Association of playing Electronic games with different health aspect among secondary school students in Assiut city

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Abstract
Background: Playing electronic games in adolescents has often been linked to socially unwanted phenomena such as violence. Gaming disorder is a public health problem with numerous factors linked to psychological, family and social factors. **Aim:** To determine the prevalence of electronic gaming, identify the consequences of playing electronic games and investigate the association of electronic games with risky behaviors among secondary school students. **Subject and Methods:** A descriptive cross-sectional study was carried out on 749 students randomly selected from ten secondary schools in Assiut city. A structured self –administered questionnaire was used to assess socio- demographic data, patterns, motivational factors and the consequences of playing electronic games. **Results:** About 89.3% of the studied samples were played electronic games. Online games were the favorite play system (42.8%) for the studied sample. The preferred type of electronic game for the studied sample was fighting games (43.2%). The main motivating factor for electronic games was fun and excitement (47.1%). Consequences of electronic game among the studied sample were very high effect on the psychological aspect, mental aspect, social aspect, physical aspect and violence (79.8%, 79.2%, 77.3%, 68.3%, and 64.6 %) respectively. **Conclusion:** The prevalence of electronic games in the studied sample was very high. The addiction consequences of electronic game have been significantly associated with socio-demographic data and playing electronic games. **Recommendation:** Preventive programs should concentrate on enhancing the psychological well-being of adolescents, to develop effective time management skills and to avoid excessive gaming. It should be conducted by schools, parents and social organizations together.

Keywords: Association, Electronic game &Risky behaviors.

Introduction
Adolescence is a period of exponential growth and exposure to significant risks, in which the social context may have a decisive influence. Technologies like the Internet, mobile telephones and electronic games are very useful in everyday life, even though they can have disadvantages. During the last decade, Electronic games enjoy a great popularity leisure activity among children and teenagers in Arab countries and around the globe **(Rodríguez & Padilla, 2021).**

Electronic games are games played by electronic devices such as computers, consoles and digital phones. This requires interaction with a user interface or input device – such as a joystick, controller, keyboard, or motion sensing device – to generate visual feedback. Some electronic games are not always based on a graphical display, for instance text adventure games and computer chess can be played by teletype printers **(Nabil et al, 2017)**.

More than two billion people play video game in the globe, estimated to exceed three billion by 2023. The worldwide prevalence of gaming-related disorders has been established at 3.05%, which means that there may be as many as 60 million (or more) people with gaming-related disorders. 8.5 per cent of young people aged 8 to 18 are affected by gaming disorders. Globally, electronic games have increased 39% as a result of COVID-19. Nationally, Egypt occupies the forty internationally in the use of electronic games. Gaming is a gender neutral 83% of teenage girls playing electronic games regularly and 92%of teenage boys'. As many as 92% of people between the ages of 16 and 24 play mobile games **(CDC, 2021 & CAPMAS, 2021)**

The development of electronic games facilitates the loss of control over the game, which together with other personal and environmental factors. Also, it facilitates abusive and inappropriate use of electronic games, which can lead to addictive behavior in adolescents. In this regard, technological addictions are the most recent kind of behavioral addictions as a result of excessive and dysfunctional consumption **(Rodríguez & Padilla, 2021**).

There are many motives for electronic games, especially for teenagers such as victory, competition, challenge, adventure, fun, discovery, imagination, hobbies, curiosity, skill development and intelligence

development. There are various types of electronic games, which include fighting, puzzles, sports, adventure, strategy games, and others, playing electronic games is normal except if you overdo it, and games even have positive impacts such as emotional relief/ relaxation and increased use of entertainment and problem solving techniques **(Aksoy & Erol, 2021, & Arjoranta, 2019)**.

A number of elements have been integrated into the electronic game, such as convincing scenarios, sophisticated gameplay systems, simulated social interactivity and realistic images , which play an essential role in promoting the independence of learning and the acquisition of various types of knowledge. On the other hand, Excessive and out of control gaming has created the term gaming addiction and the problems that flow from it have caused great concern around the globe. A number of studies have shown an association between risky electronic games and aggressive behavior and violence among young people **(Almalki & Aldajani, 2020).**

Regarding to electronic game addiction, the World Health Organization has classified the disorders of electronic games as mental disorders. Excessive use of electronic games over an extended period of time can lead to a dependency on electronic gaming. A significant change has been shown in the area of the brain as a result of gaming. Addicted electronic games are more likely to exhibit poor social skills and self-mastery, and also aggressive attitudes and behaviors (hostile and angry). Socially, electronic games may lead students to social isolation and have an adverse impact on their mental, personal and social development. **(Sazali et al, 2019)**.

Game addiction has been associated with many unfavorable lifestyle behaviors, such as unhealthy nutrition behaviors, impairment of academic performance; sleep problems, low satisfaction with life, avoidance responsibilities and dealing with stress in an inefficient manner. Moreover, it causes a range of psychiatric disorders, including attention deficit, hyperactivity, impulse control disorders and elevated level of anxiety, depression, violent and suicidal patterns alialty **(Richard & Richard, 2017)**.

The community health nurse plays an essential role within the interdisciplinary team that responds to the needs of young people at risk affected by game addiction. It should be able to identify at-risk youth impacted and promoting for suitable mental health care to support successful schooling and the welfare of the young people concerned. The role of the community health nurse includes evaluation and testing, coordinated planning for proper education plans, referrals to mental health service providers. Primary prevention strategies proposed include: refocusing (by referring young people to other activities after school like sport), streamlining/education of online gaming addictions, parental supervision and restriction of play resources (e.g., restrict access to games) and raise the cost of the game **(Danile et al, 2019, & Krossbakken et al, 2018)**.

Significance of the study:

Over 2.5 billion electronic players exist worldwide. Egypt occupies the forty internationally in the use of electronic games. At present, heavy-duty electronic games are amongst the most popular electronic games that consumers play. Certain high-risk behaviors, such as aggression and violence, are closely related to electronic games and internet cafés **(WHO, 2021 & Halley et al, 2016**).

Thus, the purpose of this study is to investigate the association of electronic games with risk behaviors among secondary school students.

Specific objectives:
1- Determine the prevalence of electronic gaming among secondary school adolescents.
2- Identify the consequences of playing electronic games on Secondary school students in Assiut city.
3- Investigate the association of electronic games players with risky behaviors.

Research question:
- What is the prevalence of electronic games among secondary school students in Assiut city?
- What are the consequences of playing electronic games on Secondary school students in Assiut city?
- What is the association between playing electronic games with different health aspect among secondary school student in Assiut city?

Subjects & Methods:

Research design: Descriptive cross-sectional research design was used in the current study.

Setting of the study: The study was conducted at the ten secondary schools which chosen in Assiut city and this namely Field Marshal Ahmed Ismail Secondary Boys, Al-Khayyat Secondary School for Girls, Khadija Yusuf Secondary School for Girls, Nasser Secondary Military School, Samih Al-Saeed Secondary School Sports for Boys, Assiut Secondary Sports for Girl, General Abdel Moneim Riad School, Assiut Decorative School for Boys, Assiut Industrial Secondary Girls   and Assiut Secondary Agricultural School.

Sample: Multi stage random sample was used in this study

First stage: Assiut city include 29 secondary schools, 12 general governmental secondary schools, 17 technical secondary schools. Ten secondary

schools were selected randomly for conducting this study.

Second stage : Total number of students in previous selected schools are (25704) with software EPI /info ,version 3 with 99% confidence interval (CI) and the prevalence of electronic game players under study (60%) included the calculation. The estimated sample size found to be (622) and increase 20%to avoid dropout and refuse .The final sample size was 749 students and whom selected randomly from each grade except first grade.

Proportion sample distributed to each school according to the number of students at each school.

School name	Number of students	Sample size	Percent
Field Marshal Ahmed Ismail Secondary Boys	614	42	5.6%
Al-Khayyat Secondary School for girls	799	55	7.3%
Khadija Yusuf Secondary school for Girls	720	49	6.6%
Nasser Secondary Military	1182	82	11%
Samih Al-Saeed Swcondary School Sports for Boys	327	22	3%
Assiut Secondary Sports Girls	101	8	1%
General Abdel Moneim Riad	1411	97	13%
Assiut Decorative Boys	1552	107	14.3%
Assiut Industrial Secondary Girls	775	53	7.1%
Assiut secondary agricultural	3370	232	31.1%
Total	**10831**	**747**	**100%**

Third stage: After collection of the sample, the classes were selected by using systematic random sample. All grades were included in the study except the first grade because we measured the academic achievement for the studied sample in the last year and students in the class were selected randomly

Tools of the study

Two tools were utilized to gather data for this study:

Tool I: A structured self –administered questionnaire which developed by researchers after reviewing of different researches and literature to collect data .It was included two parts:

Part one: Personal characteristics of the students such as age, gender, academic year, residence, social class, father and mother education, father and mother occupation and tobacco smoking.

Part two: Included patterns of electronic gaming such as onset, frequency, duration, place of session,

cost per month , types of electronic games and causes of playing electronic games **(Nabil et al, 2017)**

Tool II: Problematic gaming behavior scales which used for determining the consequences of playing electronic games among secondary school students. The researcher examined and analyzed similar prior studies in the development of the questionnaire that eventually consisted of 5 sections and 47 statements.

Social impacts of electronic games based on video gamer survey (**Keim, 2017**).

- Social subscale contains 12 statements such as:
- Escaping your real world surroundings while playing.
- Continuing your gaming activity regardless of the knowledge that it causes problems between you and others.
- Psychological impacts of electronic games based on Internet Gaming Disorder Scale–Short-Form (IGDS9-SF) (**Pontes & Griffiths, 2015**)
- Psychological subscale contains 11 statement such as
  o Feeling irritable, anxious or even sad when trying to reduce or stop playing.
  o Play for temporary evade or to alleviate negative mood (e.g., powerlessness, guilt, anxiety).
  o Physical impacts of electronic games based on physical Activity Questionnaire for Adolescents (PAQ-A)" **(Gorji et al, (2019).**
- Physical subscale contains five statements such as:
  o Playing video games interfere with your visual health.
  o Suffering any physical pains from intense gaming.
  o Mental impacts of electronic games based on the Arabic version of the Internet Gaming Disorder-20 test (**Hawi & Samaha, 2017**)
  o Mental subscale contains 8 statements such as:
  o You are preoccupied with the game, (e.g., thinking about, reliving past experience, planning your next time to use.
  o Your video game playing experience was the reason for your lack of attention.
  o 5-Violence based on Hostile attribution style (**Möller & Krahé, 2009**).
  o Violence subscale contains 11 statements such as:
  o Committing verbal violence in the past 6 months.
  o Committing violence using sharp and fire weapons in the past 6 months.
- The items were all measured using a 5 –point likert scale where 1=Very often,2=Often,3= Somtimes,4=Rarely ,and 5= Never

Scoring system: - Low score under 60%. - High score exceeding 60 % **(Bass et al, 2020).**

Validity of the tools:

Tools were transferred to Arabic language, then five experts from the Department of Community Health Nursing at the Assiut University Faculty of Nursing

reviewed them to make them valid, also they examined the clarity, appropriateness, completeness and applicability of the tools. The required modifications have been made to the study tool to make it ready for use.

Reliability of the tools: The researchers conducted a reliability test to verify the internal coherence of the tool. It was done during pilot study before starting of data collection. The Cronbach alpha assay value was (0.914)

Methodology

Administrative phase:

An Official letter approval to carry out this study was obtained from the dean of the Faculty of Nursing , Assiut University to Assiut directorate of education and then send to the Central Agency for Public Mobilization and Statistics after that to centralized management of security; finally to directors of schools. The letter included a permission to carry out the study. The letter included authorization for the conduct of the study.

Pilot study:

A pilot study was conducted to evaluate the clarity and applicability of the tool and to estimate how long it takes to complete the questionnaire. In addition, identify problems that may arise while collecting data. It applied on 10 %of students before beginning of actual data collection. The questionnaire was simply modified so the pilot study was excluded from the sample.

Data collection phase:

-Data were collected during the period from March to May 2021.The data was collected on average 2 days/ week (32students/day).

 An explanation of the purpose of the study was given to the school principals and the researcher provided the principal of each institution with a copy of the official letter and requested that they take a copy of the study schedules for the levels selected in the study. In addition, the purpose of the study was explained to the students studied to obtain their co-operation

 The researcher selected the appropriate time for meeting the students according to schools schedules and oral permission were taken from the teachers who are responsible for the desired students.

 The researchers showed up to the students and explained the purpose and nature of the study.

Students received verbal information about the study and oral consent obtained from the participants

Students were asked for their approval about cooperation, and if they were interested and agreed to participate in the study.

 Instructions were provided regarding the completion of the questionnaire sheet.

The average time taken for completing each questionnaire was 25-30 minutes, depending on the students' response to the question.

The questionnaire was completed under the supervision of a researcher and in cooperation with the school director and teachers who organized the appropriate time to collect the data.

Ethical considerations

The research proposal was submitted by the Ethics Committee of the Faculty of Nursing. There was no risk to the subject of the study while the research was being carried out. The study followed common ethical principles in clinical research. Verbal consent was obtained from participants who are willing to participate in the study, after explanation of the nature and purpose of the study. The study subject had the right to refuse to participate and or withdraw from the study without any rational any time. The privacy of the study subject was considered while the data was being collected.

Statistical phase:

The data were captured and analyzed using version 22 of SPSS (Statistical Package for Social Science). Data were presented as number, percentage, mean, standard deviation, median and range. The chi-square test was used for comparing qualitative variables. A Pearson correlation was carried out to measure the correlation among quantitative variables. P value considered to be statistically significant when $P \leq 0.05$.

Results:

Table (1): Distribution of the studied sample according to their personal characteristics in Assiut city, 2021

Personal characteristics	No. (749)	%
Age: (years)		
15 – 16	483	64.5%
> 16	266	35.5%
Mean ± SD (Range)	16.25 ± 1.14 (15.0-19.0)	
Gender:		
Male	432	57.7%
Female	317	42.3%
Type of secondary school:		
General	147	19.6%
Industrial	162	21.6%
Agricultural	230	30.7%
Sports	30	4.0%
Commercial	97	13.0%
Military	83	11.1%
Academic year :		
Second	532	71.0%
Third	189	25.2%
Fourth	28	3.7%
Residence:		
Rural	239	31.9%
Urban	510	68.1%
Father education:		
Less than secondary	313	42.3%
Secondary	212	28.3%
University/ Postgraduate	220	29.4 %
Mother education:		
Less than secondary	392	52.4%
Secondary	201	26.8%
University/ Postgraduate	156	20.8%`
Father occupation:		
Governmental employee	237	31.6%
Non - Governmental employee	84	11.2%
Skilled worker	71	9.5%
Retired	140	18.7%
Free business	172	23.0%
Farmer	45	6.0%
Mother occupation:		
Working	144	19.2%
Housewife	605	80.8%
Social class:		
Low	482	64.3 %
Middle	95	12.7%
High	172	23.0%
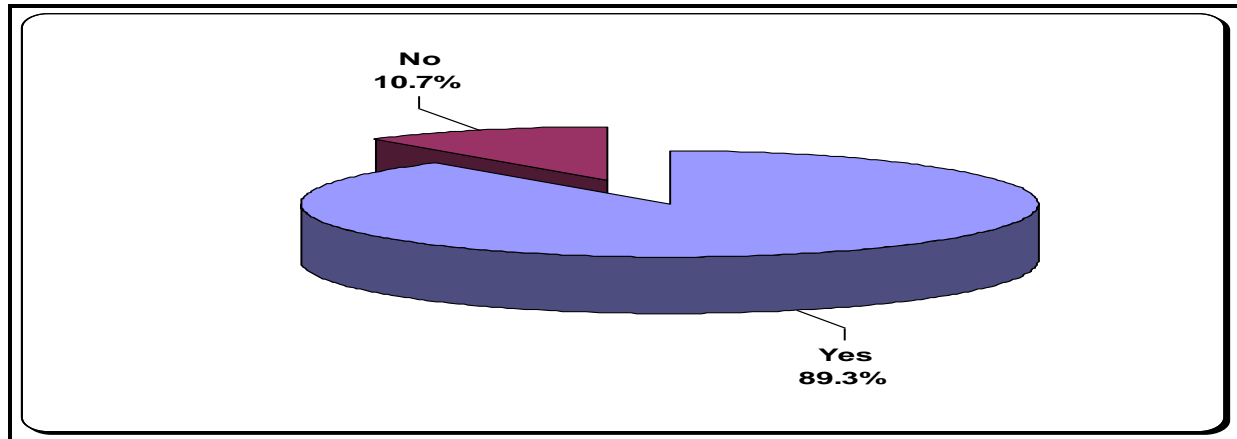
Figure (1): The prevalence of electronic games among the studied sample in Assiut city, 2021

Table (2): Electronic game motivators among the studied sample in Assiut city, 2021

Electronic game motivators	No. (749)	%
Improve communication with friends	163	24.4%
Entertainment activity	282	42.2%
Fun and excitement	315	47.1%
Improving competence and independence	92	13.8%
Escape from reality	153	22.9%
Developing skills and improve intellectual capabilities	299	44.7%
Increase self-esteem	75	11.2%
Competition	201	30.0%
Get rid of boredom	212	31.7%
Relieve stress and anxiety	144	21.5%

more than one answer

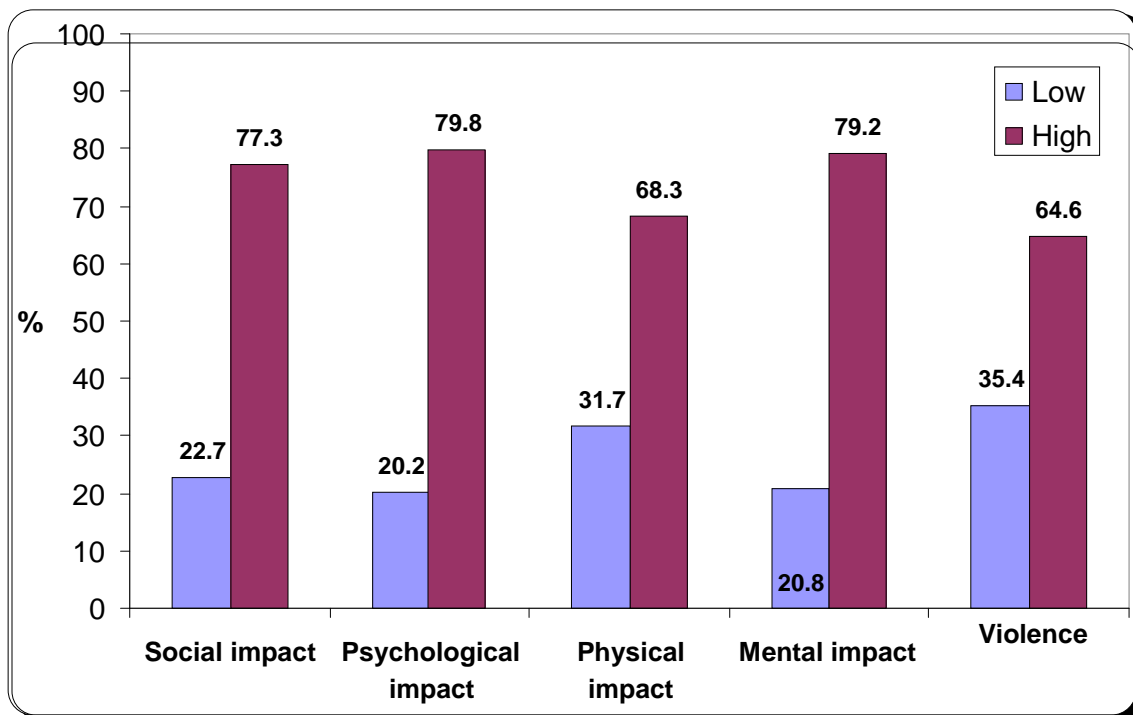**Figure (2) Consequences of electronic game among the studied sample in Assiut city, 2021**

Table (3): Relation between social impact and personal characteristics of the studied sample in Assiut city, 2021

	Social impact				P-value
	Low		High		
	No.	%	No.	%	
Age: (years)					
15 – 16	76	18.2%	341	81.8%	0.000*
> 16	76	30.2%	176	69.8%	
Gender:					
Male	64	16.2%	330	83.8%	0.000*
Female	88	32.0%	187	68.0%	
Academic year :					
Second	92	19.5%	380	80.5%	
Third	42	24.4%	130	75.6%	0.000*
Fourth	18	72.0%	7	28.0%	
Residence:					
Rural	47	22.3%	164	77.7%	0.852
Urban	105	22.9%	353	77.1%	
Academic achievement last year:					
Pass	19	13.1%	126	86.9%	
Good	37	15.5%	202	84.5%	0.000*
Very good	70	34.0%	136	66.0%	
Excellent	26	32.9%	53	67.1%	
Smoking:					
Smoker	13	8.1%	147	91.9%	0.000*
Non-smoker	139	27.3%	370	72.7%	
Father education:					
Less than secondary	68	23.1%	227	76.9%	
Secondary	44	23.8%	141	76.2%	0.819
University/ postgraduate	40	21.2%	149	78.8%	
Mother education:					
Less than secondary	77	21.6%	280	78.4%	
Secondary	40	22.5%	138	77.5%	0.561
University/ postgraduate	35	26.1%	99	73.9%	
Mother occupation:					
Working	18	15.3%	100	84.7%	0.033*
Housewife	134	24.3%	417	75.7%	
Social class:					
Low	103	23.7%	331	76.3%	
Middle	14	16.9%	69	83.1%	0.390
High	35	23.0%	117	77.0%	

Statistical significant differences X^2 *test was used*

Table (4): Relation between psychological impact and personal characteristics of the studied sample in Assiut city, 2021

	Psychological impact				P-value
	Low		High		
	No.	%	No.	%	
Age: (years)					
15 – 16	67	16.1%	350	83.9%	0.001*
> 16	68	27.0%	184	73.0%	
Gender:					
Male	58	14.7%	336	85.3%	0.000*
Female	77	28.0%	198	72.0%	
Academic year:					
Second	81	17.2%	391	82.8%	
Third	38	22.1%	134	77.9%	0.000*
Fourth	16	64.0%	9	36.0%	
Residence:					
Rural	41	19.4%	170	80.6%	0.743
Urban	94	20.5%	364	79.5%	

	Psychological impact				P-value
	Low		High		
	No.	%	No.	%	
Academic achievement last year:					
Pass	14	9.7%	131	90.3%	
Good	25	10.5%	214	89.5%	0.000*
Very good	69	33.5%	137	66.5%	
Excellent	27	34.2%	52	65.8%	
Smoking:					
Smoker	10	6.3%	150	93.8%	0.000*
Non-smoker	125	24.6%	384	75.4%	
Father education:					
Less than secondary	57	19.3%	238	80.7%	
Secondary	37	20.0%	148	80.0%	0.816
University/ postgraduate	41	21.7%	148	78.3%	
Mother education:					
Less than secondary	67	18.8%	290	81.2%	
Secondary	36	20.2%	142	79.8%	0.453
University/ postgraduate	32	23.9%	102	76.1%	
Mother occupation:					
Working	19	16.1%	99	83.9%	0.224
Housewife	116	21.1%	435	78.9%	
Social class:					
Low	93	21.4%	341	78.6%	
Middle	15	18.1%	68	81.9%	0.549
High	27	17.8%	125	82.2%	

*Statistical significant differences   *X2 test was used*

Table (4): Relation between psychological impact and personal characteristics of the studied sample in Assiut city, 2021

	Psychological impact				P-value
	Low		High		
	No.	%	No.	%	
Age: (years)					
15 – 16	67	16.1%	350	83.9%	0.001*
> 16	68	27.0%	184	73.0%	
Gender:					
Male	58	14.7%	336	85.3%	0.000*
Female	77	28.0%	198	72.0%	
Academic year:					
Second	81	17.2%	391	82.8%	
Third	38	22.1%	134	77.9%	0.000*
Fourth	16	64.0%	9	36.0%	
Residence:					
Rural	41	19.4%	170	80.6%	0.743
Urban	94	20.5%	364	79.5%	
Academic achievement last year:					
Pass	14	9.7%	131	90.3%	
Good	25	10.5%	214	89.5%	0.000*
Very good	69	33.5%	137	66.5%	
Excellent	27	34.2%	52	65.8%	
Smoking:					
Smoker	10	6.3%	150	93.8%	0.000*
Non-smoker	125	24.6%	384	75.4%	
Father education:					
Less than secondary	57	19.3%	238	80.7%	
Secondary	37	20.0%	148	80.0%	0.816
University/ postgraduate	41	21.7%	148	78.3%	

	Psychological impact				P-value
	Low		High		
	No.	%	No.	%	
Mother education:					
Less than secondary	67	18.8%	290	81.2%	
Secondary	36	20.2%	142	79.8%	0.453
University/ postgraduate	32	23.9%	102	76.1%	
Mother occupation:					
Working	19	16.1%	99	83.9%	0.224
Housewife	116	21.1%	435	78.9%	
Social class:					
Low	93	21.4%	341	78.6%	
Middle	15	18.1%	68	81.9%	0.549
High	27	17.8%	125	82.2%	

Statistical significant differences X^2 *test was used*

Table (6): Relation between mental impact and personal characteristics of the studied sample in Assiut city, 2021

	Mental impact				P-value
	Low		High		
	No.	%	No.	%	
Age: (years)					
15 – 16	75	18.0%	342	82.0%	0.022*
> 16	64	25.4%	188	74.6%	
Gender:					
Male	63	16.0%	331	84.0%	0.000*
Female	76	27.6%	199	72.4%	
Academic year:					
Second	90	19.1%	382	80.9%	
Third	34	19.8%	138	80.2%	0.000*
Fourth	15	60.0%	10	40.0%	
Residence:					
Rural	43	20.4%	168	79.6%	0.863
Urban	96	21.0%	362	79.0%	
Academic achievement last year:					
Pass	20	13.8%	125	86.2%	
Good	28	11.7%	211	88.3%	0.000*
Very good	64	31.1%	142	68.9%	
Excellent	27	34.2%	52	65.8%	
Smoking:					
Smoker	11	6.9%	149	93.1%	0.000*
Non-smoker	128	25.1%	381	74.9%	
Father education:					
Less than secondary	63	21.4%	232	78.6%	
Secondary	40	21.6%	145	78.4%	0.785
University/ postgraduate	36	19.0%	153	81.0%	
Mother education:					
Less than secondary	72	20.2%	285	79.8%	
Secondary	36	20.2%	142	79.8%	0.754
University/ postgraduate	31	23.1%	103	76.9%	
Mother occupation:					
Working	16	13.6%	102	86.4%	0.033*
Housewife	123	22.3%	428	77.7%	
Social class:					
Low	96	22.1%	338	77.9%	
Middle	16	19.3%	67	80.7%	0.490
High	27	17.8%	125	82.2%	

Statistical significant differences X^2 *test was used*

Table (7): Relation between violence and personal characteristics of the studied sample in Assiut city, 2021

	Violence				P-value
	Low		High		
	No.	%	No.	%	
Age: (years)					
15 – 16	133	31.9%	284	68.1%	0.014*
> 16	104	41.3%	148	58.7%	
Gender:					
Male	94	23.9%	300	76.1%	0.000*
Female	143	52.0%	132	48.0%	
Academic year:					
Second	151	32.0%	321	68.0%	
Third	66	38.4%	106	61.6%	0.000*
Fourth	20	80.0%	5	20.0%	
Residence:					
Rural	69	32.7%	142	67.3%	0.317
Urban	168	36.7%	290	63.3%	
Academic achievement last year:					
Pass	31	21.4%	114	78.6%	
Good	59	24.7%	180	75.3%	0.000*
Very good	116	56.3%	90	43.7%	
Excellent	31	39.2%	48	60.8%	
Smoking:					
Smoker	18	11.3%	142	88.8%	0.000*
Non-smoker	219	43.0%	290	57.0%	
Father education:					
Less than secondary	105	35.6%	190	64.4%	
Secondary	63	34.1%	122	65.9%	0.881
University/ postgraduate	69	36.5%	120	63.5%	
Mother education:					
Less than secondary	124	34.7%	233	65.3%	
Secondary	73	41.0%	105	59.0%	0.115
University/ postgraduate	40	29.9%	94	70.1%	
Mother occupation:					
Working	42	35.6%	76	64.4%	0.967
Housewife	195	35.4%	356	64.6%	
Social class:					
Low	169	38.9%	265	61.1%	
Middle	23	27.7%	60	72.3%	0.034*
High	45	29.6%	107	70.4%	

Statistical significant differences X^2 test was used

Table (8): Association between playing electronic games and personal characteristics of the studied sample in Assiut city, 2021

	Playing electronic games				P-value
	Yes		No		
	No.	%	No.	%	
Age: (years)					
15 – 16	417	86.3%	66	13.7%	0.000*
> 16	252	94.7%	14	5.3%	
Gender:					
Male	394	91.2%	38	8.8%	0.051*
Female	275	86.8%	42	13.2%	
Academic year:					
Second	472	88.7%	60	11.3%	
Third	172	91.0%	17	9.0%	0.532
Fourth	25	89.3%	3	10.7%	

	Playing electronic games				P-value
	Yes		**No**		
	No.	**%**	**No.**	**%**	
Residence:					
Rural	211	88.3%	28	11.7%	0.530
Urban	458	89.8%	52	10.2%	
Academic achievement:					
Pass	145	97.3%	4	2.7%	
Good	239	93.7%	16	6.3%	0.000*
Very good	206	86.6%	32	13.4%	
Excellent	79	73.8%	28	26.2%	
Smoking:					
Smoker	160	98.8%	2	1.2%	0.000*
Non-smoker	509	86.7%	78	13.3%	
Father education:					
Less than secondary	295	93.1%	22	6.9%	
Secondary	185	87.3%	27	12.7%	0.016*
More than secondary	189	85.9%	31	14.1%	
Mother education:					
More than secondary	357	91.1%	35	8.9%	
Secondary	178	88.6%	23	11.4%	0.192
More than secondary	134	85.9%	22	14.1%	
Mother occupation:					
Working	118	81.9%	26	18.1%	0.001*
Housewife	551	91.1%	54	8.9%	
Social class:					
Low	434	90.0%	48	10.0%	
Middle	83	87.4%	12	12.6%	0.669
High	152	88.4%	20	11.6%	

*Statistical significant differences X^2 *test was used*

Table (9): Relation between the duration of the electronic game and the social, psychological, physical, mental and violent impacts of the sample studied in Assiut city, 2021

Variables	Duration of playing electronic games (years)						P-value
	1 – 3		**4 – 6**		**> 6**		
	No.	**%**	**No.**	**%**	**No.**	**%**	
Social impact:							
Low	46	22.0%	37	13.7%	69	36.3%	0.000*
High	163	78.0%	233	86.3%	121	63.7%	
Psychological impact:							
Low	31	14.8%	32	11.9%	72	37.9%	0.000*
High	178	85.2%	238	88.1%	118	62.1%	
Physical impact:							
Low	58	27.8%	59	21.9%	95	50.0%	0.000*
High	151	72.2%	211	78.1%	95	50.0%	
Mental impact:							
Low	41	19.6%	29	10.7%	69	36.3%	0.000*
High	168	80.4%	241	89.3%	121	63.7%	
Violence :							
Low	57	27.3%	78	28.9%	102	53.7%	0.000*
High	152	72.7%	192	71.1%	88	46.3%	

*Statistical significant differences X^2 *test was used*

Table (1): This table revealed that the mean age of the studied sample was 16.25 ± 1.14 years old. Also, it reported that (57.7%) of the studied sample was male, with the majority coming from urban areas (68.1%).

Figure (1): Illustrated that the prevalence of electronic games among the studied sample was 89.3%.

Table (2): Showed that (47.1%) of the studied sample enrolled in electronic game for fun and excitement,

also (44. 7%)of the studied sample playing for developing skills and improve intellectual capabilities, while only 11.2% of them for increase self -esteem.

Figure (3): Demonstrated that electronic game had high effect on psychological aspect, mental aspect, social aspect, physical aspect and violence (79.8%, 79.2%, 77.3%, 68.3%, 64.6 %) respectively

Table (3): Presented that there was statistical significant difference between social impact and age, gender, academic year, academic achievement, smoking and mother occupation with P- value (0.000).

Table (4): Reported that there was statistical significant difference between psychological impact and age, gender, academic year, academic achievement and smoking with P- value (0.000).

Table (5): Stated that there was statistical significant difference between physical impact and gender, academic year, academic achievement, smoking and mother occupation with P- value (0.000).

Table (6): Revealed that there was statistical significant difference between mental impact and age, gender, academic year, academic achievement, smoking, and mother occupation with P- value (0.000).

Table (7): Clarified that there was statistical significant difference between violence and age, gender, academic year, academic achievement, smoking and family income with P- value, (0.000).

Table (8): Described that there was statistical significant difference between playing electronic games and age, academic achievement, smoking, father education and mother occupation with P- value (0.000).

Table (9): Showed that the most of the studied sample that played 4-6 hours/ day had high social impact (86.3%), psychological impact (88.1%), physical impact (78.1%), mental impact (89.3%) and violence (71.1%) with p- value (0.000).

Discussion

Electronic games can affect the behavior of specific players and the environment as a whole. Playing electronic games presents many challenges that change player behavior for better or worse **(Quwaider et al, 2019).**

The study aimed to determine the prevalence of electronic gaming, identify the consequences of playing electronic games and investigate the association of electronic games players with risky behaviors among secondary school students.

Regarding to **personal** characteristics of the studied sample, the mean age was16.25 ± 1.14 (15.0-19.0). This may be attributed to that the adoption of risk behaviors and problem games is more common

among adolescent's aged 15 to 19 due to developmental changes

This result was in the same line with **Aksoy & Erol, (2021)** who conducted the study of "Digital Game Addiction and Lifestyle Behaviors in Turkish Adolescents, Istanbul/turkey " and reported that the mean age of the study was 16.5 ± 1, 0 years (min=14, max=19) years and with **Nugraha et al, (2021)**, who conducted the study of "Predicting Video Game Addiction: The Effects of Composite Regulatory Focus and Interpersonal Competence Among Indonesian Teenagers During COVID-19 Pandemic" and reported that the mean age was 16.029 ± .698 ranged from (14 to 19)years.

This study demonstrated that most of the samples studied who playing electronic game was male; this could be attributed to the role of electronic games affects the brain in the same manner as addictive drugs: they unleash the release of dopamine, a chemical that boosts behavior. The male brain exhibited increased activity in the mesocorticolimbic center that was related to reward and addiction and controls brain pleasure mechanisms.

This result agreed with the study of "Video game use among secondary school students and associated factors" which conducted by **Oflu & Sidika, (2019)** and reported that proportion of playing electronic game was higher in boys (51.4 %) than in girls (48.6%).

Concerning the findings of the present study, less than two thirds of the studied sample was low socioeconomic status, this result disagreed with **Abdel Raouf et al, (2022)** who found the 81.90% of participants had average social and economic status, 16.24% of participants had high social and economic status, and only 1.86% of participants had low social and economic status.

According to the prevalence of playing electronic games among the studied sample, the current result presented that most of the studied sample had a high prevalence of playing electronic games, this may be attributed this high proportion reflects the popularity and accessibility of gaming among youth. This result was congruent with **Nabil et al, (2017)** who carried out the study about "Association of video gaming with some risky behaviors of secondary school adolescents in Abha, Southwestern Saudi Arabia" and reported that the prevalence of video games among the participants was so high (80.7%). Also, the present study agreed with **Oflu & Sidika, (2019)** who stated that most of the sample was electronic game players.

The present study reported that less than half of the studied sample enrolled in electronic game for fun and excitement and for develop skills and improve capabilities . This may be refer to the excitement in

playing games makes participants unable to control themselves until they lose track of time while playing games, this is influenced by the inability to control emotions in playing games.

This result was consistent with **Nabil et al, (2017**) who indicated that commonly motivators to gaming were prompting fun and excitement, and developing skills and improving intellectual capabilities.

The result of the current study showed that more than two-thirds of the studied sample was significantly affected physically, this result underpinned by **Priyadarshini et al, (2021)** who conducted the study of "A Study On Impact of Video Gaming On Children "and found that 66% of the respondents under study had bad health issues.

Also, the present study reported that there was a statistical significant association between video game addiction and its consequences on psychological domain of the studied participants; whereas more than three quarters of them found to be affected psychologically ,this result matched with **Saquiba et al, (2017**) who carried out the study of "Video game addiction and psychological distress among expatriate adolescents in Saudi Arabia" and found that (54%) of students experienced high mental distress.

In addition, the present study revealed that more than three quarters of the studied sample was significantly affected mentally, this finding agreed with **Farchakh et al, (2020)** who led the study on. "Video gaming addiction and its association with memory, attention and learning skills in Lebanese children "and showed that a greater reliance on video games was statistically meaningful associated with a higher memory score (worst memory), with a higher attention score (worse attention), and higher scores and scales of learning, executive functioning and attention (lower cognitive and school abilities).

The present study discovered that there was a statistical significant association between playing electronic games and violence whereas; less than two thirds of the studied sample was affected, this result supported by **Nabil et al, (2017)** who reported that heavy-duty video games were strongly associated with an increase in verbal abuse.

Regarding to the relation between social impact and socio-demographic characteristics of the studied sample , there was a statistical significant difference between socio-demographic characteristics as age and gender and social domain, this result agreed with **Marinaci et al, (2021)** who conducted the study under the title "What game we are playing: the psychosocial context of problem gambling, problem gaming and poor well-being among Italian high school students"and reported that men's sex is associated with a greater score on problematic gaming addiction and lower scales of play and well-

being and age is linked to gaming and wellness: as age decreases, participation in gaming increases; as people get older, their perceived level of well-being increases.

The current study reported that there was a statistical significant difference between psychological impact and **personal** characteristics as age and gender, this result was incongruent with **Mohammed & Ali, (2020)** who conducted the study of "impact of using electronic games on psychological domain of adolescents quality of life in Kirkuk secondary schools" and found that there is no significant difference in the age of teenagers with respect to their psychological quality of life. In addition, there is no significant difference between a teenager's gender and his psychological domain of quality of life.

Another study about "Association of screen time and physical activity with health-related quality of life in Iranian children and adolescents "which conducted by **Gorji et al, (2019**) reported that there was a statistical significant relationship between adolescent's gender and psychological domain of quality of life agreed with our results.

According to the relationship between mental impact and sociodemographic features of the studied sample, there was statistical significant difference between mental impact and academic achievement, this may be refer to more time devoted to video games means less time devoted to academic activities, and fewer hours of sleep in general, that typically make children with strong video game attitudes less alert and more sensitive to cognitive mistakes

Likewise, **Farchakh et al, (2020)** who found that increased reliance on video games was significantly associated with higher education, Executive level and attention level Functional scale and sub-scale scores (worst cognitive and academic capabilities). In contrast, there was another study about "The impact of heavy and disordered use of games and social media on adolescents' psychological, social, and school functioning" which conducted by **Eijnden et al, (2018)** and indicated that no evidence that excessive video games adversely affect the educational performance of teens.

In addition, The result of the current study was reported that there was statistical significant difference between physical impact and smoking, this result agreed with **Antonius et al, (2014)** who conducted the study about "The co-occurrence of problematic video gaming, substance use, and psychosocial problems in adolescents" and revealed that there was association between alcohol, nicotine, and cannabis use and problematic gaming. On the other hand; this result differs with a study conducted by Rho et al. (2017) under the title of "Risk factors for internet gaming disorder: Psychological factors

and internet gaming characteristics" and presented that alcohol and nicotine dependence are not linked to problematic gaming in adults.

The result of the current study showed that there was a statistical significant difference between violence and socio-demographic characteristics as age. This finding may be attributed to the fact that the critical years of adolescence are characterized by the search for independence, the trend towards disengagement from parental control and concern for the views of others such as internet cafes and peers.

This result matched with **Ez-Elarab et al, (20**17) who conducted study about "Prevalence and risk factors of violence among elementary school children in Cairo" and found that taking part in violent electronic games was related to cognitive and aggressive behavior, desensitizing to violence, and decreasing prosocial behavior with the age of the player.

Moreover , the present result stated that there was a statistical significant difference between violence and gender, The researchers point of view may refer to that boys strongly relate by the violent media characters, This suggests that exposure to violent media or media characters is also strongly associated with boys' aggressive behavior in all countries.

The result of the current study was supported by **Aksoy & Erol, (2021)** who found that 27.8% of adolescents and 11.8% of adolescent girls were reliant on digital games. Furthermore, it was found that males had a 2.75 times higher risk of being dependent.

The result of the current study showed that there was a statistical significant difference between violence and family income, this result was along the same line with **Rajasakran et al, (2014)** who conducted the study about "Aggressor Games: Of Violent Video Games and Aggression among Higher-income Group Schoolchildren in Malaysia "and found that students in the highest income group reported higher exposure to violent gaming compared to those in the lowest income group.

Furthermore, the results of the current study presented that there was a statistical significant difference between violence and smoking, this result agreed with **Nabil et al. (2017**) who showed that significant positive association between electronic gaming and risky behaviors namely smoking and violence.

These result agreed to study carried out by **Nies & McEwen, (2021)** in China and showed that some electronic games like first-person shooter games and other violent games may lead to increase the appearance of external behavior problems of players such as aggressive behavior.

Regarding to the relation between playing electronic games and socio-demographic characteristics, there

was a statistical significant difference between playing electronic games and (age ,academic achievement), this result supported by **Almalki & Aldajani, (2020)** who found a significant association was reported between the age and electronic games addiction. Electronic games addiction significantly affected the academic performance.

Additionally, the result of the current study discovered that there was a statistical significant difference between playing electronic games and further education; this may be referred to lack of parents' awareness with dangers of electronic game addiction and the failure of them to monitor their children as a result of their busyness with work.

This result matched with **Almalki & Aldajani, (2020)** who found that Parents' education was significantly associated with addiction, higher percentage of participants with a dependency on electronic games their parents (father and mother) illiterate (90.69% and 92.31%, respectively), Whereas the lowest percentage of substance abuse was reported among students whose father and mother had a university degree (21.36% and 25.37%, respectively).

The result of the present study revealed that the time of playing electronic gaming had a statistically significant relationship with physical and social relationships. The present result was congruent with **Alshehri A & Mohamed A, (2019)**: who conducted the study of **"**The Relationship Between Electronic Gaming and Health, Social Relationships, and Physical Activity Among Males in Saudi Arabia " and found that electronic gaming hours had been associated with adverse effects on health and behavior. Electronic gaming in adolescents is associated with poor educational achievement.

The current result supported by **Almalki & Aldajani, (2020)** who indicated that there was high significant association between electronic games addiction and the social behavior of student's with p-value (0.001) and 67.79% of students' personal lives have been negatively impacted by reliance on electronic games as it relates to their relationships with family and loved ones.

The result of the current study was congruent with **Alshehri & Mohamed, (2019)**who conducted the study of "The Relationship between Electronic Gaming and Health, Social Relationships, and Physical Activity Among Males in Saudi Arabia "and revealed that significant relationships between electronic gaming and physical aspect. The findings of **Almalki & Aldajani, (2020)** who reported that a significant association was found between electronic games addiction and physiological distress congruent with the findings of the current study.

Meanwhile, another study under title of"Video game disorder and mental wellbeing among university students: a cross-sectional study" conducted by **Abdel Raouf et al, 2022** who found that there was a statistical significant negative correlation between video game disorder with mental health status and number of sleep' hours per day (r = -.06, p = .003 &-.55, p < .001) respectively this result disagreed with our findings.

A statistical significant relation was found between the tendency for violence and the time spent per year in playing electronic games. This could be rationalized by adolescents' feeling that if they imitate criminal behavior, they also become heroes. The heroine who commits the crime is glamorous. Violence is not heroic and it is reprehensible to show children how heroic it is, Teenagers are starting to look at criminals as powerful role models, so Parents should inspect and reflect on what their teens are played on their cell phones or computers.

The present result was standing in the line with **Sahimi, (2019)** who conducted the study about "Television and media literacy in young children: issues and effects in early childhood." and reported that both short-term and long-term aggression and violence increase with the increase of playing electronic games hours among young ages.

The result of the current study was inconsistent with a study of **Özmert, et al., (2020)** who conducted the study of "Behavioral Correlates of Television Viewing in Primary School Children Evaluated by the Child Behavior Checklist" and observed children both before and after long duration of playing electronic games who had many aggressive and violent acts and others watched non-violent broadcasts.

Conclusion

The majority of the studied sample had a high prevalence of playing electronic games. Electronic games definitely caused adverse effects among the studied sample such as social impact, psychological impact, physical impact, mental impact and violence which are significantly associated with playing for long duration and socio-demographic characteristics of the studied sample.

Recommendation

1. 1-Educate parents and teachers that they need to be aware of the risks associated with excessive electronic gaming that affect a youth's health and behavior.
2. Prevention programs should focus on the improvement of the psychological well-being of adolescents, to develop effective time management skills and to avoid excessive play.

This should be done with the cooperation of schools, parents and social organizations.
3. A further study should be conducted to evaluate the association of electronic gaming with different aspects of health with a larger number of participants

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