

University Students' Internet Addiction and the Relationship Between Online Gaming and Family Function in Karachi, Pakistan

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ABSTRACT

Internet addiction in the student population is a chronic social issue in Pakistan. Parental supervision is required to counter the issue. This study identifies an association between online gaming disorder and family functions by studying university students in Karachi, Pakistan. It is a cross-sectional study and 350 university students were selected through a multi-stage stratified sampling technique. A validated and structured questionnaire assessed family functioning and internet addiction. Data was analyzed using a multivariate logistic regression to identify associations between family function and online gaming disorders. In total, 66 per cent of students were found to be addicted to videogames and 39 per cent of students were deficient in their role in the family. The decreased problem solving skills (Adjusted Odd Ratio AOR 2.02, 95 per cent CI 1.35-5.96, p-value 0.002), decreased roles in the family (AOR 2.99, 95 per cent CI 1.23-5.75, p-value 0.004) and bad communication skills (AOR 0.91, 95 per cent CI 0.59-2.94, p-value 0.567) were associated with severe online gaming disorder. This study reveals a strong association between disrupted family functions and internet addiction and provides new evidence on the complex interaction between individuals and interpersonal risk factors involved in addiction among young adults.

Keywords: Games, Family, Internet Addiction, Students, University.

INTRODUCTION

Online gaming during leisure time is common for adolescents (Anderson et al., 2017). It is also one of the most important leisure activities for students (Zhai et al., 2019). Different studies have found a strong relationship between online gaming and psychological disorders that lead to disruptions in the family (Maksymova et al., 2021). Among internet users, students are the riskiest group in society (Arnett, 2000). Pakistan is a country with high internet addiction among its population. In one study,

the prevalence of internet users ranged from zero to 47.4 per cent, while the prevalence of internet addiction ranged from 10 per cent to 7.4 per cent (Sutrisna et al., 2020). Some internet users also reported sleep disorders (26.8 per cent), daytime sleepiness (20 per cent), and eye strain (19 per cent) in one survey (WHO, 2020). Pakistani students, varying in age from 10-24 years, make up 25 per cent of Pakistan's total population, which is 225 million. Based on a 2020 survey, which was conducted by the Pakistan internet Services Association, the penetration of internet usage is 158 million people (Brunborg et al., 2014). The penetration of internet users in the 10-24 years age group in Pakistan is 79 per cent (Brunborg et al., 2014).

One 2018 study claimed the frequency of internet addiction was 76.4 per cent (Papadakis et al., 2018). Gaming addiction has also received increasing attention in society and in academia over the past decade (Arnett, 2014). Gaming Disorder has been classified a new disease in the international Classification of Diseases (ICD-11) at the World Health Organization (WHO) (WHO, 2020). This study indicated alarming levels of addiction in Pakistan. One study found that depression symptoms seem to occur more often in people with high social media and internet video game use (Borca et al., 2015). Socializing online has an association with video games and drinking (Borca et al., 2015). The same study found that family dysfunction might increase the likelihood of mental disorders among students such as depression and activities like gambling. Different studies found that parent-sibling relationships were protective against mental disorder in the family environment (Caprì et al., 2021; Coste et al., 1997). Another study found that gaming addicts had learning disabilities (Cacioppo et al., 2019). A previous study found that risk taking behavior among students was more likely with those who gamed online (Spada, 2014). Therefore, parents need to protect their children, especially as they face various challenges during adolescence. Lack of social support at this stage of development can intensify common feelings of loneliness or social isolation (Pratt & Skelton, 2018).

In Pakistan, students were involved in risk taking behavior and parents play a significant role in preventing this behavior (Pratt & Skelton, 2018). Therefore, the study objective is to determine the relationship between addiction to online gaming and the family's role to mitigate this behavior. This study helps to find the factors which lead to risk taking behavior and its study results provide evidence about the internet gaming disorder of adolescents in Karachi and the association of family functioning and internet gaming disorder. The results could help develop an appropriate intervention program for helping adolescents prevent risk taking behavior related to internet use.

METHODS

This study was conducted in a public university, the largest university in Karachi, which is itself the largest city of Pakistan, utilizing a sample of undergraduate students. A total of 1,000 students enroll every year in this university's undergraduate program. The design of this study was cross-sectional and the sampling technique was a multi-stage stratified random sampling. Each academic year was strata and we took a specific proportion of students from each stratum.

All students enrolled in the university who had a known case of mental disorder were excluded from the study. WHO software for health studies was used

for sample size calculation. The parameter of calculation of the sample size was a 95 per cent confidence interval, with a five per cent margin of error and 35 per cent prevalence of mental disorder from a previous study (Gaetan et al., 2014). A total of 350 students were selected for this study.

A validated structured questionnaire was issued to respondents, consisting of three sections. Section 1 included respondent demographic data. Section 2 included a family relationship index and Section C an internet addiction test (Lise et al., 2022). This 27-item tool, derived from the Family Environment Scale (with 90 items), evaluates three sub-scores: family cohesion, family expressiveness (of feelings and emotions) and family conflict (Untas et al., 2011). Subscale scores were formed from the mean of the nine items, while the family relationship (FRI) score was formed from the mean of the three sub-scores, with conflict weighted negatively. Adequate levels of internal consistency and test-retest reliability was reported for the three sub-scores. The French version of the FRI was validated and showed a good internal consistency for cohesion (0.79). Based on the previous study, this instrument is valid ($R = 0.72-0.92$). Twenty items of the internet addiction test were used, based on a 5-point Likert scale, which determined the severity of compulsive use of the internet. Calculation of Total Internet Addiction (IAT) scores had a minimum of zero and maximum of 100. According to Italian validation (Cerniglia et al., 2020), IAT scores as score from zero to 30 are characterized as normal, scores from 31 to 49 are characterized as mild disorder, scores from 50 to 79 characterize moderate disorder, scores from 80 to 100 characterize severe internet addiction. The IAT scale sensitivity for this study has Cronbach's $\alpha = 0.82$, showing good reliability.

The procedure for data collection started with administrative permission from the university, stratification of each academic year, and finally selecting students randomly with responses received through online Google Forms.

Data was analyzed in the Statistical Package for the Social Sciences software. Data were checked for errors and duplication. Frequency and percentages were calculated with descriptive analysis. Multi-logistic regression analysis was performed to determine the association between family functioning and internet gaming disorder. A $P\text{-value} < 0.05$ was considered significant.

RESULTS

Questionnaire responses are shown in tables 1 and 2. The mean age of participants was 25 years, 55 per cent of participant were in the 18-22 years age group, 65 per cent were males, and 58 per cent of students' fathers' occupation was working class, or blue collar.

Table 1

Sociodemographic characteristic of the study participants (n=350).

Characteristics	Frequency	Percentage
Age Category		
Mean Age (SD)	35 ± 1.23	
18-22	192	55%
23-28	158	45%
Gender		
Male	228	65%
Female	122	35%
Father Occupation		
White Collar Worker	147	42%
Blue Collar Worker	203	58%
Academic Year		
First Year	88	25%
Second Year	87	25%
Third Year	87	25%
Fourth Year	88	25%

The total sample can be divided into three groups:

- (1) Normative Users, composed of students who use the internet in an adaptive way, (18.4 per cent);
- (2) Mildly Addicted, composed of students who spend much more time on the internet than necessary, (63.9 per cent) and
- (3) Severely Addicted, composed of young adults experiencing frequent problems due to their internet use (17.6 per cent).

Table 2

Descriptive statistics for mean scores by IAT of video game disorders by gender.

Family Functions	Gender	Normal Game User Mean (SD)	Mild Disorder Mean (SD)	Severe Disorder Mean (SD)
Problem Solving	Male	10.6 (0.78)	13.6 (0.70)	15.6 (0.68)
	Female	8.98 (0.54)	12.92 (0.53)	14.18 (0.34)
Communication	Male	11.01 (0.43)	16.01 (0.23)	17.01 (0.83)
	Female	9.65 (0.23)	15.12 (0.23)	16.86 (0.83)
Role	Male	12.56 (0.65)	17.26 (0.15)	19.56 (0.94)
	Female	10.38 (0.56)	16.38 (0.08)	18.38 (0.45)

After adjusting the covariate, problem solving and the role (in the family) functions were associated with severe game disorder, OR 2.02 (95 per cent, CI 1.35-5.95), OR 2.99 (95 per cent CI 1.23-5.75).

Table 3

Association of family functions and videogame disorder among study participants.

Family Functions	Severe Disorder of Game User Univariate Analysis	Severe Disorder of Game User Multivariate Analysis
	COR (95 per cent CI) (P-value)	AOR (95 per cent CI) (P-value)
Problem solving	1.78 (1.09-6.89) (0.030)	2.02 (1.35-5.96) (0.002)
Roles	2.08 (1.56-4.25) (0.005)	2.99 (1.23-5.75) (0.004)
Communication	0.85 (0.21-1.83) (0.354)	0.91 (0.59-2.94) (0.567)

DISCUSSION

In this study video game disorder was strongly associated with family functions. Male gender is the one of the risk factors for this outcome.

Males spend more time playing videogames than females. This result is interesting in terms of prevention. Males find it important to play videogames during their leisure time. For females, it is important to limit gaming time during leisure time. These findings are similar to a previous study, which found males play more games online (Yusuf et al., 2020). This factor (time of play) cannot be used as a criterion for identifying disruption of family functions.

In this study, participants aged from 18-25 years old. The majority of parents' jobs were blue color. This set of respondents is similar to other studies (Young, 2017). Youth is when social construction begins. Youth begin to develop liaisons, personality, a values system, and freedom. Family has continuous interactions with youth, and family functioning is important to checking internet video gaming disorder. A good family protects against risky behavior. This study's data indicates that family plays a significant role in preventing internet gaming disorder among adolescents.

In Pakistan, the Pakistan telecommunication authority has legislations aiming to youth from harmful internet gaming addiction. Some games have violent material, such as Counter-Strike, Lost Saga, Point Blank, World of Warcraft, and Call of Duty. In addition, online pornography and gambling can affect children's mental health. When a youth experiences gaming disorder, there are physical changes in their nervous system (Salas-Wright & Schwartz, 2019).

Mothers have an important role in checking and counseling youth on internet use to decrease risk of internet gaming disorder (Fumero et al., 2020). Major predictors for internet game disorder were to remain online throughout the day, long screen time, family income being in the upper quartile, and a focus only on gaming in broader online activity (Milburn et al., 2019). Consequences of this disorder included decreased academic performance, social isolation, sleep disorder, anxiety and depression (Young, 2017).

Another study found that surveillance by parents is positively associated with improved social function leading to decreased time spent on online games (Milburn et al., 2019). Another found that supervision by mothers might be effective in reducing time spent playing games (Yan et al., 2014). And yet another found that a good relationship between parents and their adolescent children helps their positive attitudes and safe practices when online (Stetina et al., 2011). Good parenting also improves academic performance (Cacioppo et al., 2019). The amount of

communication about internet use, and the quantity of time spent together as a family, seems to correlate with game disorder (Hinojosa-Marqués et al., 2022).

This study found that youth game disorder and drug use share family factors, which indicates that there is some association between the two. It is recommended that a family-based preventive approach be developed to combat internet addiction. This is not just about the parent-child relationship, but also importantly setting rules about too much internet use and its consequences (Bonnaire & Phan, 2017).

Youth who are addicted to videogames have weaker health and are more predisposed to illness (Wartberg et al., 2014). There is a need to prevent game disorder through conversation before coercion (Wartberg et al., 2014).

This study may have some limitations. One of these is the distribution of respondents' internet use, which mostly fell into the normal gamers category. However, we adjusted this data by merging risky and disordered gamers. Another limitation is that family functioning and internet game use are perceived solely based on adolescents' self-reported data and no information was provided from the parent's perspective. Hence, further studies should consider including parents' perspectives about family functioning and internet use.

CONCLUSION

There is a positive correlation between gaming and family relationships within the youth age group. This study has provided new preliminary evidence on the implications of youths' family functioning and its interplay with impulsivity and psychopathological problems.

REFERENCES

- Anderson, E. L., Steen, E., & Stavropoulos, V. (2017). Internet use and Problematic Internet Use: A systematic review of longitudinal research trends in adolescence and emergent adulthood. *International Journal of Adolescence and Youth*, 22(4), 430–454. <https://doi.org/10.1080/02673843.2016.1227716>
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55, 469–480. <https://doi.org/10.1037/0003-066X.55.5.469>
- Arnett, J. J. (2014). Presidential Address: The Emergence of Emerging Adulthood: A Personal History. *Emerging Adulthood*, 2(3), 155–162. <https://doi.org/10.1177/2167696814541096>
- Bonnaire, C., & Phan, O. (2017). Relationships between parental attitudes, family functioning and Internet gaming disorder in adolescents attending school. *Psychiatry Research*, 255, 104–110. <https://doi.org/10.1016/j.psychres.2017.05.030>
- Borca, G., Bina, M., Keller, P. S., Gilbert, L. R., & Begotti, T. (2015). Internet use and developmental tasks: Adolescents' point of view. *Computers in Human Behavior*, 52, 49–58. <https://doi.org/10.1016/j.chb.2015.05.029>

- Brunborg, G. S., Mentzoni, R. A., & Frøyland, L. R. (2014). Is video gaming, or video game addiction, associated with depression, academic achievement, heavy episodic drinking, or conduct problems?. *Journal of Behavioral Addictions*, 3(1), 27–32. <https://doi.org/10.1556/jba.3.2014.002>
- Cacioppo, M., Barni, D., Correale, C., Mangialavori, S., Danioni, F., & Gori, A. (2019a). Do Attachment Styles and Family Functioning Predict Adolescents' Problematic Internet Use? A Relative Weight Analysis. *Journal of Child and Family Studies*, 28(5), 1263–1271. <https://doi.org/10.1007/s10826-019-01357-0>
- Capri, T., Gugliandolo, M. C., Iannizzotto, G., Nucita, A., & Fabio, R. A. (2021). The influence of media usage on family functioning. *Current Psychology*, 40(6), 2644–2653. <https://doi.org/10.1007/s12144-019-00204-1>
- Cerniglia, L., Cimino, S., Marzilli, E., Pascale, E., & Tambelli, R. (2020). Associations Among Internet Addiction, Genetic Polymorphisms, Family Functioning, and Psychopathological Risk: Cross-Sectional Exploratory Study. *JMIR Mental Health*, 7(12), e17341. <https://doi.org/10.2196/17341>
- Coste, J., Guillemin, F., Pouchot, J., & Fermanian, J. (1997). Methodological approaches to shortening composite measurement scales. *Journal of Clinical Epidemiology*, 50(3), 247–252. [https://doi.org/10.1016/S0895-4356\(96\)00363-0](https://doi.org/10.1016/S0895-4356(96)00363-0)
- Fumero, A., Marrero, R. J., Bethencourt, J. M., & Peñate, W. (2020). Risk factors of internet gaming disorder symptoms in Spanish adolescents. *Computers in Human Behavior*, 111, 106416. <https://doi.org/10.1016/j.chb.2020.106416>
- Gaetan, S., Bonnet, A., Brejard, V., & Cury, F. (2014). French validation of the 7-item Game Addiction Scale for adolescents. *European Review of Applied Psychology*, 64(4), 161–168. <https://doi.org/10.1016/j.erap.2014.04.004>
- Hinojosa-Marqués, L., Domínguez-Martínez, T., & Barrantes-Vidal, N. (2022). Family environmental factors in at-risk mental states for psychosis. *Clinical Psychology & Psychotherapy*, 29(2), 424–454. <https://doi.org/10.1002/cpp.2651>
- Lise, F., Schwartz, E., Friedemann, M.-L., & Stacciarini, J.-M. (2022). Validity and Reliability of the Brazilian Version of the Instrument the Assessment Strategies in Families-Effectiveness (ASF-E). *Texto & Contexto - Enfermagem*, 31, e20200555. <https://doi.org/10.1590/1980-265X-TCE-2020-0555>
- Maksymova, N. Y., Hrys, A., Maksymov, M. V., Krasilova, Y. M., & Udovenko, J. M. (2021). Causes and criteria of disharmonies in family system functioning. *Linguistics and Culture Review*, 5(S4), Article S4. <https://doi.org/10.21744/lingcure.v5nS4.1578>
- Milburn, N. G., Stein, J. A., Lopez, S. A., Hilberg, A. M., Veprinsky, A., Arnold, E. M., Desmond, K. A., Branson, K., Lee, A., Bath, E., Amani, B., & Comulada, W. S. (2019). Trauma, Family Factors and the Mental Health of Homeless Adolescents. *Journal of Child & Adolescent Trauma*, 12(1), 37–47. <https://doi.org/10.1007/s40653-017-0157-9>
- Papadakis, J. L., Acevedo, L., Ramirez, S., Stern, A., Driscoll, C. F., & Holmbeck, G. N. (2018). Featured Article: Psychosocial and Family Functioning Among Latino Youth With Spina Bifida. *Journal of Pediatric Psychology*, 43(2), 105–119. <https://doi.org/10.1093/jpepsy/jsx096>
- Pratt, K. J., & Skelton, J. A. (2018). Family Functioning and Childhood Obesity Treatment: A Family Systems Theory-Informed Approach. *Academic Pediatrics*, 18(6), 620–627. <https://doi.org/10.1016/j.acap.2018.04.001>

- Salas-Wright, C. P., & Schwartz, S. J. (2019). The Study and Prevention of Alcohol and Other Drug Misuse Among Migrants: Toward a Transnational Theory of Cultural Stress. *International Journal of Mental Health and Addiction*, 17(2), 346–369. <https://doi.org/10.1007/s11469-018-0023-5>
- Spada, M. M. (2014). An overview of problematic Internet use. *Addictive Behaviors*, 39(1), 3–6. <https://doi.org/10.1016/j.addbeh.2013.09.007>
- Stetina, B. U., Kothgassner, O. D., Lehenbauer, M., & Kryspin-Exner, I. (2011). Beyond the fascination of online-games: Probing addictive behavior and depression in the world of online-gaming. *Computers in Human Behavior*, 27(1), 473–479. <https://doi.org/10.1016/j.chb.2010.09.015>
- Sutrisna, I. P. B., Ardjana, I. G. A. E., Supriyadi, S., & Setyawati, L. (2020). Good family function decrease internet addiction and increase academic performance in senior high school students. *Journal of Clinical and Cultural Psychiatry*, 1(2),. <https://doi.org/10.36444/jccp.v1i2.13>
- Untas, A., Rascle, N., Cosnefroy, O., Borteyrou, X., Saada, Y., & Koleck, M. (2011). Qualités psychométriques de l'adaptation française du Family Relationship Index (FRI). *L'Encéphale*, 37(2), 110–118. <https://doi.org/10.1016/j.encep.2010.04.008>
- Wartberg, L., Kammerl, R., Rosenkranz, Hirschhäuser, Hein, S., Schwinge, C., Petersen, K.-U., & Thomasius, R. (2014). The Interdependence of Family Functioning and Problematic Internet Use in a Representative Quota Sample of Adolescents. *Cyberpsychology, Behavior, and Social Networking*, 17(1), 14–18. <https://doi.org/10.1089/cyber.2012.0494>
- WHO. ICD-11 for Mortality and Morbidity Statistics. <https://icd.who.int/browse11/1/en#/http://id.who.int/icd/entity/1448597234.2017>
- Yan, W., Li, Y., & Sui, N. (2014). The Relationship between Recent Stressful Life Events, Personality Traits, Perceived Family Functioning and Internet Addiction among College Students. *Stress and Health*, 30(1), 3–11. <https://doi.org/10.1002/smi.2490>
- Young, K. (2017). The Evolution of Internet Addiction Disorder. In C. Montag & M. Reuter (Eds.), *Internet Addiction: Neuroscientific Approaches and Therapeutical Implications Including Smartphone Addiction* (pp. 3–18). Springer. https://doi.org/10.1007/978-3-319-46276-9_1
- Yusuf, A., Peltekova, I., Savion-Lemieux, T., Frei, J., Bruno, R., Joobar, R., Howe, J., Scherer, S. W., & Elsabbagh, M. (2020). Perceived utility of biological testing for autism spectrum disorder is associated with child and family functioning. *Research in Developmental Disabilities*, 100, 103605. <https://doi.org/10.1016/j.ridd.2020.103605>
- Zhai, B., Li, D., Jia, J., Liu, Y., Sun, W., & Wang, Y. (2019). Peer victimization and problematic internet use in adolescents: The mediating role of deviant peer affiliation and the moderating role of family functioning. *Addictive Behaviors*, 96, 43–49. <https://doi.org/10.1016/j.addbeh.2019.04.016>