Quality of Life Domains as Predictors of Internet Gaming Disorder Among College Level Egyptian Students: Across Gender Study"

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"Quality of Life Domains as Predictors of Internet Gaming Disorder Among College Level Egyptian Students: Across Gender Study"

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Informed Consent Statement

All participants were provided with comprehensive information regarding the study's objectives, potential advantages, associated risks, the assurance of confidentiality, and their right to

withdraw from the study at any stage. Every participant signed a consent form to indicate their informed consent. The consent forms were signed and collected before starting the study.

Data Availability Statement

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable reque st (ansam.alshaikh@bue.deu.eg)

Conflicts of Interest

The authors declare no conflict of interest.

Acknowledgment

Abstract

The primary aim of this study was to explore how different domains of quality of life influence internet gaming behavior and to examine the extent to which gender moderates these influences. This analysis forms part of a larger project and involved a sample of 56 university students who identified as internet gamers. The study scrutinized the differences between male and female gamers regarding their gaming habits, motivations, satisfaction levels, and perceptions of how gaming impacts their personal and social lives. The goal was to understand the variances in internet gaming disorder between groups using the IGD-S9-SF test and to gauge the quality of life across four domains - physical, psychological, social relations, and environmental - as measured by the WHOQoL-BREF scale. The hypothesis was that quality-of-life domains, influenced by gender, would significantly predict internet gaming disorder.

The findings indicated that males perceived positive effects on their personal and social lives compared to females, and generally, males reported more beneficial impacts than negative ones. Males also scored higher on the internet gaming disorder scale compared to females, indicating a higher propensity towards at-risk and disordered internet gaming behavior. Both

genders scored similarly across quality-of-life domains; however, a decrease in social relation scores corresponded to an increase in IGD for all participants. This correlation was particularly significant within the female cohort.

In summary, male students in Egypt demonstrate a higher tendency towards problematic internet gaming behaviors compared to their female peers. Furthermore, female Egyptian gamers display a higher likelihood of developing problematic gaming behaviors when their social relations are unsatisfactory.

Introduction.

The significant surge in video game usage has sparked considerable interest in exploring the potential effects that excessive video gaming might have on individuals' lives, as evidenced by the abundant media coverage on the subject. Recent studies propose that specific genres of video games, such as action games, can bolster attention, visual-spatial abilities, and processing speed (Granic et al., 2014; Pallavicini et al., 2018). The influence of video gaming permeates the broader aspects of a person's quality of life. Video games can act as a platform for relaxation, social interaction, and self-expression, thereby positively influencing subjective well-being. Some research indicates that gaming can promote social ties, especially in online multiplayer settings, resulting in improved social support and a sense of community. For example, games with a prosocial focus have been found to enhance helping behaviors and empathy, as exposure to prosocial acts can prime participants' minds towards prosocial thinking (Bleakley et al., 2015; Pallavicini et al., 2018).

Contrarily, a significant body of research posits that excessive gaming among the youth is associated with negative consequences. These include harmful effects on health,

disrupted sleep patterns, hindered development of essential life skills, low self-esteem, concentration problems, inadequate communication skills, increased social anxiety, weakened real-world relationships, and feelings of isolation. Other potential adverse effects include escalated aggression, impaired academic or work performance, reduced impulse control, and a heightened inclination towards psychopathology (Awadalla et al., 2017; Elnahas et al., 2018a; Ostinelli et al., 2021; Saquib et al., 2017).

Bäcklund et al.'s meta-analysis in 2022 revealed that out of 26 motivational factors, 23 demonstrated a statistically significant correlation with symptoms of gaming disorder. The collective effect sizes derived from these studies fell within the small to moderate range. The analysis also uncovered significant heterogeneity, suggesting a diverse range of effects across various demographics and environments. The research notably underscored the robust link between motivations associated with emotional escape and symptoms of gaming disorder (Bäcklund et al., 2022a).

In line with the findings of Backlund et al. (2020), a preceding study by El-Shaikh and Abdelsalam. (2022) on Egyptian college students revealed that 43% of video gaming participants used video games as a means to evade stressors, while 32% played to escape from reality. These were the second

and fourth most prevalent reasons for gaming, respectively, with entertainment being the primary motivation. These results emphasize the significance of comprehending the relationship between the players' desires to escape daily life stressors or reality, their quality of life, and their susceptibility to developing internet video gaming disorders.

Moreover, despite evidence indicating slight gender differences in online gaming, females are notably underrepresented in video gaming studies, particularly those focusing on Internet Gaming Disorder (IGD) (Mukrimaa et al., 2016). Historically, research suggested that the video gaming market was largely male-dominated. However, recent studies have documented a significant shift in this trend, with an increasing number of females becoming involved in video gaming. The Entertainment Software Association's recent statistics reveal that the population of female online gamers has grown by 12% between 2008 and 2016, accounting for up to 45% of all online gamers (Mukrimaa et al., 2016). Female players are more susceptible to psychological and social changes than males but less likely to develop gaming disorders (Lopez-Fernandez et al., 2019).

The present study sought to investigate the incidence of Internet Gaming Disorder (IGD) among both female and male

Egyptian students video game players. Our focus was on exploring the variances between female and male gamers in terms of their gaming habits, motivations, perceived effects on their personal and social lives, as well as their overall quality of life. This was represented across various domains, including physical, psychological, social, and environmental aspects.

In alignment with prior research, we hypothesized that male participants would exhibit a higher degree of gaming addiction and would be more susceptible to developing gaming disorders compared to their female counterparts. Furthermore, this study intended to delve into the relationship between Internet Gaming Disorder (IGD) scores and Quality of Life (QoL) domains, which encompass physical well-being, psychological well-being, social relationships, and environment. We anticipated that poor quality of life, as represented by different quality of life domains, would be associated with a higher risk of developing problematic gaming behavior. We expected those associations to be moderated by gender.

Methods

Study Design, Procedures, and Participants.

The present research forms a segment of a more comprehensive project. We carried out an exploratory survey

study to amass a wide range of data concerning video gaming habits among Egyptian university students. We employed snowball sampling for our approach. A hyperlink containing the study questionnaires was disseminated across various social media platforms such as Reddit, Instagram, Facebook, and WhatsApp student groups at The British University in Egypt, Badr University, and Banha University. The survey was introduced as a quality-of-life assessment. Participants were encouraged to further distribute the link to other university students who might be interested in participating.

Participants. Individuals were excluded from the study if they had a history of alcohol or drug abuse, prior drug dependence, a current or past central nervous system disease or condition, a mental/medical condition or disease with probable significant central nervous system effects, or a physical issue that would make it difficult or impossible to administer or interpret the study measures (e.g., blindness, hearing impairment, paralysis in upper extremities, etc.). All participants possessed normal or corrected-to-normal vision. The exclusion criteria were listed at the beginning of the survey.

Data Collection Measures.

A bilingual (Arabic and English) survey was created and administered online using "SurveyMonkey." The survey was divided into two sections. The first section was presented in both Arabic and English. At the start of the assessment, participants were provided with a comprehensive form that included a detailed description emphasizing the importance of upholding confidentiality, anonymity, and honesty throughout the study. Following this, participants were required to provide their consent by acknowledging and agreeing to the contents of the form before proceeding with the study. After securing the participants' consent, a set of eligibility questions pertaining to the inclusion and exclusion criteria were posed. Once the participants successfully answered these questions, they were prompted to respond to demographic queries. Subsequent to this section, participants were given the option to continue in either English or Arabic.

The second section was provided in either Arabic or English and was composed of three parts. The first part incorporated a validated version of the WHOQOL-BREF (World Health Organization Quality of Life-BREF), a standardized quality-of-life questionnaire developed by the World Health Organization. It contains 26 items divided into four domains: psychological well-being, social relationships,

physical health, and the environment. Each item is rated on a Likert scale from 1 to 5. Each domain received a score ranging from 0 to 100, with higher scores indicative of superior QoL. This questionnaire has been translated into Arabic and validated for adoption among Arabic-speaking populations (Ohaeri & Awadalla, 2009).

In the subsequent part of this section, a set of 24 questions was administered to delve into the habits, motivations, and satisfaction of individuals engaged in video gaming. The questionnaire commenced by asking if the participant was currently playing video games. If the response was positive, participants were permitted to proceed further.

The subsequent part incorporated a validated brief questionnaire of the Internet Gaming Disorder IGDS9-SF (Finserås et al., 2019; Lemmens et al., 2015). The scale is grounded in the 9 DSM-V criteria for internet gaming disorder (American Psychiatric Association, 2013) and contains 9 dichotomous questions. The Arabic version of the scale has been validated on the Egyptian population (Baiumy et al., 2018). Moreover, this scale can be employed to distinguish between three categories of internet video gamers: Normal (0-2), at-risk (3-5), and addicted gamers (6-9), as per Baiumy et al., 2018. The survey is estimated to take 20 minutes to complete.

Pilot study. A preliminary study was conducted at the British University in Egypt, involving 25 students. Participants were given access to the survey via a shared link and were directed to answer all the questions. Importantly, based on the feedback received, no modifications were deemed necessary.

Analyses Approach

Confirmatory and Descriptive Analyses.

Quantitative variables exhibiting a normal distribution were characterized by their mean and standard deviation. Categorical variables were described using frequencies and percentages. Subsequently, we cross-tabulated responses from diverse questions to scrutinize relationship between variables and discern patterns or associations between specific categories across various questions.

Between Groups analyses

Chi-square Tests were performed to ascertain if there were significant disparities between the female and male groups in terms of socio-demographic characteristics. Upon evaluating the WHOQoL- BREF scores in each domain and within each participant group (females vs. males) for normality (Shapiro tests) and homogeneity (Levene's test), t-tests were utilized to investigate the differences between females and males.

Likewise, an independent t-test was used to compare IGD scores between female and male participants. Shapiro tests were applied to verify the assumption of normality for IGD scores in each group (Females vs. Males). Levene's test was used to examine for heterogeneity.

WHOQoL domains' relation to IGD-S9-SF. Multiple linear regression analyses were carried out to explore the relationship between QoL domains and IGD scores, considering gender as a potential moderating factor. This was succeeded by a descriptive analysis of the video gaming survey (24 questions) to comprehend the differences between female and male participants in terms of video gaming habits, motivations, and perceived impacts on their personal and social lives, as well as their satisfaction levels with playing video games.

Results

The sample comprised 56 video game players. All 56 players completed the WHOQoL-BREF scale, while 47 players completed the IGD survey. The remaining five participants exited the survey after completing the 24 general questions, which included playing habits, motivations, satisfaction, and the perceived impacts on their personal and social lives.

Table1. Demographic characteristics of female and male participants

Demographic Characteristics	Female Participants N = (24), 51.04%	Male Participants N=(23), 48.94%	Statistics	Significancy
Age	*20.92±1.863*	*19.52±1.831*	*U=151*	*p = .008*
Language	*Arabic =10 (41.67%)* *English = 14 (58.33%)*	*Arabic = 9 (39.13%)* *English = 14 (60.87%)*	$X^2 = 0.031$	*p=.859*
Social status	*20 singles (83.33%)* *2 married (8.33%)* *2 In relationship (8.33%)*	*21 singles (91.3%)* *0 married* *2 In relationship (8.7%)*	$X^2 = 2.004$	*P=.367*
High school Education	*National, n= 13*	*National, n= 10*	$X^2 = 2.505$	*p= .664*

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	(54.17%)	*(43.48%)*		
	IGCSE, n= 2 (8.33%)	*IGCSE, n= 1 (4.35%)*		
	American, n= 6 (25%)	*American, n= 9 (39.13%)*		
	Azhar, n= 1 (4.167%)	*Azhar, n= 0*		
	Other, n= 2 (8.33%)	*Othe, n= 3 (13.04%)*		
University Education	*Public, n=3 (12.5%)*	*Public, n = 7 (30.43%)*	$X^2 = 5.7$	*p= .223*
	Public (credits, n) =5 (20.83%)	*Public (credits, n) = 3 (13.04%)*		
	International, n=0	*International, n=2 (8.7%)*		
	Private, n=15 (62.5%)	*Private, n= 11 (47.83%)*		
	Private (Civil),	*Private (Civil),*		

	n=1 (4.167%)	n=0		
Academic Grades	A, n=7 (29.17%) B, n=11 (45.84%) C, n=6 (25%) D, n=0 F, n=0	A, n= 8 (34.78%) B, n=12 (43.47%) C, n=2(8.70%) D, n=0 F, n=1 (4.35%)	$X^2=$ 5.95	p= .429
Employment	Seeking, n=4 (16.67%) Unemployed, n= 17 (70.83%) Full-time, n= 1 (4.167%) Part-time, n= 1	Seeking, n= 2 (8.7%) Unemployed, n= 17 (73.91%) Full-time, n= 0 Part-time, n= 2 (8.7%)	$X^2=$ 2.313	p= .678

	(4.167%) *Other, n= 1* *(4.167%)*	*Other, n= 2* *(8.7%)*		
Current Residence	*City, n= 20* *(83.33%)* *Countrysid e, n= 4* *(16.67%)*	*City, n=20* *(86.96%)* *Countrysid e, n= 3* *(13.04%)*	$X^2=$ *0.122*	*p= .727*

The study employed independent t-tests and Mann-Whitney tests to compare the male and female participant groups. The findings revealed no significant disparities in any of the socio-demographic characteristics, with the exception of age. Specifically, male participants (M=19.9, SD=1.89) were observed to be slightly but significantly younger than their female counterparts (M=20.91, SD=1.82) – see Table 1.

A series of Chi-square tests were executed to investigate the associations between gender and various video gaming-related factors. These factors encompassed gaming habits, motivations for engaging in gaming, perceived impacts of gaming on personal and social life, and the degree of satisfaction obtained from involvement in video games. Only 47 out of the 56 participants responded to the questions about

habits, motivations, satisfaction (Table 2), and the perceived impacts on players' lives (Table 3).

Gender relationship to video playing habits: Chi-square test revealed that 35% of male VG players engage in over 7 hours of play per week, in contrast to 8% of female players ($X2 = 4.38$, p= 0.036). Similarly, 56.5% of male players typically play continuously for more than 1 hour compared to 5 % of female players ($X2 = 6.33$, p= .01). Moreover, a significant majority of male players (69.5%) have been playing video games for over 8 years. The remaining male participants initiated video game playing more than 4 years ago. Conversely, 37.5% of female players began playing video games less than 4 years ago, while another 37.5% started over 4 years ago. Only 25% of female players have been gaming for over 8 years; a significant difference was observed between the two genders in terms of years of gaming ($X2(2)= 13.78$, P= .001). Also, all female players reported playing at home, in comparison to 91.3% of male players who play at home, 4.35% at university, and 4.35% at internet cafés. There was no significant difference between the two groups, female and male, in terms of the location of play ($X^2(1,47)= 2.18$, p=.336) -Table 2.

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Table 2. Video gaming behavior habits, motivations, and satisfaction scores among females and males

Habits	Female Participants N= 24	Male articipants N= 23	-	-
Weekly hours of playing.	*Less than 7-hour, n= 21(88%)* *More than 7 hours, n= 3(12%)*	*Less than 7 hours, n= 14 (61%)* *More than 7 hours, n= 9 (39%)*	$X^2(1,47)$ $=4.38$	*p= 0.04*
Consecutive playing hours at a time.	*Less than 1 hour: 19 (79%)* *More than 1 hours: 5 (21%)*	*Less than 1 hour: 9 (39%)* *More than 1 hour: 14(61%)*	$X^2(1,47)$ $=7.82$	*p= .005*
Years of playing	*Less than 4 years, n= 9* *4 years – 8 years, n= 9* *More than 8, n= 6*	*Less than 4 years, n= 0* *4 years – 8 years, n= 7* *More than 8, n= 16*	$X^2(2, 47)$ $=13.78$	*p =.001*
Playing Setting	*At home, n= 24* *At school, n= 0* *Internet café, n= 0*	*At home, n= 21* *At school, n= 1* *Internet café, n= 1*	$X^2(2, 47) = 2.18$	*p= .34*
Used Device	*Mobile, n= 22* *Laptop/PC, n= 6* *PlayStation, n= 4* *Xbox, n= 4*	*Mobile, n= 12* *Laptop/PC, n= 16* *PlayStation, n= 12* *Xbox, n= 3*	$X^2(3, 47) = 11.37$	*p= .01*
Self-	*Novice, n= 3*	*Novice, n= 1*	$X^2(4,47)$	*p=*

perception as a player	Casual, n= 9 Expert, n= 7 Aspiring professional, n=4 Professional, n= 0	Casual, n= 15 Expert, n= 5 Aspiring professional, n= 2 Professional, n=1	7) = 4.48	.345
Whom game mates	Amateurs, n= 11 Semi-professionals, n=12 Professionals, n= 3	Amateurs, n=14 Semi-professionals, n=16 Professionals, n= 6	$X^2(2,47) = .327$	p= .85
Motivations	N= 24	N= 23		
	Entertainment, n= 24 Learning new skills, n= 6 Income, n= 0 Building relationships, n= 2 Escaping stressors, n= 8 Learning about other cultures, n= 0 Improve second language, n= 1 To beat others, n= 3 To feel less lonely, n= 4	Entertainment, n= 22 Learning new skills, n= 2 Income, n= 2 Building relationships, n= 3 Escaping stressors, n= 12 Learning about other cultures, n= 2 Improve second language, n= 3 To beat others, n= 6 To feel less lonely,	$X^2(11, 47) = 11.03$	p= .44

	Escape reality, n= 6 *Connect with friends, n= 5* *Satisfy a crave, n= 7*	*n= 4* *Escape reality, n= 9* *Connect with friends, n= 13* *Satisfy a crave, n= 7*		
Satisfaction				
Are you satisfied with playing video games?	**Satisfied, N=1 (4%):** *Very satisfied, n= 1* *Satisfied, n= 0* **Neither satisfied nor dissatisfied, N= 9 (37%)** **Dissatisfied, N=14(58%)** *Dissatisfied, n= 11* *Very dissatisfied, n= 3*	**Satisfied, N=3 (13%):** *Very satisfied, n= 0* *Satisfied, n= 3* **Neither satisfied nor dissatisfied, N= 5 (9%)** **Dissatisfied, N=15 (65%)** *Dissatisfied, n= 10* *Very dissatisfied, n= 5*	$X^2(2,47) = 4.61$	*p= .33*
Have you	*Yes, n= 9*	*Yes, n= 7*	$X^2(1,4$	*p= .61*

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tried to quit playing VG before?	No, n= 15	No, n= 16	7) =0.26 1	

The motivations for engaging in video gaming varied among the participants in the VG group. However, all female participants played primarily for entertainment. Within this group, 33.3% played video games to escape stress, 29.7% to satisfy cravings, 25% to escape reality, 25% to acquire new skills, and 20% to connect with others. In a similar vein, 95% of male participants played for entertainment, followed by 56.5% who played to connect with others, 52.17% to escape stress, 39% to evade reality, 30.34% to satisfy a craving, 26% to defeat others, and a mere 8.7% of males played to learn new skills - Table 2.

Across all participants, only a minimal percentage of players expressed satisfaction with playing video games. When asked to gauge their satisfaction with playing, a mere 6.38% of all VG players (comprising 4.16% of females and 8.7% of males) responded with either satisfied or very satisfied. Meanwhile, 29.79% (37.5% of females and 21.74% of males) were neutral, neither satisfied nor dissatisfied, 44.68% (45.83% of females and 43.47% of males) were dissatisfied, and 17.02% (12.5% of females and 21.74% of males) were very dissatisfied.

No significant difference was found between males and females in terms of reported satisfaction ($X2(1) = 4.61$, p=.329). Similarly, 37.5% of female players disclosed that they attempted to quit video games, compared to 30.43% of males. No significant disparity was detected between males and females concerning attempts to quit ($X2 (1,47) = .261$, p=.609)   - Table 2.

Regarding the positive impact on players' personal and social lives, the percentage of male participants reporting positive impacts on their personal lives was significantly higher than that of their female counterparts ($X^2 (1,47) = 4.37$, p = 0.036). Similarly, a larger segment of male participants reported positive impacts on their social lives compared to female participants ($X^2(1,47) = 4.78$, p= 0.029) - see Table 4. There was no significant disparity between the percentages of males and females in terms of perceived negative impact on personal life ($X^2(1,47) = 0.512$, p=.47) or on social life ($X^2(1,47) = 1.70$, p=.19) - Table 3.

Table 3 Video gaming's positive and negative impacts as perceived by female/ male players.

Table 4 Video gaming's positive and negative impacts as perceived by female/ male players.

Perceived Impacts on Players' personal and social life.	Female Participants N= 24	Male Participants N= 23	Statistics	P values
Positive Effects on Players' Personal life	*Yes, N= 13 (54%):* *More focused, n= 9* *Can understand people better, n= 3* *More self-confident, n= 2* *More organized, n= 0* *Better problem solving, n= 10* *Calmer, n= 2* *Faster than before, n= 4* *Other, n= 0* *Not at all, N= 11(46%)*	*Yes, N= 19 (83%):* *More focused, n= 7* *Can understand people better, n= 6* *More self-confident, n= 1* *More organized, n= 5* *Better problem solving, n= 10* *Calmer, n= 5* *Faster than before, n= 6* *Other, n= 3* *Not at all, N= 4 (17%)*	$X^2(1,47) = 4.37$	$p=0.036$
Negative Effects on Players' personal life	*Yes, N=8 (33%):* *Less focused, n= 2* *More isolated, n= 4* *Less organized, n= 3* *Slower than before, n= 2*	*Yes, N= 10 (43%):* *Less focused, n= 4* *More isolated, n= 5* *Less organized, n= 3* *Slower than before, n= 0*	$X^2(1,47) =.51$	$p=0.47$

	Harsher than before, n=2 *Other, n= 1* ***Not at all, N= 16 (67%)***	*Harsher than before, n=1* *Other, n= 0* ***Not at all, N = 13 (57%)***		
Positive Effects on Players' social Life	***Yes, N= 8 (33%)*** *More friends, n= 3* *Improved language, n= 2* *More talkative, n= 6* *Improved relationship with family, n= 2* *Improved relationship with co-workers, n= 1* *More job opportunities, n= 0* ***Not at all, N= 16 (67%)***	***Yes, N= 15(65%)*** *More friends, n= 8* *Improved language, n= 7* *More talkative, n= 12* *Improved relationship with family, n= 0* *Improved relationship with co-workers, n= 0* *More job opportunities, n= 2* ***Not at all, N= 8 (35%)***	$X^2(1,47)$ $= 4.78$	$p= 0.03$
Negative Effects on Players' Social Life	***Yes, N= 8 (33%):*** *Less time for studying n= 4* *Less time for socializing, n= 4* *Worsened relationship with family, n= 2* *Troubles with others, n= 4*	***Yes, N=12 (52%):*** *Less time for studying n= 5* *Less time for socializing, n= 6* *Worsened relationship with family, n= 0* *Troubles with others, n= 5*	X^2 $(1,47)$ $=1.70$	$p= 0.19$

	Other, n= 0	*Other, n= 1*	
	Not at all, N= 16 (66%)	*Not at all, N= 11(48%)*	

Analyses were carried out to evaluate the intensity of internet gaming behavior. The occurrence of Internet Gaming Disorder (IGD) was ascertained by identifying individuals who responded affirmatively to five or more items (as per Ali et al., 2022; Bäcklund et al., 2022b; Mukrimaa et al., 2016). The study discovered that 14.3% of the study participants were classified as having IGD as a disorder, while 31% demonstrated a risk for IGD. A majority of participants, 54.7%, were categorized as average players.

Additional analysis was carried out to examine the prevalence of IGD among participants, taking into account gender. There was a significant distinction in IGD scores between male and female participants (Mann-Whitney U = 133, p = .03). The IGD scores for female participants (M= 2.26, SD= 2.20) were notably lower than those for male participants (M=3.37, SD= 2.06). The data showed that the majority of female players (70%) were classified as average players, and only 30% were considered at-risk and disordered players. Conversely, only 37% of male players were classified as

average, and 67% fell within the at-risk and disordered categories - refer to Table 4.

Table 4. Female vs. male participants in IGD and WHOQoL-BREF scales.

IGD	Females, N= 23	Males, N= 19	Statistics	P values
IGD Score	*2.26±2.20*	*3.37±2.06*	*U=133*	*p= .031*
IGD Category	*Normal: 16 (70%)* *At risk: 4 (17%)* *Disordered:* *3(13%)*	*Normal: 7(37%)* *At risk:9 (47%)* *Disordered:3* *(20%)*	$X^2(2,42) =$ *5.11*	*p= .078*
Physical well-being	*13.89±2.649*	*14.55±1.528*	*t(40)= -0.961*	*p= .342*
Psychological well-being	*11.77±2.932*	*13.08±3.273*	*t(40)= -1.368*	*p= .179*
Social relationships	*12.75±2.601*	*12.351±3.871*	*t(40)= 0.4*	*p= .692*
Environment	*13.46±1.95*	*14.184±2.784*	*t(40)= -0.99*	*p= .33*
Total Qol	*14.78±3.4*	*14.842±3.01*	*t(40)= -0.0619*	*p=.95*

A multivariate linear regression model was utilized to explore the influence of the quality-of-life domains on the IGD scores, with gender being factored in as a potential moderator. The overall model was on the brink of significance (F (9, 32) = 1.98, p = 0.075, R² = 0.178). Among the main effects, only the social domain was determined to significantly influence IGD

scores (β = -0.071, t (32) = -2.37, p = 0.024). The interaction terms between the predictor variables and Gender were not significant (p > 0.05), with the exception of the interaction effect between the social domain and Gender (β = .10, t (32) = 2.61, p = 0.013). This suggests that the association between the social domain and IGD scores varies depending on gender - refer to Table 5.

Table 5. The results of a multivariate linear regression to investigate the relations between WHOQoL-BREF domains and the Internet Gaming Addiction (IGD) scores considering gender as a potential moderator.

Source	IGD	
	t (34)	b Estimate
Physical Domain	*0.22*	*0.004*
Psychological Domain	*-0.33*	*-0.005*
Social Relationship Domain	*-2.37***	*-0.04*
Environment Domain	*-0.67*	*-0.01*
Physical Domain by Gender	*-0.21*	*-0.01*
Psychological Domain by Gender	*-0.37*	*-0.01*
Social Relationship Domain by Gender	*2.61*** 161	*0.05*

Environment Domain by Gender	*-0.36*	*-0.01*

Note: * p < .05; ** p < .01

These results indicate that both the social domain of the QoL test and its interaction with Gender are instrumental in predicting IGD scores. However, the other variables do not significantly contribute towards predicting IGD scores.

Two simple linear regression models were employed to scrutinize the relationship between the social domain and IGD scores within each group (Female Players/ Male Players). The regression model for females produced significant results ($F_{(1, 21)} = 10.45$, $p = 0.003$, $R^2 = 0.30$). The Social domain variable demonstrated a significant negative correlation with IGD scores ($\beta = -0.068$, $t_{(21)} = -3.23$, $p = 0.003$). On the other hand, the regression model for males was not statistically significant ($F_{(1, 17)} = 0.025$, $p = 0.88$, $R^2 = -0.06$). The Social domain variable did not show a significant association with IGD scores ($\beta = 0.003$, $t_{(17)} = 0.16$, $p = 0.88$). Taken together, these findings suggest that among female players, there exists a significant negative correlation between the social domain and IGD scores. However, for male players, no significant association was detected between the social domain and IGD scores (Figure 1).
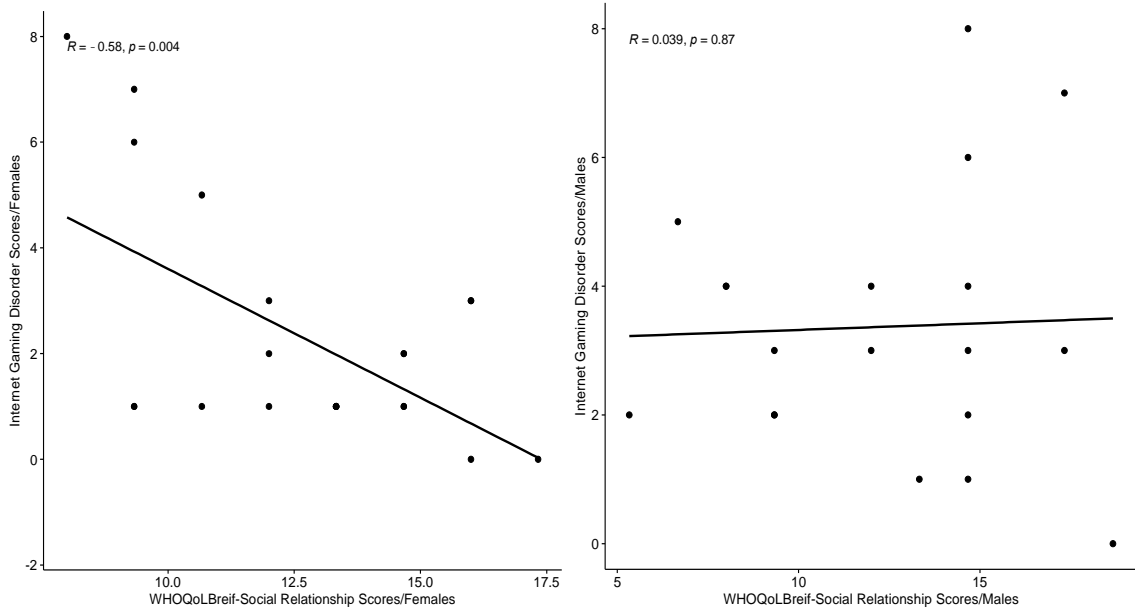
Figure 1. The association between the WHOQoL-Brief social domain scores and the Internet Gaming Disorder scores in male and female players.

Discussion

The primary objective of the present study was to explore the prevalence of IGD among male and female college-level students who play video games in Egypt, in addition to examining gender-based differences in gaming habits, motivations, satisfaction, and the perceived effects on personal and social life. The study also aimed to investigate the impacts of QoL domains, as gauged by WHOQoL-BREF, on the intensity of players' gaming behavior (IGD scores), which was anticipated to exhibit variation based on gender.

Global studies have reported a prevalence of IGD ranging from 5.5% to 11.6% (Khrad et al., 2022; Liu et al., 2022; Shi et al., 2020). The current findings revealed a prevalence of IGD among Egyptian college-level players of 14.3%, which is markedly higher than the globally reported prevalence in other countries. In a similar vein, Elnahas et al. (2018) discovered a 9.3% rate of IGD prevalence among Egyptian college students, which is lower than the current prevalence. Meanwhile, a recent meta-analysis indicated that Egypt had the highest prevalence rate, followed by Saudi Arabia (Chiang et al., 2022). This notable increase in the incidence of Internet Gaming Disorder (IGD) in Egypt could be attributed to multiple factors, such as the lockdown measures implemented during the COVID-19 pandemic and the swift advancement of technology.

The findings of the study align with a substantial amount of previous research, suggesting that the prevalence of Internet Gaming Disorder (IGD) is significantly greater in male participants compared to female ones. This result corroborates the study by Elnahas et al. (2018), which also inferred that the disorder is more prevalent in males (Elnahas et al., 2018b). However, this stands in contrast to the results of prior studies in other countries by Khrad et al. (2022) and Shi et al. (2020),

which reported similar prevalence rates of IGD between males and females (Khrad et al., 2022; Shi et al., 2020).

There appears to be a significant discrepancy between males and females in terms of weekly gaming hours, the length of continuous gaming sessions, and the number of years spent playing games. Males are observed to allocate more hours per week to gaming, participate in lengthier gaming sessions, and have a longer history of game playing compared to females. Similar trends have been noted in previous studies, where males reported indulging in prolonged gaming sessions and having a more extensive history of video game play (Paaßen et al., 2017; Phan et al., 2012).

There was no significant disparity between male and female players concerning the location of video game play. However, it's noteworthy that most players preferred to engage in gaming within the confines of their own homes. This observation is consistent with Chang's (2019) assertion that video games don't particularly incentivize players to venture outdoors or away from their homes.

No significant variation was found in the motivations for playing video games between male and female players. The four most frequently cited reasons for engaging in video games were entertainment, stress relief, social connection, and escapism.

This result aligns with prior research carried out on the Egyptian demographic (Eissa, 2021), and also corroborates with broader theories of motivations for video gaming (Klug & Schell, 2012).

Conversely, there was a notable difference between males and females concerning the perceived positive influences of video gaming on their personal and social lives, with more males reporting positive effects than females. But when it comes to negative impacts on their social or personal lives, there was no significant disparity between genders. These findings align with Klimmt et al.'s (2009) results. Male players often adjust their perception of gaming outcomes to preserve positive experiences and evade negative ones.

 Additionally, no significant difference was observed between male and female players in terms of satisfaction with gaming or attempts to quit. However, a majority of players expressed dissatisfaction with their gaming behavior, although only a small proportion made attempts to quit.

Upon investigating the impact of various quality of life domains on internet gaming behavior, it was revealed that only the social relationships domain had a negative effect on players' IGD scores. This suggests that players with lower levels of social relationships are more prone to develop problematic or disordered levels of internet gaming behavior. Gender

significantly moderated this impact. The influence of social relationships on female gaming behavior was more pronounced. Females with lower social functioning are more likely to develop problematic video gaming behavior. These findings concur with previous research asserting that social well-being is inversely related to gaming behavior in females (Cheng et al., 2018; Eissa, 2021; Paaßen et al., 2017).

In summary, Egyptian male students display a higher prevalence of problematic internet gaming behavior than their female counterparts. For males, this behavior does not correlate with any quality of life domains. However, for females, it is associated with their social relationships. Egyptian female student players are more likely to develop problematic gaming behavior when their social relationships are deemed unsatisfactory.

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