

## Video Games Usage and its Relation with Violent Behavior among Adolescents

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### Abstract

**Background:** Video games are famous for the violence, and many people are concerned about the impact these games among adolescents. **Aim of the study:** to examine the relation between video games usage and violent behavior among adolescents. **Subjects and Methods: Research design:** A descriptive correlational design was adopted to carry out this study. **Setting:** The study was conducted at two faculties (nursing and arts) at Zagazig University. **Subjects:** A convenience sampling of 384 studied adolescents from first academic year enrolled in 2021–2022. **Tools of data collection:** Three tools were used for data collection. Tool (I) Socio-demographic data sheet. Tool (II): Playing Electronic Games Scale. Tool (III): Violence Questionnaire Scale (VQ). **Results:** The study reveals that that nearly two-fifths of the studied adolescents had medium video gaming usage level. Close to three-quarters of the studied adolescents had medium violent behavior levels. there was a positive significant correlation between video gaming and violent behavior. Arts students had medium and high levels of video game usage and violent behavior levels compared to nursing students. Also, female adolescents had medium and high levels of video games usage and violent behavior levels more than male adolescents. **Conclusion:** the present study proven that video gaming usage had a statistically significant positive correlation with violent behavior, the risk factors of video game usage and violent behavior are arts students and female gender. There were statistically significant relations between video games and liking video gaming, practicing of video gaming, and duration of video gaming. **Recommendations:** Instructional educational program for Zagazig University students to decrease violent behavior as a result of video game usage and enhance the positive effects of videogames.

**Keywords:** Video Games Usage – Violent Behavior – Adolescents.

### Introduction:

Videogames have been defined as “a mode of interaction between a player, a machine with an electronic visual display and possibly other players, that is mediated by a meaningful fictional context and sustained by an emotional attachment between the player and the outcomes of actions within this fictional context”<sup>(1)</sup>. Video gaming is a popular pastime for both young and old people all around the world. Asia had about 1.48 billion gamers in 2021, making it the world's largest video gaming market, with Europe in second place with 715 million gamers. There are an estimated 3.24 billion gamers on the globe now<sup>(2)</sup>.

A vast body of studies has demonstrated an increase in interest in video games (VGs) and the impact on the brain, cognition, and behavior, particularly in adolescents, in recent decades. Indeed, an increasing number of adolescents play video games for extended periods of time, leading to the development of real-life addictive behaviors. Furthermore, the current COVID-19 pandemic outbreak and subsequent lockdown have greatly restricted outdoor activities and direct human relationships<sup>(3)</sup>.

Violence defined intentional use of physical force or power, threatened or actual, against oneself, another person, or a group or community that causes or has a high possibility of causing damage, death,

psychological harm, maldevelopment, or deprivation <sup>(4)</sup>.

Globally, Violence is one of the main causes of death among young and middle-aged people around the world. From 2015 to 2017, fatality numbers ranged from 460,000 to 600,000 per year, depending on the organization collecting the data. Of these, two-thirds had been victims of individual violence, and one-third had been victims of collective violence. Young men between the ages of 14 and 29 were five times as likely than other age groups to die <sup>(5)</sup>.

Adolescence must be defined not just in terms of age, but also in terms of sociohistorical factors. With the sociohistorical context in mind, adolescence is defined as the period of transition between childhood and adulthood that involves biological, cognitive, and socioemotional changes. Preparation for adulthood is an important aspect of adolescence <sup>(6)</sup>.

The fact that many games are marked by violent material and the participatory nature has generated the majority of fears. Players do not simply sit back and watch story happen on the screen, as they would with a movie or television show. They can interact with and control what happens on the screen immediately. If a video game contains violence, the player is frequently invited to become an active participant <sup>(7)</sup>.

Furthermore, adolescents may interact more with characters in video games, particularly first-person shooter games, than with characters on TV or in movies. This may enhance the possibility of adolescents mimicking the character's attitude and intentionally practicing violent scripts, resulting in adolescents accessing violent scripts in social interactions <sup>(8)</sup>.

Nurses can play an important role not only in the assessment, diagnosis, and treatment of internet gaming addiction, but also in its prevention as well. As nurses, should teach the adolescent's family the following: setting

limits on computing in terms of time and type of use; parents should be exposed to the same computer and internet rules as adolescent <sup>(9)</sup>. Adolescents must be included in family activities that do not include the use of computers and the internet, as well as the installation and usage of access control applications that help in selecting websites and time spent on the internet. Finally, a computer should be placed in a shared room by the family and not in the adolescent's room <sup>(9)</sup>.

### **Significance of the Study:**

In today's world, the extensive use of video games is becoming a trend, for which it has become essential to study its impact on humans. Furthermore, video gaming is now very highly prevalent, especially among young people, as in Egypt video gamers represent about 68% of the total population <sup>(10)</sup>. Excessive video gaming may leave adolescents with multiple effects, whether positive or negative. One of the video games' negative effects is that it may increase the rate of violent behavior among adolescents due to the high demand and strong attachment to the practice of such games that feed on scenes of violence. So, this study was conducted to assess video game usage and its relation to violent behavior among adolescents.

### **Aim of the study:**

**The aim of the study was** to determine the relation between video games usage and violent behavior among adolescents.

### **Research questions:**

- What is the distribution of video games usage among adolescents?
- What is the distribution of violent behavior usage among adolescents?
- What is the relation between video games usage and violent behavior among adolescents?
- What is the relation between sociodemographic characteristics

and video games usage and violent behavior among adolescents?

- What is the difference between practical and theoretical faculties and adolescent's video games usage and violent behavior?
- What is the difference between gender and adolescent's video games usage and violent behavior?

### Subjects and Methods:

#### Research design:

A descriptive correlational study design was adopted in this study.

#### Study Setting:

The study was carried out at two faculties one practical faculty (faculty of nursing), and one theoretical faculty (faculty of arts) at Zagazig University at Sharkia Governorate.

#### Study Subjects:

A convenience sampling of 384 studied adolescents (150 adolescents from the faculty of nursing and 234 adolescents from the faculty of art) from first academic year enrolled in 2021–2022 at faculty of nursing and faculty of arts at Zagazig University.

#### inclusion criteria:

The first academic years, both gender, and aged 17–21 years old.

#### Tool for data collection:

Three tools were used to collect necessary data:

**Tool 1: Socio-demographic data sheet:** this tool was developed by researcher to assess the personal characteristics of the adolescents, including age, gender, residence, marital status, and job of parents; the family size; the income, etc...;

**Tool (II): Playing electronic games scale** was developed by **Yunus and Almharama (2017)** <sup>(11)</sup>. This scale consists of (22) paragraphs that measure the level of practicing of electronic games. The responses were according to the five-point

Likert Scale (always, often, sometimes, rarely, never). The scoring system: from (1) to (2.33) score was low, from (2.34) to (3.67) score was medium, and from (3.68) to (5) score was high.

**Tool III: Violence Questionnaire Scale (VQ):** This scale was developed by **Buss and Perry (1992)** <sup>(12)</sup>. This scale consists of 29 items scale measured on a five -point Likert scale (always, often, sometimes, rarely, never). The highest scores refer to high violence, and vice versa, and phrase number 2 was the only inverted phrase in this scale. The VQ has divided into four subscales, i.e., physical violence, verbal violence, anger, and hostility. The total score for violence is the sum of the 4 factors score. The scoring system: from (1) to (2.53) score was low, from (2.54) to (3.18) score was medium, and from (3.15) to (5) score was high.

#### Face Validity and Reliability:

Face validity was checked before the pilot study and the actual data collection. The tools were revised by a five-persons panels of experts through the distribution of the four tools with a covering letter and explanation sheet that explained the purpose of the study. Three professors of psychiatric medicine department at Zagazig University, a professor of psychology at the Faculty of Arts at Zagazig University, and a professor of mental health at the Faculty of Education at Zagazig University. They revised the tools for clarity, relevance, applicability, comprehensiveness, and understanding.

Reliability of the tools was assessed by Cronbach's  $\alpha$  test in SPSS V.20 (SPSS Inc., Chicago, Illinois, USA). Which revealed a good level of reliability as follows:

Scales	No. of items	Cronbach's Alpha
Playing Electronic Games Scale	22	0.909
Violence Questionnaire scale (VQ)	29	0.886

**Field work:**

The actual contact with adolescents, as a result of pandemic COVID-19, there was a necessity to take safety precautions such as physical distancing, wearing a mask, keeping rooms well ventilated, avoiding crowds and cleaning hands. Then researchers met a conveniently available pool of adolescents.

The researcher introduced herself, took a written consent for participation in the study (appendix I) from adolescents, explaining the purpose and nature of the study, the importance of the study to the adolescents, and explained that information would be handled confidentially and would only be used for scientific research. Then the data collection forms were explained, such as; the researcher explained that data collection consisted of three tools; adolescents were asked to read each paragraph carefully and slowly, and then choose the answer that suited them by applying marking (✓) in front of the staging (always, often, sometimes, rarely, never) that suited them,

Then adolescents were asked to fill in the questionnaire sheet under the guidance of the researcher. A detailed explanation was given to obtain their consent and cooperation during filling out the tools of the study. The first one was socio-demographic data, which took about 10 minutes to answer the questions. The second tool was playing electronic games scale, which took about 10 minutes to answer the questions. The third tool was the Violence Questionnaire scale, which took about 15 minutes to answer the questions.

The total time in which all three tools took ranged from 35 to 45 minutes. The time at which the tools were distributed to the subjects ranged from 11 a.m. to 3 p.m., according to the adolescents' free time. The data sheet was completed at the same time of distribution. The implementation phase was executed in two months starting on November 1, 2021, and was completed by the end of December 2021, as researchers met adolescents on Sunday, Tuesday, and Thursday from 11 am to 3 pm of each week.

The total time that data was collected was executed in three months starting in October 2021 and was completed by the end of December 2021.

**Pilot study:**

A pilot study was conducted on a sample of 39 adolescents, approximately 10% of the calculated total sample size (16 adolescents from the faculty of Nursing and 23 adolescents from the faculty of Arts), estimating about 60:40% theoretical faculties to practical faculties). The aim was to test the clarity and feasibility of the tools, the comprehension of items and to estimate the exact time required for filling out the data sheet (The time needed to fill out the tools was about 35-45 min). The pilot samples were included from the main study sample as there was no modification.

**Administrative design:**

Once permission was granted to proceed with the study, the researcher selected a conveniently available pool of faculties, one theoretical faculty (faculty of Arts) and one practical faculty (faculty of Nursing). Then researchers met with the vice deans for Student Affairs and Education in each selected faculty, explained the study aim and procedure, as well as the data collection forms, including obtaining official permission to conduct the study and getting access to adolescents. Then the first-academic year schedule and a list of adolescents of a selected year from each college administration department were obtained. Also, violence questionnaire scale was translated into Arabic by a lecturer in English at the Faculty of Education at Zagazig University to confirm its original validity by using covering letter. Content validity was checked and tools were revised by five-persons panels of experts, through the distribution of the four tools.

### Ethical consideration:

The study proposal was approved by the Ethical Committee at the Faculty of Nursing at Zagazig University with code M.DZU.NUR/110/14/4/2020. A written consent for participation in the study was taken from the adolescents after fully explaining the aim of the study. The studied adolescents were given the opportunity to refuse the participation, and were notified that they could withdraw at any stage of filling out the tools. Also, the studied adolescents were assured that the information would be confidential and used only for the research purpose. Confidentiality was confirmed by agreeing to participate or not.

### Statistical Analysis:

All data were collected, tabulated, and statistically analyzed using SPSS 24.0 for windows (SPSS Inc., Chicago, IL, USA). Quantitative data were expressed as the mean  $\pm$  SD & (range), and qualitative data were expressed as absolute frequencies (number) & relative frequencies (percentage). Percent of categorical variables were compared using the Chi-square test or Fisher exact test when appropriate. were compared using t-test or one-way a nova test when appropriate. person correlation coefficient was calculated to assess the relationship between various study variables, the (+) sign indicate direct correlation & (-) sign indicate inverse correlation, also values near to 1 indicate strong correlation & values near 0 indicate a weak correlation. All tests were two-sided. p-value  $<$  0.05 was considered statistically significant (S), and p-value  $\geq$  0.05 was considered statistically insignificant (NS). Logistic regression is a predictive analysis. Logistic regression is used to describe data and to explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval, or ratio-level independent variables.

### Results:

**Table (1-a):** Socio-demographic Characteristics among the Studied Adolescents(n=384):

shows that 80.2% of the studied adolescents were aged 18 years old, 65.6% of them were females, 72.9% were from rural areas, and 99.5% were currently single. The table also reveals that 60.9% of the studied adolescents were in the faculty of arts and 54.7% of their fathers were employed. 75.3% of adolescents' mothers were housewives. 71.4% of them had sufficient income, 81.3% had family members ranging from 4 to 7, and 43% of them were first in family arrangement.

**Table (1-b)** shows that, 68% of the studied adolescents liked playing video games. 27.9% of them played video games every day, 58.6% of the studied adolescents played video games for one hour, 87.2% of the studied adolescents played video games on mobile phones, and 94.5% of the studied adolescents played video games at homes.

**Figure (1):** represents that 54% of the studied adolescents had low video gaming usage levels, 39% of the studied adolescents had medium video gaming usage levels, and 7% of the studied adolescents had high video gaming usage levels.

**Figure (2):** displays that 73% of the studied adolescents had a medium violent behavior level, 22% of the studied adolescents had a high violent behavior level, and 5% of the studied adolescents had a low violent behavior level.

**Table (2-a)** shows that 81.5% of the studied adolescents at age 18 had a high level of video games usage, 74.1% of the studied adolescents had a high level of video games usage were female, and 73.5% of them had a medium level of video games usage were from rural residence. 100% of the studied adolescents had a medium and high level of video games usage were single. This table also demonstrates that 81.5% of the studied

adolescents had a high level of video games usage were from faculty of arts; and 69.5% of them had a medium level of video game usage, had a sufficient income, and there were statistically significant relations between level of video game usage and residence  $p = 0.036$ , and between level of video game usage and type of faculty  $p = 0.00$ ).

**Table (2-b)** shows that 85.2% of the studied adolescents liking video gaming had a high level of video games usage, and 51.9% of them playing video games every day had a high level of video game usage. 29.6% of the studied adolescents played video games for more than five hours had a high level of video game usage; and 85.2% of them preferred playing video games on mobile phone had a high level of video games usage. 96.3% of the studied adolescents played video games at home had high level of video games usage. This table also represents that the statistically significant relations was with liking video gaming  $p = 0.001$ , practicing of video gaming  $p = 0.001$ , and with duration of video gaming  $p = 0.001$ .

**Table (3-a)** shows that 79.1% of the studied adolescents at age 18 years had a high level of violent behavior, 73.3% of the studied adolescents had a high level of violent behavior were female, and 75.5% of them who lived in rural areas had a medium level of violent behavior. This table also reveals that 98.8% of the studied adolescents who had a high level of violent behavior were single; 84.9% of them had a high level of video games usage were from faculty of arts; and 68.6% of the studied adolescents who had a high level of violent behavior had a sufficient income. There was statistically significant relation between type of faculty and level of violent behavior  $p = 0.001$ .

**Table (3-b):** shows that 73.3% of the studied adolescents liked playing video games, had a high level of violent behavior, (32.6%) of

the studied adolescents who played video games every day, had a high level of violent behavior; and 51.2% of the studied adolescents who played video games for one hour, had a high level of violent behavior. This table also reveals that 87.2% of the studied adolescents who preferred to play video games on mobile phones, had a high level of violent behavior; 94.2% of those who played video games at home, had a high level of violent behavior.

**Figure (3)** represents that there is a significant difference in video game usage level of the studied adolescents according to faculty. The arts students have medium and high level of video game usage level more than nursing students.

**Figure (4)** represents that there is a significant difference in violent behavior level of the studied adolescents according to faculty. The arts students have medium and high level of violent behavior level more than nursing students.

**Figure (5)** represents that there is a significant difference in cognitive function level of the studied adolescents according to gender. Female adolescents have medium and high level of cognitive function more than male adolescents.

**Figure (6)** represents that there is a significant difference in violent behavior level of the studied adolescents according to gender. Female adolescents have medium and high level of violent behavior more than male adolescents.

**Table (4):** shows that there was a positive significant correlation between video games usage score and violent behavior level 0.557, the effect size was 0.31. There was positive significant correlation between video games usage level and violent behavior subscales level (anger, physical violence, verbal violence and hostility; the effect size between .13 to .25.

**Discussion:**

The interaction between humans and electronic gadgets has gained great importance since the world has been termed as a "Global Village". And in the last decades, a very large body of literature has shown an increasing interest in video games (VGs) and the impact on the brain and behavior, especially in adolescents. According to some meta-analytic reviews, exposure to violent VGs is a causal risk factor for increased violent behavior and affection in adolescents Smirni <sup>(2)</sup>.

**Concerning the distribution of video game usage among adolescents**, the present study showed that nearly two fifths of adolescents had a medium video game usage level. This finding might be attributed to the fact that adolescents between the ages of 16 and 24 are very intense with the use of video games, especially when the game technologies have been modified so they can be installed easily on mobile phones, even with more attractive looks (making the player a part of the game, the great similarity between the virtual world of video games and the real world, and attractive sound effects and colors) Shi et al., <sup>(13)</sup>. This study was consistent with the study of Yunus and Almharama <sup>(11)</sup>, who studied the level of practice of video games and its relationship with social isolation among secondary and high school students in Jordan, which clarified that the level of preparatory and secondary school students' practice of electronic games in Jordan was medium.

**Concerning the distribution of violent behavior among adolescents**, the present study showed that nearly three-quarters of adolescents had a medium violent behavior level. This finding might be attributed to some adolescents showing violent behavior in order to draw the attention of others around them to the presence, importance, and

influence in life. Moreover, when adolescents are given orders, advice, and instructions, they see these as interference in the affairs and show violent behavior as a form of objection. Also, adolescents imitate the characters they like and see them as role models for them, such as adolescents' father, older brother, teacher, or the hero of the game they play, and if this role model is characterized by violent behavior, adolescents imitate them in this violent behavior. On the contrary, Al-Badr and Mahmoud <sup>(14)</sup>, who assessed the relationship between online gaming addiction and the violent behavior and self-control of students at private universities in the Jordanian capital, Amman, which indicated that all degrees of aggressive behavior among Jordanian university students were high.

**Relation between video games usage level of studied adolescents and their socio-demographic characteristics:**

**Concerning the relation between level of video games usage and age**, the present study showed that more than three quarter of adolescents were 18 years had high level of video games usage. This finding might be attributed to the fact that this stage is considered very sensitive and contains psychological and physiological changes that affect adolescents. Practicing of video games may be an escape from reality or fill the Leisure time. It can also be a purpose for fun. Also, most of the adolescents who had high levels of video game usage were in the third and fourth stages of adolescence, i.e., from 17 and above, based on the differences between the stages of adolescence. The adolescent in the first stage of adolescence is at the beginning of discovering games and lacks skills and experiences, and is also more supervised by parents, while the adolescent in the third and fourth stages is more liberated from supervision, and more professional in playing video games. This

study is consistent with the study of Hani and Judy <sup>15</sup>, who studied the impact of electronic games cross the internet on adolescents in Algeria, which stated that more than two-fifths of the study sample at age 17–18 years had a high level of electronic game usage.

**In terms of the relationship between video game usage and gender**, the current study found that nearly three-quarters of adolescents with a high level of video game usage were female. This finding might be attributed to the fact that females are greater than males in terms of number as they have graduated from educational institutions. On the same line, these findings were supported by the study of Saidani et al., <sup>16</sup>, who studied electronic games and their impact on the social reality of adolescents (PUBG game as a model) in Algeria, which indicated that more than two-thirds of users of electronic games were males.

**In terms of the relationship between video game usage level and type of faculty**, the current study found a significant relation between video game usage level and type of faculty, as about more than three-quarters of arts students having a high levels of video game usage. This finding might be due to the availability of sufficient free time for theoretical colleagues rather than practical colleagues, as practical colleagues spend most of time in the practical part of studies, which depends mainly on the laboratory application in the field, whereas theoretical colleagues need a little time to prepare some research or assignments, and there is no practical part of the study in the specialties, which allowed them to use the internet for much more time than the time available for practical college students. On the same line, these findings are supported by the study of Al-metrif <sup>17</sup>, who studied internet gaming disorder among university students in light of gender, social status, and specialization variables in Saudi Arabia, which indicated

that internet games spread more among students of humanitarian colleges than among students of practical colleges.

**Regarding relation between video game usage level and practice of video gaming**, the present study showed a significant relation between video game usage level and practice of video gaming as about half of adolescents who played video games every day had a high level of video game usage. This finding might be attributed to the fact that the increase in the percentage of playing video games every day is due to the increase in leisure time among adolescents, in addition to the ease of carrying the mobile phone, which was the most used device. This study is consistent with the study of Boublota <sup>18</sup>, who assessed the relationship of electronic games with the violent behavior of the student rambunctious, found that more than two fifth of sample members played video games every day.

**Regarding relation between video game usage level and duration of video gaming**, the present study showed a significant relation between video game usage level and duration of video gaming as more than one-quarter of adolescents who played video games for more than five hours had a high level of video game usage. This finding might be attributed to stimulants in the game content and interaction that occurs during play, as these games increase the adolescents' sense of fun and excitement, which leads them to repeat play over and over again to reach a high level of game. This study was inconsistent with the study of Eaqib and Alraari <sup>19</sup>, who assessed the impact of electronic games on adolescents in Algeria, which indicated that one third of adolescents played video games for more than two hours.

**Concerning the relation between level of video game usage and preferring ways to play video games**, the present study showed that the majority of the studied adolescents preferred to play video games on mobile phones, with a high level of video games usage. This finding might be attributed to the ease of use and transport to any place, in addition to providing all the features of other devices and the ease of obtaining many video games by using the play store on Google Play. This finding was in agreement with the study of Eqib and Alraari <sup>19</sup>, who studied the impact of electronic games on adolescents in Algeria, which indicated that more than two-fifth of adolescents use the smartphones to play electronic games.

**Concerning the relation between level of video game usage and target places adolescents use to play video games**, the present study showed that the vast majority of the studied adolescents played video games at home, had a high level of video game usage. This finding might be attributed to the availability of Wi-Fi at home and peace of mind, while in other places, playing video games was small for several reasons, including the pricing of gaming halls and lack of supervision by parents.

#### **Relation between violent behavior level of studied adolescents and their socio-demographic characteristics:**

**Concerning the relation between level of violent behavior and age**, the present study showed that more than three-quarters of adolescents who 18 years had a high level of violent behavior. This finding might be attributed to that adolescent had a lot of psychological and physiological changes, as well as the living conditions in which they live, therefore they engage in violence in many situations in the daily life. This finding was consistent with the study of Samiha and Ahmed <sup>21</sup>, who assessed electronic games

and school violence: A field study on a sample of middle school students in Algeria, which indicated that one-fifth of sample members between 16 and 18 years old had practiced violence.

**Concerning the relation between level of violent behavior and gender**, the present study showed that nearly to three-quarters of adolescents had a high level of violent behavior were female. This finding might be explained by the fact that females are more emotional and affected than males, and this makes them express hostility and direct it to others. while the nature of the many pressures (like criticism and the attempt to directing since childhood in a specific framework) in culture that females face makes her in a defensive position so that she translates it through violent behavior.

**Regarding relation between level of violent behavior and type of faculty**, the present study showed a significant relation between violent behavior level and type of faculty as close to the majority of art students had higher levels of violent behavior than nursing students. This finding might be due to the fact that the nature of the subjects studied by students of scientific disciplines requires focus, time, effort, and perseverance, this provides the students with a free environment from behavioral deviations represented by violence, which isn't presented by students of theoretical disciplines, which leads to increasing behavioral deviations among students of theoretical disciplines. Also, students of theoretical disciplines have more free time, which may lead to behavioral deviations.

**Concerning relation between violent behavior level and practicing of video gaming**, the present study showed that close to one third of adolescents who played video games every day had a high level of violent behavior. This finding might be

attributed to the intense tendencies of these games, especially among adolescents, because they contain a lot of elements of excitement, suspense, and movement. This makes them play these games daily, which makes them get used to such violent scenes and thus practicing violent behavior in the daily lives. This finding was consistent with the study of Sado et al.,<sup>21</sup>, who assessed violent electronic games and their relationship to the spread of school violence in Algeria, stated that more than one third of students played video games every day.

**Concerning relation between violent behavior level and duration of video gaming,** the present study showed that about half of adolescents who played video games for one hour had a high level of violent behavior. This finding might be due to the fact that these games are becoming available to everyone and at any time, especially with smart phones. At this sensitive age, adolescents need to escape from reality and the problems, so adolescents spend most of the time in front of these games as a psychological projection. This finding was consistent with the study by Alqarniu<sup>22</sup>, who assessed the practice of violent electronic games and its relationship to violence and violent behavior among a sample of adolescents in Saudi Arabia, stated that there is a positive statistically significant correlation between playing violent video games, the amount of time spent on electronic games per day, and hostility and violent behavior among adolescents in its four dimensions. That is, the more time adolescents spend playing video games during the day, the more physical and verbal violent behavior, as well as hostility and anger, they exhibit.

**Concerning the relation between level of violent behavior and preferring ways to play video games,** the present study showed that the majority of adolescents

preferred to play video games on mobile phones had a high level of violent behavior. This finding might be attributed to the fact that the mobile phone is easy to carry due to its small size and easy to download video games because it has many specialized applications to download games easily, especially violent games, which contain elements of excitement and attraction that make adolescents excited to play and imitate such games (PUBG, Call of Duty, and Free Fire). This study is consistent with the study of Boublota et al.,<sup>18</sup>, who assessed the relationship of electronic games with the violent behavior of the student rambunctious, which clarified that more than half of the sample members use mobile phones as a means of playing.

**Concerning the relation between level of violent behavior and target places adolescents use to play video games,** the present study showed that the vast majority of adolescents who played video games at home had a high level of violent behavior. This finding might be attributed to the fact that adolescents at home feel comfortable when playing, and adolescents can play at any time and for as long as they want with freedom of interaction and screaming while winning or losing. And at home, adolescents can interact without distraction with games, especially violent video games. Therefore, adolescents have a high level of violent behavior.

**Concerning correlation matrix between video gaming usage and violent behavior of adolescents:**

This study revealed a positive significant correlation between video gaming usage and each of the following, violent behavior and violent behavior subscales. On the contrary, there was a negative significant correlation between video gaming usage and cognitive functions. This might be due to a significant body of literature also indicating that playing

violent video games can exacerbate attention problems, produce desensitization to violence, decrease empathy and help, and decrease school performance Fu and Zhang, 2<sup>r</sup>. This study is consistent with Shahbaz et al., 2<sup>t</sup>, who examined the impacts of video gaming on aggression and cognitive ability of Pakistanis video gamers, which clarified that the correlation of all the scales, and its scales i.e., VGS, MAAS, and VQ, as the time span is negatively correlated with attention span and positively correlated with aggression.

### Conclusion:

The current study findings concluded that nearly two fifths of the studied adolescents had medium video games usage level. Also, close to three-quarters of the studied adolescents had medium violent behavior levels. Moreover, video games usage had a statistically significant positive correlation with violent behavior scale and subscale. violent behavior predicted significantly increased video gaming usage. There were statistically significant relations between video games and liking video gaming, practicing of video gaming, and duration of video gaming. There is a significant difference in video game usage and violent behavior of studied adolescents according to faculties as arts students have medium and high levels of video game usage levels compared to nursing students. Also, there is a significant difference in video game usage and violent behavior of studied adolescents according to gender, female adolescents have medium and high levels of video games usage and violent behavior more than male adolescents.

### Recommendation:

Based on findings, the study recommended:

- 1- Developing educational program for Zagazig University students to decrease violent behavior as a result of video game usage.
- 2- Designing educational program for performing healthy video games usage practice.
- 3- Monitoring the time spent by adolescents in the exercise of video games for the purpose of maintaining this time within reasonable limits.
- 4- Establishing a specialized center to treat adolescents addicted to video games through cooperation between the relevant ministries and civil society organizations.
- 5- Assessing the prevalence of video game usage among adolescents in Egyptian universities through future studies.
- 6- Intensifying academic activities for theoretical students in order to occupy them with useful activities that limit their use of video games.
- 7- Activating the role of youth centers affiliated with the Egyptian Ministry of Youth and Sports to attract many adolescents through the preparation of recreational and sports programs in order to help adolescents use their energy and free time in beneficial practices.

Table (1-a): Personal Characteristics among the Studied Adolescents(n=384):

Personal Characteristics	category	N	%
Age	17	3	.8
	18	308	<b>80.2</b>
	19	72	18.8
	20	1	.3
Gender	Male	132	34.4
	Female	252	<b>65.6</b>
Residence	Rural	280	<b>72.9</b>
	Urban	104	27.1
Marital status	Single	382	99.5
	Married	2	.5
Faculty	Nursing	150	39.1
	Art	234	<b>60.9</b>
Father work	merchant	103	26.8
	Employee	210	<b>54.7</b>
	Worker	56	14.6
	Without work	15	3.9
Mother work	Employee	90	23.4
	Worker	5	1.3
	Housewife	289	<b>75.3</b>
Income	Insufficient	73	19
	sufficient	274	71.4
	sufficient and overflowing	37	9.6
Family members	From 1 to 3	63	16.4
	From 4 to 7	312	<b>81.3</b>
	8 Above	9	2.3
Family Arrangement	First	165	<b>43</b>
	Second	102	26.6
	Form the third and after	117	30.5
Total		384	100%

**Table (1-b): Practicing of video games among the Studied Adolescents (n=384):**

Practicing of Video Games	Category	N	%
Liking video gaming	Like	261	<b>68.0</b>
	Don't like	123	32
Practicing of video gaming	Every day	107	<b>27.9</b>
	Twice a week	62	16.1
	Once a week	73	19
	once a month	87	22.7
	Others	55	14.3
	Zero	2	.5
Duration of video gaming usage	One hour	225	<b>58.6</b>
	Two hours	89	23.2
	Three hours	27	7
	Four hours	21	5.5
	More than five hours	20	5.2
	Preferring ways to playing video games	pc	56
Video game hall equipment		14	3.6
Video game devices		46	12
Mobile phone		335	<b>87.2</b>
Target places adolescents use to play video games	At home	363	<b>94.5</b>
	At a friend's house	52	13.5
	In the university	28	7.3
	In the street	38	9.9
	In the video game hall	40	10.4
	Total		384

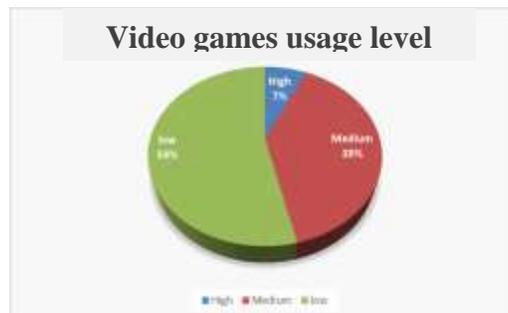
**Figure (1): The distribution of video games usage levels among the studied adolescents(n=384):**



Figure (2): The distribution of violent behavior levels among the studied adolescents(n=384):

Table (2-a): Relation between video games usage levels and personal characteristics among the studied adolescents (n=384):

personal characteristics	Video Games Usage levels						n.	Chi-Square	sig
	Low		Medium		High				
	No.	%	No.	%	No.	%			
<b>Age:</b>									
17	1	0.5%	2	1.3%	0	0%	3	2.1	0.910
18	167	81.1%	119	78.8%	22	81.5%	308		
19	37	18%	30	19.9%	5	18.5%	72		
20	1	0.5%	0	0%	0	0%	1		
<b>Gender:</b>									
Male	66	32%	59	39.1%	7	25.9%	132	2.83	0.243
Female	148	68%	92	60.9%	20	74.1%	252		
<b>Residence:</b>								6.65	0.036 (S)
Rural	155	75.2%	111	73.5%	14	51.9%	280		
Urban	51	24.8%	40	26.5%	13	48.1%	104		
<b>Marital status:</b>									
Single	204	99%	151	100%	27	100%	382	1.737	0.420
Married	2	1%	0	0%	0	0%	2		
<b>Faculty:</b>								16.481	0.001 (S)
Nursing	99	48.1%	46	30.5%	5	18.5%	150		
Arts	107	51.9%	105	69.5%	22	81.5%	234		
<b>Income:</b>									
Insufficient	32	15.5%	32	21.2%	9	33.3%	73	9.665	0.046
Sufficient	156	75.7%	105	69.5%	13	48.1%	274		
Sufficient and overflowing	18	8.7%	14	9.3%	5	18.5%	37		

χ<sup>2</sup> Chi square test

(S) significant p<0.05

**Table (2-b): Relation between video games usage levels and practicing of video games among the studied adolescents (n=384):**

Practicing of video games	Video Games Usage levels						n.	Chi-Square	sig
	Low		Medium		High				
	No.	%	No.	%	No.	%			
<b>Liking video gaming:</b>									
Like	120	58.3%	118	78.1%	23	85.2%	261	19.79	0.001 (S)
Don't like	86	41.7%	36	21.9%	4	14.8%	123		
<b>Practicing of video gaming:</b>									
Every day	37	18%	56	37.1%	14	51.9%	107	33.54	0.001 (S)
Twice a week	32	15.5%	28	18.5%	2	7.4%	62		
Once a week	41	19.9%	28	18.5%	4	14.8%	73		
once a month	54	26.2%	28	18.5%	5	18.5%	87		
Others	42	20.4%	11	7.3%	2	7.4%	55		
<b>Duration of video gaming usage:</b>									
Zero	2	1%	0	0%	0	0%	2	82.24	0.001 (S)
One hour	152	73.8%	63	41.7%	10	37%	225		
Two hours	30	14.6%	52	34.4%	7	25.9%	89		
Three hours	6	2.9%	20	13.2%	1	3.7%	27		
Four hours	11	5.3%	9	6%	1	3.7%	21		
More than five hours	5	2.4%	7	4.6%	8	29.6%	20		
<b>Preferring ways to playing video games:</b>									
pc	28	13.6%	21	13.9%	4	14.8%	53	3.64	0.725
Video game hall equipment	6	2.9%	3	2.0%	0	0%	9		
Video game devices	15	7.3%	13	8.6%	0	0%	28		
Mobile phone	157	76.2%	114	75.5%	23	85.2%	294		
<b>Target places adolescents use to play video games:</b>									
At home	197	95.6%	140	92.7%	26	96.3%	363	10.82	0.212
At a friend's house	5	2.4%	4	2.6%	1	3.7%	10		
In the university	1	0.5%	5	3.3%	0	0%	6		
In the street	0	0%	2	1.3%	0	0%	2		
In the video game hall	3	1.5%	0	0%	0	0%	3		

$\chi^2$  Chi square test

(S) significant  $p < 0.05$

**Table (3-a): Relation between violent behavior levels and personal characteristics among the studied adolescents (n=384):**

Personal characteristics	Violent Behavior levels						n.	Chi-Square	sig
	Low		Medium		High				
	No.	%	No.	%	No.	%			
<b>Age:</b>									
17	1	5%	1	0.4%	1	1.2%	3	5.94	0.429
18	16	80%	224	80.6%	68	79.1%	308		
19	3	15%	52	18.7%	17	19.8%	72		
20	0	0%	1	0.4%	0	0%	1		
<b>Gender:</b>									
Male	5	25%	104	37.4%	23	26.7%	132	4.134	0.127
Female	15	75%	174	62.6%	63	73.3%	252		
<b>Residence:</b>									
Rural	11	55%	210	75.5%	59	68.6%	280	5.02	0.081
Urban	9	45%	68	24.5%	27	31.4%	104		
<b>Marital status:</b>									
Single	20	100%	277	99.6%	85	98.8%	382	0.928	0.629
Married	0	0%	1	0.4%	1	1.2%	2		
<b>Faculty:</b>									
Nursing	13	65%	124	44.6%	13	15.1%	150	29.956	0.001 (S)
Arts	7	35%	154	55.4%	73	84.9%	234		
<b>Income:</b>									
Insufficient	1	5%	56	20.1%	16	18.6%	73	6.376	0.173
Sufficient	15	75%	200	71.9%	59	68.6%	274		
Sufficient and overflowing	4	20%	22	7.9%	11	12.8%	37		

χ<sup>2</sup> Chi square test

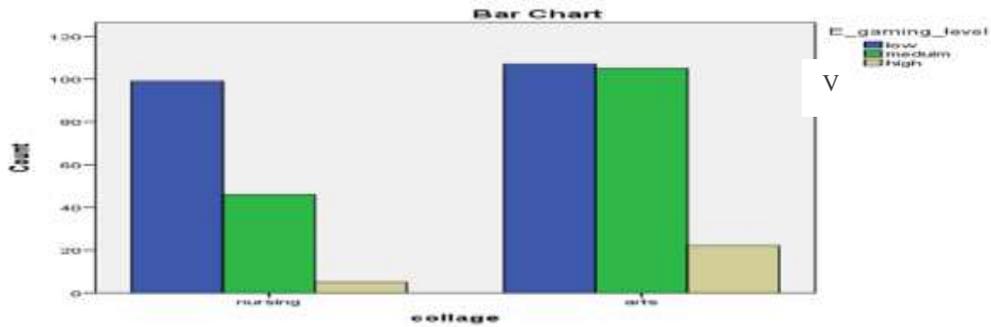
(S) significant p&lt;0.05

**Table (3-b): Relation between violent behavior levels and practicing of video games among the studied adolescents (n=384):**

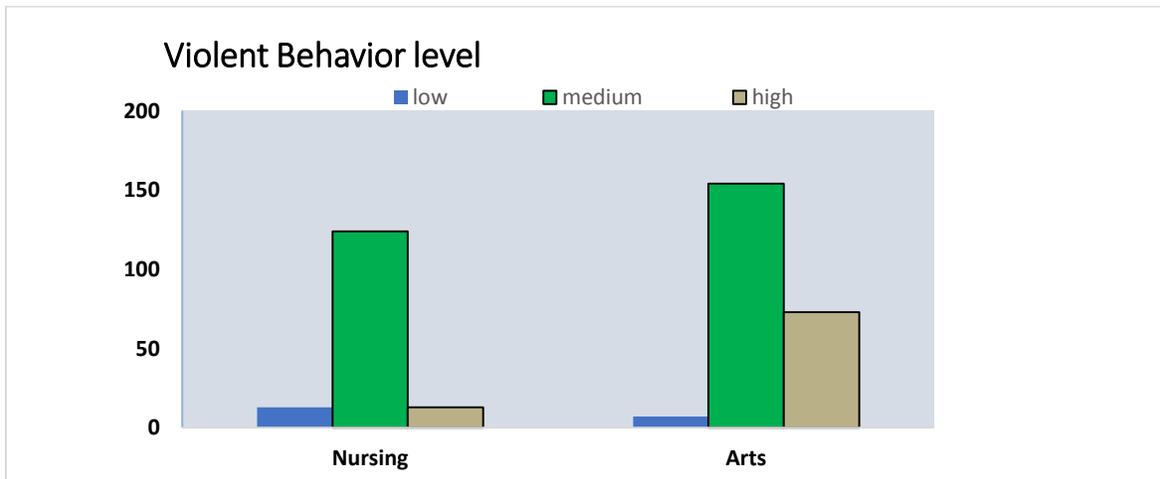
Practicing of video games	Violent behavior levels						n.	Chi-Square	sig
	Low		Medium		High				
	No.	%	No.	%	No.	%			
<b>Liking video gaming:</b>									
Like	12	60%	186	66.9%	63	73.3%	26	1.832	0.400
Don't like	8	40%	92	33.1%	23	26.7%	1		
							12		
							3		
<b>Practicing of video gaming:</b>									
Every day	1	5%	78	28.1%	28	32.6%	10	9.32	0.316
Twice a week	2	10%	48	17.3%	12	14%	7		
Once a week	7	35%	50	18%	16	18.6%	62		
once a month	6	30%	62	22.3%	19	22.1%	73		
Others	4	20%	40	14.4%	11	12.8%	87		
							55		
<b>Duration of video gaming usage:</b>									
Zero	0	0%	2	0.7%	0	0%	2	14.99	0.132
One hour	18	90%	163	58.6%	44	51.2%	22		
Two hours	1	5%	65	23.4%	23	26.7%	5		
Three hours	1	5%	17	6.1%	9	10.5%	89		
Four hours	0	0%	18	6.5%	3	3.5%	27		
More than five hours	0	0%	13	4.7%	7	8.1%	21		
							20		
<b>Preferring ways to playing video games:</b>									
pc	1	5%	44	15.8%	8	9.3%	53	12.22	0.057
Video game hall equipment	0	0%	7	2.5%	2	2.3%	9		
Video game devices	3	15%	24	8.6%	1	1.2%	28		
Mobile phone	16	80%	203	73%	75	87.2%	29		
							4		
<b>Target places adolescents use to play video games:</b>									
At home	19	95%	263	94.6%	81	94.2%	36	12.91	0.115
At a friend's house	0	0%	5	1.8%	5	5.8%	3		
In the university	0	0%	6	2.2%	0	0%	10		
In the street	0	0%	2	0.7%	0	0%	6		
In the video game hall	1	5%	2	0.7%	0	0%	2		
							3		

$\chi^2$  Chi square test non-significant  $p > 0.05$

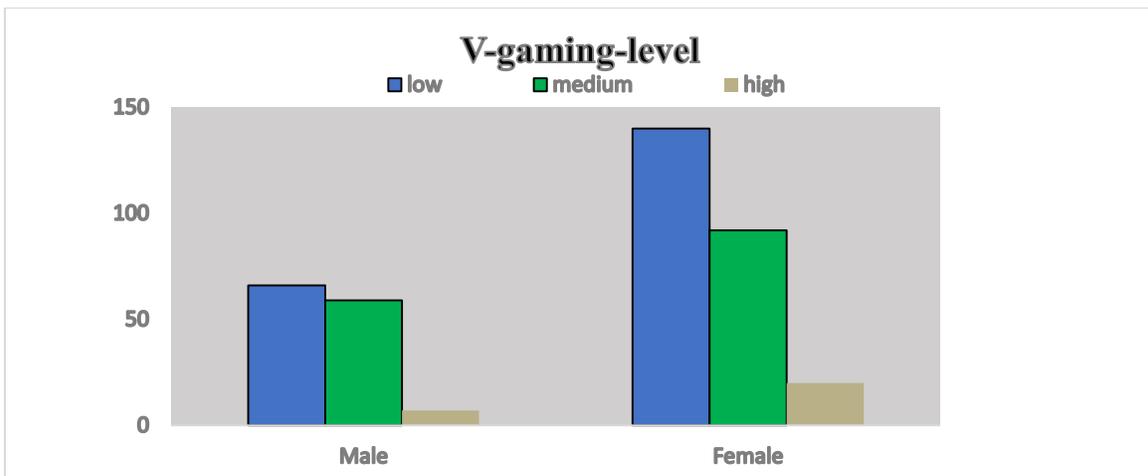
**Part IV: Difference between faculties and gender regarding the studied variables (Video Games Usage levels & Violent Behavior levels) among the studied adolescents:**



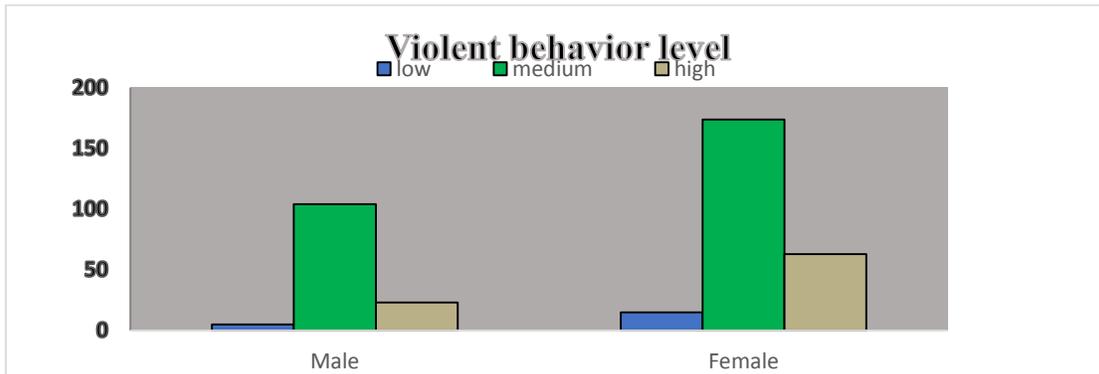
**Figure (3): The video games usage level according to faculty among the studied adolescents(n=384):**



**Figure (4): The Violent behavior level according to faculty among the studied adolescents(n=384):**



**Figure (5): The Video Games Usage level according to gender among the studied adolescents (n=384):**



**Figure (6): The Violent behavior level according to gender among the studied adolescents(n=384):**

**Table (4): Correlation matrix between video gaming usage and violent behavior of studied adolescents (n=384):**

By using person correlation and effect size:

Scales	correlation with V- gaming	Effect size
Anger	.402**	0.16
Physical violence behavior	.502**	0.25
Verbal violence behavior	.365*	0.13
Hostility	.436**	0.19
violent behavior total	.557**	0.31

\*\* . Correlation is significant at the 0.01

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