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The relationship between Electronic Games Addiction, Sleep Disorder and Anxiety Symptoms among Saudi Adolescents

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Abstracts: This study aims to examine the relationship between e-gaming addiction, sleep disorders, adolescent anxiety symptoms, as well as understanding the level of e-gaming addiction and differences between males and females in study variables. Due to the prevalence of e-gaming among young people, it is useful to have information about the impact on sleep and mental health, the sample included 278 teenagers (139 males and 139 females) aged 14 - 17, who were randomly selected from Jeddah during the second half of 20 years. 24. Participants were assessed using three tools: the Zong Scale of Self-Anxiety Assessment, the Albana Scale of Sleep Disorders, and the Adolescent Electronic Gaming Addiction Scale. The results of the study showed that the level of e-gaming addiction was above average, while the level of sleep disorders was high, as were symptoms of The results also showed a positive correlation between e-game addiction, sleep disorders, and nudity. There were no statistically significant differences between males and females in the level of e-gaming addiction, sleep disorders, or anxiety symptoms. Qualitative data indicated some important aspects of adolescents' lives affected by e-gaming addiction. The study showed that e-gaming was, on the one hand, a way to relax, and, on the other, just cause stress and anxiety.

Keywords: Electronic Games Addiction; Sleep Disorder; Health Problems; Anxiety; Adolescents; Jeddah-Saudi Arabia

العلاقة بين إدمان الألعاب الإلكترونية واضطرابات النوم وأعراض القلق لدى المراهقين

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أُستلم بتاريخ 2024/12/3 وقُبِل للنشر بتاريخ 2025/2/12

المستخلص: تهدف هذه الدراسة إلى فحص العلاقة بين إدمان الألعاب الإلكترونية، اضطرابات النوم، وأعراض القلق لدى المراهقين، بالإضافة إلى فهم مستوى إدمان الألعاب الإلكترونية والفروق بين الذكور والإناث في متغيرات الدراسة. ونظرًا لانتشار ممارسة الشباب للألعاب الإلكترونية، من المفيد الحصول على معلومات حول تأثير ذلك على النوم والصحة النفسية، شملت العينة 278 مراهقًا (139 ذكرًا و139 أنثى) تتراوح أعمارهم بين 14-17 عامًا، تم اختيارهم عشوائيًا من مدينة جدة خلال النصف الثاني من عام 2024. تم تقييم المشاركين باستخدام ثلاثة أدوات: مقياس زونغ لتقييم القلق الذاتي، مقياس ألبانا لاضطرابات النوم، ومقياس إدمان الألعاب الإلكترونية للمراهقين. أظهرت نتائج الدراسة أن مستوى إدمان الألعاب الإلكترونية كان فوق المتوسط، في حين كان مستوى اضطرابات النوم مرتفعًا، وكذلك أعراض القلق. كما أظهرت النتائج أن هناك ارتباطًا إيجابيًا بين إدمان الألعاب الإلكترونية، اضطرابات النوم، وأعراض القلق. ولم تظهر فروق ذات دلالة إحصائية بين الذكور والإناث في مستوى إدمان الألعاب الإلكترونية، واضطرابات النوم، أو أعراض القلق، وأشارت البيانات النوعية إلى بعض الجوانب الهامة في حياة المراهقين المتأثرة بإدمان الألعاب الإلكترونية، وبينت الدراسة أن الألعاب الإلكترونية تعتبر من ناحية وسيلة للاسترخاء، ومن ناحية أخرى تسبب التوتر والقلق.

الكلمات المفتاحية: إدمان الألعاب الإلكترونية، اضطرابات النوم، أعراض القلق، المراهقون، مدينة جدة - السعودية.

INTRODUCTION

Present day electronic games have become a significant part in adolescent's lives as they are more than mere form of entertainment, communication and mental challenging tools. The increased popularity of these games has led to a debate on their negative effects on the well-being of the people that play them (Alkhutaba, 2023). Previous research has revealed that overuse of video games results in maladaptive behaviors and psychological wellness issues such as addiction,

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loss of sleep and increase in anxiety (Liu & Lu, 2022; Liu et al., 2018). Levels of electronic games addiction are identified as compulsive. Game playing, thinking of different games and playing them frequently have been found to relate to several adverse effects. For this reason, adolescents are the most vulnerable age group to develop such addictive behaviors due to their developmental stage and peer pressure. To figure this out, Lemmens et al. (2009) used the Game Addiction Scale for Adolescents which defines the dimensions relevant to gaming addiction such as salience, tolerance, mood modification, withdrawal, relapse, conflict and problems. Other effects that can be attributed to excessive electronic gaming include sleep disorders. Nighttime use of electronic devices has been said to cause sleep disturbances as a result of light which messes with the body's production of melatonin (Billari et al., 2018). Lack of quality sleep can trigger or worsen mental disorders, a state of affairs which can lead to increased anxiety and depressive symptoms. Several works point out that the lack of sleep and excessive playing result in the decline of life quality (Wang et al., 2024; Figueroa-Quiñones et al., 2024). Symptoms common amongst adolescents who engage in excessive gaming include anxiety, sleep disorder and poor mental health. Research (e.g. Dipl-Soz, 2013) has shown that staying online in interactive games leads to creating pressure and stress, thus increasing the level of anxiety. Electronic game addiction, sleep disorders, and anxiety are inter-related in a way that any of the three may cause or worsen the other two.

The purpose of the present research is to explore the relationship between electronic games addiction on the one hand and sleep disorders and anxiety symptoms in adolescents, on the other. The research aims at investigating these relations in order to get to a better understanding of the effect of gaming addiction on sleep and mental health for further intervention. With appallingly increased use of digital technologies in everyday life it has become imperative to find out outcomes of the impact of electronic game addiction on sleep disorder and anxiety. The literature review examines these relationships through assorted works, with emphasis on the rate of gameplay, sleep, and anxiety among adolescents. Electronic games addiction or commonly known as gaming disorder or video game addiction means regular engagement in gaming activities that affects the person's ability to live a normal life. This fact has been highlighted by the World Health Organization in the latest International Classification of Diseases (ICD-11) indicating its increased importance (WHO, 2018). The results of empirical studies have revealed that electronic game addiction results in serious behavioral change, anxiety, and negative academic outcomes among adolescents. Electronic games addiction rates vary depending on the questions being asked and the population being surveyed. For example, Liu and Lu (2022) have shown that Chinese university students addicted to using the phone for game purposes have depressive symptomatology. Likewise, Khrad et al., (2022) have reported high prevalence of Internet Gaming Disorder (IGD) among Saudi Arabian university students with significant correlation with psychological symptoms.

Lemmens et al. (2009) point out that in adolescent, electronic game addiction presents a number of salient characteristics including, but not limited to, tolerance, mood modification, withdrawal, relapse, conflict, and problems. In the context of the present study, salience is considered the primary focus, and thus occurrence of gaming in a person's thinking and behavior. Intolerance, on the other hand, is best described as a magnified necessity of gaming in order to obtain certain results. Gaming refers to the phenomenon being characterized by mood modification that refers to the experiences gamers describe during the game. Withdrawal symptoms appear in case of a decrease or cessation of the gaming activities, Relapse, however, refers to the repeated lapse towards prior levels of gaming. Lastly, whereas conflict is about interpersonal problems associated with problematic gaming, problems relate to the impact of the production on gaming behavior. It is therefore important to understand these features if the gaming addictive behavior amongst adolescents is to be recognized and, therefore, treated.

Electronic game addiction can be the cause of numerous psychological and social concerns that should be addressed. Research has indicated that gaming leads to stress and depression especially when played in excess. For instance, in a systematic review study by

Masaeli and Farhadi (2021) it is revealed that there is a significant relationship between internet-based addictive behaviors (such as gaming) and upsurge in anxiety and depressive symptoms during COVID-19 pandemic. This has an implication with the effect that gaming addiction has on mental health, especially during this era of heightened stress and personal risks. Besides psychological problems, social issues are among the consequences of gaming addiction. Extremely addicted adolescent gamers may find it hard to make new relationships or even sustain the existing ones, leading to elevated cases of social isolation and conflicts with fellow learners and members of their immediate families (Ramos et al., 2023). Coping with loneliness exacerbates an addict's anxiety and depression thereby encouraging a cycle of addiction and poor mental health.

Interrupted sleep patterns or lack of sleep are some of the main problems that are also related to electronic game addiction. Harmful effects of video gaming include poor sleeping habits occasioned by late night gaming and incidences of sleep disorders. Indeed, electronic games include stimulating content and exposure to screen which disrupt the natural sleep cycle. The first way gaming interrupts one's sleep pattern is through the effect of the screen's blue light. Billari et al. (2018) have shown that exposure to blue light at night hinders melatonin production that helps regulating sleep. This disruption in melatonin levels may result in inability to fall asleep and/or maintain sleep throughout the night. Also, cognitive and emotional interactions with electronic games could contribute to the delay of sleep that surely reduce quality of sleep a person gets.

Another mechanism is the psychological stimulation that comes with gaming in games such as 'Call of Duty.' Gaming also results in an increase in pulse rate, hence it becomes hard for adolescents to relax before they 'hit the sack'. According to Liu et al. (2018), more than 90% of the participants diagnosed with internet gaming disorder have had sleep disturbances, a finding that indicates that gaming has a direct effect on one's sleep quality. Electronic game addiction in adolescents and their relationship with sleep disorders have been highlighted in several field investigations. For instance, in a cross-sectional study among Chinese college students, Wang et al. (2024) have reported that excessive use of smart phones in gaming is related to poor sleep quality. The research indicates that electronic game addiction has an immense impact on the adolescent's sleep and engulfs an array of sleep problems. Likewise, in their cross-sectional survey concerning Facebook addiction and sleep disorders amongst Peruvian university students, Figueroa-Quñones et al. (2024) have reported comparable patterns of sleep interference. Although the focus has been on social media addiction, the results are relevant to electronic game addiction, as both involve excessive screen time and similar mechanisms of sleep disruption.

Another major health problem that is linked to electronic game addiction is anxiety. To illustrate, video gaming leads to anxiety since it is a time-consuming activity that disrupts normal and healthy activities, particularly being a major cause of physical inactivity that in turn leads to anxiety. Clearly, addictive gaming increases anxiety levels due to the given compulsive nature of the behavior as well as its negative effects. In this way, the disturbance of sleep during free time with which people engage in playing computer games contributes to the aggravation of anxiety symptoms. Recently, research has considered the association between the level of electronic game addiction and the level of anxiety symptoms. Liu et al. (2018), for example, have reported a relationship between internet gaming disorder and depression and anxiety, showing how dangerous it can be to be a gaming addict. Inability to manage time effectively along with the gaming addiction was defined as a factor that leads to anxiety and many other psychological problems.

Billieux et al. (2015) have put forward a conceptual model that could be used to explain disordered mobile phone use, in which gaming is also a part of behavioral addiction. The model emphasizes the role of anxiety in the development and maintenance of addictive behaviors, suggesting that anxiety may both drive and result from excessive gaming. It is also important to

note other kinds of relationships between electronic game addiction and anxiety – especially indirect ones. Interference with normal sleep patterns brought by over-gaming makes a huge impact in the level of anxiety. Liu and Lu (2022) discuss how sleep disturbance moderates the relationship between mobile phone addiction and depressive symptoms, and how it mediates the relationship between gaming addiction and anxiety. Moreover, emotions such as social isolation and interpersonal conflicts caused by spending too much time gaming can increase anxiety. According to Ramos et al. (2023), problematic use of the internet and, in particular, playing games do lead to increased emotional problems and social challenges, meaning that adolescents may suffer from increased levels of anxiety.

Studies adopting the behavioral addiction models can help to provide some understanding of electronic game addiction (see Billieux et al., 2015). These models focus more on the compulsive and the maladaptive nature of addiction, the effects that it has on one's life, as well as the psychological consequences of addiction. On this basis, it is pointed out that electronic game addiction has a lot in common with other behavioral addictions such as gambling, hence it is characterized by criteria of preoccupation, tolerance, withdrawal, and relapse. Cognitive-behavioral models rest on cognitive and emotional processes of addiction and their outcomes. For instance, cognitive-behavioral models of addiction show how the thinking pattern is faulty, for instance, playing games to avoid stress. This model suggests that while using video games, adolescents may be handling negative feelings of stress and anxiety; a process which propels them to game, hence a spiral of negative mental health.

Various models (bi-psycho-social) give an overall insight into the dynamics underlying the biology, psychology and social acumen of addiction. These models try to show encounters between genetic vulnerabilities/functions and distinct psychological and environmental factors. The bio-psycho-social models of analysis are applied in the context of electronic game addiction focusing on sleeping disorders, cognitions and emotions, and factors that help maintain the addicted behavior. The information concerning electronic games addiction, sleep disorders, and anxiety symptoms in adolescents stresses the fact that these matters are intricate and diverse. It is therefore critical to comprehend the processes and relations between these factors for designing evidence-based practices and resources for teenagers. The theoretical models (like behavioral addiction model, cognitive behavioral model, and bio psychosocial model) offer an understanding of the intricacies of electronic game addiction and its effect on mental health. However, more research is still badly needed to explore the relationships that should come with adequate interventions to help adolescents cope up with difficulties prevailing in the digital age.

To sum up, as modern technology in electronic games has drastically altered recreation and social relationships particularly among the youth, and as e-games are increasingly realistic and widely used, an enhanced worry about teenagers' health is on the rise. As for the increased concerns about electronic game addiction, sleep disturbances, and anxiety symptoms in adolescents, Alkhutaba, Alali & Nashwan (2023) stress is the growing need to know how gaming addiction contributes to causing sleep disturbance and anxiety. The goal of gaining such knowledge is to design prevention and interventional strategies. The current research, therefore, seeks to fill some gaps by attempting to present a detailed analysis of these relationships. The findings will be beneficial to clinicians, educators, and policymakers. By adding useful knowledge to the field of adolescent mental health, it primarily focuses on figuring out the impact of electronic game addiction on sleep and anxiety. Such understanding will be helpful in designing specific strategies and programs to help adolescents make wiser decisions regarding their health.

QUESTIONS

Given the scope outlined above, the current study was designed to answer some intertwined research questions. Quantatively, the questions are:

Q1. What is the level of electronic game addiction, sleep disorders, and anxiety symptoms among Saudi adolescents?

Q2. Is there a statistically significant relationship between electronic game addiction, sleep disorders, and anxiety symptoms?

Q3. Is there a statistically significant difference between the level of electronic game addiction, sleep disorders, and anxiety symptoms based on the participant's gender?

Qualitatively, the following question is attempted:

Q4. How do adolescents describe their attachment to electronic games and their impact on their lives?

MATERIEL AND METHODS

To achieve the objectives of the study and to answer its questions, the study adopted the correlational descriptive approach to measure the relationship between electronic games addiction, sleep disorders, and anxiety symptoms in adolescents. Below is a detailed description of the sample being recruited and the tools being used.

Sample

A total of 278 adolescents agreed to participate in the study. Aged between 14 to 17, 139 of them were males and 139 were females; they were randomly selected from Jeddah during the second half of 2024. The participants were recruited from high-school going learners who were actively involved in electronic games via mobile devices, computers or video game systems. The inclusion criteria meant that the participants were engaged in electronic games on daily basis, thus ensuring that only gamers who used the games frequently were included in the study. Participants were selected by means of posting announcements in schools. Participants who showed willingness to participate were asked to sign consent forms filled and signed by the adolescents and their guardians. In the study, the informed consent was sought from the participants and their guardians to collect data for three months. The participants were able to fill the questionnaires during school hours in a quiet and well controlled environment. The questionnaires were presented to the participants in paper format, and each of them was asked to complete the questionnaires on his/her own. The filled questionnaires were then gathered and tabulated as to the specific scoring system of each assessment instrument.

Tools

Three standardized tools were utilized to measure the key variables of the study. Below is a detailed description of each.

Zung's Self-Rating Anxiety Scale (1980): This tool consists of twenty items with the aim of measuring the level of anxiety symptoms. The scale for each item is: 'None or a little of the time,' 'Some of the time,' 'Often,' 'Most or all of the time'. It measures several aspects of anxiety, namely cognitive, emotional and physiological. To examine the psychometrics of the scale, it was checked and reviewed by psychology and mental health professors/experts to determine its validity. Internal consistency was also investigated using Cronbach's alpha and the split-half reliability coefficients. Results showed that Cronbach's alpha value was (0.88), and the split-half reliability value was (.086).

Albana's Sleep Disorder Scale (2007): This scale has 39 items assessing several aspects of sleep disorders such as problems in sleep onset, awakenings during the night and overall quality of sleep. The responses are marked on a Likert scale with options ranging from 'Never' to 'Always' for each item; the scale thus seeks to obtain both the frequency and the intensity of sleep disruption. Psychology and mental health professors examined and assessed the scale to

determine its validity and psychometric properties. Additionally, Cronbach's alpha and the split-half reliability coefficients were used to analyse its internal consistency. Findings indicated that the split-half reliability value was (0.82), and the Cronbach's alpha value was (0.85).

Game Addiction Scale for Adolescents (Lemmens, Valkenburg, & Peter, 2009): This scale includes forty-five statements with a total score of 21 points that give an assessment of aspects of game related to addiction, namely Salience: Competition in the thoughts, feelings, and action-taking. The following features were targeted:

- Tolerance: Frequency of gaming has been established to rise progressively in the long-term process.
- Mood Modification: Gaming effects can be felt with regards to changes in mood, appetite, sex drive, and sleep patterns.
- Withdrawal: Feeling bad or having some adverse physical effects when gaming is little or absent.
- Relapse: Users' reliance on former types of gaming activities.
- Conflict: Interpersonal conflicts arising from excessive gaming.
- Problems: Issues resulting from high gaming levels.

Psychology and mental health professors evaluated the scale's validity and psychometric qualities. Internal consistency was also examined using Cronbach's alpha and the split-half reliability coefficients. Given the results, Cronbach's alpha value was (0.91), and the split-half reliability value was (0.89). Likert scale used in the study incorporated a 5-point rating system which ranges from the 'Strongly Disagree' to 'Strongly Agree' statements.

DATA ANALYSIS

Since qualitative data was also gathered, descriptive statistics were used to measure the characteristics of the data frequency distributions. In contrast, inferential statistics, such as the Pearson Coefficient, were used to study electronic game addiction, sleep disorders, and anxiety symptoms. For the one-sample and independent sample t-test, the data was analyzed using SPSS software, and the significance level was set at 0.05 level.

RESULTS

Below are the findings gathered from the field on each of the study questions.

Q1. What is the level of electronic game addiction, sleep disorders, and anxiety symptoms among adolescents?

One-Sample Test was used in order to compare the mean levels of electronic game addiction, sleep disorders and anxiety symptoms of the adolescents. The mean score and standard deviation for each variable and test of t-value are presented in Table 1 below; tests were designed to present the significance levels.

Table1 One-Sample t-Test To determine the level with Electronic Games Addiction, Sleep disorder, and Symptoms of Anxiety among Adolescents (n=278)

Variable	Mean (M)	Standard Deviation (SD)	t-value	Significance (Sig)
Electronic Game Addiction	4.12	0.83	5.27	0.00*
Sleep Disorders	3.85	0.79	4.93	0.00*
Anxiety Symptoms	3.92	0.88	5.01	0.00*

Note: The significance level is set at $p < 0.05$.

The figures displayed in the table show that the mean of electronic game addiction was above the midpoint of the scale with the value of 4.12 and a Sig of 0.00. With regard to sleep disorders, the mean rating was high ($M = 3.85$, $Sig = 0.00$) and the anxiety symptoms ($M = 3.92$, $Sig = 0.00$) were high, too.

Q2. Is there a statistically significant relationship between electronic game addiction, sleep disorders, and anxiety symptoms?

Pearson correlation coefficients were computed to examine the inter-group relationships between electronic games addiction, sleep disorders and anxiety symptoms. The results are displayed in Table 2 below.

Table 2 Pearson Correlation Coefficient for the relationship between the electronic game's addiction, sleep disorders, and anxiety symptoms in adolescents (n= 278)

Variable	Electronic Game Addiction	Sleep Disorders	Anxiety Symptoms
Electronic Game Addiction	1	0.56*	0.62*
Sleep Disorders	0.56*	1	0.54*
Anxiety Symptoms	0.62*	0.54*	1

Note: * indicates a significant correlation at $p < 0.05$.

The correlation matrix of the study reveals the following values: The value between Electronic game addiction and sleep disorders was 0.56 and between Electronic game addiction and Anxiety symptoms was 0.62. Furthermore, sleep disorders and anxiety symptoms are positively associated, $r = 0.54$.

Q3. Is there a statistically significant difference between the level of electronic game addiction, sleep disorders, and anxiety symptoms based on the participant's gender?

An independent sample t-test was used to examine the gender differences in adolescents' electronic game addiction, sleep disorders and anxiety symptoms. Table 3 below presents the findings.

Table 3 Independent Sample t-test for significance of the differences between males and females in addiction to electronic games, sleep disorders, and anxiety symptoms in adolescents (n=278)

Variable	Gender	Mean (M)	Standard Deviation (SD)	t-value	Significance (Sig)
Electronic Game Addiction	Male	4.15	0.85	1.12	0.26
	Female	4.08	0.80		
Sleep Disorders	Male	3.88	0.81	0.98	0.32
	Female	3.82	0.77		
Anxiety Symptoms	Male	3.94	0.89	1.05	0.29
	Female	3.91	0.87		

Note: The significance level is set at $p < 0.05$.

Accordingly, figures show no statistically significant differences between male and female adolescents on electronic game addiction, sleep disorders, or anxiety symptoms based on independent sample t-test where $t = 1.12$, $\text{Sig} = 0.26$ for electronic game addiction, $t = 0.98$, $\text{Sig} = 0.325$ for sleep disorders and $t = 1.05$, $\text{Sig} = 0.29$ for anxiety symptoms. In sum, the quantitative results show that electric game dependence, sleep disturbance, and anxiety signs are all attested in adolescents. Moreover, the mean inter-correlation pairs of these factors are positive. However, gender differential did not influence these variables in terms of its effects in this sample.

Q4. How do adolescents describe their attachment to electronic games and their impact on their lives?

Whereas closed-ended questions were used to generate quantitative data, the open-ended questions provided qualitative findings that were incorporated in the questionnaires. These questions were asked with the aim of eliciting adolescents' own narratives of electronic game addiction, sleep problems, and anxiety symptoms. The qualitative data gave an insight into how gaming behaviors are exhibited in day-to-day life and the emotional effect that adolescents experience.

Themes Identified from Qualitative Data

1. Emotional Dependence on Gaming: The majority of the participants confessed that they had some level of emotional affiliation to gaming activities. They iterated that they used video games most of the time as a means to flee from real-life stressors majoring in school pressure, family problems and loneliness. Some of the participants reported that gaming helped to offer one or

another type of feeling, be it relief, satisfaction or feeling of achievement. One participant expressed this by stating:

○ *"I play because all my problems are washed away, I put all my problems behind me plus I have no stress or anxiety at the end of the day after playing, I end up worse."*

Such confession is an indication of the goal paradox, i.e. the autocatalytic nature of game addiction. To illustrate, whereas gaming is primarily used to deal with emotional issues, it in turn creates anxiety and stress when excessively practiced.

2. Impact on Sleep Patterns: Most participant said they were able to play games late at night or in the early morning. Weirdly enough, they were fully aware that playing games during these times had caused sleep loss and/or sleep disturbance, a state of affairs which makes them moody during the school day. A common sentiment was:

○ *"I am fully aware that I need some rest, but I still cannot put the controls down and simply play and play and only then glance at the clock and see it is morning already."*

As noted by the participants themselves, this behavior resulted in sleep deprivation most of the time that in turn causes irritability, feeling of exhaustion and increased anxiety. Some of them described how it takes them a long time to sleep after playing games because their brain simply cannot calm down, and others said that they had had very vivid gaming-related dreams.

3. Social Isolation and Interpersonal Conflicts: As with others' impressions, many adolescents also reported social challenges as a consequence of excessive gaming. Some were encouraged by the social interaction that came with online game playing. However, what is worth noting is that whereas some participants confirmed that gaming fostered their ties with peers, others reported that excessive gaming increased their isolation from families and friends. The analysis showed that the respondents preferred to spend time gaming rather than develop social contacts and interpersonal relationships. One participant shared:

○ *"Some of my friends I do not talk regularly with them because they do not game as I do. I just feel safer online."*

Additionally, some of the participants complained about their parents' or guardians' constant misunderstanding, probably due to of the long time they spent gaming, especially when they miss some important duties, when they do not sleep enough hours, and/or when gaming makes them ill-tempered.

4. Gaming as a Source of Anxiety: A number of the participants admitted to having sought solace in gaming in their efforts to fight off anxiety. A similar number confessed to having had increasingly elevated levels of anxiety due to their gaming. Participants discussed how apprehensive they felt when they could not engage in games. Concerning new content and events in games and with regard to feeling about recent games for professional gamers, one participant explained:

○ *'When I can't play I begin to develop nervousness because I feel I am missing in the game and this makes me more nervous'.*

This cycle of anxiety in gaming relieved (and at the same time anxiety symptoms precipitated) was a common theme in the qualitative responses obtained from the participants themselves.

5. Awareness of Addiction: A majority of the participants showed that they had the understanding of reckless gambling behaviors. They understood that they had problematic patterns of gaming that were causing repercussions on the normal functioning of their lives. However, most of the participants described the ability to decrease the time spent playing games as challenging with many of them describing a sense of powerlessness in relation to the addiction. One participant commented:

○ *"Yes, it is: 'I know that I am an addict. I have attempted severally to quit playing the game but I always find myself playing again'".*

The feeling of helplessness corresponds to the already reported cognitive and behavioral ailments in the case of addiction where the subject may understand the harm being caused through the process of the habit but is unable to refrain, hence the addict suffers from emotional and psychological dependence.

6. Desire for Help and Intervention: The study has shown the associated problems of gaming addiction which many of the participants reported that needed help or intervention to overcome. They said that parents', teachers' or specialists' assistance could help them control the amount of time they spend on games and minimize the impact on their sleep and psychological well-being. One participant stated:

○ *"Well, I wish I could take lesser part but I can't and I wish someone can help me about this."*

This theme confirms the fact that sufficient organization for, and institutional support to, teens in their struggle with excessive gaming (and its impact on their sleep and anxiety patterns) is still lacking, and is therefore badly needed in this sociocultural context.

Analysis of the qualitative data collected from the field has brought up some crucial aspects about adolescents' styles that were affected by electronic game addiction. The study shows that, on the one hand, gaming is a form of relaxation and, on the other, it is a cause of stress and anxiety. On self-organized topics, participants discussed how their gaming impacted their sleep, interpersonal and emotional lives. However, the majority of adolescents being interviewed made it clear that although they were dependent on gaming, they had been seeking assistance, especially to overcome gaming addiction, to improve sleep quality, and to reduce anxiety levels.

When synthesizing the quantitative and qualitative data, it becomes evident that there should be a more holistic understanding of how electronic game addiction impacts on the mental health and functioning of adolescents – a major contribution of our study. By using such form of research, statistical relationships which afforded quantification gave additional insights on emotional and social ramifications of game addiction.

DISCUSSION

The main purpose of the research reported above was to examine the effects of electronic game addiction on adolescents' sleep quality and anxiety levels in in some sociocultural setting – namely the Saudi context. The quantitative and the qualitative data obtained from the field provide some crucial findings about the interactions of these variables, a state of affairs that surely contributes to enhancing our understanding of how gaming addiction might have adverse effects on adolescents sleep quality and anxiety symptoms. As for sleep disorders, the descriptive findings confirm the same leanings obtained from the quantitative results. Electronic gaming addiction ($r = 0.56, p < 0.05$) has a positive correlation with sleep disturbances among adolescents. This confirms the findings of other studies, including Liu and Lu (2022) who has opined that there is a mediated relationship between sleep disturbance, mobile phone addiction and anxiety. Our study builds on these insights in the context of gaming where excessive use compromises sleep by causing delayed onset of sleep, night-time awakening and poor sleep quality.

In terms of the quality of experiences, three-quarters of the adolescents stated that they usually delayed sleeping to continue gaming. This behavior concurs with the cognitive-behavioral model of addiction suggested by Billieux et al. (2015) which shows how behaviors interfere with the normal patterns of daily life to cause a sequence of adverse outcomes. Lack of sleep, as described by the participants, leads to heightened sensitivity, mood swings, fatigue, thus adding up onto anxiety levels. Based on these findings, it may be important to consider that improving sleep hygiene may be one of the areas of intervention for minimizing the extent gaming addiction harm/damage on adolescents' well-being.

As for the anxiety levels, the findings show that there is a moderate positive relationship between electronic game addiction and anxiety symptoms ($r = 0.62, p < 0.05$), which suggests that gaming addiction results in a high level of anxiety among Saudi adolescents. This is in line with the findings of a number of research studies conducted in other sociocultural contexts. For example, Billieux et al. (2015) and Ramos et al. (2023) have shown that emotional issues and anxiety are part of the symptoms of problematic use of internet and excessive gaming.

To explain these findings, it is possible to use the cognitive-behavioral model of addiction. This is probably sanctioned because our study has found that the respondents use games specifically to help them avoid and/or minimize real life stress/pressure. Nonetheless, instead of reducing anxiety, this coping strategy turns to negatively affect the gamers' anxiety, inasmuch it has led to insomnia, loneliness, and relationship issues. What this means is that gaming may offer a brief form of escapism, thus contributing to amplifying stress and ways of avoiding it.

The qualitative part shows that participants describe feeling of nervousness when unable to play or when thinking that they are behind in a game, something that confirms the prior understanding of the anxiety-gaming connection. This supports the view that gaming addiction is not a voluntary activity. Additionally, there is some focus on sleep disturbances and anxiety symptoms, as mediators and moderators, to connect gaming addiction with mental health. Figures indicate that sleep is a significant factor in a positive correspondence between sleep disorders and anxiety symptoms ($r = 0.54$, $p < 0.05$). As indicated by the qualitative part of the study, gaming addiction outsources sleeplessness that locks adolescents in a negative loop, causing poor mental health.

The results obtained support the basic tenets of the biopsychosocial model of addiction where the use of substance, viz. addiction, is attributed to the biological, physical, mental, and social dimensions. Sleep disorders can therefore be regarded as a psychological consequence of addiction and at the same time as a somatic condition that perpetuates the process of addiction. Thereby, the interventions aimed at sleep hygiene and emotional regulation can free the young person from the cycle of addiction and reduce anxiety symptoms.

Lastly, the independent sample t-test does not show any significant gender differences in electronic game addiction, sleep disorders and anxiety symptoms, a major finding that runs counter to that of other studies which have shown that males are more likely to engage in video gaming addiction than females (Lemmens et al., 2009). The current findings shows that male and female adolescents have had equal rate of addiction, sleep deprivation and anxiety. This may be a context-specific finding, particularly due to enhancing females' gaming practices as well as the rapid narrowing of the gender gap in the Saudi setting. The finding cannot be confirmed unless further research on gaming practices is conducted in this sociocultural context and in relatively similar ones. However, it should be noted that although no gender differences have emerged in this study, intervention programs designed for the treatment of game addiction should take gender differences into account. This is needed because the bulk of empirical research conducted so far has indicated that the nature of motivations and emotions related to game playing may vary between men and women. Future research could investigate these differences in more detail, especially in relation to how different genders deal with stress and anxious relevant to gaming.

IMPLICATIONS FOR INTERVENTION AND PREVENTION

The findings reveal a significant correlation between gaming addiction and sleep disorders, a state of affairs which implies that sleep health should be culpable to solve the youngsters' gaming addiction problem. CBT dealing with sleep, especially sleep interruption, may help of the demerits related to one's mental well-being, and may aid in fixing excessive gaming.

One of the relationships discovered in the study is that between gaming addiction and anxiety symptoms. This sanctions the need for effective interventions targeting individuals struggling with gaming addiction so as to help solve the problems of emotional dysregulation. Demoralizing, as a way of handling stress and anxiety, can be used to help teenagers reduce the number of hours they spend playing games. Organizations and specific educational programs for parents, teachers and adolescents should also be developed in order to prevent excessive gaming among the youth. Helping adolescents to find ways of moderating their use of games as well as

adopting healthy use of technology would reduce the negative consequences that come with excessive gaming, particularly lack of sleep and anxiety.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

It is necessary to mention some of the limitations of this field investigation; hence the results could have important implications at all levels. One such limitation is that the cross-sectional study precludes the possibility of establishing the casual relationship between gaming addiction, sleep disturbances and the symptoms of anxiety. Had data been collected across different time periods, such kinds of relationships could have been established more clearly. Further, as data was obtained via self-reported surveys, self-bias or social desirability is expected have occurred. For the purpose of future research, the use of more objective data is surely needed to find out the amount of sleep and time adolescents spent on gaming with higher degrees of precision.

CONCLUSION

Our current research has established, with relatively narrow margin of error, how much electronic game addiction affects adolescents' sleep quality and anxiety symptoms. The findings stress the need to exert efforts to reduce dependency, including those that seek to change their behavior and feelings tied to gambling. Thus, by unraveling the multifaceted connections between gaming, sleep, and mental health, clinicians, educationists, and policy makers can better devise their interventionist practices, design their remedy strategies and support requirements needed in today's digital world and work. In our case, the overarching goal is to maintain, encourage and create more health-conscious approaches toward gaming.

REFERENCES

- Abbasi, A. Z., Rehman, U., Afaq, Z., Rafeh, M. A., Hlavacs, H., Mamun, M. A., & Shah, M. U. (2021). Predicting video game addiction through the dimensions of consumer video game engagement: quantitative and cross-sectional study. *JMIR serious games*, 9(4), e30310.
- Albana A H. (2007). Stressful life situations among al-Aqsa University students in Gaza Province and their relationship to sleep and wake disorders according to gender and marital status, *IUG Journal of education and psychology sciences*; 16 (2): 585 – 630.
- Alkhuba, M. (2023). The Nexus of Stress, Anxiety Symptoms, and Smartphone Addiction among Expatriate Students. *Rivista Italiana di Filosofia Analitica Junior*, 14(2), 439-448.
- Alkhuba, M., Alali, A, and Nashwan, N. (2023). Sleep Disorders and Electronic Games Addiction among Jordanian Adolescents. *Journal of Education and Practice*, 14(13), 37-43.
- Alshakhsi, S., Chemnad, K., Almourad, M. B., Altuwairiqi, M., McAlaney, J., & Ali, R. (2022). Problematic internet usage: the impact of objectively Recorded and categorized usage time, emotional intelligence components and subjective happiness about usage. *Heliyon*, 8(10).
- Billari, F. C., Giuntella, O., & Stella, L. (2018). Broadband internet, digital temptations, and sleep. *Journal of Economic Behavior & Organization*, 153, 58-76.
- Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports*, 2(2), 156-162.

- Conte, S., Ghiani, C., Nicotra, E., Bertucci, A., & Truzoli, R. (2022). Development and validation of the smartphone addiction risk children questionnaire (SARCQ). *Heliyon*, 8(2).
- Dipl-Soz, M. D. (2013). Psychological research and a sociological perspective on problematic and addictive computer game use in adolescence. *International Journal of Child and Adolescent Health*, 6(4), 422.
- Figuerola-Quñones, J., Valle-Salvatierra, W., & Teresa, C. H. N. (2024). Facebook addiction and sleep problems in peruvian university students after the COVID-19 pandemic. *Heliyon*, 10(2).
- Jianfeng, H., Xian, Z., & Zexiu, A. (2024). Effects of physical exercise on adolescent short video addiction: A moderated mediation model. *Heliyon*, 10(8).
- Lemmens, J. S., Valkenburg, P. M., & Peter, J. (2009). Development and validation of a game addiction scale for adolescents. *Media psychology*, 12(1), 77-95.
- Lestari, L., Yandri, H., & Sujadi, E. (2024). Navigating the digital abyss: exploring the nexus between loneliness, aggressive behavior, and smartphone addiction among college students. *Counsnesia Indonesian Journal of Guidance and Counseling*, 5(1), 8-19.
- Liu, L., Yao, Y. W., Li, C. S. R., Zhang, J. T., Xia, C. C., Lan, J., ... & Fang, X. Y. (2018). The comorbidity between internet gaming disorder and depression: Interrelationship and neural mechanisms. *Frontiers in psychiatry*, 9, 355673.
- Liu, M., & Lu, C. (2022). Mobile phone addiction and depressive symptoms among Chinese University students: The mediating role of sleep disturbances and the moderating role of gender. *Frontiers in Public Health*, 10, 965135.
- Masaeli, N., & Farhadi, H. (2021). Prevalence of Internet-based addictive behaviors during COVID-19 pandemic: A systematic review. *Journal of addictive diseases*, 39(4), 468-488.
- Ramos, R. F. S., Scatena, A., Kim, H. S., de Oliveira, W. A., & Andrade, A. L. M. (2023). Brazilian Digital Warriors: Unraveling the Nexus of Adolescent Cyber Aggressors, Problematic Internet & Smartphone Use, Emotional Struggles, and Parental Mediation. *Trends in Psychology*, 1-17.
- Routledge., Khrad, H., Marhoomi, A., Alkhiri, A., Alshomrani, A., Bajabir, D., & Mosli, M. (2022). Prevalence of Internet Gaming Disorder among Saudi Arabian university students: relationship with psychological distress. *Heliyon*, 8(12).
- Siste, K., Hanafi, E., Sen, L. T., Adrian, A., & Sieto, N. L. (2023). Craving as a Nexus Of Gaming Disorder, its Assessment Scarcity and Role in Therapy Response: a Case Series. *Archives of Psychiatry Research: An International Journal of Psychiatry and Related Sciences*, 59(2), 319-328.
- Wang, J., Liu, X., Xu, X., Wang, H., & Yang, G. (2024). The Effect of Physical Activity on Sleep Quality Among Chinese College Students: The Chain Mediating Role of Stress and Smartphone Addiction During the COVID-19 Pandemic. *Psychology Research and Behavior Management*, 2135-2147.
- WHO. (2018) *World Health Statistics: Monitoring Health for the SDGs, Sustainable Development Goals*. Geneva.
- Zung, W. W. (1980) A rating instrument for anxiety disorders. *Psychosomatics*; 12:371–379.

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