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The impact of physical activity on the mental health of middle school students A field study in Chlef Province

Hadjer Guemri

Hassiba Ben Bouali University of Chlef, Algeria, h.guemri@univ-chlef.dz

Soufiane MAHI

Hassiba Ben Bouali University of Chlef, Algeria, IPM Lab, s.mahi@univ-chlef.dz

Zohra BENALI

Hassiba Ben Bouali University of Chlef, Algeria, z.benali@univ-chlef.dz

Lakhdar BOUALI

Hassiba Ben Bouali University of Chlef, Algeria, l.bouali@univ-chlef.dz

Mohamed BENGHALIA

Hassiba Ben Bouali University of Chlef, Algeria, m.benghalia@univ-chlef.dz

Aissa BEKLI

Hassiba Ben Bouali University of Chlef, Algeria, a.bekli@univ-chlef.dz

Ibrahim SBAIHIA

Hassiba Ben Bouali University of Chlef, Algeria, i.sbaihia@univ-chlef.dz

Hamid DALI

Hassiba Ben Bouali University of Chlef, Algeria, h.dali@univ-chlef.dz

Maamar Badreddine BENSADA

Hassiba Ben Bouali University of Chlef, Algeria, l.bouali@univ-chlef.dz

Henni DEHLI

Hassiba Ben Bouali University of Chlef, Algeria, d.henni@univ-chlef.dz

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Abstract

This study aims to examine the effect of physical and sports activity on the mental health of middle school students, with particular attention to differences between students who participate in physical activity and those who do not, as well as potential gender differences among physically active students. Physical and sports activities constitute an important component of the educational process because they contribute not only to physical development but also to psychological, emotional, and social well-being. During adolescence, students experience substantial physical, emotional, and social changes that may influence their psychological adjustment and overall mental health. Regular participation in physical activity may therefore serve as an important means of promoting emotional balance, reducing psychological stress, strengthening self-confidence, and improving social adjustment. The study investigates whether statistically significant differences in mental health exist between physically active and inactive middle school students and whether such differences are associated with gender. It also seeks to highlight the role of school-based physical education and sports in supporting students' balanced personality development and psychological well-being. The findings are expected to contribute to a better understanding of the relationship between physical activity and adolescent mental health and to emphasize the importance of integrating purposeful physical and sports activities into educational programs designed to promote students' overall development.

Keywords: physical activity; sports activity; mental health; middle school students; adolescents; physical education; psychological well-being.

Introduction:

Physical activity and sports are a crucial focus of study and research by many scientists and specialists, aiming to advance and develop this field for the benefit of humanity. It is one of the most important factors in maintaining an individual's overall health, particularly their psychological well-being. Furthermore, it is essential for developing adolescents' abilities, enabling them to become productive members of society.

Physical education and sports in schools are considered academic subjects, like chemistry and other sciences, but they differ in that they focus on equipping students with motor skills and experiences, as well as knowledge and information, through physical and sporting activities integrated into the teaching process.

Physical and sports activities are among the most effective educational means of achieving physical growth, refining character, modifying behavior, honing athletic talents, and preparing a balanced and well-adjusted personality that combines mind, spirit, and body. By physical and sports activity, we mean working to deepen the optimal concept of sports, strengthening the body, and ensuring its effectiveness through practicing sports activities and discovering talents within educational institutions. (Hadari A., 2019, page 56)

In this discussion, we will address mental health, a state characterized by relative stability in which the individual is well-adjusted to themselves and their environment, possesses emotional stability, experiences happiness and contentment, has the capacity for self-

actualization and self-improvement, and sets a level of ambition that aligns with their potential and abilities (Al-Dahri, 2004, p. 27).

Some psychological theories have shown that physical activity plays a prominent role in achieving mental health and is an important element in the formation of a mature and balanced personality. It addresses many psychological and behavioral deviations with the aim of achieving mental well-being. Among the theories that have emerged in this vein is the respiratory theory of its pioneer, Aristotle, who viewed play, such as acting, as an outlet for releasing pent-up emotions. Play helps individuals alleviate the anxiety that everyone tries to overcome in some way.(Hassan, 2019, page 47)

The problem :

Sports activities, as defined by Mamser, are considered an independent educational system that aims to develop the individual in an integrated manner by giving him general physical fitness, refining his mental and intellectual powers, regulating his general behavior, controlling his emotional and psychological manifestations, modifying his childhood tendencies and inclinations, and directing his primary motives with acceptable social values and principles, and thus elevating good moral values and standards (Hadari A., 2019, page 58).

Mental health is a relatively permanent state in which the individual is psychologically (personally, emotionally, and socially, i.e., with himself and with his environment), feels happy with himself and with others, is able to achieve self-realization and exploit his potential to the fullest extent possible, is able to face the demands of life, has a well-rounded and integrated personality, and his behavior is normal and of good character, so that he lives in peace and security. Mental health is a positive state that includes enjoying mental health and sound behavior (Al-Khawaja, 2010, page 12).

While physical education and sports view the individual holistically, taking into account the development of their personality and their holistic and balanced upbringing, by attending to all aspects of their physical, mental, social, psychological, and moral personality, physical education is considered part of general education, which also aims to educate the individual mentally, psychologically, and socially, with a focus on the physical aspect. It is an educational system that aims to improve general human performance through various forms of planned and purposeful physical and sporting activities that develop strength, health, and vitality in the individual, and instill a spirit of camaraderie, obedience, and leadership (Hadari A., 2019, p. 83).

Therefore, there is no doubt that engaging in physical activity and sports is a method for self-development and emotional balance, and a means of strengthening mental health. This is achieved through the complete harmony between different psychological functions and the ability to cope with the normal psychological crises that people commonly experience. It also enhances the pleasure of feeling happy and active. Furthermore, educational institutions strive to refine the individual at all educational stages to achieve holistic growth and mental well-being through physical activities and sports. This prepares the child at every stage of development so that they become a healthy and well-rounded

citizen who positively impacts their community and contributes to the advancement of the nation.

Therefore, there is no doubt that engaging in physical activity and sports is a method for self-development and emotional balance, and a means of strengthening mental health. One of the previous studies that addressed this topic is the study by Lobazeed Bashir (2020) entitled "The Role of Physical and Sports Activity in Achieving Mental Health Among Middle School Students from the Perspective of Physical Education Teachers." The results showed that physical and sports activity plays a role in achieving mental health among middle school students, and is particularly crucial during adolescence, which is considered one of the most challenging stages a person goes through. This theoretical introduction to our research on the impact of physical and sports activity on the mental health of middle school students leads us to pose the following question:

What is the effect of physical activity on the mental health of middle school students?

2- Sub-questions:

- Is there a statistically significant difference between students who participate in physical activity and those who do not in middle school regarding their mental health?
- Are there statistically significant differences between males and females who participate in physical activity regarding their mental health in middle school?

3- General Hypothesis:

- Physical activity affects the mental health of middle school students.

4- Sub-Hypotheses:

- There are statistically significant differences in mental health between middle school students who participate in physical activity and those who do not, favoring the latter.
- There are statistically significant differences in mental health between male and female middle school students who participate in physical activity, favoring males.

5- Study Objectives:

Through this study, we aim to achieve several objectives, including:

- Determining the impact of physical activity on the mental health of middle school students.
- Identifying the differences in mental health between middle school students who participate in physical activity and those who do not.
- Identifying the differences in mental health between male and female middle school students who participate in physical activity.

6- Significance of the Research:

The significance of this study lies in determining the impact of physical activity on the mental health of middle school students. This significance can be summarized as follows:

- Understanding the impact of physical activity on mental health by examining the most common psychological problems faced by adolescents.
- Working to improve students' mental well-being by alleviating anxiety and depression and promoting a sense of psychological and social well-being.
- Understanding the psychological characteristics of students at this age, thereby enabling better management of the educational process and more effective interaction with students participating in various activities.

7-Search Terms:

7-1-Activity:

1 Linguistic Definition: Activity is the opposite of laziness. This applies to both humans and animals. A person who is active is described as energetic. A person who is active is described as energetic and willing to work. (Nasira, 2020, p. 8)

2 Technical Definition: Activity is defined as the mental or physical effort exerted by a learner to achieve a goal. It is also any mental, behavioral, or biological process that is expected to be within the capacity of a living organism and is characterized more by spontaneity than by response. (Al-Raouf, 2019, p. 18)

3. Operational Definition: This refers to the amount of work undertaken by students, whether sufficient mentally or physically, to satisfy their needs and motivations during physical education and sports classes.

7.2. Practice:

1. Linguistic Definition: To practice something means to handle it, to engage in it, to perform its task.

2. Technical Definition: Practice is a method of action or a way in which action should be performed. Practices can include activities, processes, functions, standards, and guidelines.

The concept of practice implies persistence and frequent engagement with something. In its Latin usage, it is derived from the Greek "praktikos" (practice). It is one of the concepts that has been widely used in philosophical thought since then. It has been used to denote the continuous activity through which the principles of science are put into practice, as in the phrases: practicing medicine, practicing singing, and practicing politics. It is also used to describe the continuous study of mental activities, such as practicing thinking or practicing meditation, etc. However, it is generally more synonymous with practical activity (Hussam, 2021, p. 48).

3Operational Definition: It is the frequent and consistent engagement in a particular task or job. It also refers to the consistent practice of physical activity by middle school students.

7-3- Mental Health:

1.Technical Definition: Fawzi Jabal defines mental health as a relatively stable psychological state in which the individual is well-adjusted to themselves and their environment, maintains emotional balance, experiences happiness and contentment, has the ability to achieve self-

actualization, sets a level of ambition that aligns with their capabilities and potential, and is able to recognize and utilize their capabilities in the best possible way (Al-Dahri, 2005, p. 29).

2.Operational definition:Mental health can be defined as an individual's enjoyment of tranquility, peace of mind, and harmony with oneself and others through physical and athletic activities.

8- Reasons for choosing the topic:

- A personal desire to address this topic and explore the impact of physical activity and sports on the mental health of middle school students.
- To identify the psychological pressures experienced by middle school students.
- To understand the difficulties and obstacles faced by adolescent girls in various middle schools.
- To raise awareness among readers about the importance of psychological issues in the physical and sports field.

9- Previous Studies:

9-1- A 2017 study by Salami Mohammed entitled: The Impact of Physical Education and Sports Classes on the Psychological Adjustment of Secondary School Students.

This study aimed to determine the extent to which participation in physical activity classes affects the psychological adjustment of adolescent secondary school students and its role in improving their lifestyle. The study concluded that physical activity positively affects the psychological adjustment of participating secondary school students, while its effect differs among non-participants. It also positively affects the psychological adjustment of participating students and negatively affects the psychological adjustment of non-participating students.

9-2- A study by Taboub Hossam Eddine, 2020, entitled: The Impact of Physical Activity on the Development of Multiple Intelligences among Secondary School Students in Ouargla.

The study aimed to identify the impact of physical activity on the development of multiple intelligences in secondary schools in the Ouargla province. This was achieved by examining the effect of physical activity on intrapersonal intelligence, interpersonal intelligence, and logical intelligence among secondary school students.

The study concluded that physical activity has an impact on intrapersonal intelligence, interpersonal intelligence, and logical intelligence among secondary school students in Ouargla.

9-3- A study by Loubayezid Bashir entitled: The Role of Physical and Sports Education in Improving the Mental Health of Middle School Students from the Perspective of Physical Education Teachers (2020)

This study aimed to determine the role of physical and sports education in improving the mental health of middle school students, its role in reducing anxiety among these students,

and its role in achieving psychological and social development among middle school students.

The study concluded that physical and sports education is essential and important, especially during adolescence, for achieving mental health and reducing anxiety, and that it plays a role in achieving psychological and social development among middle school students.

9. 4- study by Mohamed Nasser Ben Hadid Youssef entitled 2015: The Impact of Physical and Sports Activities on Reducing Aggressive Behavior among Adolescent Students Aged 14-18

The study aimed to determine whether there were statistically significant differences in physical aggression between students who participated in physical activities and those who did not, as well as whether there were statistically significant differences in verbal aggression between students who participated in physical activities and those who did not, whether there were statistically significant differences in the degree of anger between students who participated in physical activities and those who did not, and whether there were statistically significant differences in indirect aggression between students who participated in physical activities and those who did not

The study concluded that there were statistically significant differences in physical and verbal aggression and in the degree of anger between students who participated in physical activities and those who did not.

9-5- A study by Al-Arbaoui Sahnoun, 2020, entitled: The Role of Physical and Educational Sports Activity in Achieving the Mental Health of Fourth-Year Middle School Students.

The study aimed to determine the role of physical and educational sports activity in improving the mental health of middle school students, enabling them to reach a level of mental well-being that fosters self-esteem and general abilities, develops and strengthens their relationships to avoid isolation and withdrawal within the school, and cultivates self-confidence among fourth-year middle school students.

The study concluded that physical and educational sports activity promotes self-esteem, general abilities, and self-confidence among fourth-year middle school students.

9-6- A study by Kashif Zaid et al., 2021, entitled: Sports During Leisure Time Enhances Mental Health Among Students of Some Arab Universities. This study aimed to evaluate the level of sports participation among students of some Arab universities, their level of mental health, and to reveal the impact of engaging in sports activities during leisure time on positive mental health.

The study found a low level of participation in sports activities among Arab university students, and statistically significant differences in mental health based on country, with Oman showing the highest levels. Mental health did not differ based on the interaction between gender and level of sports participation.

10- Commentary on Studies:

By reviewing some previous and similar studies that addressed the practice of sports and physical activities and their impact on mental health, we find that these activities play a significant role in influencing an individual's psychological development and in their ability to engage in sports. Connect these previous studies to our topic and utilize them in theoretical and applied procedures.

Most studies, despite their different research methods and samples, converge on the same point: the significant effectiveness of physical education and the practice of physical and sports activities in improving mental health and modifying behavior, thus producing a psychologically and emotionally well-adjusted personality.

Our reliance on previous studies regarding our research problem facilitated our approach, saving us time and effort in data collection. We used these studies as a guide and reference throughout the research process, from gathering information to organizing it.

- The main conclusions drawn from this presentation are the agreement on the impact of physical activity on mental health, in addition to considering the procedural steps of our research: - Reviewing various sources and references relevant to the current study.
- Expanding the student's understanding and comprehension of the research topic.
- Selecting a homogeneous study sample.

Any researcher in their study resorts to strengthening the scientific instrument they collected from their subject matter to ensure the validity of the hypotheses upon which the study is based. This involves addressing the methodological procedures, then presenting and discussing the results obtained by applying the scientific instrument to the research sample. In this research, we relied on a mental health scale to arrive at results, which were then analyzed and interpreted in light of the hypotheses. The scale was distributed to middle school students in the Ouled Mohamed area, where the study was conducted. Following this, we arrived at a general conclusion encompassing all our findings, leading to a set of suggestions. Finally, we concluded with a general summary of the study.

11- Methodological Procedures:

11-1- Research Methodology:

In our study, we adopted the descriptive method, considering it the most suitable approach for studying human phenomena. The descriptive method is used to study the current state of phenomena in terms of their characteristics, forms, relationships, and the factors influencing them. This means that the descriptive method focuses on studying the present state of phenomena and events, unlike the historical method, which studies the past. It should be noted that the descriptive method includes in Often, this involves predicting the future of the phenomena and events being studied.

11-2- Exploratory Study:

Exploratory studies, also known as pilot experiments, are among the most important research procedures undertaken by researchers to avoid errors, difficulties, or problems during the main experiment. An exploratory study is essentially a smaller version of the main

experiment, its purpose being either to uncover scientific facts, to practice and identify obstacles and drawbacks encountered during the main experiment, or to train support staff.

It is the first step in helping the researcher understand the various aspects of the field study and to facilitate the task later. The researcher selected a sample of 10 students. Among the most important objectives the researcher aimed to achieve through the exploratory study were:

- To identify the field of study and the available resources.
- To identify the various characteristics of the study population.
- To determine the suitability of the research instruments for application to the study population and sample through the validity and reliability of the instruments.

11.3 Research Population

The research population serves as a framework for the researcher in selecting the research sample. This framework may be a large or small community, and may consist of individuals, schools, universities, or sports clubs.

Our research population consists of 258 male and female students in the fourth year of middle school (4th grade) in the following middle schools in the Ouled Mohamed area of Chlef Province:

- Khaledi Ben Ali Middle School
- Saleh Ben Saadi Middle School

11-4-Research Sample:

The research sample was randomly selected, consisting of 96 students from a population of 258 students, representing 37% of the total student population, as previously mentioned

Averages	Total number of students	Students in practice		Non-practicing pupils
Khaledi Bin Ali Intermediate School	126	Males	Females	09
Saleh Bin Saadi Intermediate School	132	15	25	07
Total Number	258	35	45	16

12- Study Limitations:

12-1- Human Scope:

This research was conducted on a specific group of students from middle schools in the Ouled Mohamed area, Chlef Province. The study sample consisted of 96 students distributed between the Khaledi Ben Ali Middle School and the Khaledi Ben Ali Middle School.

12-2- Temporal Scope: This research was carried out over a period of time distributed as follows:

- Theoretical Aspect: From October to December 2022

Practical Aspect: From January to May 2023

12-3- Spatial Scope: The scale was distributed to 96 students attending middle schools in the Ouled Mohamed area.

13- Data Collection Tools:

13-1- Warwick and Edinburgh Psychological Well-being Scale:

This scale is widely used globally. Its Arabic version was prepared with the permission of its creators by the lead researcher. The scale possesses psychometric properties that make it suitable for measuring its intended purpose. Its internal consistency (Cronbach's alpha coefficient) ranged between 0.91 according to Zayed et al.'s study (2018) and 0.89 according to the current study's data. The scale's reliability was 0.79, calculated through the test-retest method using a sample of 22 male and female students from Sultan Qaboos University.

13-2- Instrument Reliability:

Test reliability means that the test yields the same results when administered to the same group under the same conditions. Reliability also means that the test consistently achieves approximately the same results when administered two or more times to the same group. In calculating the reliability of the mental health scale, we used the test-retest method with a group of 10 students, administered 15 days after the first test. The Pearson correlation coefficient was 0.79.

Based on this, we can conclude that the test possesses good reliability, as shown in the table:

The numeric value	Number	significance level	statistical decision	
Mental Health	10	0,79	0,006	Statistically Significant

14. Statistical methods used in the study:

Arithmetic mean: This is the sum of all individual values divided by the number of values.

Standard deviation: This is the square root of the average of the squared deviations of the values from their arithmetic mean.

Student's t-test: This is a parametric statistical method used to determine the direction of differences between the means of two independent, unequal samples.

15. Presentation and Analysis of Study Results:

The following are the results of the current study presented in light of the hypotheses, in the order they appeared:

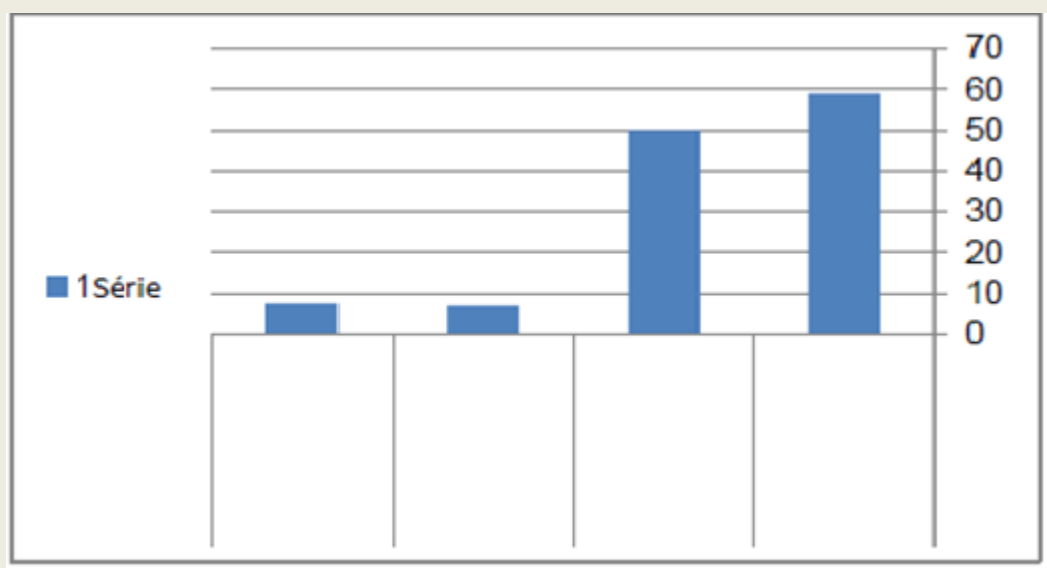
15-1 Presentation and Analysis of the First Sub-Hypothesis:

The first hypothesis states that there are statistically significant differences between students who participate in physical activity and those who do not, regarding the mental health of middle school students, attributable to the students who participate. To confirm this hypothesis, we compared the mean scores of participants (n=80) and non-participants (n=16) in the mental health variable. The researcher used a t-test for two independent, unequal samples. The following table illustrates this in some detail:

Table 2: Shows the results of the t-test for the significance of the differences between participating and non-participating students

Mental Health Assessment	Number of individuals	Standard mean	Standard deviation	Degrees of Freedom	T-value	Probability value	Significance level
Practitioners	80	59.06	7,13	94	4,65	0,00	Function at 0.05
Non-Practitioners	16	49.87	7.63				

Table 1 illustrates the differences in mental health between students who participate in physical activity and those who do not. The table shows the results of students who participate in physical activity and those who do not on the mental health scale, revealing differences in favor of students who participate in physical activity, with a mean of 59.06 and a standard deviation of 7.13, while the mean for those who do not participate in physical activity was 49.87 and a standard deviation of 7.63. The t-value of 4.65, with a p-value of 0.000, is less than the significance level of 0.05. Therefore, we conclude that there are statistically significant differences at the 0.05 significance level between students who participate in physical activity and those who do not, regarding the mental health of middle school students, in favor of those who participate.



shows the graphical representation of the arithmetic mean and standard deviation for the first hypothesis.

15-2- Presentation of Results and Analysis of the Second Sub-Hypothesis:

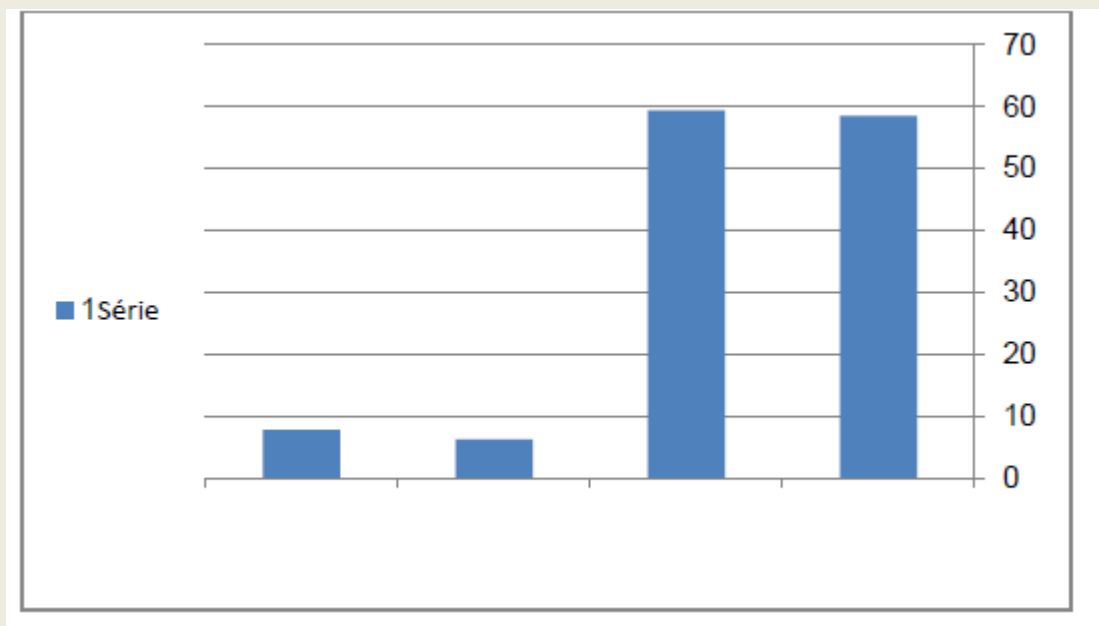
The second hypothesis states that there are statistically significant differences between male and female participants in physical activity regarding the mental health of middle school students, attributable to the male gender.

To confirm this hypothesis, we compared the mean scores of males (F-value 35) and females (F-value 45) on the mental health variable. The researcher used a t-test for independent, unequal samples, and the following table illustrates this in some detail.

Table 2: Shows the results of the t-test for the significance of differences between males and females

Mental Health Assessment	Number of individuals	Standard mean	Standard deviation	Degrees of Freedom	T-value	Probability value	Significance level
Practitioners	35	58.57	6,25	78	0.54	0,54	Function at 0.05
Non-Practitioners	15	59.44					

Table 2 illustrates the differences between males and females who engage in physical activity and their impact on mental health. The table shows slight differences in the mental health scale for both genders, with females scoring higher (mean 59.44, standard deviation 7.79) compared to males (mean 58.57, standard deviation 6.25). The t-value was 0.54, with a p-value of 0.59, exceeding the significance level of 0.05. Therefore, we conclude that there are no statistically significant differences between males and females who engage in physical activity and their impact on mental health in the intermediate stage.



Graphical representation of the arithmetic mean and standard deviation for the second hypothesis

Discussion and Interpretation of Hypothesis Results:

16-1-First Hypothesis:

After presenting the results related to the first hypothesis above, which stated that there are statistically significant differences between students who participate in physical activity and those who do not, regarding their mental health in middle school, attributable to the participating students, it became clear that there are statistically significant differences between students who participate in physical activity and those who do not, in favor of the participating students. They showed optimism about a better future, a sense of usefulness in life, and a feeling of energy and motivation. This explains why physical activity has a positive role in the mental health of middle school students. This aligns with the findings of some previous studies, including the study by Salmi Mohammed entitled: "The Impact of Physical Education and Sports Classes on the Psychological Adjustment of Secondary School Students," which concluded that physical activity has a positive effect on the psychological adjustment of participating students. Similarly, the study by Loubazid Beshta, entitled "The Role of Educational Physical Activity in Achieving Mental Health among Middle School Students from the Perspective of the Physical Education Teacher," also supports this finding. The study, which concluded through its hypotheses that physical education plays a role in improving the mental health of middle school students, was also supported by psychologists Schaller and Maurice Lazarus in their relaxation theory. This theory posits that play replenishes expended energy, meaning that after a period of activity, the body needs exercise to relieve stress. Furthermore, the study incorporates Karl Gross's cathartic theory, which states that play, especially competitive and high-intensity games, aims to release

pent-up and accumulated negative emotions. This underscores the importance of studying this topic for the researcher, given its benefits to students' mental health, which will positively impact all aspects of their education and future lives.

6-2- The second hypothesis:

After presenting the results of the second hypothesis, the researcher predicted that there would be statistically significant differences between males and females practicing physical activity and sports on mental health in the intermediate stage, which are attributed to the male gender. According to the results of our field study, which confirms the failure of the second sub-hypothesis (i.e., the absence of statistically significant differences between males and females practicing physical activity on mental health), we conclude that males and females are equal in gaining positive mental health benefits through physical activity. Both genders demonstrated optimism about a better future, a sense of purpose, high energy and vitality, and feelings of satisfaction and self-confidence. This explains why physical activity plays a positive role in improving the mental health of both genders. We believe this is due to their equal opportunities to participate in educational institutions, as well as the clear change in female attitudes towards physical activity, with the number of participants significantly higher than in the past. This aligns with the findings of some previous studies, including the study by Kashif Zaid et al. entitled "Sports Leisure Time Enhances Mental Health Among Students of Some Arab Universities," which aimed to assess the level of physical activity during and mental health among university students. Among its findings was that the level of mental health does not differ according to the interaction between gender. Social and physical activity means there is no difference between males and females in gaining mental health through physical activity. This confirms the importance of both genders practicing physical activity, and this is reflected positively on the individual's mental health.

Conclusion:

After presenting, analyzing, and discussing the results, we drew several general conclusions from the hypotheses we formulated during this research. It was established that engaging in physical activity positively impacts the mental health of middle school students. This is confirmed by the results obtained and the findings of the first hypothesis, which revealed statistically significant differences in mental health between those who practice physical activity and those who do not, favoring the students who do. Regarding the second hypothesis, which concerned individual differences between males and females in mental health, and which suggested statistically significant differences between males and females who practice physical activity in middle school, favoring males, no statistically significant differences were found between males and females who practice physical activity in mental health. Therefore, and after verifying the validity of the partial hypotheses proposed at the beginning of the research, we can conclude that the general hypothesis, which states that engaging in physical activity positively impacts the mental health of middle school students, is correct. Those who practice physical activity have a higher level of mental health than those who do not, and both males and females positively reflect this same level.

Suggestions and Recommendations:

In light of the results of this study, and within the limits of the conclusions reached, the following are suggested:

- The necessity of supporting and promoting widespread physical activity and sports within educational institutions to strengthen students' mental health for better academic performance and the development of individuals who are beneficial to themselves and their country.
- Raising awareness and emphasizing the importance of physical activities and sports through lectures and seminars, and linking them to their role in achieving mental health.
- The urgent and binding necessity of including physical education and sports in the primary school curriculum to ensure a generation that is psychologically, socially, and physically balanced.
- The necessity of giving paramount importance to the psychological aspect when planning physical education and sports programs.
- Providing an opportunity for relevant authorities to encourage recreational sports practice by giving students the chance to choose the form of physical activity that suits their inclinations and preferences. -It provides a social atmosphere during physical and sporting activities to help with good psychological adjustment

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