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The Relationship Between Online Competitive/Collaborative Electronic Gaming and Psychological Security Among Adolescents with Sleep Disorders

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Abstract:

This study aimed to identify the timeframes during which online electronic games are played, reveal the preferred types of games, determine the devices used for gaming, specify the daily duration spent by adolescents with sleep disorders on gaming, uncover the major risks of gaming for these adolescents, and explore their preferences for either competitive or collaborative games. Additionally, the study investigated the relationship between the motivations and reasons for gaming and psychological security, as well as comparing competitive and collaborative gamers in terms of psychological security and their perception of the impacts of gaming.

The sample consisted of (122) male adolescents with sleep disorders aged between (16 to 18) years. The instruments used included the Online Gaming Questionnaire for Adolescents (The researchers), the Psychological Security Scale for Adolescents (The researchers), the Colored Progressive Matrices by Raven (Hassan, 2020), and the Socioeconomic and Cultural Status Scale for Families (Al-Beheiry, 2024).

The findings revealed that (94.26%) adolescents with sleep disorders play electronic games during holidays, Sports games were most played type, accounting for (76.22%), and (75.41%) used device was smartphone, most of participants (32.79%) reported spending an average of three hours daily on gaming. Additionally, (50.82%) of the adolescents indicated that increased tension was the most significant risk associated with gaming, and (51.64%) preferred collaborative games exclusively. The results also revealed a significant positive correlation between gaming motivations and reasons (entertainment and fun, social interaction, competition and achievement, learning and skill development, coping with stress, and the overall score) and psychological security dimensions (self-acceptance, belongingness, perceived social support, meaning of life, and the overall score). Furthermore, there were statistically significant differences between competitive and collaborative gamers on Psychological Security Scale for Adolescents, for collaborative gamers. Additionally, significant differences were found between competitive and collaborative gamers in their perception of the impacts of gaming; collaborative gamers were more aware of the positive impacts, while competitive gamers were more aware of the negative impacts.

Keywords: Online gaming, competitive, collaborative, psychological security, adolescents with sleep disorders.

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Introduction

Competitive and cooperative online video games have become an integral part of many adolescents' lives in the digital era. These games provide opportunities for social interaction and the creation of virtual

identities. However, many teenagers suffer from sleep disorders that negatively affect their psychological balance, pushing them further into gaming as a means of seeking comfort and escaping reality. Video games are among the most popular forms of entertainment, played anywhere—from homes to public transportation, parks, schools, and workplaces. They engage individuals through an interactive relationship between the player and the game.

These games consist of graphics that appear visually, including three-dimensional or full-screen visuals, sound effects such as music or ambient noises, and a user interface that influences player performance. Players interact with the game using tools like a mouse, keyboard, or controller. Other aspects of the game include its nature (e.g., duration and entertainment value), storyline (e.g., background or mid-game information), and knowledge players acquire from in-game characters or scenarios (Ayadat, 2005: 48).

Video games hold a prominent place in modern households, with virtually every family possessing them. They are also referred to as video games, computer games, or online games, all of which present events on a screen and allow players to control outcomes through interactive engagement (Hassan, 2017). As such, the primary purpose of video games is to provide entertainment that stimulates mental, social, and even physical enjoyment (as cited in Rakha, 2021).

Traditional game theory classifies games into two main categories: competitive and cooperative. Competitive games require one or more players to devise strategies against opponents or accomplish tasks efficiently. Competition, whether against a single player or a group, enhances motivation and participation in the game. Conversely, cooperative games focus on player collaboration, offering opportunities for interaction and collective achievement. These games often include negotiable rules, allowing players to determine desired outcomes (as cited in Morsi et al., 2013). Both types of games fulfill adolescents' needs for satisfaction, happiness, and self-actualization.

The Uses and Gratifications Theory, as described by Hassan Makkawi and Laila El-Sayed (1998) (cited in Khalifa, 2016), posits that adolescents are active participants in the mass communication process. They engage with communication tools, including online video games, to fulfill intentional goals and meet their expectations. Adolescents' use of these games reflects their needs and motivations, influenced by individual differences, social interactions, and their selection of games that satisfy their requirements. Moreover, prevailing cultural norms among adolescents can be inferred not just from game content but also from how they utilize such games.

According to this theory, the dynamic interaction between adolescents and online video games can be explained through usage patterns, interaction factors, fulfilled needs, and the consequences of gaming. Adolescents actively interact with messages embedded in online video games, demonstrating that they are not passive recipients but rather active participants in the gaming experience.

Online video games represent a double-edged sword. On one hand, they teach adolescents valuable skills such as observation, reflection, and resilience while providing joy and compensating for deprivation. They are a significant medium for accepting losses, fostering collaboration, increasing vitality, enhancing technological literacy, and promoting scientific thinking through problem-solving. They also improve cognitive and creative skills, enrich imagination, and develop capabilities (Hassan, 2017). However, excessive gaming poses numerous risks, particularly to adolescents' mental, physical, and social well-being (Matar, 2016).

Psychological security is a cornerstone of adolescents' mental health, representing a state of stability and inner tranquility that allows individuals to interact effectively with their surroundings, free from fear and anxiety. According to Maslow's hierarchy of needs (Maslow, 1954: 83-86), psychological security ranks second only to physiological needs and is essential for achieving higher levels of personal growth, such as self-actualization and creativity.

Adolescents face psychological and physical changes during this critical stage, making them more vulnerable to anxiety and distress. Sullivan's Interpersonal Theory (1953: 210-215) emphasizes that psychological security is shaped by safe social interactions, enhancing adolescents' ability to form positive

relationships and adapt to change. Studies, such as Przybylski & Weinstein (2019), indicate that competitive and cooperative games offer adolescents a sense of belonging and achievement. However, excessive gaming can lead to psychological stress and sleep disorders, impacting psychological security.

Sleep disorders are prevalent among individuals with mental health conditions, including depression, and often precede other psychological issues. Even after recovery from primary symptoms, many mental health disorders remain chronic (Abdel-Mageed et al., 2023). Symptoms of sleep disorders include nervous behavior, academic difficulties, mood swings, emotional dysregulation, and extreme fatigue before bedtime (as cited in Mohamed, 2024).

Sleep disorders, particularly those linked to late-night gaming, contribute to mood instability and reduced problem-solving abilities, negatively affecting psychological security (Vriend et al., 2013). This underscores the importance of examining the relationship between online video gaming and psychological security, considering sleep disorders as a mediating factor.

Research Problem

The late 20th century witnessed a communication and information technology revolution, resulting in the proliferation of modern and digital media across both developed and developing nations. Among the most significant developments is the rise of the virtual society and the widespread use of electronic devices and the internet, which have reshaped children's lives, interests, and perceptions of the world around them (Khalifa, 2016).

Video games, as one of the most alluring innovations of computer technology, captivate adolescents, encouraging them to spend extended periods playing. While fulfilling their needs and interests, these games often lead to isolation, as players immerse themselves in virtual worlds at the expense of real-world connections, contributing to communication crises and social alienation. This detachment fosters a sense of estrangement as players form connections with virtual communities that lack real-world presence (Hassan, 2017)

A significant proportion of electronic games revolve around entertainment derived from assaulting others, killing them, and destroying their possessions. These games teach teenagers the methods, techniques, and tricks of committing crimes, fostering violent and aggressive behaviors in their approach to daily challenges. Scenes of violence become embedded in the subconscious, surfacing under triggering circumstances (Mohamed, 2022). The spread of electronic games contributes to the prevalence of violence in society, whether in the form of physical violence, such as explicit fights, or moral violence, evident in a refusal to forgive, an inability to accept apologies, and an entrenched spirit of rebellion against societal values and traditions. These games cater to teenagers' desire to feel heroic, possess superhuman powers, and defeat others, instilling violent tendencies that transition from the virtual world to real-life scenarios (Marzouk, 2017).

The rapid eye movements required during electronic gaming significantly increase eye strain. The electromagnetic radiation emitted from screens causes eye redness, dryness, and blurriness, leading to headaches, physical fatigue, and sometimes anxiety and depression. Prolonged gaming sessions can also result in Internet Gaming Disorder (IGD) (Mohamed, 2022).

Globally, 46% of electronic game users develop some form of internet addiction—a percentage that cannot be underestimated. Symptoms of this addiction include weakened self-control, inability to stop playing, reliance on gaming as a sole companion, obsessive thoughts about gaming, and eagerness for the next session. This issue often escalates as teenagers prefer isolation from family and friends, struggling to form social connections or adapt to those around them (Mohamed, 2022).

In recent years, gaming addiction has become increasingly prevalent. In 2018, the World Health Organization (WHO) included Gaming Disorder in the International Classification of Diseases (ICD-11), defining it as a pattern of excessive or addictive gaming behavior that negatively impacts personal, social, and professional life. This recognition underscores the global significance of the issue

(https://www.who.int/news/item, 2024). In Europe, it is estimated that 1-3% of youth suffer from gaming addiction with noticeable negative effects (Rehbein et al., 2010). A 2019 study in Saudi Arabia revealed that approximately 13% of young gamers exhibited signs of addiction (Al-Mutairi, 2019). In Turkey, gaming addiction rates ranged between 22.4% and 32.4% (Amer et al., 2023). Adolescents and young adults are the most vulnerable demographics, with teenage males, in particular, being more prone to gaming addiction than females (Müller et al., 2018).

The cultivation theory explains the patterns of internet gaming use in relation to media. It posits that this behavior results from incidental learning due to cumulative exposure to media, where individuals subconsciously absorb the values and mental images portrayed in the virtual world. Cultural cultivation occurs through a dynamic process where the content of online games influences teenagers' culture, behavior, family and social relationships, academic performance, and activities. Media, including online games, has a profound impact on individuals' knowledge and perceptions of their surroundings. Increased media exposure leads recipients to adopt a set of beliefs, symbols, and values that shape a symbolic reality distinct from the actual social environment (Al-Khalifa, 2016), affecting their psychological security. Erikson (1986) considers psychological security a cornerstone of a healthy personality and an indicator of success in establishing fulfilling relationships with others (El-Shafei, 2010; cited in Mokhimer, 2003). According to the information-processing theory, it develops through experiences derived from familial and social upbringing, crises, and responses to them. These experiences are encoded and stored in memory, later manifesting as positive behavioral practices when teenagers face stressful situations or challenges. A lack of psychological security leads teenagers to anticipate threats and negative outcomes, distorting and misinterpreting events and incoming information in ways that heighten their perception of danger. This leaves them in a constant state of anxiety, recalling and focusing on threatening events (Veschueren et al., 1996).

Rutter (1989) highlights that a secure relationship characterized by warmth and love between adolescents and their parents acts as a protective factor, fostering feelings of competence and resilience. Conversely, a lack of psychological security often stems from emotional abuse, rejection, threats, and neglect by parents. This deficiency leads to issues such as fear, distrust, excessive caution, inattentiveness, a lack of belonging, dependency, isolation, selfishness, aggression, lying, sadness, and rigid thinking patterns (Abdel-Meguid, 2004; cited in Mokhimer, 2003).

Kaleem (1971) emphasizes that one of the family's primary roles is to provide children with a sense of psychological security and respect for their feelings and thoughts. This foundation enables children to confront and endure problems with patience and strength (Qassem & Sultan, 2008). However, when this role is disrupted, children may experience anxiety and sleep disturbances, significantly affecting the development of their personalities, especially during adolescence.

Sleep disorders pose significant health risks. Neurological theories suggest that certain brain regions, such as the thalamus and hypothalamus, regulate sleep states, and dysfunction in these areas can lead to sleep disturbances. Sleep issues may also arise from poor psychological adjustment (Youssef, 2000: 167). Prevalence rates for sleep disorders range between 25% and 40% among children and adolescents (Azab et al., 2013), with 15% of adolescents with behavioral problems being affected (Van-der Smits & Gunning, 2006). Among males aged 13–14 years, the prevalence reaches 16.67% (El-Bahiri & Mofadal, 2014). A study by Lechat et al. (2021) found that individuals with sleep disorders face increased risks of hypertension, cardiovascular diseases, and a 47% higher mortality rate compared to those without such disorders.

Sleep disturbances impact adolescents' personalities, psychological growth, relationships, and motivation. They result in reduced concentration, difficulty in comprehension, heightened depression, anxiety, anger, diminished feelings of security, increased pain sensitivity, fatigue, exhaustion, headaches, high blood pressure, and a lack of control over actions and movements (Merki & Merki, 1994: 3).

Given the growing influence of electronic games in today's world, the attention of media, psychologists, and educators has turned toward their effects on adolescents' daily lives and psychological well-being. The widespread use of these games, increased time spent playing, and limited parental monitoring of what

teenagers engage with contribute to their negative effects. Competitive and cooperative online gaming often reduces social engagement and trust (Abdel-Malek, 2023). A lack of awareness of these dangers and the effect of gaming on adolescents' psychological security, particularly its potential role in causing sleep disorders, underscores the importance of this study. It aims to explore the relationship between online gaming (competitive/cooperative) and psychological security among adolescents with sleep disorders. The study raises the following research questions:

1. What are the gaming patterns (timing) of adolescents with sleep disorders?
2. What types of electronic games are preferred by adolescents with sleep disorders?
3. What devices do adolescents with sleep disorders use for gaming?
4. How much time do adolescents with sleep disorders spend playing games daily?
5. What are the main risks observed among adolescents with sleep disorders due to gaming?
6. Do adolescents prefer competitive or cooperative online games?
7. Is there a correlation between the scores of adolescents with sleep disorders on the electronic gaming motivation and reasons questionnaire and the psychological security scale?
8. Are there differences in the average scores of adolescents with sleep disorders who play competitive or cooperative online games on the psychological security scale?
9. What are the differences in the perceived effects of gaming among adolescents with sleep disorders based on their game type preference (competitive vs. cooperative)? ### Objectives of the Study
10. This study aimed to:
11. Identify the times when adolescents with sleep disorders play online electronic games.
12. Examine the preferred electronic games among adolescents with sleep disorders.
13. Determine the devices used by adolescents with sleep disorders for gaming.
14. Establish the daily duration spent by adolescents with sleep disorders on electronic gaming.
15. Highlight the main risks associated with electronic gaming among adolescents with sleep disorders.
16. Explore the type of games (competitive vs. cooperative) preferred by adolescents.
17. Investigate the relationship between the motivations and reasons for gaming and psychological security among adolescents with sleep disorders.
18. Compare the psychological security levels between competitive and cooperative gamers among adolescents with sleep disorders.
19. Analyze the differences in perceived impacts of gaming between competitive and cooperative gamers among adolescents with sleep disorders.

Significance of the Study

The importance of this study lies in:

1. The widespread prevalence of electronic gaming among male adolescents, which has drawn attention due to its potential negative and positive effects.
2. Providing scientific data and insights to parents and specialists in developmental psychology and media about the risks of excessive electronic gaming during adolescence.
3. Analyzing the role of new media in shaping digital behaviors and its impact on adolescents' psychological stability.
4. Offering a theoretical foundation for developing guidance programs to reduce excessive electronic gaming among adolescents.
5. Investigating media strategies employed in electronic games and their psychological effects on adolescents.
6. Highlighting how electronic games can be leveraged as tools to enhance social and emotional skills among adolescents with sleep disorders.
7. Exploring how media content within games can be tailored to improve psychological security in adolescents with sleep disorders.

8. Addressing the significant use of electronic games, ranked third in frequency of regular use (four days or more per week) among children and adolescents (Fawzi, 2003), and its potential impact on their thoughts, beliefs, and behaviors.
9. Analyzing electronic games as a media tool shaping adolescents' psychological and social identity.
10. Recognizing the influence of online gaming platforms, which adolescents heavily rely on, in shaping their behaviors.
11. Understanding the relationship between media messages in electronic games and psychological security among adolescents.
12. Investigating the link between sleep disorders and gaming patterns to develop appropriate therapeutic interventions.
13. Examining the role of digital media in mitigating the negative effects of sleep disorders on adolescents' psychological security.
14. Providing scientific data to design awareness or guidance programs aimed at improving sleep quality and psychological security.
15. Contributing to media research focusing on the interaction between digital games and youth mental health.
16. Highlighting the role of technology in shaping adolescents' psychological and social behaviors in the digital transformation era.
17. Offering recommendations for parents and educators on managing adolescents' gaming habits.
18. Supporting the development of educational and health policies to balance digital activity with mental health for adolescents.
19. Enhancing media research focused on the impact of cooperative games in fostering psychological and social relationships among adolescents.
20. 20.alyzing competitive gaming as a medium for expressing digital identity and its influence on psychological security. .

Study Concepts

Definition of Electronic Games

Electronic games are interactive entertainment activities presented through electronic devices, where adolescents compete to score points. They are typically characterized by the use of audiovisual effects and focus on achieving points or completing tasks within predefined rules. These games are primarily based on the principles of competition and excitement (Abd El-Aziz, 2011).
They are types of games played on electronic devices, such as computer games, video games, and mobile phones. These games often feature sound and visual effects, creating an enjoyable experience for adolescents who seek victory or advancement to higher levels. They can be played solo or with others (Matar, 2016).
Electronic games are digital games interacted with through computer screens, TVs, smartphones, and handheld devices, often featuring exciting audiovisual effects and creating a virtual interaction between the player and the game (Hassan, 2017).
These games are presented to adolescents in cooperative or competitive formats, designed to foster competition and cooperation. They are structured to stimulate basic cognitive functions and curiosity, supported by sound, movement, and appropriate visual effects. The cooperative mode involves small groups of at least three individuals working together to complete tasks, while the competitive mode involves smaller groups of five individuals aiming to outperform others (Rakha, 2021).
This study defines electronic games as digital applications designed using programming and computing techniques to create interactive virtual environments. These environments are aimed at entertainment, training, or simulation, relying on user interaction with digital systems through devices like computers, tablets, smartphones, or specialized gaming platforms, using input tools such as controllers or touch screens. The games may integrate 3D graphics and enhanced sound effects to stimulate cognitive and behavioral responses. These games can be competitive (focused on player challenge) or cooperative (focused on collaborative goal achievement).

Definition of Psychological Security

Psychological security refers to an individual's sense of peace and freedom from fears and threats that trigger anxiety. It involves emotional regulation, perseverance through life's challenges, and social support that provides feelings of love, care, and interest. It includes having a positive outlook on the future and the ability to achieve personal goals and aspirations (Haddidi et al., 2023).
It is the individual's sense of value, self-confidence, ability to form successful relationships, social recognition, and capacity to confront thoughts that may harm their mental health (Ali, 2023).
It also encompasses adolescents' inner peace, self-acceptance, and love from others, satisfaction with meeting physiological and psychological needs, minimal anxiety or fear of danger, and overall harmony with themselves, their environment, and society (Murai et al., 2023).
Psychological security is described as a state where an individual feels content with themselves and their life, maintaining a positive approach across various life aspects (Sorour et al., 2024).
For the purposes of this study, psychological security is defined as an adolescent's awareness of the appreciation and support from others, their self-acceptance, satisfaction with their life, emotional tranquility, belonging, enthusiasm for life, balanced pursuit of future goals, and the ability to form positive social relationships. Psychologically secure adolescents feel a sense of meaning in their lives and emotional stability without fear or anxiety. It is operationally measured by responses from the adolescent participants (male adolescents with sleep disorders), reflecting their awareness of social support and self-acceptance, and is assessed using a psychological security scale for adolescents (prepared by the researchers).

Definition of Sleep Disorders

Sleep disorders refer to conditions that affect the ability to sleep regularly and well, either due to health issues or psychological stress. These disorders negatively impact general health and daily functioning (American Psychiatric Association, 2013).
They include difficulties falling asleep, breathing issues during sleep, nightmares, disturbances in transitioning between sleep and wakefulness, excessive daytime sleepiness, or night sweats (Ahmed, 2023).
Sleep disorders encompass conditions such as insomnia, excessive sleepiness, sleepwalking, night terrors, and sleep-related muscle jerks. These disorders result in poor sleep quality, timing, and quantity, causing daytime performance problems and discomfort (Tishtosh & Al-Mutairi, 2024).
Adolescents with sleep disorders in this study are operationally defined as male adolescents aged between 16-18 years, diagnosed based on psychological, physiological, and demographic criteria. Their verbal responses reflect their experiences with insomnia, nightmares, sleepwalking, and talking during sleep, as indicated by their scores on a sleep disorder scale for adolescents (prepared by Al-Bahiri & Mufaddal, 2014).

Previous Studies

1. Studies Addressing the Use of Electronic Games Among Adolescents with Sleep Disorders

- **Elms (2012)** investigated the impact of Deep Mindful Relaxation Technique (DMRT) on self-awakening, sleep quality, and wakefulness among college students. The sample consisted of 8 participants (2 males and 6 females), aged between 18 and 53 years. Using a questionnaire to measure sleep quality and wakefulness, and employing the DMRT intervention technique, the study found that DMRT positively influenced self-awakening before the alarm time. It also revealed that the use of electronic games was associated with decreased sleep quality and delayed sleep onset. Participants who used electronic games before bed faced difficulties waking up and experienced sleep pattern fluctuations.

- **Hale (2013)** examined factors such as bullying, hopelessness, violence in relationships, weight perception, electronic gaming, and sleep duration that influenced suicidal ideation and planning among high school students in the U.S. The study sample consisted of 1,210 participants aged between 14 and 19 years. The Youth Risk Behavior Survey (YRBS) was used to assess risky health behaviors. The findings indicated that hopelessness was a key factor in suicidal thoughts and planning. Short sleep duration and

insufficient physical activity were linked to suicidal behaviors. Additionally, excessive video game use was associated with an increased risk of suicidal ideation, hopelessness, and sleep deprivation. The study highlighted that many adolescents engaged in non-sleep activities, such as watching TV and playing video games, before bedtime, which delayed their sleep onset.

- **Millett (2018)** assessed sleep patterns and the factors influencing sleep among adolescents in urban schools and universities. The sample comprised 1,210 adolescents aged 12 to 18 years. Using a questionnaire to evaluate factors affecting sleep patterns and measuring physical attributes, the study found that adolescents aged 15 to 18 slept fewer than 9 hours per night compared to younger peers. It also noted a delay in sleep onset during weekends compared to weekdays. The study found that engaging in stimulating activities, such as playing electronic games before bedtime, led to sleep problems and delays in sleep onset.

- **Hozman (2020)** examined the longitudinal relationship between video game use and physical, psychological, and social health outcomes among young adults in the U.S. The study sample included 5,114 participants aged 24 to 32 years. The results revealed a correlation between video game use during adolescence and an increased risk of developing metabolic syndrome in adulthood. The study also found associations between video game usage and sleep problems, depression, anxiety, and marijuana use, although no significant relationship was found between video game use and increased aggression or violence.

- **Da Costa, et al. (2021)** focused on the relationship between screen time and physical activity behaviors among Brazilian adolescents. The sample included 718 participants with an average age of 16 years. The study found that boys slept an average of 6.4 hours per night, while girls slept 6.7 hours. Boys spent 10.4 hours per day in sedentary behaviors, while girls spent 10.1 hours. The study indicated that video game use among boys was associated with increased sedentary behavior, decreased physical activity, and poor sleep, while girls showed a similar pattern of reduced physical activity with increased screen time and social media use.

- **Warsaw (2022)** investigated the relationship between digital technology use, including digital games, executive functions, and sleep quality among adolescents. The sample consisted of 217 participants aged 14 to 17 years. The study found a significant negative correlation between smartphone use (including digital games) and sleep quality. However, no correlation was found between smartphone use and any of the measured executive functions, such as inhibition, working memory, attention, and decision-making.

2. Studies Addressing Psychological Security Among Adolescents with Sleep Disorders

- **Wolfson & Carskadon (1998)** explored the relationship between sleep/wake habits and adolescent characteristics (such as age, gender, and school) and their daily performance (mood, academic performance, and behavior). They found that sleep deprivation was linked to poorer school performance and increased daytime sleepiness. Adolescents with lower grades (C's, D's/F's) slept approximately 25 minutes less than those with higher grades (A & B) and reported delayed sleep onset, particularly during weekends. The study also indicated that adolescents who experienced sleep deprivation or delays in sleep onset reported increased depression, lower feelings of psychological security, and difficulty in sleep/wake behavior.

- **DeSantis, et al. (2016)** investigated the relationship between neighborhood characteristics, sleep quality, and psychological stress. The study sample consisted of 873 African American adults, and the results showed that perceived neighborhood safety, social cohesion, and infrastructure quality were significantly associated with sleep quality. The study suggested focusing on enhancing neighborhood safety and social well-being to improve sleep quality and reduce psychological stress. The study emphasized the importance of addressing psychological stress in improving neighborhood characteristics' impact on sleep quality.

These studies collectively highlight the importance of understanding how electronic game usage and psychological factors such as stress and self-esteem influence sleep quality and psychological security,

particularly among adolescents. They emphasize the need for interventions aimed at balancing screen time and improving sleep hygiene to support adolescents' mental and physical health. Here's the English translation of the provided study summaries:

1. Studies on Electronic Gaming Habits Among Adolescents with Sleep Disorders

- **Elms (2012)** investigated the effect of Deep Mindfulness Relaxation Technique (DMRT) on self-waking, sleep quality, and alertness among university students. The sample consisted of 8 participants (2 males and 6 females) aged 18-53. Results showed that DMRT positively affected self-waking before the alarm time, increased alertness, and highlighted a link between electronic gaming and poorer sleep quality, increased sleep onset delays, and more difficulty waking up.

- **Hale (2013)** explored the impact of bullying, hopelessness, relationship violence, weight perception, gaming, and sleep hours on suicidal thoughts among U.S. high school students. The study sample included 1,210 students aged 14-19. Findings indicated that hopelessness was the primary predictor of suicidal ideation, and insufficient sleep and excessive gaming increased the risk. Gaming before bed was linked to delayed sleep and waking times.

- **Millett (2018)** assessed sleep patterns and factors affecting sleep among adolescents in urban schools and universities. The sample of 1,210 adolescents aged 12-18 revealed that those aged 15-18 slept less than 9 hours per night, with gaming before bed leading to later bedtimes and poorer sleep.

- **Hozman (2020)** examined the long-term relationship between video game use and physical, mental, and social health outcomes. The sample consisted of 5,114 young adults aged 24-32. Results showed that video game use during adolescence was associated with increased risk of developing metabolic syndrome, sleep issues, depression, anxiety, and marijuana use, without a link to aggression or violence.

- **Da Costa et al. (2021)** studied screen time and physical activity behaviors in Brazilian adolescents, showing that excessive gaming led to increased sedentary behavior and decreased physical activity and sleep.

- **Warsaw (2022)** analyzed the link between digital technology use (including gaming), executive functions, and sleep quality in adolescents. The sample of 217 participants aged 14-17 showed a significant negative correlation between smartphone use (including gaming) and sleep quality.

2. Studies on Psychological Safety Among Adolescents with Sleep Disorders

- **Wolfson & Carskadon (1998)** explored sleep habits, academic performance, mood, and behavior in adolescents. Findings suggested that insufficient sleep, caused by delayed bedtimes, negatively affected mood, academic performance, and psychological safety, contributing to depression and daytime sleepiness.

- **DeSantis et al. (2016)** examined neighborhood characteristics, sleep quality, and the role of psychological stress. The study showed that perceived neighborhood security and social cohesion were linked to better sleep, with stress reducing these effects.

3. Studies on the Use of Electronic Games and Their Impact on Psychological Safety

- **Gunn et al. (2017)** explored how social behaviors during stress affect sleep quality. Warm, supportive relationships improved sleep quality by reducing mental and physical arousal before sleep.

- **Tsai et al. (2018)** focused on the relationship between parental support, family stress, and sleep quality in adolescents. Results indicated that parental support in stressful family environments led to better sleep, reduced night waking, and improved sleep stability.

- **Poindexter (2024)** examined how neighborhood disorder (crime and poor environment) affects sleep disturbances, such as insomnia, through fear and perceived psychological safety. Findings revealed that perceived neighborhood disorder negatively affected sleep duration, with fear mediating the relationship between neighborhood disorder and insomnia.

- **Tibbitt (2024)** studied sleep disorders in pregnant Black women, showing that lack of communal care, insufficient medical support, and low psychological safety contributed to sleep disturbances during pregnancy. The study recommended regular assessment of sleep disorders during prenatal visits.

- **Kochuchakkalackal & Reyes (2019)** evaluated the effectiveness of a cognitive restructuring intervention to reduce internet gaming disorder (IGD) symptoms and improve psychological well-being in adolescents. Results showed significant improvements in psychological well-being and reductions in IGD symptoms, supporting broader implementation of such interventions.

These studies collectively highlight the relationship between gaming, sleep disturbances, and psychological safety, especially in adolescents, with a focus on improving sleep quality through interventions like family support and addressing neighborhood conditions.

Here is the English translation of the new study summaries and commentary:

1. Studies on the Impact of Excessive Video Game Use and Harmful Online Content on Psychological Safety

- **Butkevich (2022)** conducted a study that aimed to analyze the psychological threats faced by individuals and society due to excessive video game use and harmful online content, and how these threats affect psychological safety. The study reviewed various data sources, previous studies, and foreign legislation, including Russian initiatives. The results indicated that excessive video game use and harmful content pose significant threats to psychological safety, leading to negative effects such as increased aggression, social communication difficulties, and depression and anxiety. The study recommended improving risk prevention systems through targeted psychological and educational interventions for adolescents and young adults.

- **D'Errico et al. (2022)** evaluated the effectiveness of a video game called "Scacciarischi" (Disappearing Risks) in increasing adolescents' awareness of health and safety risks. The study focused on participants' awareness of potential risks in their home, school, and workplace environments related to electronic gaming, and analyzed the impact of gaming on improving preventive behaviors and self-responsibility among adolescents. The sample consisted of 149 participants (50.3% males, 49.7% females), aged 11-13 years. The game was followed by a questionnaire to measure engagement, risk awareness (such as health and safety risks), internal locus of control, and psychological safety. The results showed that playing "Scacciarischi" was associated with increased engagement, greater internal locus of control, and increased awareness of risks. Females showed higher levels of engagement and interaction compared to males. The study emphasized the importance of games as educational tools for improving health and safety awareness and called for incorporating more games into school curricula to develop preventive behaviors and enhance personal responsibility.

2. Commentary on Previous Studies

1. There is a lack of studies in the Arab literature regarding the relationship between electronic gaming and psychological safety among adolescents with sleep disorders.

2. There is a scarcity of studies in the Arab literature on the use of electronic games by adolescents with sleep disorders.

3. There is a lack of research on psychological safety among adolescents with sleep disorders in Arab studies.

4. The study by **Da Costa et al. (2021)** indicated that males had less sleep time than females due to their increased video gaming.

5. The use of video games is associated with poorer sleep quality and delays in falling asleep (**Elms, 2012; Millett, 2018**) and is linked to increased risk of suicidal thoughts, hopelessness, and insufficient sleep (**Hale, 2013**), as well as depression, anxiety, and marijuana use (**Hozman, 2020**).

6. Insufficient sleep and lack of physical activity contribute to suicidal behaviors (**Hale, 2013**) and increase the risk of developing metabolic syndrome in adulthood (**Hozman, 2020**).

7. Sleep duration, sedentary behaviors, and physical activity among adolescents can be assessed using accelerometers (worn on the wrist) (**Da Costa et al., 2021**), sleep quality scales (**Warsaw, 2022**), and sleep diaries (**DeSantis et al., 2016**).

8. The study samples varied, including high school students, university students, children, and pregnant women, with most studies focusing on adolescents.

9. A small sample size (n=10) in one study (**Kochuchakkalackal & Reyes, 2019**) makes it difficult to generalize the results.

10. Poor academic performance in adolescents was associated with getting approximately 25 minutes less sleep on school days and going to bed 40 minutes later (**Wolfson & Carskadon, 1998**).

11. Sleep deprivation is positively associated with depression and stress, and negatively with psychological safety (**Wolfson & Carskadon, 1998**).

12. Warm relationships, such as closeness and psychological safety, are linked to reduced mental arousal before sleep and improved sleep quality (**Gunn et al., 2017**). Supportive family relationships provide a sense of stability and psychological safety that promotes healthy sleep (**Tsai et al., 2018**).

13. Excessive video game use and harmful content are significant threats to psychological safety (**Butkevich, 2022**).

14. Sample ages varied across studies, ranging from 18-53 years (**Elms, 2012**) to 11-13 years (**D'Errico et al., 2022**).

15. The sample sizes varied across studies, with one study including n=10 (**Kochuchakkalackal & Reyes, 2019**) and another including n=5114 (**Hozman, 2020**).

16. Most studies relied on correlational-comparative or descriptive-analytical methods.

3. Applications and Benefits of Previous Studies

1. Identifying the study problem and its research questions.

2. Determining the appropriate research methodology used in previous studies.

3. Identifying the sample type (adolescent males).

4. Choosing an appropriate age range for the sample, as adolescents are the primary group involved in electronic gaming.

5. Preparing a questionnaire on electronic gaming behaviors among adolescents.

6. Preparing a scale for psychological safety among adolescents with sleep disorders.

7. Comparing the results of this study with the findings from previous research.

This summary highlights the complex relationship between video game use, sleep disorders, and psychological safety, emphasizing the need for targeted interventions to address these issues, especially among adolescents.

Research Questions and Hypotheses

1. What are the times during which adolescents with sleep disorders engage in online video gaming?

2. What are the preferred video games among adolescents with sleep disorders?

3. What devices do adolescents with sleep disorders use to play video games?

4. What is the amount of time adolescents with sleep disorders spend on online video gaming daily?

5. What are the main risks associated with online video gaming for adolescents with sleep disorders?

6. What type of games (competitive or cooperative) do adolescents prefer to play online?

7. Is there a statistically significant correlation between the responses of the sample of adolescents with sleep disorders on the online video gaming questionnaire (motives and reasons) and the psychological security scale for adolescents?

8. Are there statistically significant differences between the mean scores of adolescents with sleep disorders who engage in competitive versus cooperative video games online on the psychological security scale for adolescents?

9. Are there statistically significant differences between the mean scores of adolescents with sleep disorders who engage in competitive versus cooperative video games online in their perception of the effects of gaming?

Methodology and Procedures of the Study

1. Study Methodology

This study used both descriptive methods: analytical and correlational comparative, to reveal the relationship between video gaming (motives and reasons) and psychological security among the sample of adolescents with sleep disorders. It also compares the psychological security of adolescents with sleep disorders who engage in competitive versus cooperative video gaming online, along with the positive and negative effects of these games.

2. Study Sample

- **Study Population:** The study population consisted of male high school students with sleep disorders aged 16-18 in the Gharbia Governorate.

- **Study Sample:** An intentional sample of 450 male adolescents with sleep disorders who engage in online competitive and cooperative video games was initially selected, based on the following criteria:

1. Adolescent participants were identified by mental health professionals, social workers, and school staff.

2. Several exclusion criteria were applied (e.g., poor academic performance, health problems, vision or hearing impairments, behavioral issues, etc.).

3. The remaining sample after these exclusions was 190 adolescents, who were tested using the Sleep Disorder Scale (Bahiri & Mufadal, 2014). Those who scored above a certain percentile were selected, resulting in a final sample size of 122 adolescents, aged 16-18.

4. 72 adolescents were identified as playing cooperative video games, and 50 played competitive video games.

The study compared the two groups of adolescents (competitive vs. cooperative gamers) to ensure equivalency across variables that might influence the study's outcomes.

Table 1: Means, Standard Deviations, t-values, and Significance of Differences Between Adolescents Engaged in Competitive vs. Cooperative Video Games

Variable	Competitive Gamers (n=50)	Cooperative Gamers (n=72)	t-value	Significance Level
Age	16.96 ± 0.781	17.01 ± 0.721	0.392	Not Significant
Intelligence	95.08 ± 1.426	94.92 ± 1.828	0.529	Not Significant
Economic Level	33.22 ± 2.073	33.07 ± 2.144	0.387	Not Significant

Variable	Competitive Gamers (n=50)	Cooperative Gamers (n=72)	t-value	Significance Level
Social Level	36.20 ± 5.190	36.39 ± 1.389	0.294	Not Significant
Cultural Level	32.14 ± 2.203	32.19 ± 2.317	0.130	Not Significant
Sleep Disorders	123.60 ± 2.441	123.51 ± 1.920	0.218	Not Significant

Findings from Table 1: There were no statistically significant differences between the groups of adolescents engaged in competitive and cooperative video games in terms of age, intelligence, economic status, social status, cultural level, or sleep disorders. This confirms that the two groups are comparable on these variables.

3. Research Instruments

A - Electronic Gaming Questionnaire for Adolescents:

This questionnaire was designed to assess the degree to which adolescents with sleep disorders engage in online video gaming. It was developed to match the cultural and social context of Egypt and provide an appropriate tool for this specific sample. The questionnaire was based on previous research and was refined through a pilot study to ensure clarity and comprehension. It contains 52 items in its final form, addressing gaming patterns, motives and reasons for gaming, and perceptions of the positive and negative effects of video gaming.

Reliability and validity of the tool were tested using a sample of 35 adolescents. The Cronbach's alpha reliability coefficient was 0.794, and the split-half reliability coefficient was 0.915. The validity was assessed through a criterion-related approach, comparing the scores with an existing gaming questionnaire, resulting in a significant correlation coefficient of 0.902.

B - Psychological Security Scale for Adolescents

This scale was developed by the researchers to estimate the level of psychological security and provide a psychometric tool derived from the general Arab environment, and specifically from Egyptian culture, to suit the characteristics and traits of adolescent boys with sleep disorders, aged between 16 and 18 years. This is particularly important as the psychometric heritage did not reveal any similar tool for this group. The stages of developing this scale can be summarized as follows:

1. **Reviewing literature** that discusses psychological security in general and specifically among the study sample. A survey was conducted on previously created scales to measure it. This study concluded that the most suitable format for the scale's content was a paper-and-pencil test, so the scale was developed to be verbal.

2. **Defining the components of the scale** was done through the application of an open-ended questionnaire to experts in dealing with adolescent boys with sleep disorders. The aim was to identify the components and behaviors of psychological security. An open interview was also conducted with some parents of adolescents with sleep disorders and a sample of the adolescents themselves (n=10) to collect the same information after simplifying the questions and relating them to their life situations. Additionally, previous scales developed for measuring psychological security on other samples were reviewed (e.g., Al-Najjar, 2013; Qassem & Sultan, 2008; Mekhemer, 2003) to identify their contents. Based on this, the researchers derived the most common components, which were ranked as follows: self-acceptance, belonging, perceived social support, and meaning of life. The items were then formulated to fit the study sample of adolescents, ensuring that they were not negative, contained no vague words like "often," "sometimes," or "rarely," and that each item focused on a single idea. Positive and negative phrasing was alternated, and social desirability bias was avoided by randomizing the scale items. The initial version

contained 40 items, and a 3-point response scale was used ("Agree," "Sometimes," "Disagree"), with scores assigned as follows: "Agree" = 3 points, "Sometimes" = 2 points, "Disagree" = 1 point.

3. **Expert judgment** of the scale components was done by presenting them to experts in dealing with adolescent boys with sleep disorders to assess the appropriateness of the instructions, the length of the scale, and whether the items measured the intended component clearly and in a way that adolescents could easily understand. Based on expert feedback, six items were removed, and those that received less than 33.33% agreement were modified.

4. **Pilot testing** was conducted on a sample of 6 adolescents, and 16.67% of them indicated difficulty in understanding some of the items, which were reworded for better clarity. After modifications, the final version of the scale consisted of 34 items, representing the four components. A higher score on the scale indicated greater psychological security. The average time to complete the scale was 20 minutes.

5. **Validity** was assessed using criterion-related validity by correlating scores from 30 adolescents (average age = 14.17 years) on this scale with scores on a psychological security scale developed by Heba Allah Abdel-Fattah (2011), resulting in a correlation coefficient of 0.821, which was significant at the 0.01 level.

Reliability was assessed in two ways: (a) test-retest reliability after 15 days, yielding a coefficient of 0.976, and (b) internal consistency using Cronbach's alpha, yielding a coefficient of 0.988, both indicating acceptable reliability.

C - Raven's Progressive Matrices Test

Raven's test, which was standardized for the Egyptian environment by Hassan (2020), is a non-verbal intelligence test suitable for individuals aged 5 years to elderly adults. It consists of a series of designs divided into three sections of increasing difficulty (A, Ab, B), each containing 12 items. The test includes 36 matrices, each with a missing part, and the individual must choose the correct missing part from six options. One correct answer is worth 1 point, and incorrect answers are scored as zero. The maximum score on the test is 36. Reliability for the Egyptian sample was assessed using the Kuder-Richardson formula, yielding a coefficient of 0.85. Validity was assessed through correlations between this test and subtests from the Wechsler Intelligence Scale, the Porteus Maze Test, and the Segan Board, with correlation values ranging from 0.28 to 0.52. The subtest correlations ranged from 0.45 to 0.73, and correlations between subtests and the total score ranged from 0.87 to 0.93, all statistically significant at the 0.01 level.

D - Socioeconomic and Cultural Status Scale for Families

This scale, developed by El-Bahiri (2024), is used to assess the economic, social, and cultural status of families. It contains 36 items and was employed in this study to exclude individuals with below-average socioeconomic status and to calculate the equivalence between participants in competitive and participatory games in terms of their socioeconomic and cultural status. El-Bahiri assessed the scale's validity in several ways:

- **Criterion-related validity** was assessed by calculating Pearson's correlation coefficient between the scores of 210 individuals on this scale and their scores on the socioeconomic status scale developed by Saafan and Khattab (2016). Correlations for the three levels and the total score ranged from 0.792 to 0.841.

- **Exploratory factor validity** was assessed using data from 3,858 individuals across all age groups and educational levels in all governorates of Egypt. The total variance explained by the scale was 80.303%, and item loadings on the first factor (economic level) ranged from 0.798 to 0.834, on the second factor (social level) from 0.566 to 0.828, and on the third factor (cultural level) from 0.509 to 0.714.

- **Reliability** was assessed using two methods: (a) split-half reliability, after correcting for scale length using the Spearman-Brown formula, with values ranging from 0.846 to 0.894 for the levels and the total score, and (b) test-retest reliability after 15 days, with values ranging from 0.857 to 0.915 for the levels and total score. **Fourth: Procedures for Applying the Study Tools**

- The study tools were applied in the months of February, March, and April 2024. The first step involved selecting a sample of male adolescents with sleep disorders using the previously mentioned methods and tools, and calculating the equivalence between adolescents who engage in competitive and participatory electronic games based on variables such as age, intelligence, socio-economic and cultural status, and sleep disorders. The application was conducted in groups in the library of each school at the same location and time, on different days. The application began with the Psychological Security Scale for Adolescents, followed by a questionnaire on the adolescents' engagement with electronic games.

- **Fifth: Statistical Methods Used in the Study**

- The study utilized Pearson's correlation coefficient, Cronbach's alpha, and the parametric t-test for determining the significance of differences between independent groups. These methods were selected based on the sample size, the nature of the hypotheses, and the type of tools used.

- **Sixth: Study Results**

- **What are the times at which adolescents with sleep disorders play online electronic games?**

- To determine the times at which adolescents with sleep disorders engage in online electronic games, frequencies and percentages were calculated, as shown in Table 2.

- **Table 2: Frequencies and Percentages of Times Adolescents with Sleep Disorders Play Online Electronic Games**

Usage Time	Frequency (K)	Percentage (%)
In the morning before school	15	12.29%
At noon after returning from school	19	15.57%
At school	21	17.21%
In the evening before sleep	98	80.32%
Only on weekends	104	85.24%
During holidays	115	94.26%

- The results from Table 2 indicate that adolescents with sleep disorders prefer to play electronic games during holidays (94.26%), on weekends (85.24%), and in the evening before sleep (80.32%). A smaller proportion of adolescents play in the school (17.21%), at noon after returning from school (15.57%), or in the morning before school (12.29%). It was also observed that some adolescents selected multiple options.

- The timing of the games is not limited to playtime but reveals a deeper relationship between gaming and sleep disorders. By analyzing these patterns, it is possible to gain a broader understanding of how games are used as a means of escape or expression, and how this affects sleep quality and psychological security. The timing of gaming emerges as a key factor in understanding issues such as time management, addiction, and the psychological and social well-being of adolescents.

- These results suggest that adolescents with sleep disorders tend to play electronic games during specific times linked to their daily routines. The high percentages for holiday and weekend gaming indicate a desire for recreation and social interaction online, where school commitments are reduced. Meanwhile, playing in the evening before sleep could negatively impact their sleep quality due to the suppression of melatonin production by blue light exposure. Gaming during school hours or in the morning may suggest gaming addiction, potentially affecting academic performance and social interaction.

- The findings also imply that adolescents use games to cope with feelings of anxiety, stress, and isolation. Evening or early morning gaming points to a pattern of using games as an escape from daily pressures or as a way to fill emotional gaps. This directly affects their schedules, leading to an unbalanced lifestyle. Gaming right before sleep can delay natural sleep due to neural stimulation, while morning or school-time gaming may reflect skewed priorities, with sleep and responsibilities taking a backseat.

- **What are the preferred electronic games for adolescents with sleep disorders?**

- To determine the preferred electronic games of adolescents with sleep disorders, frequencies and percentages were calculated, as shown in Table 3.

- **Table 3: Frequencies and Percentages of Electronic Games Preferred by Adolescents with Sleep Disorders**

Game Type	Frequency (K)	Percentage (%)
Sports Games	93	76.22%
Puzzle Games	22	18.03%
Racing Games	28	22.95%
Combat and War Games	54	44.26%
Adventure Games	33	27.04%
Educational Games	11	9.01%
Violent Sports Games	47	38.52%
Shooting Games	76	62.29%
Shopping Games	41	33.60%
Coloring Games	36	29.51%
Cooking Games	45	36.88%

- The results from Table 3 show that the most commonly played games among adolescents with sleep disorders were sports games (76.22%), followed by shooting games (62.29%) and combat games (44.26%). The least preferred games were educational games (9.01%). Many adolescents play more than one type of game.

- The results reveal diverse preferences for electronic games among adolescents with sleep disorders, reflecting their psychological and social needs. High percentages for sports games, shooting games, and combat games indicate that adolescents are drawn to challenging and competitive games that provide a sense of achievement, which aligns with typical male psychological needs. These preferences may also indicate a desire to compensate for a lack of physical activity or social interaction.

- The moderate percentages for games like cooking (36.88%) and coloring (29.51%) suggest a shift towards activities that offer self-expression and creativity, which may help alleviate stress and promote relaxation. The low percentages for puzzle (18.03%) and educational games (9.01%) reflect a preference for recreational rather than cognitively demanding games, showing a tendency to escape from pressure rather than face additional cognitive challenges.

- Electronic games vary in content and approach, affecting adolescents' behaviors and attitudes. Online games, in particular, can be more anxiety-inducing because they lack a clear endpoint and can lead

to longer, uncontrolled playing sessions. The addictive potential of online gaming is higher, making it a significant factor in the relationship between gaming and sleep disorders.

- **4. The devices used by adolescents with sleep disorders to play electronic games**
- To determine the devices used by adolescents with sleep disorders to play electronic games, frequencies and percentages were calculated, as shown in Table (4):

Table (4) Frequencies and percentages of devices used by adolescents with sleep disorders to play electronic games

Device	Frequency (K)	Percentage (%)
Computer (Desktop)	6	4.92%
Laptop	31	25.41%
PlayStation	87	71.31%
iPad	10	8.19%
Tablet	24	19.67%
Mobile Phone	92	75.41%

- The results from Table (4) indicate that the most commonly used device for playing electronic games among adolescents with sleep disorders is the mobile phone, with a percentage of 75.41%. This is followed by the PlayStation at 71.31%, the laptop at 25.41%, the tablet at 19.67%, and the iPad at 8.19%. The least used device is the desktop computer at 4.92%.
- These findings can be explained by the fact that mobile phones are the most accessible devices for adolescents due to their portability and constant availability. This makes them the preferred choice for gaming at any time and in any location. Additionally, mobile phones offer a wide variety of electronic games, including both competitive and collaborative ones, with simple and easy-to-navigate interfaces. Mobile gaming also allows adolescents to connect with their peers online, which strengthens their sense of belonging to gaming communities.
- This pattern of device usage highlights the role of mobile phones in facilitating constant access to electronic gaming, further influencing sleep disorders as mobile gaming is often linked with late-night play, contributing to disrupted sleep schedules.
- 4o mini
- **4. The time spent by adolescents with sleep disorders playing electronic games daily**
- To determine the time spent by adolescents with sleep disorders playing electronic games daily, the frequencies and percentages were calculated, as shown in Table (5):

Table (5) Frequencies and percentages of the time spent by adolescents with sleep disorders playing electronic games

Time period	Frequency (K)	Percentage (%)
One hour	19	15.57%
Two hours	34	27.87%
Three hours	40	32.79%
Four hours	21	17.21%
Five hours	5	4.10%

Time period	Frequency (K)	Percentage (%)
More than five hours	3	2.46%
Total	122	100%

- The results of Table (5) show that the most common time spent by adolescents in electronic gaming is three hours daily, representing 32.79% of respondents. This is followed by two hours at 27.87%, four hours at 17.21%, one hour at 15.57%, five hours at 4.10%, and more than five hours at 2.46%.
- The most popular time duration (three hours) can be attributed to the fact that electronic games are designed to be engaging and stimulating, encouraging adolescents to remain immersed for moderate periods. Three hours daily might strike a balance between adolescents' desire for enjoyment and the need to fulfill other daily obligations. For adolescents with sleep disorders, this period of gaming may serve as a way to occupy time when they experience insomnia, without reaching excessive durations that could cause harm.
- For those spending two hours daily (27.87%) or one hour (15.57%), this may indicate a greater awareness of the need to limit gaming time or that these adolescents live in more structured environments with stricter time limitations. These adolescents may not prioritize gaming and might see it as a secondary form of entertainment rather than a primary activity.
- On the other hand, the longer periods—four hours (17.21%), five hours (4.10%), and more than five hours (2.46%)—may indicate that these adolescents suffer from more severe sleep disorders, making it difficult for them to sleep during the night. This leads them to spend extended periods playing electronic games. Such adolescents are often more vulnerable to gaming addiction, particularly if the games are competitive or challenging. Prolonged gaming periods may also reflect a lack of parental guidance or time restrictions, allowing these adolescents to become excessively involved in gaming. Additionally, adolescents who spend excessive amounts of time gaming may feel emotionally attached to the gaming communities, as these provide a sense of social belonging that might be lacking in their real lives.
- The variation in time spent gaming highlights the severity of sleep disorders in adolescents. Those with mild disorders may engage in short gaming sessions for entertainment, while those with severe disorders may rely on games as a primary means of passing time and escaping insomnia. Environmental factors such as family dynamics, academic commitments, and social interactions outside gaming play a role in determining how much time adolescents spend playing games.
- Moderate gaming times (2–3 hours) may be relatively healthy, as they provide a sense of accomplishment and entertainment without noticeable negative effects on sleep or mental health. However, longer periods (4 hours or more) could negatively impact adolescents' psychological well-being by reinforcing social isolation and increasing anxiety, particularly due to excessive competitiveness in games. Conversely, less than two hours of gaming might be insufficient to meet some adolescents' entertainment needs but may indicate good personal organization and awareness of gaming's impact on mental health.

5. What are the main risks that adolescents with sleep disorders experience from playing electronic games?

To identify the main risks experienced by adolescents with sleep disorders from playing electronic games online, the frequencies and percentages were calculated, as shown in Table (6):

Table (6) Frequencies and percentages of the risks experienced by adolescents with sleep disorders from playing electronic games

Risk	Frequency (K)	Percentage (%)
Eye problems (redness, itching, or blurriness)	33	27.04%

Risk	Frequency (K)	Percentage (%)
Aggression	34	27.87%
Speaking loudly	28	22.95%
Loss of sense of time	46	37.70%
Isolation	32	26.23%
Sleep disorders	27	22.13%
Defiance towards parents	36	29.51%
Academic delay	13	10.66%
Cyberbullying	16	13.11%
Muscle pain	51	41.80%
Increased stress	62	50.82%

The results of Table (6) show that the main risks experienced by adolescents with sleep disorders from electronic gaming are:

1. **Increased stress (50.82%)**: The most commonly reported risk is increased stress, which could be related to the intense, competitive, or challenging nature of many games. Stress might also arise from time pressure or in-game frustrations, amplifying adolescents' anxiety levels.

2. **Muscle pain (41.80%)**: A significant portion of adolescents (41.80%) report muscle pain, likely from prolonged periods of sitting or improper posture while gaming. This physical discomfort might also contribute to a cycle of stress and sleep issues.

3. **Loss of sense of time (37.70%)**: A notable percentage (37.70%) of adolescents mention losing track of time while gaming, which can lead to disrupted sleep patterns, as they stay engaged in games late into the night.

4. **Aggression (27.87%)** and **Eye problems (27.04%)**: Aggression and eye problems, such as redness, itching, or blurriness, are common, especially with the intense nature of competitive games. Prolonged screen time may strain the eyes, and aggressive behavior may result from frustration in games or the need to assert dominance.

5. **Defiance towards parents (29.51%)**: Some adolescents (29.51%) report becoming defiant toward their parents, likely as a result of conflicts over gaming time or the emotional intensity of the games.

6. **Isolation (26.23%)**: A quarter of adolescents (26.23%) report isolation, which could be a result of spending long hours gaming rather than engaging in face-to-face social interactions, leading to feelings of loneliness.

7. **Sleep disorders (22.13%)**: Surprisingly, sleep disorders remain a common issue (22.13%) despite being part of the study's focus. This shows a cyclical effect, where gaming exacerbates sleep problems.

8. **Cyberbullying (13.11%)** and **Academic delay (10.66%)**: A smaller number of adolescents report experiencing cyberbullying (13.11%) or academic delays (10.66%) as a result of excessive gaming. These risks are often compounded by the social dynamics of online gaming communities.

These results highlight the diverse physical, emotional, and social risks that adolescents with sleep disorders face due to their gaming habits. These include physical health issues like muscle pain and eye problems, psychological effects like increased stress and aggression, and social challenges like isolation and defiance. Additionally, gaming can interfere with academic performance and sleep patterns, contributing to a cycle of negative consequences for adolescents struggling with sleep disorders.

6. What type of games (competitive or collaborative) do adolescents prefer to play online?

To determine the type of games preferred by male adolescents with sleep disorders, the frequencies and percentages were calculated, as shown in Table (7):

Table (7) Frequencies and percentages of the types of electronic games preferred by male adolescents with sleep disorders

Type of Games	**Frequency (K)**	**Percentage (%)**
Competitive games only	43	35.25%
Collaborative games only	63	51.64%
Competitive and collaborative games	16	13.11%
Total	122	100%

The results of Table (7) show that a majority of male adolescents with sleep disorders (51.64%) prefer to play **collaborative games only**. These games often focus on teamwork, communication, and collective objectives, which might provide a sense of connection and shared purpose.

A significant portion (35.25%) prefer **competitive games**, which are typically designed around individual performance, challenges, and direct competition with other players. This could appeal to adolescents looking for excitement, recognition, or validation.

Additionally, 13.11% of the adolescents prefer games that combine **both competitive and collaborative aspects**. These games might offer the best of both worlds, allowing for the balance of individual skill and teamwork.

These preferences highlight a tendency among adolescents with sleep disorders to gravitate toward either cooperative environments, where they can experience social interactions and camaraderie, or competitive environments, where they can challenge themselves and seek validation through achievements.

7. Is there a statistically significant correlation between the responses of the adolescent sample with sleep disorders on the electronic gaming practice questionnaire (motives and reasons) and the adolescent psychological security scale?

To verify this hypothesis, Pearson's correlation coefficient was calculated, as shown in Table (8):

Table (8) Pearson correlation values between the responses of the adolescent sample with sleep disorders (N = 122) on the electronic gaming practice questionnaire (motives and reasons) and the adolescent psychological security scale

Dimension	**Entertainment & Fun**	**Social Interaction**	**Competition & Achievement**	**Learning & Skill Development**	**Stress Relief**	**Total Motives & Reasons Score**
Self-Acceptance	0.752**	0.637**	0.644**	0.535**	0.721**	0.733**

Dimension	Entertainment & Fun	Social Interaction	Competition & Achievement	Learning & Skill Development	Stress Relief	Total Motives & Reasons Score
Belonging	0.738**	0.613**	0.507**	0.624**	0.677**	0.713**
Perceived Social Support	0.954**	0.746**	0.668**	0.748**	0.911**	0.907**
Meaning of Life	0.916**	0.727**	0.641**	0.687**	0.930**	0.877**
Overall Psychological Security	0.950**	0.771**	0.698**	0.734**	0.914**	0.913**

**Note: ** Significant at the 0.01 level.

Analysis of Results:
The results in Table (8) confirm the first hypothesis, showing a statistically significant positive correlation between the responses of adolescents with sleep disorders on the electronic gaming practice questionnaire (motives and reasons) and the adolescent psychological security scale (self-acceptance, belonging, perceived social support, meaning of life, and overall psychological security) at the 0.01 significance level.

Specifically:

- There is a strong positive correlation between the motives for gaming (such as entertainment, social interaction, and stress relief) and key aspects of psychological security, including self-acceptance, belonging, and perceived social support.
- These correlations suggest that adolescents who engage in gaming for fun or to relieve stress may experience higher levels of psychological security, particularly in terms of social support and feelings of belonging.
- The correlations are also strong between gaming motives and overall psychological security, implying that the reasons for playing games are tightly linked to the adolescents' sense of self-worth and connection to others.

These findings underscore the complex relationship between gaming, social interaction, and psychological security in adolescents with sleep disorders.

9. Are there statistically significant differences between the mean scores of adolescents with sleep disorders practicing electronic gaming (competitive/cooperative) online in terms of their perception of the effects of these games on them?

To verify this hypothesis, an independent-samples t-test was conducted to assess the differences between the groups, as shown in Table (10).

Table (10) Mean scores, standard deviations, t-values, and significance levels between adolescents practicing electronic gaming (competitive/cooperative) online in terms of their perception of the effects of these games

Variable	Cooperative Gamers (N = 72)	Competitive Gamers (N = 50)	t-value	Significance Level
Positive Effects of Gaming	22.805 (1.240)	16.760 (1.393)	25.163	0.01

Variable	Cooperative Gamers (N = 72)	Competitive Gamers (N = 50)	t-value	Significance Level
Negative Effects of Gaming	15.944 (2.194)	23.220 (2.667)	16.477	0.01

Results Interpretation: The results in Table (10) show statistically significant differences between the mean scores of adolescents who engage in cooperative versus competitive electronic gaming online in their perception of the effects of these games on them.

The findings suggest that:

- **Cooperative gamers** perceive significantly more **positive effects** of gaming (22.805) compared to **competitive gamers** (16.760).
- On the other hand, **competitive gamers** perceive significantly more **negative effects** of gaming (23.220) compared to **cooperative gamers** (15.944).

Conclusion: These results indicate that adolescents who engage in **cooperative gaming** report greater positive effects, likely due to the social interaction and teamwork involved, which boosts their sense of belonging, social support, and psychological security. In contrast, **competitive gaming** appears to have a stronger association with negative effects, potentially due to the stress, individual pressure, and lack of social connection that often accompany competitive environments. This highlights the importance of game type in shaping adolescents' experiences and perceptions of their impact on psychological well-being.

The results of this hypothesis can be explained by the fact that collaborative games create a virtual environment based on positive interaction and teamwork among players to achieve common goals. This environment represents a supportive model that fosters a sense of belonging and constructive social interaction. In collaborative games, success is tied to group effort, which highlights the importance of players' roles within the group. This social recognition enhances their psychological stability and self-confidence. The collective nature of these games gives adolescents a sense of being part of a supportive community, strengthening their sense of social and psychological security. In contrast, competitive environments focus on individuality, where the primary goal is personal victory at the expense of others. This approach places players under constant pressure to perform at their best, and excessive competition can lead to frustration when failure occurs, weakening psychological security due to increased anxiety or feelings of incompetence. The individualistic nature of these games can weaken social bonds and diminish players' perception of social support, as positive relationships are not built as extensively as in collaborative games.

Collaborative games depend on continuous interaction between players through dialogue, planning, and joint work, creating an environment conducive to building relationships. These virtual relationships mirror forms of social support in the real world, improving the individual's sense of being surrounded by people who care for them. On the other hand, competitive games may lack these positive interactions, as relationships between players are based on conflict or challenge, leading to weaker feelings of belonging and social support. The absence of this support increases the likelihood of negative impacts on psychological security.

In the short term, collaborative games help improve mood and a sense of stability due to the supportive environment. In the long term, they enhance social skills and self-confidence, making individuals better equipped to cope with life's pressures. Competitive games, on the other hand, may offer a temporary sense of accomplishment when winning but leave a negative impact when losing, leading to mood swings and weakened stability. In the long term, the competitive nature may contribute to forming an achievement-oriented mindset, reducing social skills and an individual's ability to build supportive relationships.

Collaborative games can act as a compensatory tool for adolescents who suffer from a lack of social interaction in real life. The supportive environment these games offer helps them build positive feelings

that compensate for any deficiency in real-world relationships. Additionally, they contribute to improving a sense of meaning and purpose, as adolescents find value in their cooperation with others and their contribution to the team. On the other hand, competitive games may increase an adolescent's sense of isolation, particularly if the real-life environment also lacks social support. This can lead to increased psychological pressure and a decrease in feelings of psychological security.

These findings support Self-Determination Theory, which states that belonging, autonomy, and competence are essential psychological needs for mental health. Collaborative games fulfill these needs more balanced than competitive ones. From a Social Exchange Theory perspective, the results highlight that positive relationships and group cooperation enhance psychological security more than competitive interactions, which may evoke feelings of hostility or separation.

The differences between players of collaborative and competitive games, as reflected on the psychological security scale, demonstrate the significant impact that the type of interaction within the game has on overall feelings of psychological stability. Collaborative games create a supportive environment that strengthens positive interaction, self-confidence, and belonging, making them more beneficial for psychological security. Conversely, competitive games may contribute to increased stress and psychological pressure due to their focus on individual achievement and conflict, leading to reduced psychological security.

According to the Social Presence Theory, the level of social interaction between individuals in a group is determined by the social presence of the individuals in that group. This theory suggests that media can facilitate social presence and support social relationships, particularly in online environments. Collaborative games, by offering higher social presence, foster social interaction and support, thereby enhancing adolescents' sense of belonging and psychological security. Thus, these games provide the supportive presence needed for positive social interactions that enhance psychological well-being.

Recommendations:

1. Educational institutions should use electronic games to develop adolescents' knowledge and skills.

2. Revise curricula and teaching methods to integrate electronic games as an engaging tool in the learning process.

3. Promote collaborative electronic games that focus on teamwork, as they help enhance social competencies among adolescents.

4. Encourage family oversight on the games adolescents play, especially those with potential psychological or ethical harm.

5. Guide adolescents on proper engagement with electronic games through media platforms to instill sound values.

6. Develop culturally appropriate games that align with Egyptian and Arab values and traditions.

7. Organize workshops for parents and students on the positive and negative impacts of electronic games.

8. Incorporate discussions on the pros and cons of electronic games into school curricula to protect adolescents from potential risks.

9. Provide educational games that enhance adolescents' cognitive abilities.

10. Establish a helpline for parents to guide them in managing their children's internet gaming habits.

Suggested Research Topics:

1. The effectiveness of a guidance program based on playing collaborative electronic games in improving psychological security among adolescents with sleep disorders.

2. Cultural differences in the impact of competitive and collaborative games on adolescents with sleep disorders.

3. The relationship between game types and personal identity in adolescents with sleep disorders.

4. The effectiveness of using collaborative games to improve problem-solving and decision-making skills in adolescents with sleep disorders.

5. The impact of positive and negative perceptions of electronic games on adolescents' learning motivation.

6. The effectiveness of collaborative game play in improving mental health in adolescents with high psychological vulnerability.

7. The relationship between gaming styles and digital addiction among adolescents.

8. The impact of electronic games on leadership skills in adolescents.

9. The effectiveness of collaborative game play in improving emotional intelligence in adolescents.

10. The effectiveness of collaborative game play in improving negotiation skills in adolescents.

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