



Impact of electronic games addiction post COVID-19 on the mental health of public-school students in Jordan

 **Bayan Habis Alnaimat**^{1*}

 **Firas Tayseer**

Mohammad Ayasrah²

 **Mohammad Alkhalailah**³

 **Munther Balawi**⁴

^{1,2,3,4} College of Education, Humanities and Social Sciences, Al Ain University, Al Ain, United Arab Emirates.

¹Email: [bayan.alnaimat@aau.ac.ae](mailto: bayan.alnaimat@aau.ac.ae)

²Email: [firas.ayasrah@aau.ac.ae](mailto: firas.ayasrah@aau.ac.ae)

³Email: [mohammad.alkhalailah@aau.ac.ae](mailto: mohammad.alkhalailah@aau.ac.ae)

⁴Email: [muntherbalawi@aau.ac.ae](mailto: muntherbalawi@aau.ac.ae)



(+ Corresponding author)

ABSTRACT

Article History

Received: 20 February 2023

Revised: 2 June 2023

Accepted: 5 July 2023

Published: 7 August 2023

Keywords

Adolescent students

COVID-19

Electronic games addiction

Jordan

Mental health

Public schools.

The present work aimed to find out the reality of electronic games addiction and its impact on mental health among adolescent students post-COVID-19 in public schools in Jordan. The study followed the descriptive analytical technique using a simple random method. A sample of 795 adolescent students was selected from Jordanian schools for the academic year 2022-2023. The results showed that the mean of the responses of the study sample on the scale of electronic game sites addiction among adolescent students at the aggregate level, came with a high degree, with a mean (1.52) and a standard deviation (0.51), which reflected the existence of addiction manifestations among teenage students to electronic games. The results also confirmed that there are statistically significant differences in the percentages of students who suffer from addiction to electronic games according to the gender variable and in favor of males. The study recommends the intervention of educational institutions with experts in psychological counseling to develop values such as digital citizenship among students to contribute to reducing the manifestations of addiction to electronic games. Also, other studies on the phenomenon of electronic games addiction and its relationship to other variables such as life pressures, personality traits, and emotional intelligence are highly encouraged.

Contribution/Originality: This is the first ever study in Jordan to investigate the impact of electronic games addiction on mental health among adolescent students post-COVID-19 in public schools. This study contributes with its findings that educational institutions should introduce psychological counselling to reduce the addiction to electronic games.

1. INTRODUCTION

Electronic games have seen an unprecedented spread in our time due to the massive and accelerating technical, technological, and electronic progress, which has made them available to everyone. Moreover, due to the excitement and interaction factor designed in these games, it has transformed habits, practices, and behavior of the users' values and lifestyle. Electronic games are one of the most common practices used by individuals of all ages, genders, and intellectual levels. In fact, most of them are western products with their own purposes and far-

reaching dimensions, which pose a threat to the formation of values and cultural and civilized practices represented in this electronic era.

The rapid spread of electronic games and the high rate of hours of use have caused a widespread debate among specialists in the world in general and in Arab countries, in particular, about the positive and negative aspects of these games, and the dimensions they carry. This controversy includes the effects of these games on the cognitive and emotional aspects as well as the behavioral aspects of individuals. This has led to a division of scientific opinions between those who focus on the positive aspects of electronic games and believe that their effects are good in general, and those who focus on the negative effects of these games and believe that they lead to undesirable consequences for different aspects of behavior, the most important of which is an addiction to electronic games (Ibrahim, 2016).

Addiction to electronic games is a recent kind of development, in which addicted people use electronic games on a regular and extreme basis. These games intervene their daily lives and their duties and jobs that they have to do, while their addiction completely controls the lives of addicts, especially students, as they make electronic games their world, which affects their personal, social, and psychological lives (Al-Zaidi, 2014).

There is no doubt that the millennium has descended on our world with a strong presence at the electronic level, represented by electronic games in their various forms. These games have become associated with school students more than ever before without being accompanied by sufficient awareness of the methods and rules of optimal use in order to avoid the negative effects that may befall users. As a result of misuse, therefore, the current study aimed to shed light on the reality of electronic games addiction and its impact on the mental health of adolescent students in the schools in the Hashemite Kingdom of Jordan after the outbreak of the COVID-19 pandemic.

1.1. Study Problem

In light of the technological development witnessed by this era and the accompanying technologies, applications, and electronic games, adolescents can no longer remain isolated from it, as it is linked to their scientific and social lives alike, and the high demand for the use of these modern technologies may be accompanied by negative behaviors that may affect the life of the learner. This phenomenon requires everyone to identify the negative effects resulting from misuse and to truly address these problems. The number of electronic game users in the Middle East and North Africa, according to figures published by the institution specialized in electronic game statistics, has reached 434 million users, compared to 395 million. The researcher's review of the report was issued by *Al Ghad Newspaper Report (2022)*, which showed an increase in the number of electronic game users in the Middle East and North Africa by 39 million users last year compared to the previous year. Electronic games have become a tangible reality in society, especially among adolescents whose stages of development witness a psychological, physical, mental, emotional, and social overlap, because it is a transitional stage between childhood and adulthood.

With the arrival of the number of electronic game users, this level will have increased by 10%, and the COVID-19 pandemic has contributed to an increase in the demand and use of electronic games by people, especially team games for the purpose of entertainment while staying in homes for longer periods due to the imposition of home quarantine measures and social divergence in the face of an outbreak virus. Adolescents are exposed to psychological and behavioral problems as a result of the lack of an understanding of the emotional weaknesses during this stage and the weakness of control over their behavior. This exposes them to many unforeseen risks with far reaching impact in their life. Since adolescents are the most influential because of the nature of the life stage they are going through.

A need was therefore felt to study the reality of electronic games addiction and its impact on the mental health of adolescent students in public schools in the Hashemite Kingdom of Jordan after the outbreak of the COVID-19.

The following two questions were framed to investigate the whole situation: 1) What is the degree of addiction to electronic games among adolescent students in public schools in the Hashemite Kingdom of Jordan after the outbreak of the COVID-19 pandemic. 2) Are there statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the proportions of students who suffer from addiction to electronic games according to the gender variable.

1.2. Significance of the Study

The significance of the study comes from two things. Firstly, from the categories of the class of students, as this study focuses on teenage students. Teenage students have special characteristics compared to other kinds of students. Moreover, the volume of users of electronic games within the category of adolescents is large and constantly increasing, which requires monitoring the effects of this use on users' daily lives. Secondly, this study may help specialists in these fields, to provide possible assistance, to mitigate the negative effects of this phenomenon, and direct towards the positive and effective use, and employment of these techniques to improve the level of students in a manner that serves the educational process, and attention to the mental health of students.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. The Concept of Electronic Games

The concept of electronic games encompasses a vast and dynamic realm of interactive entertainment that has evolved significantly over the years. Electronic games, also known as video games, are virtual experiences that engage players in a digital environment through the use of electronic devices such as computers, consoles, mobile phones, and tablets. These games involve players assuming control of a character or characters and participating in various activities, challenges, and narratives. They provide players with a wide range of experiences, from exploring expansive open worlds, solving puzzles, and engaging in strategic battles, to competing against other players online (Al-Ghurair & Al-Nawaisa, 2010). Al-Sabti (2013) defined electronic games as an activity wherein players engage in an artificial conflict governed by specific rules, which are controlled by computers, mobile phones, television, and video games. The degree of addiction to electronic games, determined through the study sample's scores on the electronic game addiction scale, serves as a procedural definition. Additionally, mental health is defined by Al-Quraiti and Abdel-Aziz (1992) as the individual's enjoyment of some positive characteristics that help him to improve his compatibility with himself and his environment socially and financially, as well as his liberation from negative traits and pathological symptoms that impede this compatibility. It is defined procedurally as the total score found by the student on the mental health scale used in this study.

2.2. Characteristics of Electronic Games

One defining characteristic of electronic games is the presence of rules and objectives that guide gameplay. These rules create a structured framework within which players operate, defining what actions are possible and determining the conditions for success or failure. The objectives are set as specific goals that players strive to achieve, providing a sense of accomplishment and progression as they navigate through the game's challenges. The immersive nature of electronic games is enhanced by their visual and audio elements. Game developers employ cutting-edge graphics, sound effects, and music to create captivating and realistic virtual worlds. This visual and auditory stimulation contributes to the overall gaming experience, drawing players into the game's narrative and enhancing their emotional engagement (Alloush, 2007).

Electronic games offer a wide variety of genres and themes to cater to diverse player preferences. From action and adventure games to role-playing, sports, puzzle, and simulation games, there is something for everyone. Additionally, games can be single-player or multiplayer, allowing players to interact and compete with others, either locally or online, fostering social connections and friendly competition. Furthermore, the concept of electronic games extends beyond mere entertainment. Games can serve as powerful tools for education, training,

and simulation. Serious games, for example, are designed to impart knowledge, develop skills, or address real-world problems in fields such as healthcare, education, and business. At the same time, addictions to these games may affect mentality and student' focus at the schools.

2.3. Disadvantages of Electronic Games

Despite the educational importance and many advantages of electronic games, their negatives are more than positives because the majority of games played by children and adolescents contain negative content that affects them. This has led to the emergence of several risks arising from these games on children (Al-Hashash, 2008).

Some of the electronic games that children buy at low prices are not good for Arab students as these games are against the Arabic culture and norms. A law prohibits selling such games to children, although a few of these games are downloaded from the Internet from foreign or Arab sites illegally. These games also highlight such negative activities like a nexus between a group of players to rob a bank or a store; they are shown wearing masks and hiding their faces. All these games may encourage adolescents to involve in activities like killing, robbing people of money and property, and disrespecting security rules and regulations.

2.4. The Dangers of Electronic Games from a Social and Psychological Point of View

There are many social and psychological risks that students, especially adolescents, may be exposed to as a result of the wrong use of electronic games. Some of these risks include social isolation, wasting time and lack of sense of it, feeling of psychological loneliness, poor communication between students and those around them, and like. These games also increase students' anxiety and tension, sleep disorders, impulsiveness, nervousness, violence, selfishness, aggression, and other negative effects. The damages caused by these risks are countless. There is a need to protect a child from such dangers, prevent him, and educate him to reduce their harmful and devastating effects.

A large portion of computer games is based on the pleasure derived from killing others, destroying their property, and unfairly assaulting them. Students get the opportunity to learn the methods, arts, and tricks of committing a crime, as well as the developing capabilities and skills of violence and aggression, as these violent electronic games can develop aggressive thoughts and behaviors in them. In addition, students' practice of these games for a long time may lead them to the point of addiction (Al-Ghurair & Al-Nawaisa, 2010).

2.5. Mental Health

Mental health is considered an important element in people's lives in general, as achieving it helps a person to face the hardships and difficulties of life and to reach a decent and happy life and contributes to achieving life's goals and objectives. Due to the importance of mental health, developed countries have gone a long way in exerting effort and money to achieve a high level of mental health for their members. They have held the belief in the role of mental health in providing greater opportunities for members of society to achieve better achievement and reach greater progress. It has also been noticed in recent years that developed countries have focused on supporting mental health and psychological support projects in developing countries that suffer from wars and turmoil, and huge sums of money are allocated for that, targeting women, children, youth, and school students (Al-Areer, 2010).

Mental health is an applied science of psychological knowledge that contributes to helping people develop themselves, improve their living conditions, live together in peace and harmony, and face difficulties and crises with patience, steadfastness, and direct consensual methods. In this, the scientific method is used in interpreting the signs of mental health and signs of weakness, in determining the methods of developing mental health at home, school, work, and in society. It is also evident in studying psychological deviations and methods of diagnosing them, identifying their factors and methods of prevention, methods of treatment, and predicting what can be done in order for a person to achieve his mental health and how he protects himself from weakness and deviations (Abu Hweij & Essam, 2001).

Sound mental health can be viewed as “the state of integration of the various energies of the individual, which leads to his good investment of them, and which leads to the realization of his existence, i.e. the realization of his humanity” (Abdul Ghaffar, 2007). Among the definitions that concern the student’s mental health are mentioned in Kaddoura (2011). When an individual is indulged in games, his work will be affected negatively. If he works on the independence of the positive factors in the components of his personality, this will naturally lead to the diminishing of his weaknesses. Emotional balance of the student leads to his success in balancing his instincts on the one hand and his conscience on the other hand. According to the requirements of the environment surrounding him, he does not feel either the minimum conflict between his feelings and he can bear at the same time an appropriate amount of feeling of discomfort. This discomfort is arising from the conflict between his motives, values and the lived reality within the educational institution.

There are consequences for the use of electronic games on mental health because mental health and its status were not so important in dealing with the individual, society, and human relations as it has become in the era of globalization and the future of transformations, issues, and challenges (Hijazi, 2017). The student's interaction with electronic games leaves multi-directional dimensions that are reflected, positively or negatively, on his psychological health. Many young people and students believe that the Internet, with its services and sites, and its satiation of cognitive, emotional, and integrative needs, is a positive means to a large extent, and most students and young people, as indicated by many studies, carry consistent and supportive attitudes towards the Internet (Bodhan, 2012). Adolescent students tend to use electronic games because they fulfill needs and desires that they cannot satisfy through other means.

2.6. Adolescence

The stage of adolescence is one of the most important and critical stages for any individual. At this stage, a person goes through a period of transition from childhood to adulthood, which is the stage of completion of biological changes (physical, psychological, physiological, mental, social, emotional, religious, and moral). This stage is between the age of (14-18) years. The behavior of adolescence begins at an early stage so that the teenager begins to imitate the behavior of others. Such an imitation has no meaning, but the teenager begins to take the roles of other students, teachers, or actors...etc., and puts himself in the place of others and looks through their eyes. He develops a new concept of others, and another set of expectations about his own behavior, thus redefining himself and begins to act according to this new definition (Al-Dulaimi, 2012).

The teenager has in bitter struggle life with himself, the first and the most important of which is his struggle with feelings of inadequacy and perfection, where the teenager notices his strengths on the mental, physical, and behavioral levels. This observation makes him feel self-confident and sometimes superior to his friends. The second conflict is the struggle between reasons for integrity and reasons for deviation. A teenager grows up in chastity and uprightness because s/he hears a lot from his/her parents and teachers about the heinousness and consequences of deviant behavior in society. This brings the struggle at this stage between chastity and decency. Moreover, friends have a great and influential role in this field, as do the media and the Internet. What the teenager goes through is his or her struggle between rebellion and discipline. Adolescence is a transitional stage from almost complete dependence on others to complete independence. Therefore, the teenager tends to live and act as if he is free from every restriction. The teenager always prefers his friends and considers them an essential axis in his life (Nasr, 2010).

2.7. Electronic Games Impact Adolescents

One of the most prominent negative effects of the use of electronic games by adolescents is the discomfort of game failure when the Internet is disconnected from electronic games connected to the Internet, or sitting for long hours on electronic games until the level of competition is completed. This negatively affects the mental health of

adolescents, and results in the failure to perform homework. It negatively affects their academic achievement. These games are connected with the internet and give students the chance to chat by written and video as well. This may have subjected them to harassment by unknown people. In addition, it represents to him the friend who does not leave him, and as soon as it is interrupted, even for hours, the situation of some adolescents reaches disturbances and bad behavior (Mazyed, 2012).

2.8. Brief Literature Review

Hammadi (2020) showed that electronic games, in general, are widely spread among members of society, especially electronic games with global technology that are played directly through various communication platforms (online), including the Player Unknown's Battlegrounds (PUBG) game that is played by a large number of disparate individuals age, gender, and other social levels, and for long times until it became a preoccupation for them at home and outside in recent years. The researcher identified the basic concepts represented by the concept of social effects, the concept of electronic games, and the identification of the electronic game PUBG, its system, and the method of its practice. The researcher used the social survey method to investigate the study sample comprising (200) respondents who played the game of PUBG. The research was based on simple observation and a questionnaire. The results showed that most of the individuals who played the electronic game of PUBG preferred to play it at home, at a rate of more than two hours per day. Such individuals played the electronic game of PUBG with their close friends and of both sexes (male and female), and they did not use their real names and pictures and preferred fake names and pictures. Most of the individuals who played the electronic game of PUBG did not tend to leave the game because of its renewed elements of suspense and excitement through its various stages. They played the electronic game of PUBG and did not realize and sometimes ignored the extent of its harm and danger. Eventually, due to their addiction to its practice, and this was reflected in their family relationships, led to the growth of disputes, quarrels, and rivalries among them.

Hassan (2020) focused on the widespread availability of electronic, video, and computer games, which attracted children and teenagers and became their favorite pleasures. The popularity of these games has sparked a heated debate about their positive and bad qualities. According to the various types of literature dealing with the effects of electronic games, there are two primary directives about the impact of electronic games on the behavior of children and teenagers. The first trend argues that electronic games have a favorable impact on children and teenagers, particularly in terms of cognitive talents and learning capabilities. The second trend observes that electronic games have detrimental consequences on social isolation, peak movement, and hostility. The current study found a number of results by examining existing material, the most notable of which was that the impacts of electronic games are split into two categories: Positive outcomes can be shown in the development of specific mental capacities while physical, social, and aggressive health issues in children and teenagers are among the negative consequences.

N. Hijazi (2017) attempted to identify the impact of electronic games on the level of aggression in children from the perspective of parents in the northern governorates of Palestine, using a questionnaire. The study's sample size of 150 parents in (Tulkarem, Nablus, and Jenin) revealed statistically significant differences in the level of aggression among children as a result of their use of computer games owing to the age variable. The results also indicated a statistically significant difference according to the variable of family income. The higher the level of family income, the greater was the spending on electronic games. However, there were no statistically significant differences in the level of violence among children as a result of their practices of electronic games according to the variable of province or the variable of educational level. The electronic games, however, caused children to become insensitive to others, and also caused them to get late in all activities.

Séguin and Klimek (2016) tried to disclose the influence of playing electronic games on behavioral disorders in children. The study verified that children's excessive usage of electronic games had a detrimental effect on the formation of some behavioral disorders such as anxiety, fear, hyperactivity, distraction, and conduct. The study

revealed that a child who becomes accustomed to quick patterns in computer technology and games may struggle to adjust to normal everyday life, where the degree of speed was considerably lower, exposing the child to the pattern of loneliness and psychological emptiness.

Fletcher and Dexter (2015) examined the difficulties in the use of electronic games and their harmful impacts on children in the form of addiction to these games. Among such impacts included psychological illnesses such as sleep disorders, anxiety, tension, and depression, social isolation, introversion, solitude with the computer, and the appearance of bad behavior such as aggressiveness, cruelty, beating younger brothers, failing to heed orders and directives, and rebellion. The physical disorders included child's separation from family and life, eye infections and poor eyesight and vision, blurred vision, eye tearing, and low scholastic achievements.

3. METHODOLOGY AND PROCEDURES OF THE STUDY

3.1. Study Methodology

In this study, an analytical descriptive approach was employed to achieve its objectives. The research methodology consisted of two main components: a desk survey and a field survey. The desk survey involved extensive referencing of relevant literature and sources to establish the theoretical framework of the study. By reviewing existing references, the researchers gathered valuable insights and background information that informed the overall direction of the study.

3.2. Study Population

The study population contained all teenage students at the secondary level in public schools in the Hashemite Kingdom of Jordan during the academic year 2022-2023.

3.3. The Study Sample

A cluster random sampling technique was utilized to select a representative sample of schools for this study. Three schools each for males and females were chosen as the units of choice. The sample comprised students from the tenth, eleventh, and twelfth grades. In total, 846 questionnaires were distributed to all the students. Impressively, 806 questionnaires were retrieved, resulting in a high response rate of 95%. After excluding 11 questionnaires that were deemed invalid for statistical analysis, a total of 795 questionnaires were analyzed. This represents a robust proportion of 93% of the questionnaires distributed to the study sample, demonstrating a reliable and representative dataset for analysis. Table 1 shows the distribution of the study sample according to its variables.

Table 1. The distribution of the study sample according to the gender variable.

Variable	Number	Percentage
Male	352	44.28%
Female	443	55.72%
Total	795	100%

3.4. Study Tools

3.4.1. First: The Measure of Addiction to Electronic Games

There is a dearth of measuring tools to address the addiction to electronic games. Hence, a measure of Internet addiction which was exposed to many studies was developed, which included in its final form (55) statements. The statements were divided into (6) dimensions, including: the control or emergence dimension by (10) items; the mood change dimension by (10) items; the endurance dimension by (8) items; the withdrawal symptoms dimension by (9) items; the conflict dimension by (8) items; and relapse dimension by (10) items. The weights of the items of the scale were adopted according to the triple Likert scale as follows: (completely applicable to me: 2), (applicable to some

extent: 1 score), (not applicable: 0), and thus the lowest score on the scale was (0) and the highest score on the scale was (110), and the average score was considered to be (55). Accordingly, a high score (greater than 55) indicated that there was an addiction to electronic games, while the low score (less than 55) indicated that there were no manifestations of addiction to understand the meanings of the averages at the macro level and the level of dimensions. The weighted mean was dealt with in an organized manner: the score (1) was the average score; a low score less than 1 indicated that there were no addiction manifestations; while a score greater than 1 indicated that there were manifestations of addiction to electronic games among adolescent students.

3.4.2. *Second: Mental Health Scale*

The mental health scale was developed by referring to previous studies related to the subject, such as the study of Alhelo (2018) and it relied on the modified mental health scale prepared. The scale consists of (82) items divided into (9) dimensions, as follows: (11) items for physical symptoms, (10) items for obsessive-compulsive disorder, (9) items for interactive sensitivity, (13) items for depression, (10) items for anxiety, (6) items for enmity, (7) items for phobia, (6) items for bar introversion, (10) items for psychosis. Weights have been adopted for each dimension. Items of the scale according to the five-point Likert scale are as follows: (I suffer very much: 4 degrees), (I suffer greatly: 3 degrees), (I suffer moderately: 2), (I suffer to a little degree: 1), (I do not I never suffer: 0). Thus, the lowest score on the scale is (0) and the highest score on the scale is (328).

3.5. *The Validity of the Study Tools*

A set of indicators were used to reveal the validity of the study scale, which are as follows:

3.5.1. *The Veracity of the Arbitrators*

The study tools were presented in their initial form to a group of arbitrators with expertise and specialization in the fields of psychology, measurement, and evaluation, and they were asked to express their opinion on the clarity of the paragraph and its relevance to the field and its suitability for the scale, and the researcher relied on the criterion represented by the percentage of agreement (75%) so what Above to keep the paragraph and be evaluated. The arbitrators' suggestions have been taken into account and the required amendments have been made. Such procedures are evidence of the validity of the study tools.

3.6. *The Stability of the Study Tools*

The internal consistency of the study tool was assessed by calculating the Cronbach alpha coefficient for each dimension. Table 2 displays the stability coefficients obtained for each dimension of the study tool.

The data in Table 2 shows that the internal consistency of the dimensions of the electronic-games addiction scale ranged between (0.80-0.91) and for the total dimension it was (0.86). With regard to the mental health measure, the dimensions of internal consistency ranged between (0.81-0.90), and for the total dimension it was (0.85). Such values are acceptable for the purpose of the current study.

3.7. *Study Variables*

The present study incorporated two distinct types of variables: Independent Variable: The independent variable in this study was the addiction to electronic games, which was measured based on the study sample's responses to items on a specifically designed scale. Dependent Variable: The dependent variable in this study was mental health which was derived from the responses of the study's sample on a scale that was specifically developed for assessing mental health.

Table 2. The internal consistency coefficient for each variable of the study in all its dimensions.

Scale	Dimension	No of items	Cronbach's alpha
Electronic gaming addiction	Control or prominence	10	0.86
	Mood changes	10	0.80
	Endurance	8	0.82
	Withdrawal symptoms	9	0.88
	Conflict	8	0.89
	Relapse	10	0.91
	Total	55	0.86
Mental health	Physical symptoms	11	0.81
	Obsessive-compulsive disorder	10	0.82
	Interactive sensitivity	9	0.87
	Depression	13	0.83
	Anxiety	10	0.90
	Enmity	6	0.85
	Phobia	7	0.84
	Bar introversion	6	0.84
	Psychosis	10	0.87
	Total	82	0.85

3.8. Statistical Analysis

To address the research inquiries, both descriptive and analytical statistical methods were employed, utilizing the statistical software package (SPSS 21) as outlined below:

- Descriptive Statistics: Descriptive statistical measures were employed to present the characteristics of the study sample in terms of percentages. This facilitated answering the first research question and organizing the dimensions in descending order based on their prevalence within the sample.
- Pearson Correlation Coefficient: The second research question was addressed using the Pearson correlation coefficient. This statistical method was employed to examine the relationship and measure the strength of association between variables of interest. By utilizing this analytical approach, insights were gained regarding the interrelationships among the variables under investigation.
- Cronbach alpha coefficient to verify the stability of the study tools.

4. RESULTS AND DISCUSSION

This section provides extensive analysis and interpretation of the research findings in relation to the posed research questions. It encompasses a thorough examination of the study's results and their significance within the context of existing research literature. The following presents a detailed overview of these findings and their implications.

To answer the first question which reads: "What is the level of addiction to electronic games among adolescent students in public schools in the Hashemite Kingdom of Jordan after the outbreak of the COVID-19?", the study calculated the arithmetic means and standard deviations of the responses from a sample of adolescent students in public schools in the Hashemite Kingdom of Jordan.

The responses were obtained through the items of the Electronic Games Addiction Scale, both at the dimension level and the overall total dimension. The results indicate that there are no significant manifestations of addiction to electronic games. A score higher than 1 on the high level indicates the presence of addiction symptoms, as illustrated in [Table 3](#).

Table 3. Means and standard deviations of the study sample's responses to the electronic-games addiction scale for adolescent students.

Sr.	Dimensions	Mean	SD	Rank	Level
1	Control or prominence	0.46	1.85	1	high
2	Relapse	0.52	1.82	2	high
3	Withdrawal symptoms	0.47	1.74	3	high
4	Endurance	0.59	1.51	4	high
5	Conflict	0.57	1.21	5	high
6	Mood changes	0.41	0.97	6	low

Table 3 shows that the arithmetic averages of the responses of the study sample on the addiction scale of electronic games websites among adolescent students at the total level are high, with an arithmetic mean (1.52) and a standard deviation (0.51), which reflects the presence of addiction manifestations among teenage students to electronic games. At the level of dimensions, the control or prominence dimension came first, with an average of (1.85), followed by the "relapse" dimension, with an average of (1.82), and the "withdrawal symptoms" dimension came in the third place, with an average (1.74), then followed by endurance with an average (1.51), and in the fifth rank, conflict came with an average (1.21), all of which reflect a high degree, which reflects the presence of addiction manifestations within these dimensions, while the sixth and last rank is "mood change" with an average (0.97), which reflects a low score, which indicates that there are no addiction manifestations within this dimension of the electronic games addiction scale.

This result can be attributed to the fact that after the outbreak of the COVID-19, which led to curfews and dropping out of school, it made teenagers have a long free time, making them use electronic games to spend time on them, which led to negative use of electronic games. Entertainment made them get addicted to these games. The result is also attributed to the fact that after the outbreak of the COVID-19 and the use of e-learning tools, whether it was a mobile phone or a laptop, it made them move from education to electronic play. This led them getting used to electronic gadgets and reach the stage of addiction. Even after the end of the COVID-19 pandemic, this result can also be attributed to the absence of supervision and awareness by the family and the school authorities. Due to the absence of monitoring their use of websites, adolescent students became more attached than ever to such games. This resulted in symptoms of control and prominence, such as waking up to download a new game or starting another level directly to enter some challenges and competitions. This was confirmed by the result of the research from occupation after prominence and control ranked first among the dimensions of electronic games addiction. This result can also be explained by the facilities and availability of the Internet, which has become accessible to everyone. This encouraged students to be constantly attached to their own accounts on electronic games, which led them to the point of addiction to them. Availability and easy downloading of electronic games is a negative aspect in particular due to the absence of family control. Families cannot restrict the method of use and the absence of concepts of digital curriculum in the student learning environment. This is supposed to be one of the tools for proper guidance of the student towards the optimal use of electronic games.

To answer the second question, which reads: "Are there any statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the proportions of students who suffer from electronic games addiction according to the variable (gender), the responses of the students from the study sample were monitored on the electronic game addiction scale, and were classified into electronic games addicts and non-electronic game addicts according to their total score. The score depended on the criterion (greater than 55: addicted to electronic games, less than 55: not addicted to electronic games). After completing the classification process, a chi-square (X^2) test was conducted to examine the significance of the differences in proportions between the students (electronic saliva addicts and non-electronic saliva addicts) according to the gender variable (male or female) as shown in Table 4.

Table 4. Ka² test to examine the significance of differences in proportions between students (electronic saliva addicts and non-electronic saliva addicts) according to the gender variable.

Variable	Variable categories	Sample number/ Percentage of sample	Social media addiction		Total	X ²	Level of significance
			Addicted	Not addicted			
Gender	Male	Number	243	109	352	112.518	0.00*
		Percentage	69.03%	30.97%	100%		
	Female	Number	174	269	443		
		Percentage	39.28%	60.72%	100%		
	Total	Number	417	378	795		
		Percentage	52.45%	47.55%	100%		

Note: * Statistically significant at 5%.

The data in Table 4 show that there is a discrepancy in the rates of addiction to electronic games among adolescent students in the Hashemite Kingdom of Jordan, where the percentages showed, at the aggregate level, that almost half of the students (52.45%) suffer from addiction to electronic games, compared to (47.55%) who do not suffer.

From addiction to electronic games, and according to the gender variable, the results showed that (69.03%) of males are addicted to electronic games, while (30.97%) of them do not suffer from addiction to electronic saliva, while the results showed that nearly a third of females (39.28%) suffer from electronic games addiction compared to (60.72%) who do not suffer from electronic games addiction and by reference to the value of the (X²) test of (112.518) and the level of significance associated with it, which shows the existence of statistically significant differences in the percentages of students who suffer from electronic games addiction according to the gender variable and in favor of males.

This result can be attributed to the fact that males enjoy more freedom than females in downloading and playing electronic games, while females are more committed and conservative.

5. CONCLUSION AND RECOMMENDATIONS

The study discussed the reality of electronic games addiction and its impact on mental health among adolescent students in public schools in Jordan post-COVID-19.

A sample of 795 adolescent students was selected from Jordanian schools for the academic year 2022-2023. The results show that the mean of the responses of the study sample on the scale of electronic game sites addiction among adolescent students at the aggregate level, came with a high degree, with a mean (1.52) and a standard deviation (0.51), which reflected the existence of addiction manifestations among teenage students to electronic games.

The study recommended the following procedures that could be used by the concerned authorities.

1. Holding awareness workshops and programs directed towards students and families that help solve the problems of this phenomenon.
2. The interaction of educational institutions with the faculties of psychological counseling and psychology to develop the values of digital citizenship among students contributes to reducing the manifestations of addiction to electronic games.
3. Conducting studies dealing with other topics on the phenomenon of electronic games addiction and its relationship to other variables such as life pressures, personality traits, and emotional intelligence.

Funding: This study received no specific financial support.

Institutional Review Board Statement: The Ethical Committee of the Khawla Bint Al Azwar School, Ministry of Education, Jordan has granted approval for this study on 1 August 2021 (Ref. No. 2928).

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

REFERENCES

- Abdul Ghaffar, A. S. (2007). *An introduction to mental health*. Cairo: Dar Al-Nahda Al-Arabiya.
- Abu Hweij, M., & Essam, S. (2001). *Introduction to mental health* (1st ed.). Amman: Dar Al Masirah for Publishing, Distribution and Printing, Jordan.
- Al-Areer, M. M. (2010). *The mental health of mothers with down syndrome in the Gaza Strip and its relationship to some variables*. An Unpublished Master's Thesis, College of Education, the Islamic University, Gaza, Palestine.
- Al-Dulaimi, A.-R. (2012). *The media and the child* (1st ed.). Amman: Dar Al Masirah for Publication and Distribution.
- Al-Ghurair, A., & Al-Nawaisa, A. (2010). *Playing and child rearing*. Jordan: Ithraa for Publishing and Distribution.
- Al-Hashash, D. (2008). *The effect of playing some electronic games on the aggressive behavior of secondary school students in public schools in the State of Kuwait*. Unpublished Master's Thesis, College of Education, Kuwait.
- Al-Quraiti, A.-M., & Abdel-Aziz. (1992). *The measure of mental health of youth Egyptian-Saudi standards*. Cairo: Anglo Egyptian Bookshop.
- Al-Sabti, A. (2013). Electronic games and children's reluctance to study, results and solutions. *Kuwait University Journal*, 1(1), 20-34.
- Al-Zaidi, A. (2014). *Internet addiction and its relationship to social communication and academic achievement among University of Nizwa students*. Algeria: University of Nizwa.
- Al Ghad Newspaper Report. (2022). *The number of electronic game users after the outbreak of the Corona virus*. Retrieved from <https://cutt.us/KUgfA>
- Alhelo, C. (2018). Social networking sites and their impact on the psychological state of the university student (a multi-country comparative study). *International Journal of Educational and Psychological Studies*, 3(2), 253-268.
- Alloush, K. (2007). *Addressing violence through television and video games and its impact on the child*. An Unpublished Master's Thesis, Faculty of Political Science and Information, University of Algiers, Algeria.
- Bodhan, Y. M. (2012). *Youth and the internet* (1st ed.). Amman: Dar Majdalawi for Publishing and Distribution, Jordan.
- Fletcher, I., & Dexter, C. (2015). Digital games as educational technology: Promise and challenges in the use of Games to teach. *Educational Technology*, 55(5), 3-12.
- Hammadi, H. (2020). Side effects of electronic games: PUBG game as a model - a field study in Baquba district center. *Conquest Journal*, 83(1), 448-460.
- Hassan, H. (2020). Psychological effects of electronic games on children and adolescents (a theoretical study). *Educational and Psychological Research Center*, 64(17), 465 - 483.
- Hijazi, M. (2017). *Mental health: A dynamic, integrative perspective of growth at home and at school* (2nd ed.). Casablanca, Morocco: Arab Cultural Center.
- Hijazi, N. (2017). The impact of electronic games on the level of violence against children from the point of view of parents in the light of some demographic variables. *Journal of Childhood and Development*, 29(8), 17-47.
- Ibrahim, N. (2016). *The advantages and disadvantages of electronic games played by children of the age group (3-6) from the point of view of mothers and kindergarten teachers*. Master's Thesis, Faculty of Educational Sciences, Middle East University.
- Kaddoura, S. (2011). *Mental health among secondary school female students and its relationship to some variables, Wad Madani locality, Gezira state, Sudan*. Unpublished Master's Thesis, Hantoub College of Education, University of Gezira.

- Mazyed, B. M. (2012). *Virtual societies as an alternative to real societies / The book of faces as a model*. Unpublished Master's Thesis, United Arab Emirates University, Dubai, UAE.
- Nasr. (2010). *The art of dealing with teenagers, teenage problems and their causes and how to deal with them, the age group from 12 years to 21 years. 1st floor*. Cairo: Bidaya International Production Company.
- Séguin, D., & Klimek, V. (2016). Just five more minutes please: Electronic media use, sleep and behaviour in young children. *Early Child Development and Care*, 186(6), 981-1000. <https://doi.org/10.1080/03004430.2015.1071528>

Views and opinions expressed in this article are the views and opinions of the author(s), International Journal of Education and Practice shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.