating patterns, food choices, and habits	Structured questionnaire	Researcher/School Nurse	English
Anthropometric Measurements	Measure height, weight, and BMI to provide objective indicators of physical health	Direct measurements	School Nurse	-
Consent Form	Obtain parental permission and inform them about the study's purpose, nature, and their child's participation	Document	Parent/Guardian	English/Local Language

**Table 1. Summarizes the Tools Used for Assessment**

**VI. Limitations:**

The study focused on private schools in the Emirate of Sharjah, which might not represent the broader adolescent population, especially those attending public schools. The findings may not be generalizable to adolescents with different socio-economic backgrounds.

- A. Conducting the study in English may exclude adolescents who are more proficient in other languages, leading to a potential language bias. This could impact the representation of certain demographic groups.
- B. The reliance on self-reported data through questionnaires may introduce response bias. Participants might provide socially desirable responses or may not accurately recall or report their dietary behaviors.
- C. While efforts were made to develop validated tools, the lack of existing validated Arabic versions might affect the precision of measurement. Translation and cultural adaptation may introduce subtle variations in meaning.
- D. The cross-sectional nature of the study limits the ability to establish causal relationships between nutritional knowledge, dietary behavior, and health outcomes. Longitudinal studies would provide more robust insights into the trajectory of these variables over time.
- E. The study required parental consent, which may introduce a selection bias, as parents who are more health-conscious or supportive may be more likely to provide consent, impacting the generalizability of the findings.
- F. The study focused specifically on the Emirate of Sharjah, UAE. As dietary habits and nutritional knowledge can vary across regions and cultures, the findings may not be applicable to adolescents in other geographical areas.
- G. The study did not extensively explore the influence of the school environment on nutritional knowledge and behavior. Factors such as the availability of healthy food options in school cafeterias or the presence of nutrition education programs may play a role.
- H. Despite reminders, a portion of students chose to complete the survey at home, leading to incomplete returns. This could introduce non-response bias and affect the completeness of the dataset.

External factors such as societal trends, media influences, or major events could impact adolescents' dietary behaviors. The study did not account for these external factors, potentially limiting the contextual understanding of the findings.

**VII. Future Directions:**

Future research in the field of evaluating nutritional knowledge and behavior in adolescents should take into consideration the possibility of conducting longitudinal studies. These studies would be designed to capture the dynamic changes that occur in dietary habits over time. This

would result in a more comprehensive understanding of the developmental trajectory that occurs from adolescence to adulthood. To ensure that the findings may be applied to a wider range of situations, it is essential to widen the scope of investigations so that they include a variety of samples. These samples should include teenagers attending both public and private schools in a number of different emirates or regions. In addition, there is a requirement to address linguistic and cultural inclusion by inventing and verifying evaluation tools in a few different languages, including Arabic, in order to guarantee cultural relevance and linguistic accuracy. For the purpose of gaining a more in-depth understanding of the elements that influence food choices, it is recommended that future research investigate the impact of the school environment. In this context, a study of the availability of healthy food options, the influence of nutrition education programs, and the role of school policies in molding the nutritional knowledge and habits of teenagers are all included. Furthermore, educational programs and interventions that are specifically targeted should be planned and executed within school settings. Subsequently, an evaluation of the effectiveness of these treatments should be conducted through intervention studies that are adequately designed. Because of the enormous influence that parental guidance has on the eating habits of adolescents, it is important that future study investigate the role that parental participation, nutritional education at home, and family meal patterns have in the development of these habits. As a means of enhancing nutritional knowledge and encouraging healthy dietary choices among adolescents, researchers should investigate the possibility of technology-based interventions, such as mobile applications or online platforms, in order to embrace technological advancements and explore the possibilities of such interventions. It is necessary to engage the community, and it is recommended that collaborative efforts be made with community organizations, healthcare practitioners, and lawmakers in order to develop a holistic approach that addresses broader socioeconomic variables that influence dietary choices. Furthermore, future study should investigate potential health disparities associated to dietary knowledge and habits among other demographic groups. This investigation should take into consideration characteristics such as socioeconomic position, ethnicity, and access to healthcare resources.

### **VIII. Conclusion**

In conclusion, the evaluation of nutritional knowledge and behavior in adolescents is a challenging endeavor that is yet vital. This evaluation offers crucial insights into the factors that influence dietary patterns during this crucial stage of life. The current research, which was carried out in the Emirate of Sharjah, United Arab Emirates, has shed light on a variety of aspects of nutrition for adolescents. The findings, on the other hand, ought to be taken in light of some limitations, such as the fact that the study was conducted solely on private schools, that English-language tools were utilized, and that the data from the participants themselves were self-reported. The findings of this study highlight the critical need for future research endeavors to address these shortcomings and contribute to a more thorough understanding of the nutritional needs of adolescents. On the other hand, a more diverse and representative sample, which would



include adolescents from both private and public schools across a variety of geographies, would strengthen the external validity of the findings. Longitudinal studies would provide useful insights into the dynamic nature of dietary patterns over time. Language considerations ought to be carefully addressed through the development and validation of tools in many languages, with the goal of assuring inclusion and cultural relevance. It would be beneficial to conduct additional research into the influence that the school environment has on the nutritional knowledge and behavior of students, as well as the role that parental engagement plays. In addition, the utilization of technology for interventions and the incorporation of strategies for community engagement have the potential to improve the efficiency and longevity of programs that are designed to improve the nutrition of adolescents. As we move forward, it is very necessary to adopt a holistic strategy that takes into consideration the larger context of society, which ought to include the health disparities that exist between various demographic groups. Comprehensive health assessments, which include various indicators in addition to anthropometric data, would provide a more nuanced knowledge of the health outcomes that are connected with the food habits of adolescents.

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