Ludo Star Game Addiction and Aggression: Social Support and Empathy as Moderators

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Abstract

In today's society, technology has made life more convenient, yet its addiction can lead to clinical distress and mental health challenges. The goal of the study is to find social support and empathy as moderators between Ludo Star game addiction and aggression, in young adults. The study involved 268 participants (M=22.2, SD=1.9), aged 18 to 25, using a correlational research design and purposive sampling technique, and employed tools like the Gaming Addiction Scale for Adolescents, the Buss and Perry Aggression Questionnaire, the Basic Empathy Scale, and the Social Support Scale (Short Form). Correlational analysis showed that Ludo Star game addiction is negatively and significantly associated with empathy. However, Ludo Star game addiction is positively linked to aggression and negatively linked to social support, although these connections were not statistically significant. Empathy is positively and significantly related to social support, while its connection with aggression is positive but not significant. Furthermore, aggression showed a negative but non-significant link to social support in young adults. Moderation analysis revealed that empathy significantly moderated the connection between Ludo Star addiction and aggression, while social support did not moderate this link. Gender differences indicated that men scored higher than women in aggression, addiction, and empathy, while men scored lower in social support, though these differences were not significant. The study concludes with limitations, recommendations, and implications for social welfare.

Keywords: Aggression, Empathy, Ludo Star Game Addiction, Social Support, Young Adults

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Introduction

Gaming has been found to be beneficial for well-being; however, excessive gaming is linked to detrimental mental health problems and adverse effects on the well-being of individuals with this disorder (Eckardt, 2024; Ko et al., 2024; Wang et al., 2024). Recently, many young adults in Pakistan have been spending extensive hours on collaborative gaming (Baloch et al., 2023; Qasim, 2021). While gaming promotes social connections (Bashir et al., 2024), concerns about addiction, disruption of daily routines, and mental health issues have emerged (Amin et al., 2020; Ko & Yen, 2024). Compulsive gaming has been linked to social withdrawal and psychological isolation (JithaLekshmi, 2024). Aggression, defined as harmful behavior (Chester, 2024; Siann, 2024) is strongly associated with gaming addiction among smartphone users (Ambreen et al., 2024; Yilmaz et al., 2023). A recent study conducted on young adults in Pakistan, aged 18 to 25, showed that online Ludo game addiction is significantly associated with aggression. Additionally, problematic use of the Ludo game was more prevalent in men than in women, and men also scored higher on aggression (Bashir et al., 2024). A similar recent study conducted on young college and university students revealed that the violent game PUBG, through social connectedness, elevates aggressive behavior. Gender differences were also

evident, with men scoring higher than women in both problematic use of PUBG and aggressive behavior (Kausar et al., 2024).

Empathy, defined as the ability to understand and share the feelings of others (Giorgi et al., 2024; Jami et al., 2024; Sorin et al., 2024), studies have shown that empathy decline in individuals with problematic internet gaming use (Arafat & Thoma, 2024; Nolan, 2024; Zhang et al., 2022). Previous studies have shown that higher levels of internet use disorder, internet gaming disorder, and smartphone use disorder are linked to reduced empathy and life satisfaction, with smartphone use disorder particularly associated with emotional distress, while IGD is also connected to toxicity, empathy deficits, and disrupted community dynamics, highlighting the need for further research on mitigating the social effects of online gaming behavior through the moderation of social support (Gandolfi et al., 2023; Lachmann et al., 2018). A study of 888 Chinese college students found that empathy moderates the relationship between social self-efficacy and problematic internet gaming use (Zhang et al., 2022). Recent studies have shown that therapeutic methods and skills, particularly empathy, can mitigate both aggressive behavior and problematic gaming use (Afonso et al., 2024; Chen et al., 2023; Derakhsh et al., 2023; Lopez Naranjo et al., 2024).

Social support, which refers to the emotional and practical assistance from family and friends, can enhance self-esteem and provide critical help during times of need (Mai et al., 2021; Xiang et al., 2024). Khan et al. (2024) found a significant connection between smartphone addiction and online social connectedness, while Bashir et al. (2024) reported that online connection in Ludo Star game addiction is significantly linked to mental health issues, particularly aggression in young adults. Similarly, Shahid, Bashir, et al. (2024) concluded that social networking online in young adults is significantly tied to aggression, with physical social connectedness moderating the effects of these variables. Social support has been found to be a buffering factor for individuals with online gaming disorder (Liu et al., 2024; Meng et al., 2024). A previous study conducted on 1,020 university students showed that social support acts as a buffer between internet gaming disorder and mental health issues such as stress, anxiety, and depression. This study concluded that policymakers and educators could design health programs promoting social support as a coping strategy for psychological issues like stress and anxiety and incorporate it into programs addressing excessive internet gaming (Malak et al., 2023). Moreover, studies on gaming addiction and aggressive behavior have emphasized the importance of social support and counselling particularly from parents, in overcoming the negative effects of gaming on aggression (Bashir et al., 2024; Kausar et al., 2024).

Existing literature suggests that empathy and social support can help reduce the negative mental health effects of Internet Gaming Disorder (IGD). However, the moderating role of these factors in the context of Ludo Star, a popular game in Asia, has not been explored, particularly in Pakistan. Specifically, the link between Ludo Star game addiction (independent variable) and aggression (dependent variable) among young adults remains under-researched. This study aims to address this gap by investigating how social support and empathy moderate the effects of Ludo Star addiction on aggression in young adults (ages 18–25). The findings will offer valuable insights into how these factors can buffer the negative impacts of gaming addiction, providing useful implications for interventions aimed at reducing aggression in this population.

Hypotheses

1. Ludo Game Addiction is likely to positively correlate with aggression and negatively correlate with social support and empathy in young adults.

2. Empathy is likely to moderate between Ludo Star Game addiction and aggression in young adults.
3. Social support is likely to moderate the relation of Ludo Star game addiction and aggression.
4. There is likely to be a significant gender differences between study variables: Ludo Star game addiction, empathy, social support and aggression in young adults.

Method

Research   Design
Cross-sectional correlational research design was used in this study, with a purposive sampling technique.

Sample
The sample included 268 participants, both employed and unemployed, as well as college and university students, aged 18 to 25.

Inclusion   Criteria
Participants were Pakistani citizens aged 18 to 25, who owned a smartphone with access to social media and had at least an intermediate level of education, enabling them to understand the questionnaires.

Measures

Demographic   Questionnaire
This questionnaire collected demographic data, including gender, age, and employment status.

Gaming Addiction Scale for Adolescents (GASA)
Lemmens et al. (2009) developed this 20 items questionnaire, in which each items rate from "never" (1) to "very often" (5). Its reliability ranges from 0.85 to 0.90. In this study, its reliability was 0.78, considered acceptable.

Basic   Empathy   Scale   (BES)
BES was introduced by Jolliffe and Farrington in 2006, comprising 20 items and 5 likert scale. The scale's Cronbach's alpha is 0.83, showing strong reliability. In this study, the reliability was 0.81, reflecting acceptable consistency.

Social Support Questionnaire - Short Form
The Short Form Social Support Questionnaire, developed by Sarason et al. (1987), consists of 6 items rated on a 6-point Likert scale. The scale's reliability ranges from 0.80 to 0.90, and in this study, it was 0.79, indicating acceptable reliability.

Buss-Perry Aggression Questionnaire (BPAQ)
The BPAQ, developed by Buss and Perry (1992), includes 29 items rated from "extremely uncharacteristic" (1) to "extremely characteristic" (5). The scale's reliability ranges from 0.80 to 0.90, and in this study, it is 0.72.

Ethical   Considerations
Ethical guidelines were strictly followed according to the APA's 7th edition ethical code. Participants' privacy was protected, and informed consent was obtained before completing the questionnaires. Ethical procedures ensured no physical or psychological harm, and the integrity of the data was maintained to prevent falsification or manipulation.

Results

Table 1

Socio-demographic Characteristics of Participants (N=268)

Participants Characteristics	Frequency	Percentage	*M*	*SD*
Age			22.2	1.9
Gender				
Men	128	48		
Women	140	52		
Employment Status				
Employed	98	37		
Unemployed	170	63		

Note. *M*=Mean, *SD*= Standard Deviation

The Table 1 revealed that 128 participants (48%) were men and 140 participants (52%) were women, with standard deviation of 1.9 and mean age of 22.2.

Regarding employment status, 98 participants (37%) were employed, while 170 participants (63%) were unemployed.

Table 2

Relationship between the Study Variables (N=268)

Variables	1	2	3	4	M	SD
1.Ludo Star Game Addiction	-	-.42**	.03	-.11	65.91	11.79
2.Empathy		-	.08	.23**	48	13.48
3.Aggression			-	.01	86.55	14.21
4.Social Support				-	15.16	6.13

Note. *p<.05, **p<.01*

The Table 2 shows that Ludo Star game addiction is negatively and significantly associated with empathy. However, Ludo Star game addiction is positively associated to aggression and negatively related to social support, although these associations are not statistically significant. Empathy is positively and significantly linked to social support, while the connection between empathy and aggression is positive but not significant. Additionally, aggression is negatively, but not significantly, associated with social support.

Table 3

Regression Coefficients for Aggression (N=268)

Variables	Betaββ β	SE	t	p	R^2	F	LLCI	ULCI
					.03	3.58		
LSGA	-.68	.32	-2.13	.03			-1.32	-.05
Empathy	-.95	.43	-2.21	.02			-1.81	-.11
LSGA X Empathy	.01	.01	2.56	.01			.003	.02

*Note. *p<.05. **p<.01,* LSGA= Ludo Star Game Addiction.

Hayes' Process 4.2, Model 1 was employed to assess the moderating role of empathy between Ludo Star game addiction and aggression. As shown in the table above, Ludo Star game addiction has a significant direct effect on aggression (β = -.68*, SE = .32, *p* < .05). Additionally, empathy significantly influences aggression (β = -.95*, SE* = .43, *p* < .05). The combined effect of Ludo Star game addiction and empathy on aggression is also significant (β = .01**, SE = .01, **p* < .01), suggesting that empathy positively moderates the impact of Ludo Star game addiction on aggression in young adults.

Table 4

Regression Coefficients for Aggression (N=268)

Variables	Betaβ β	SE	t	P	R^2	F	LLCI	ULCI
					.003	.31		
LSGA	-.06	.19	-.32	.74			-.45	.32
SS	-.50	.91	-.55	.57			-2.27	1.27
LSGA X SS	.008	.01	.62	.53			-.01	.03

Note. LSGA= Ludo Star Game Addiction

Hayes' Process 4.2, Model 1 was used to investigate the moderating role of social support between Ludo Star game addiction and aggression in young adults. As shown in the table above, there is a non-significant direct effect of Ludo Star game addiction on aggression ($\beta = -.06, SE = .19, p > .05$). Additionally, social support has a non-significant influence on aggression ($\beta = -.50, SE = .91, p > .05$). The combined effect of Ludo Star game addiction and social support on aggression is also non-significant ($\beta = .008, SE = .01, p > .05$), suggesting that social support does not moderate the impact of Ludo Star game addiction on aggression.

Table 5
Gender difference between Study Variables(N=268).

Variable	Gender						
	Male(*n*=128)		Women(*n*=140)				
	M	*SD*	*M*	*SD*	*t(266)*	*P*	Cohen's d
LSGA	66.41	12.88	65.46	10.73	.65	.51	0.08
Empathy	48.12	13.13	48.08	13.83	.02	.98	0.01
Aggression	87.78	15.78	85.42	12.54	1.35	.17	0.16
Social Support	14.88	6.16	15.42	6.11	-.71	.47	0.08

Note. M= Mean, SD= Standard Deviation, LSGA= Ludo Star Game Addiction.
*p<.05. **p<.01, ***p<.001*

The Table 5 shows that men score higher than women in Ludo Star addiction, empathy, and aggression. However, women score higher than men in social support. It is important to note that these differences are not statistically significant.

Discussion
Research on the moderating role of empathy and social support in the connection between digital gaming addiction, particularly Ludo Star, and aggression is limited. This study aims to address this gap, exploring how these variables can mitigate distress in young adults.

The first hypothesis is partially supported. Ludo Star game addiction is significantly and negatively related to empathy, negatively but not significantly associated with social support, and positively but not significantly associated with aggression in young adults. These findings align with studies linking digital games addiction to reduced empathy and increased aggression (Bashir et al., 2024; Dalvi-Esfahani et al., 2021; Lee et al., 2022). Additionally, research shows that problematic internet use and internet gaming addiction are negatively related to social support, with loneliness and reduced socialization being major contributing factors (Al-Kandari & Al-Sajari, 2021; Niazi et al., 2024; Uçur &

Dönmez, 2021;). This suggests that as social support declines, gaming addiction increases, and vice versa. Similarly, as social support and empathy increase, addictive behavior toward online games decreases. In the context of Pakistan and this study, this can be explained by the country's collective society, which is typical of many Asian cultures. In Pakistan, the family system, empathy, and social support are highly valued; thus, a decline in these factors contributes to the problematic use of the internet and, specifically, Ludo game. The game's long-standing presence in Pakistan, combined with its online convenience, exacerbates addictive behavior, while the tense nature of the game increases aggression in young adults.

The second hypothesis is confirmed, with empathy significantly moderating the association between Ludo Star game addiction and aggression. The result of the study is consistent with other studies that depict problematic internet use and problematic online game use as being associated with lower empathy, and vice

versa (Melchers et al., 2015; Nuryono, 2024). Additionally, empathy has been shown to reduce aggression, as demonstrated by family, peers, and therapists (Blakemore & Rak, 2024). Similarly, empathy has been found to moderate aggression among college students (Jiang et al., 2021), suggesting that higher levels of empathy can help mitigate aggression in excessive gamers. Another reason could be the cultural aspects and the collective society of Pakistan, where family members—specifically children—are cared for even at the college and university levels. Family values are highly respected, and the empathy shown by guardians, caregivers, and parents could be the reason for the mitigation of Ludo Star game addiction over aggression.

The third hypothesis, however, was not supported, as social support did not moderate the effect of Ludo Star addiction on aggression. This finding contradicts previous studies that suggest social connectedness moderates the relationship between social media addiction and aggression (Shahid, Yousaf, et al., 2024) and that social support can protect against the negative effects of problematic gaming (Koban et al., 2021). In addition, earlier research has highlighted that gaming-related problematic behavior is often linked to aggressive behavior among young adults, with family and caregiver support acting as a moderator (Kausar et al., 2024; Meng et al., 2024; Schneider et al., 2017; Warener et al., 2024). Similarly, issues such as family conflict, neglect, lack of proper caregiving, and insufficient family attention have been identified as contributing factors to both gaming addiction and aggressive behavior in children (Bussone et al., 2020; Hammam & Ashari, 2024; Wang, 2022). A recent study also found that social connectedness can moderate addictive and aggressive behaviors (Shahid, Yousaf, et al., 2024). The lack of a significant result for social support in this study could be attributed to participant bias, given the self-reported nature of the data. Additionally, it is possible that participants did not perceive adequate social support from their surroundings, which might have otherwise mitigated the effects of Ludo game addiction on aggression. Another possible explanation is the response bias, where negative attitudes toward family or guardian support may have emerged as a result of defense mechanisms such as denial or rationalization. Ultimately, the findings of this study suggest a need for further research to explore similar issues.

Regarding gender differences, no significant differences were found. Men scored higher than women on Ludo Star addiction, empathy, and aggression, while women scored higher on social support. These findings are consistent with research showing that men are more likely to experience Ludo Star addiction and aggression (Bashir et al., 2024; Fareed et al., 2024). However, they diverge from studies suggesting that women are more empathetic than men (Bonanni et al., 2024; García-Senlle et al., 2024; Pang et al., 2023;). The higher empathy scores for men in this study may reflect cultural norms in Pakistan, where men are expected to express empathy more openly, while women may suppress it in public. Our finding in term of variable social support is congruent to various studies which depicts that women receive more social support from colleagues, friends and family than that of men (Kneavel, 2021; van Daalen et al., 2005). In Pakistan's male-dominated culture, men have better access to smartphones and the internet, leading to more gaming addiction. Men are generally more aggressive and prone to addiction due to higher testosterone levels. While women are biologically more empathetic, societal norms limit their public expression of empathy, whereas men are more likely to display empathy and prosaically behaviours. Additionally, women, being more dependent on men, receive greater support from male family members.

Limitations and Recommendations
This study has several limitations. First, the correlational design with purposive sampling may not fully represent the broader Ludo Star player population. Future research should use larger, diverse

samples with stratified sampling to capture regional differences and consider a longitudinal approach. Second, the imbalance in employment status categories (employed vs. unemployed) hindered meaningful comparisons. More balanced distribution should be aimed for in future studies. Although no significant gender differences were found, future research should ensure better gender representation. Lastly, the lack of moderating role for social support limits the findings. Future studies should explore its effects on gaming addiction and mental health in both physical and virtual environments. Finally, the use of out-dated and lengthy scales may have influenced the results; updated, shorter versions are recommended for future studies.

Implication of the Study
The study partially supports the hypothesis, showing that empathy moderates the link between Ludo Star addiction and aggression, while social support does not. This highlights the need for further research. The key implication is the importance of empathy for those struggling with Ludo Star addiction, which is linked to aggression. Support should focus on helping individuals overcome these challenges, not judging them. Initiatives like workshops, seminars, and awareness campaigns are vital for supporting affected young adults. Parental awareness is crucial in preventing harmful gaming habits, and the government should develop policies to prevent addiction. Mental health professionals can promote practices like meditation, yoga, exercise, and socialization to improve well-being, while cognitive and emotional therapies can help individuals manage distress and enhance mental health.

Contribution of Authors
Bushra Mussawar: Methodology, Formal Analysis, Writing - Reviewing & Editing
Asmat Raza Jaffri: Methodology, Writing - Reviewing & Editing, Supervision
Muhammad Ali Khan: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft

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