Journal of Sport Science Technology and Physical Activities
ISSN : 1112-4032
eISSN 2543-3776

VOL: 23 / N°:1 (June 2026),
p: 163 /172

The Role of Healthy Diet and Health-Related Physical Fitness in Combating Obesity in Adolescents

[1]lotfi guerra ; [2]abdelkader naceur.
[1;2] Laboratoire de Recherche Sciences Appliquées au Mouvement Humain - Institut d'Education Physique et Sportive (IEPS) Université Iben Badis de Mostaganem.
[1]lotfi.guerra.etu@univ-mosta.dz; [2] abdelkader.naceur@univ-mosta.dz

ARTICLE INFORMATION
Original Research Paper
Received : 11/07/2025
Accepted : 13/01/2026
Published: 01/06 /2026
https://doi.org/10.5281/zenodo.19518180
Keywords:
Healthy Diet
Health-Related Physical Fitness
Combating Obesity Adolescents

Corresponding author:
lotfi guerra
E-mail:
lotfi.guerra.etu@univ-mosta.dz

Abstract
This study aimed to identify the role of healthy diet and health-related physical fitness (HRPF) in combating obesity among adolescents. The Dutch Eating Behavior Questionnaire (DEBQ), comprising 17 items across three dimensions, was used as the data collection tool for adolescents. The researcher utilized percentages for data analysis.
The study concluded the following:
- A healthy diet and health-related physical fitness play a crucial role in combating obesity among adolescents.
- This demographic requires a healthy diet and physical activity.
Keywords: Healthy Diet – Health-Related Physical Fitness

1. Introduction

Education aims to nurture individuals healthily, empowering them to become productive members of society. However, educational institutions currently face increasing challenges in achieving this goal. Among these challenges is the growing prevalence of overweight and obesity across all segments of society, particularly among students at all educational levels. The reasons for this can be summarized as "the obesity that many suffer from results from a lack of nutritional awareness, increased food intake, poor dietary choices, and insufficient physical effort and movement" (Public Authority for Applied Education and Training, 2009).

Numerous scientific studies have focused on the prevalence of overweight and obesity, with some specifically addressing school-aged children. Examples include the study by Bener (2006), which aimed to determine the prevalence of underweight, overweight, and obesity among adolescents aged 12-17 in Qatar. Another study conducted by Isa-Al (2004) evaluated the levels of overweight and obesity among adolescents in Kuwaiti middle schools aged 10-14 years. Similarly, the study by Magbool, Kaul, Corea, Osman, & Al-Arfaj (1993) measured the weight and height of children aged 6-16 years in the Eastern Province of Saudi Arabia.

Regarding the measurement of nutritional awareness, several studies exist, such as the study by Al-Shdaideh and Al-Dmour (2013), which focused on measuring the level of nutritional awareness among Jordanian women in the areas of food and nutrition. The study by Nabq, Dafallah, and Ahmed (2009) investigated the nutritional and health status of schoolchildren in Sudan. Furthermore, Amico'D & Thakur (1999) examined the relationship between nutritional knowledge and obesity among adolescents in America. Education aims to nurture individuals in a way that ensures their development in various aspects of knowledge and emotion, while taking into account their individual needs.

These studies have guided the researcher to the starting point of this current research, which will serve as an extension of the findings reached by those previous studies. The researcher also focused on attempting to identify the level of nutritional awareness among secondary school students in the areas of food and nutrition, as well as to determine the relationship between their awareness level, body mass index, dietary habits, and level of physical activity with their obesity rates using physical measurements.

Main Question: Does sports practice contribute to spreading health awareness to combat obesity among adolescents?

1.1. Literature Review

The study by Mosaiqer, Al-Jib, and Al-Marzooq (2003), titled "Obesity Prevalence and Physical Activity Practice among Physical Education Teachers in the Kingdom of Bahrain," aimed to identify the health and nutritional status of male and female physical education teachers in primary schools in Bahrain. The study included 233 teachers (male and female), and a specialized questionnaire was prepared containing health and nutritional information, as well as information related to sports activity. Teachers' weights and heights were also taken to calculate their Body Mass Index (BMI) to assess obesity. Teachers were considered overweight when their BMI was between 25 and 29.9, and obese when their BMI was 30 or more. The results showed that 1.7% of teachers were underweight, 54.5% were of healthy weight, 35.2% were overweight, and 8.6% were obese. The study also revealed that the prevalence of overweight and obesity was higher among men compared to women. Furthermore, it was found that approximately 23% of male teachers and 41% of female teachers did not engage in any form of physical exercise at all

Another study conducted in Canada by Janssen, Katzmarzyk, Boyce, King, & Pickett (2004), titled "Overweight and Obesity in Canadian Adolescents and Their Relationship to Eating Habits and Physical Activity Patterns," aimed to present the prevalence rates of overweight and obesity among Canadian youth aged 11-16 years. It also sought to examine the association between overweight/obesity and their eating habits and leisure-time physical activity patterns. The study was applied to a nationally representative sample of 5,890 adolescents. A survey was used to determine height, weight, eating habits, and self-reported leisure-time physical activities. Overweight and obesity prevalence rates were calculated based on Body Mass Index (BMI) (weight in kg / height^2). The results indicated that 15% of Canadian youth aged 11-16 years were overweight, while approximately 5% were extremely obese in 2002. These prevalence rates were higher among males than females but did not differ by age. Furthermore, no clear association was found between eating habits and overweight/obesity measurements. However, physical activity levels were lower among overweight and obese individuals compared to those with a normal weight

A study by Tayyem, Bawadi, and Salameh (2008) conducted in Jordan, titled "Dietary Patterns and Physical Activity Profiles among a Sample of University Students in Jordan," aimed to investigate the consumption of fast food, dietary patterns, and physical activity levels among a sample of male and female students at Hashemite University in Jordan. The study

comprised 512 randomly selected male and female students, whose height, weight, and body fat percentage were measured. Their BMI was calculated, and they responded to a questionnaire assessing their physical activity levels, dietary habits, and frequency of consuming various food types. The results showed that approximately 30% of males and 19% of females were overweight, while 6.6% of males and 5.3% of females suffered from extreme obesity. No statistically significant differences were found between male and female students regarding obesity or overweight. Additionally, 30% of males and 28% of females skipped their daily breakfast. The study also indicated a high rate of physical activity among males (40%) compared to females. Furthermore, a high percentage of students did not consume full-fat milk, while 54% consumed carbonated beverages

Method and Materials

Methodology

The researcher utilized a descriptive approach to articulate the role of healthy nutritional awareness in developing health-related physical fitness among adolescents.

Exploratory Study

In this phase, we gathered information, reviewed previous research and dissertations related to our topic, and contacted specialists in the field to obtain sufficient data and gain a comprehensive understanding of the subject from all angles. This allowed us to form a complete and thorough idea, subsequently preparing the theoretical framework for this topic. Before distributing the research questionnaires, we conducted a pilot study on a sample from the study population.

Study Population

The study sample consisted of adolescents.

Tools Used

A questionnaire designed for students, utilizing a four-point Likert scale, was employed. It was distributed to experts (doctors) for their review, to confirm the suitability of the questions revolving around healthy nutritional awareness, and to correct any inappropriate statements. Ultimately, three dimensions with 17 questions were agreed upon.

Study Scope

- Temporal Scope: Data for the study was collected during the academic year (2024-2025), specifically from (November 2024 - December 2024).
- Spatial Scope: Data collection was confined to adolescents.
- Human Scope: Data collection was limited to adolescents.

Psychometric Properties of the Tool
Reliability

Reliability and validity are considered the most important conditions for the soundness of a measurement tool, and they are interconnected. As stated, "Validity is an aspect of reliabilit.

As "Tyler" indicates, validity must be present in a test.

Cronbach's Alpha Coefficient	Number of Statements	Dimension
0.845	7	Dimension One
0.787	5	Dimension Two
0.816	12	Total

Self-Validity Degree	Number of Statements	Dimension
0.919	7	Dimension One
0.887	5	Dimension Two
0.903	12	Total

7. Presentation, Analysis, and Discussion of Results
First Dimension: Cognitive Restraint in Eating
Statement 1: "When your body weight increases slightly, do you eat less than usual?"
Purpose of the Statement: To assess the relationship between body weight gain and food intake.

Percentage	Frequencies	Options
41.66%	5	Strongly Agree
33.33%	4	Agree
25	3	Disagree
0	0	Strongly Disagree

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 41%, gravitated towards the first option, "Strongly Agree." This indicates their conviction that an increase in body weight leads to obesity, and consequently, to reducing food intake due to this weight gain. Meanwhile, the remaining sample's responses were distributed among the "Agree" and "Disagree" options.
First Dimension: Cognitive Restraint in Eating

Statement 2: "Have you ever refused food and drinks offered to you because you are concerned about your body weight?

Purpose of the Statement: To ascertain the avoidance of foods that cause weight gain and obesit

Percentage	Frequencies	Options
37.33%	4	Strongly Agree
41.33%	5	Agree
25	3	Disagree
0	0	Strongly Disagree

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 41%, gravitated towards the "Agree" option. This indicates their diligence in avoiding foods that lead to obesity and their monitoring of high-calorie foods. The remaining responses varied, with "Strongly Agree" and "Disagree" falling into the third category.

First Dimension: Cognitive Restraint in Eating

Statement 3: "Do you intentionally eat foods that are low in calories?"

Percentage	Frequencies	Options
41.33%	5	Strongly Agree
25%	3	Agree
25%	3	Disagree
1	1	Strongly Disagree

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 41%, gravitated towards the "Strongly Agree" option. This indicates their diligence in avoiding foods that lead to obesity and their monitoring of high-calorie foods. The remaining responses varied, with "Agree" and "Disagree" falling into the third category.

Second Dimension: The Role of Emotional Eating in Preventing Obesity

Statement 10: "Do you desire to eat when you are feeling anxious or stressed?"

Percentage	Frequencies	Options
16.66%	2	Strongly Agree
16.66%	2	Agree
33.33	4	Disagree
33.33	4	Strongly Disagree

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 33%, gravitated towards the third and fourth options ("Disagree" and "Strongly Disagree"). This suggests that their psychological state plays a role in avoiding eating, which is further supported by the responses to Statement 10.

Second Dimension: The Role of Emotional Eating in Preventing Obesity
Statement 11: "When things don't go your way, do you feel like eating?"

Percentage	Frequencies	Options
0	0	Strongly Agree
0	0	Agree
75%	9	Disagree
25%	3	Strongly Disagree

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 75%, gravitated towards the third and fourth options ("Disagree" and "Strongly Disagree"). This indicates that negative psychological states can reflect poorly on an individual, leading to them avoiding food consumption

Third Dimension: The Role of Hunger Perception in Preventing Obesity
Statement 14: "Do you eat more than usual when a dish looks or smells appealing?"

Percentage	Frequencies	Options
16.33%	2	Strongly Agree
41.66%	5	Agree
25%	3	Disagree
16.66%	2	Strongly Disagree

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 41%, heavily gravitated towards the second option (Agree). The "Disagree" option then came in second. This indicates that a food's appearance contributes to appetite stimulation, and its smell also plays a role in eating.

Third Dimension: The Role of Hunger Perception in Preventing Obesity
Statement 16: "When you pass by a bakery, a sweets shop, or any place selling appealing food, do you feel like going in to buy that delicious food?"

Percentage	Frequencies	Options
16.33%	1	Strongly Agree
41.66%	6	Agree
25%	4	Disagree
16.66%	1	Strongly Disagree

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 41%, heavily gravitated towards the second option (Agree). The "Disagree" option then came in second. This indicates that a food's appearance contributes to appetite stimulation, and its smell also plays a role in eating.

Discussion of the First Hypothesis in Light of the Results: Cognitive Restraint in Eating Plays a Role in Preventing Obesity

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately

41%, gravitated towards the first option ("Strongly Agree"). This indicates their conviction that an increase in body weight leads to obesity, and consequently, to reducing food intake due to this weight gain. Meanwhile, the remaining sample's responses were distributed among the "Agree" and "Disagree" options.

Dr. (Abul-Ela, Ahmed, 1994, p. 80) indicated that in the field of weight loss, the focus is on behavior modification in two areas: modifying eating behavior and modifying physical activity behavior. Zaisi Azar Nawaran also confirmed that adolescents are exposed to overweight and obesity, especially among males. This is due to several reasons, including a low level of nutritional awareness, given their lack of proper health training in choosing suitable food items (Nawar, 2003). The results of a study by (Huda Bint Ahmed Al-Amer, 2006) showed the presence of some poor eating habits, such as irregular meal consumption throughout the day and skipping breakfast among the study sample. The prevalence of obesity was 11.5%, overweight was 18.8%, and weight rates increased to 21.1% (Al-Amer, 2006).

Emotional Eating in Preventing Obesity

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 33%, gravitated towards the third and fourth options ("Disagree" and "Strongly Disagree"). This suggests that their psychological state plays a role in avoiding eating, which is further supported by the responses to Statement 10.

As indicated by Dhiabat Al-Jbour (2012), during adolescence, a noticeable change occurs in adolescents' eating behavior due to physiological changes. There's increased growth and stomach capacity, leading to increased appetite and food consumption. Adolescents' eating behavior begins to change as they adopt new eating habits (Dhiabat, Al-Jbour, 2012, p. 116). Abdul Qawi et al. (2009) also found that frequent visits to fast-food restaurants lead to increased rates of obesity and overweight among frequent patrons. The percentage was 3.1% and 5.1% among individuals visiting these restaurants once a week. For those visiting twice a week, obesity and overweight rates reached 17.4% and 34.8%. If individuals visited fast-food restaurants three times a week, the obesity and overweight rates were 48.8% and 43.9% among the study sample. Furthermore, there was a strong impact of fast-food portion sizes on obesity and overweight rates. The percentages were 43.8% and 47.8% among individuals who preferred large portions when eating meals, and 14.6% and 27.2% for those who preferred medium portions. For individuals preferring small portions, obesity and overweight rates were the lowest, at 1.1% and 2.2%. The obesity and overweight rates among individuals who started frequenting fast-food restaurants less than a year ago were 10%, while this percentage reached 4 years for those who had been visiting these restaurants for longer. Consequently, there is a clear difference between the two cases, demonstrating the significant impact of fast food on increasing obesity and

overweight rates. There's also an inverse relationship between the rate of fast-food consumption and the consumption of vegetables and fruits among the study sample (Ahmed Hassan Abdel Qawi et al., 2010).

Discussion of the Third Hypothesis in Light of the Results: The Role of Hunger Perception in Preventing Obesity

From the figure above, we observe that the results of the questionnaire's data extraction centered as follows: The majority of the research sample, approximately 41%, heavily gravitated towards the second option (Agree). The "Disagree" option then came in second. This indicates that a food's appearance contributes to appetite stimulation, and its smell also plays a role in eating.

Al-Azzouti (2018) found that the number of individuals suffering from overweight and obesity reached 28 students, representing 46.6%, while 32 students from the sample had a normal weight, representing 53.33%. Additionally, 45 students suffered from disordered eating behaviors, which varied from student to student. Some students showed a lack of cognitive restraint, meaning their food intake scores were lower than those on the second and third dimensions. Some results also showed that some students lacked cognitive restraint (overeating) and, at the same time, responded to external food cues from appearance and smell that prompted them to eat (Al-Azzouti Alaa El-Din, 2018).

Suggestions

Enhance nutritional awareness among adolescents.

Promote behaviors that encourage exercise and abandon negative eating habits

Modify eating behavior

References

- Al-Azzouti, Alaa El-Din. (2020). The Relationship of Eating Habits to Obesity in School-aged Adolescents Aged 15 and 18. Journal of Sciences and Practices (Doctoral Thesis).
- Al-Azzouti, Alaa El-Din. (2016, March). The Relationship of Eating Habits to Obesity in School-aged Adolescents Aged 15 and 18. Journal of Sciences and Practices of Physical, Sports and Artistic Activities, (01), 161-176.
- Dhiabat, Al-Jbour. (2012). Sports Nutrition (1). Amman: Arab Community Library for Publishing and Distribution.
- Public Authority for Applied Education and Training. (2009). Lack of Nutritional Awareness and Poor Meal Choices Lead to Obesity. Future Makers, Kuwait. Retrieved on July 10, 2014, from [link if available, otherwise omit].
- Bener, A. (2006). Prevalence of obesity, overweight, and underweight in Qatari adolescents. Food and Nutrition Bulletin, 27(1), 39-45.
- Al-Isa, AN. (2004). Body mass index, overweight and obesity among Kuwaiti intermediate school adolescents aged 10-14 years. European Journal of Clinical Nutrition, 58(9), 1273-1277.
- Thakur, N., D'Amico, F. (1999). Relationship of Nutrition Knowledge and Obesity in Adolescents. Family Medicine, 31(2), 7-122
- Al-Sabbagh, Hamdi Abdul Aziz. (1995). Nutritional Awareness among Teachers College Students in Madinah. Journal of Psychological Research, 29-60.