Motivation to Play and Loneliness Among University Students: Moderating Role of Online Gaming Addiction

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This study aimed at examining the relationship of motivation to play and loneliness among university students. It further explored the potential moderating role of online gaming addiction between motivation to play and loneliness among university students. A purposive sample of 304 university students habitual to play multiplayer online games was chosen from the universities of Islamabad. Motives of online gaming questionnaire (MOGQ) developed by Demetrovics et al. (2011), Internet Gaming Disorder Test (Pontes et al., 2014), and UCLA loneliness scale (Russell, 1996) were used to measure study variables. Results revealed that motivation to play has positive relationship with loneliness among university students. Results also confirmed the significant moderation of online gaming, by employing that online gaming addiction has strengthened the relationship of motivation to play with loneliness among university students. The male students have high motivation to play as compared to female students on each subscale of motives of online games questionnaire. Moreover, male university students spent more time playing online games as compared to female university students. This study has implications for parents, educators as well as for academicians in understanding the association of motivation to play, online game addiction and loneliness among youth.

Keywords. Motivation to play, loneliness, online gaming addiction

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In modern culture online and offline gaming are amongst the most common relaxation time passing activities, specifically for young people. By using digital means, individuals like teenagers have different concerns from information to communication to entertainment. Among these entertainments contains playing online games (Durak et al., 2022). Across various other recent entertainment means, online gaming has been witnessed as one of the most popular addiction across the world (Wang et al., 2021). For the last two centuries, theoretical interest in both the advantageous and adversarial effects of online games has mounted significantly (Griffiths & Pontes, 2015).

Due to extensive use of playing multiple games, people generally enjoy and prefer to do online games as compared to any other outdoor activities. A lack of control over gameplay that results in considerable harm is what is known as online gaming addiction (Van Rooij et al., 2014). Duman and Ozkara (2021) has also argued that gaming addiction is much common over online platforms. These addictions affect addictive's whole life styles and these problems must be addressed by the health and community workers (Karaca et al., 2020).

Adolescent are affected by parental loneliness and seek to manage by playing games online. This cause and effect relationship is mediated by adolescents' loneliness itself. Therefore parental loneliness is known as a risk fact (Mun & Lee, 2022). Motivation to loneliness is considered as a risk towards negative outcomes (Smith & Pollak, 2022). In search of the predictors of loneliness, Chamanovich (2022) traced that motivation is the factors that leads to loneliness. Langstedt and Hunt (2022), while digging for roots of hobby adoption, also managed to express about loneliness. In the same context, key motivations to the online gaming addiction were escapism, virtual relationships, leisure, and entertainment when tested and analysed for youth (Salman et al., 2022). Zhai et al. (2021) revealed that behavioural desires are the motives behind addiction to play online games in Pakistani youth. Online gaming is replacing other activities like studying, working, socializing, attending family gatherings, and going about daily business (Van Rooij et al., 2014). A recent nomenclature of online gaming industry counts massively multiplayer online role-playing games as a prevalent gaming platform over the web.

Massively Multiplayer Online Role-Playing Games (MMORPGS)

Compared to players of other computer games, the massively multiplayer group claimed that they found the game enjoyable more, tends to keep playing it and for more online friends (Yee, 2006). Some

massively multiplayer online games (MMOG) are played in a transient game world, where the game ends as soon as the user logs out. Others, however, are played in an endless gaming universe where the game environment remains active even after the user logs out. Massively multiplayer online role-playing games are what all these games are known as (MMORPG). Computer role-playing games (MMORPGs) are played in a virtual world. These games will feature millions of individuals from all over the globe interacting with one another (Billieux et al., 2013).

Motivation to Play

Motivation towards various behaviors has long been the concern of researchers of various disciplines. Bostan (2009) identified motivation as a significant risk factor for the emergence and maintenance of serious online gaming addiction. Self-determination theory (Deci & Ryan, 2012) illuminates that individuals translate the external stimuli into their value system and endorse the values relevant to them and obtain their way. This happens under the context of intrinsic and extrinsic motivation. In an early study, seven motivational aspects for online gaming were established, including social motivation, escape motive, competition, skill development, coping, fantasy and recreation (Király et al., 2015).

Indulgence in online gaming has studied under the lens of Bartles' theory. Bartle's (1996) player model was based on four types of players who indulge themselves in the virtual world to accomplish in the game, burden other players, investigate over the game, also associate with different gamers. The four sorts of players are portrayed like executioners, achievers, socializers, and adventurers. The executioners need to follow up players; socializers need to collaborate different players; Winners need to follow up on the virtual gaming world, and adventurers need to interface.

Researchers have looked into the significance of a variety of requirements, as the need for achievement; sociability, consciousness, and involvement in high-engagement game play (Billieux et al., 2013; King et al., 2013; Ryan et al., 2006; Yee, 2006, 2007a). According to Griffiths et al. (2004) social incentive and internal motivation like enjoyment and challenge are crucial for engaging in online games. It's been established that certain sorts of online game players are more susceptible to acquiring a gaming addiction.

Playing multiplayer games needs motivation to play. Motivations for such games are dependent upon the complexity, mechanics and

narratives of the gender demographics approaching to these games. There are gender disparities in the reasons people play online games (Wohn et al., 2020). Yee (2006) found that while girls had stronger sociability motivations and boys have significantly higher accomplishment motivations for playing online games. While Olson (2010) discovered that boys are significantly more likely than girls to play for fun, to contend with others and come out on top, for the challenging task of sorting out the match, and for a variety of psychological emotional reasons (enthusiasm, stress relief, and dealing with frustration), Yee (2007a) revealed that boys and girls have equivalent socialization motivating factors for playing the game.

Online Gaming Addiction

Video games have been known as coping elements in disturbing situations of lives of individuals. Individuals depend on these video games when they are not psychologically well and face challenging situations (Koban et al., 2022). According to the research findings, teenagers are more likely than other age groups to develop harmful gaming habits due to the pressures and vulnerabilities that are unique to them (Celik & Odaci, 2012). Organized literature review on online gaming addiction highlighted that there has been a greater retrieval of online games during pandemic times and has created addiction habits in children. They also traced that such addictions leads to distress and large effects on individual's life (Rosendo-Rios et al., 2022).

Majority of the research currently in circulation regards internet gaming disorder as a behavioural problem and compares it to compulsive behaviour, drug use disorders, or addiction (Khang et al., 2013; Spekman et al., 2013). As a result, the key characteristics of online gaming disorder were discovered by studies on online gaming addiction as arousal, pleasure, symptoms of withdrawal, restoration, and disputes (Koo, 2009). Study of Koban et al. (2022) has witnessed that gaming behaviors have caused stress and other psychological harms.

Among various researches focused on gaming addiction, the theories most frequently cited in literature is of Brown's (1997) component model of addiction (Griffiths, 2008; Spekman et al., 2013). It contains six components in a comprehensive model to address the addiction of this sort including salience, modification in mood, tolerance, withdrawal, relapse and harm.

Loneliness

Youth perceive the quality and quantity of the relationships and once their feelings overpower, they indulge in loneliness (Smith et al., 2021). Erzen and Çikrikci (2018) have conceptualized loneliness as one of the negative emotion that plays role in different psychological disorders. Past researches have reliably affirmed the association among dejection and web based game dependence (Spilkova et al., 2017).

In broad perspective loneliness has two forms, social depression and passionate dejection. Passionate forlornness is an inclination of vacancy and fretfulness because of the absence of personal connections. Social depression is the inclination of fatigue and periphery because of the absence of important companionships or a feeling of having a place with a local area (Lunt, 1991). People who feel alone seek companionships and one of the platforms for such intention is internet. While using online mode, the ease to remain anonymous reduces social distress and anxiety and helps to manage self-consciousness when the other party is away and face-to-face interaction is not needed (Morahan-Martin & Schumacher, 2003). During the recent pandemic time, distancing had been a social norm for all. It has increased the safety measures and also has isolated humans from communities. People have greatly perceived being alone and separated from the social terms. It has also developed a motivation to play games and remain busy when there were lockdowns and all. As loneliness has led to playing video games, the same iterative effects have been realized by study of Nebel and Ninaus (2022) that loneliness also affects inclination towards playing games.

Khan (2014) and Khalid (2015) have investigated internet addiction and internet gaming problem, respectively in Asian context. Games currently provide more amazing features that cater to the social and psychological needs of a wide range of players. Technology developments quickly alter how games are played. The present research can be beneficial for the individuals who are excessively involved in online gaming which can harm their health and social life. The students can recognize the effect on how many hours a day they spend and it is essential for them to recognize the adverse elements of the online gaming. This research will also beneficial for the parents and the teachers because they need to know about the rapidly growing issue of online gaming addition and teach the students about the positive and negative impact of online gaming addiction on them.

The current study is designed to accomplish the aims i.e. to examine the relationship of motivation to play with loneliness among

university students. The second aim was to find out the role of online gaming addiction as a moderator between motivation to play and loneliness among university students. Youths may use web based games as a method for adapting to stressors and gaming can turn into a useless media-centered adapting technique (Thalemann, 2009). Additionally, associations between dangerous gaming and the ways by which teenagers adapt to stressors and frustrations have been studied (Wölfling et al., 2008).

It has been proven that teenagers may take shelter in internet gaming by having the capacity to practice govern in the cybernetic world, by getting away from the real world, and utilizing web based gaming as adapting and furthermore to satisfy neglected mental requirements (Sheng & Bin, 2006). Gaming's positive impacts include enhancing cognitive abilities such as quicker and more precise attention distribution (Granic et al., 2014) and enhancing problem-solving abilities (Prensky, 2012). The video game play can be used therapeutically in medical procedures where gaming is used as a cognitive distractor for pain relief. Excessive use and addiction to internet video games has become prevalent and can result in much adverse physical and psychological damage, including social isolation, suicide, and absence of sleep, hypertension and death (Bruner, 2006). Under the above discussion it has been realized that motivation to play is significant in determining game addictions and loneliness is connected with motivation and game addiction. This study has proposed the following hypotheses for these interwoven concepts:

Figure 1
Conceptual Framework of the present study.
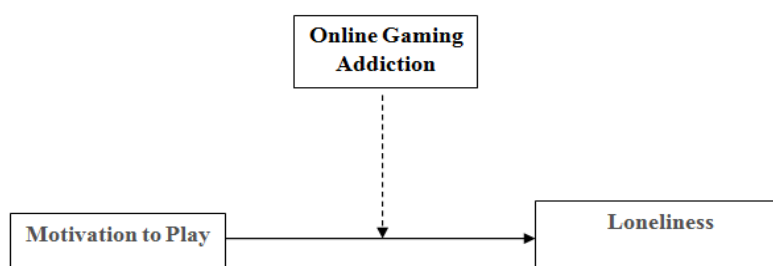
Hypotheses

1. There is positive relationship between motivation to play, online gaming addiction and loneliness among university students.

2. Online gaming addiction moderates on the relationship between motivation to play and loneliness among university students.

3. Male university students have high motivation to play and spend more time on playing online games as compared to female university students.

Method

Sample

The sample of the present study comprised of university students ($N = 304$) playing massive multiplayer online games, with further division of 163 male students and 141 female students. The sample of the present study was selected from universities of twin cities of Islamabad and Rawalpindi of Pakistan by using purposive sampling technique. Purposive sampling is used to ensure the usage of online games and awareness about online gaming options. The data for the present study was also collected through online questionnaires. Due to prevalent Covid-19 lockdown, it was resourceful to collect data online. A total of 500 questionnaires were distributed out of which 304 were realized complete in terms of all questions and timely response with 60.8 % response rate realized.

The frequencies and percentages of demographic variables including age, gender, and degree program indicate sample comprised of male participants (53.6%), and female participants (47.4%). The age range of respondents was from 19 to 29 years, and about 65.8% of the participants were between 19 and 23 years of age, and 34.2% were between 24 and 29 years of age. The B.S degree program accounted for 79.6 percent of the participants and 21.1% of the participants were from M.S degree program.

Instruments

Following measures were used for the assessment of study variables.

Motives of Online Gaming Questionnaire

Motives of online gaming questionnaire (MOGQ) developed by Demetrovics et al. (2011) was used to assess motives of online gaming. It is a 27 items of self-report measure on a 5-point Likert scale from "*never*" to "*frequently/reliably*", with higher scores indicate

higher repeat of the individual persuasive dimension. The Cronbach's alpha coefficients of MOGQ subscales were: Social (α = .80), Escape (α = .86), Competition (α = .86), Coping (α = .70), Skill Development (α = .92), Fantasy (α = .86), and Recreation (α = .66). Total scores for the MOGQ can be computed by adding the individuals' reactions to all of the four things of each goal (extent of each subscale = 4 to 20 centers; except for delight which goes from 3 to 15 centers), with higher scores exhibiting higher inclinations to every specific gaming manner of thinking.

University of California, Los Angeles (UCLA) Loneliness Scale (Version 3)

The Scale has been developed by Russell (1996). Twenty items on the scale measure individual's personal feelings of loneliness and social isolation. Participants rate every item on the scale from 1 (*Never*) to 4 (*Often*). Items 1, 5, 6, 9, 10, 15, 16, 19, 20 are scored in reverse form. Score range on the scale from 20 to 80. Higher the score mean you feel more loneliness.

Internet Gaming Disorder Test (IGD)

The IGD-20 Test (Pontes et al., 2014) comprised of 20 items replicating the nine criteria of IGD prescribed in the DSM-5 and also integrated the theoretical framework of the components model of addiction. The IGD-20 Test measures both online and offline gaming activities going on over a 12-month period, since the DSM-5 criteria for IGD are based on persistent and recurrent gaming. Individuals rate all items on a 5-point Likert scale: 1 = *Strongly disagree*, 2 = Disagree, 3 = *Neither agree nor disagree*, 4 = *Agree*, and 5 = *Strongly agree*. The cut-off score for the IGD-20 Test is 71 points (Pontes et al., 2014).

Procedure

With the permission of concerned authorities' of each university, students were approached by the researcher. After the brief introduction of the study, informed consent was obtained from the respondents of the study. Data was collected by using three questionnaires along with a demographic sheet. Respondents were requested to be honest while providing their responses. There was no time limit and at the completion of the questionnaires, respondents were thanked for their participation and cooperation.

Results

The purpose of the current study is to find the relationship of motivation to play with loneliness and also to assess the role of Online gaming addiction as a moderator between motivations to play and loneliness among university students. After the completion of data collection from 304 respondents, data was entered in SPSS (Statistical Package for Social Sciences V25) for quantitative analysis. This study contains reliability analyses for scales of measurement, correlation analyses, regression analysis and moderation analyses.

Descriptive analysis, alpha reliability coefficients for all the scales of study indicated that alpha reliability for motivation to play is .91, for loneliness is .75 and for online gaming addiction is .87, which indicates that all the scales are reliable and have high internal consistency.

Correlation Between Motivation to Play, Loneliness, and Online Gaming Addiction

Table 1

Pearson Correlation Coefficients for Motivation to play, Loneliness and Online Gaming Addiction among University Students (N = 304)

	Variables	1	2	3
1	Motivation to play	-	.23**	.56**
2	Loneliness		-	.19**
3	Online gaming addiction			-

**$p <$ .01.

Table 1 shows inter correlation of motivation to play, loneliness and online gaming addiction among university students. Results showed that motivation to play is positively low correlated with loneliness ($r = .23$, $p < .01$). Motivation to play is positively correlated with Online gaming addiction ($r = .56$, $p < .01$).

Table 2

Simple Linear Regression Showing Motivation to Play as Predictor of Loneliness Among University Students (N = 304)

	B	SEB	β	t	p
Constant	45.35	1.57		29.01	.00
Motivation to play	.07	.01	.023	4.00	.00

Note. $R^2 = .10$.

Table 2 shows the prediction of loneliness from motivation to play. The results revealed that motivation to play accounted for 10% of the variance in loneliness among university students.

Table 3

Moderating effect of Online Gaming Addiction on the relationship Between Motivation to Play and Loneliness among University Students (N=304)

	Loneliness					
Predictors	β	*SEB*	*t*	*p*	LL	UL
Constant	66.86[**]	6.44	10.38	.000	54.18	79.55
Motivation to play	.22[**]	.08	2.88	.004	.38	.07
Online gaming addiction	.34[**]	.11	3.12	.002	.55	.12
Motivation to play $\times$ Online gaming addiction	.004[**]	.00	3.69	.000	.002	.007
R^2	.09					
F	10.93					
ΔR^2	.04					
ΔF	13.68					

Note. [**]$p < .01$, [*]$p < .05$.

There is a significant interaction between motivation to play and online gaming addiction in predicting loneliness ($\beta = .00$, $t = 3.70$, $p = <.01$), 95% *CI* (.00- .00). This indicates that relationship between motivation to play and loneliness is conditional upon online gaming addiction.

Figure 2

Moderating Role of Online Gaming Addiction on the Relationship between Motivation to Play and Loneliness
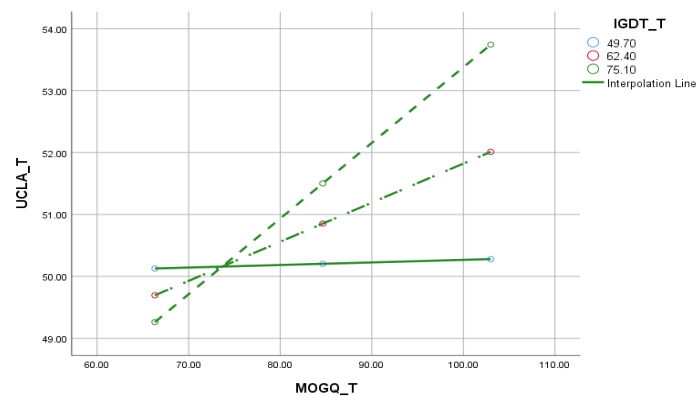
Modgraph visually demonstrates through the intersecting lines which represents the moderating role of online gaming addiction. These findings support the hypothesis no. 2 of the study that, "Online

gaming addiction moderates the relationship of motivation to play with loneliness among university students".

Table 4

Means, Standard Deviations and t-values of Male and Female Students on Study Variables (N = 304)

Variables	Male (n = 163) M(SD)	Female (n = 141) M(SD)	t(302)	p	95% CI LL	UL	Cohen's d
Motivation to Play	91.33(15.79)	76.89 (18.02)	7.43	.00	10.61	18.26	78
Social Motive	13.31(2.94)	10.97(3.16)	6.66	.00	1.65	3.03	.71
Escape motive	13.04(3.05)	11.14(2.93)	5.50	.00	1.22	2.58	.60
Competition motive	13.80(2.93)	11.38(3.24)	6.80	.00	1.71	3.11	.72
Coping motive	13.67(2.88)	11.71(3.49)	5.35	.00	1.23	2.68	.58
Skill development motive	13.79(3.03)	11.72(3.37)	5.61	.00	1.33	2.78	.61
Fantasy motive	13.39(3.13)	11.24(3.24)	5.85	.00	1.42	2.86	.63
Recreation motive	10.29(2.46)	8.71(2.51)	5.52	.00	1.01	2.14	.60
Loneliness	52.39(06.38)	50.31(05.07)	3.11	.00	.76	3.40	0.36
Time spent per day	1.41(.49)	1.10(.30)	6.52	.00	.21	.40	.76

Table 4 shows that the male university students have high motivation to play than female university students on each subscale of motives of online games questionnaire. The results also revealed that the male university students have higher competition motive and skill development motive as compare to other motives of the scale. Gender differences on time spent on playing online games among university students showed that male participants spent more time on playing online games as compared to female participants ($t = 6.52$, $p < 0.01$).

Discussion

The objective of this study was to study the relationship of motivation to play with loneliness among university students, and the moderating role of online gaming addiction between motivation to play and loneliness was also studied.

In the current study we assumed a positive relationship between motivation to play and loneliness, in hypothesis among university students which was accepted in the light of study findings. The results

of this study reveal that there is highly significant positive correlation between motivation to play and loneliness. Smith et al. (2021) argued that loneliness is an isolation state. As indicated by the earlier exploratory studies, the preference towards dejection because of the expansion of web based gaming compulsion; they likewise expanded their forceful behavior because of the increase of web based gaming dependency. In order to reduce internet game addiction; preventive measures can be taken to diminish web based game playing compulsion and to lessen dependent clients sensations of dejection, their inclination to participate in melancholy and hostility propensities (KaraoğlanYılmaz et al., 2018).

It was further hypothesized that there is a positive relationship between motivation to play and online gaming addiction". The results of the present study indicated that there is significant positive correlation between motivation to play and online game addiction among university students. The result is supported by the number of prior researches. For example, according to the study the problematic gamers believe that games are important in order to accomplish diversion, enthusiastic adapting, escape from the real world, and to shape interactive relationship (Smith et al., 2021; Wohn et al., 2020). This has been in the context of self-determination theory (Deci & Ryan, 2012) that individuals find motivational anchors to attach internal and external factors. In specific contextual study of Pakistan Salman et al. (2022) had also found the same results.

The current study further explored that "Online gaming addiction moderates the relationship of motivation to play with loneliness among university students". Results of mod graph indicate that at higher level of online gaming addiction, there is also significant positive relationship between motivation to play and loneliness. Earlier researches also support the findings of the present study (Özdemir et al., 2014). Due to the increase of online gaming addiction, students' feeling of loneliness increased a bit; preventative measures can be taken to decrease online game playing addiction and to reduce addicted user's feelings of loneliness (Yılmaz et al., 2017). The present study hypothesized, online gaming addiction, male university students have high motivation to play as compared to female university students. Outcome of this study has been in consistent argument provided by Wohn et al. (2020) that there has been a difference between males and females in gaming addictions. The results of the current research indicated that the difference of playing web based games among male students and female students. The male students have high motivation to play than female students on each subscale of thought processes of web based games survey. As

loneliness has led to playing video games, the same iterative effects have been realized by study of Nebel and Ninaus (2022) that loneliness also affects inclination towards playing games.

According to research, the criteria for gaming addiction use the amount of time spent playing games and its negative effects, classifying more people (over 10%) as addicting players (King et al., 2010). Through regression analysis, it was discovered in that study that the amount of time spent playing computer games is a significant predictor of problematic gaming. Those who spent more time playing online games than those who spent less time playing are more likely to acquire hazardous gaming habits (Khan & Muqtadir, 2016). Yee (2007b) uses a same regression approach with the troublesome score as the dependent variable and the age, sex, game time, and gaming desire as the independent variables. The outcomes showed that engagement, followed by game playing duration and the success component, was the best predictor. Similarly, a sound relation has also been found about digital game playing motivation and digital game addiction in Pakistan (Hazar, 2019) has been noticed by researchers. Salman et al. (2022) had also realized the same results for gaming addiction study as were endorsed an examined by efforts of previous researchers of the same context (Ali, 2005).

Conclusion

In the current study, the relationship of motivation to play with loneliness among university students was studied, along with exploring moderating role of online gaming addiction. It was found that motivation to play has positive relationship with loneliness and online gaming addiction among university students. Online gaming addiction significantly moderates the relationship of motivation to play with loneliness among university students. Findings of the study can be helpful in understanding the relationship of study variables, with specific reference to Pakistani youth. On the basis of findings of the study, indigenous intervention plans can be developed for supervised and controlled involvement of youth in playing online games along with conduction of specialized training sessions with parents and teachers of youth for making them aware about youth's psychological issues. To address the management of psychological issues of university students,   results of the present study demand immediate conduction of counseling sessions with youth involved in online gaming addiction.

Limitations and Suggestions

A major limitation of data collection during the pandemic has been COVID-19 Pandemic lockdown, data collection process was slow and researcher faced lot of difficulties while approaching sample. Another limitation was the collection of data by using self-report measures. In future research it is suggested to use mixed method approach by employing both quantitative and qualitative methods is suggested to get more comprehensive understanding of gaming addiction and motives to play online games. The current research was performed on players of different kinds of internet games. So to examine the distinctions with gaming classification and their impact on gaming dependence separate examinations on each type of games is suggested. Data was collected only from Rawalpindi and Islamabad cities. Therefore, data from other cities and rural areas of Pakistan can also be collected in future research to enhance the generalizability of the research findings.

Implications

The present study has some direct implications for parents, teachers, and mental health experts with respect to the harmful effects sporting utilization of web-based games. Neither should they fundamentally be worried about playing as an approach to adapt to everyday pressure or strain. However, playing such games excessively may be supervised by the parents and caregivers in light of the fact that it may prompt negative mental health outcomes. Hence, investigating gaming inspirations both on the individual and collective level are probably going to be useful in the planning of anticipation and treatment programs concerning tricky gaming.

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