

| | | | | | |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------|----------|--------------|
|  | <h1 style="margin: 0;">GOMAL UNIVERSITY</h1> <h2 style="margin: 0;">JOURNAL OF RESEARCH</h2> <p style="margin: 0;">Gomal University, Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan</p> <p style="margin: 0;">ISSN:1019- 8180 (Print) ISSN: 2708- 1737 (Online)</p> |  | | | |
| Website | www.gujr.com.pk | HEC Recognized | Social Sciences | CrossRef | DOI:10.51380 |


GENDER DIFFERENCES IN SMARTPHONE ADDICTION, PROBLEMATIC SOCIAL MEDIA USE, AND PROBLEMATIC GAME USE

Ayan¹, Haleema Sadia Khan² & Samreen Ibrar³

¹Alumni, Plymouth University, Plymouth, UNITED KINGDOM

²BS Scholar, Department of Psychology, University of Mianwali, Mianwali, Pakistan

³Alumni, Lahore School of Behavioral Sciences, The University of Lahore, Lahore, Punjab, Pakistan

| KEYWORDS | ABSTRACT |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Smartphone Addiction, Problematic Social Media Use, Young adults</p> | <p>The technology is advancing rapidly, making our lives easier and more convenient than before. However, excessive use of technology can disrupt daily routines and create various life challenges. The objective of current study is to examine the gender differences in variables such as smartphone addiction, problematic social media use, and problematic use of games among young adults aged 18 to 30. The study involved the cohort of 342 participants (172 men & 170 women), with a mean age of 24.23 years and SD of 2.57. The correlational research design was adopted and purposive sampling was employed to select participants. Findings reveal a significant association between smartphone addiction, problematic social media use, and problematic use of games among young adults. Gender differences were observed, with the men scoring significantly higher on the variable of problematic social media use compared to women. Moreover, although men also scored slightly higher on smartphone addiction and problematic use of games, these differences were not statistically significant. The study discusses its limitations in the detail and offers recommendations for future research. Additionally, the implications of the findings for improving the well-being of young adults are thoroughly discussed at the conclusion of the study.</p> |
| Article History | |
| <p>Date of Submission: 27-11-2024</p> <p>Date of Acceptance: 28-12-2024</p> <p>Date of Publication: 31-12-2024</p> | |
| |  2024 Gomal University Journal of Research |
| Corresponding Author | Ayan: ayankhwaja@gmail.com |
| DOI | https://doi.org/10.51380/gujr-40-04-10 |

INTRODUCTION

Technology has become central part of daily life, significantly influencing how people interact, work and access information (Berry & Hughes, 2020; Abelsen, Vatne, Mikalef & Choudrie, 2021; Franjic, 2022). While technological advancements have made life more convenient, they have also introduced challenges, mainly for younger individuals. The extensive use of smartphones, social media, and gaming technologies has exacerbated addictive behaviours, disrupting daily

routines and negatively impacting mental & emotional well-being (Claesdotter, André, Fridh, Delfin, Hakansson & Lindström, 2021; Rozgonjuk, Sinderm, Elhai & Montag, 2020; Fagherazzi, 2023). The problematic smartphone use, which refers to the excessive use of smartphones and its adverse effects upon daily life, has been linked to the increased anxiety, social dysfunction, and depression, especially among individuals in developmental stages (Cho, 2020; Dhiman, 2021; Wang, Liu, Zhao, Yang, Zhang, Wang, Zeng & Lei, 2019; Elhai, Gallinari, Rozgonjuk & Yang, 2020). Social media serves as virtual podium for exchange of ideas, information, interests and personal expressions (Wu & Qio, 2024; Torro, 2023). Its flexibility allows it to impact many sectors, including the education, business, and international relations (Jiang, Lam, Chiu & Ho, 2023).

However, problematic social media use arises when it begins to disrupt key aspects of life, such as professional, practical, educational, and social functioning, often due to excessive time spent on online platforms (Tarafdar, Maier, Laumer & Weitzel, 2020). The recent research on adults has shown that social media addiction negatively affects mental health, contributing to increased depression and aggression (Shahid, Bashir & Fatima, 2024). Shahid, Yousaf and Munir (2024) explained that this difference may be linked to cultural context of Pakistan, male-dominated country where men generally have access to technology, which could explain why men scored higher in sticky social media use than their female counterparts. Online gaming, played over internet on devices likewise PlayStation, Xbox, PCs and mobile phones, has gained widespread popularity (Lai & Fung, 2020; Palomba, 2020; Novak, 2022). Thus, dualistic model of passion highlights that harmonious passion fosters well-being, obsessive passion leads to negative outcomes like excessive play (Lafrenière et al., 2009). Gaming addiction, branded by compulsive use causing distress, is known as "Internet gaming disorder" or "pathological video gaming" (Wong, 2020; Melodia et al., 2020; Nursalam et al., 2023; Lemmens, 2009; Billieux et al., 2019).

Since its rise in the 1990s, online gaming has attracted a growing number of players, with the multiplayer games encouraging extensive play, particularly in young adults (Singh, Dahiya, Singh, Kumar & Balhara, 2019). The research has shown that problematic gaming is linked to increased aggression, with men showing higher levels of addiction and aggression compared to women (Bashir, Shahid & Salman, 2024). Recent findings show overlap among smartphone dependency, problematic social media use and problematic gaming behavior (Moreno, Riddle, Jenkins, Singh, Zhao & Eickhoff, 2022). Moreover, a notable gender difference was observed, with men exhibiting higher levels of social media addiction compared to women. These issues are particularly significant during young adulthood, a stage of development that appears to be fragile and highly susceptible to external influences (Coyne & Woodruff, 2023). Additionally, recent studies highlight potential sex differences in the early manifestation of these behaviours and emphasize importance of considering gender perspectives (Varchetta, Tagliaferri, Mari, Cricenti, Giannini & Vilar, 2024). In this regard, according to recent research, men are more prone to smartphone addiction, problematic use of gaming, and social media use compared to women (Khan et al., 2024; Kausar et al., 2024; Bashir et al., 2024; Shahid et al. 2024; Fareed et al., 2024).

LITERATURE REVIEW

Smartphone dependency, characterized by excessive use and regular reliance on smartphones, is rising notably among young people who use their phones for communication, recreation, and tasks (Nawaz et al., 2023; Ting & Chen, 2020). Previous researches also indicate that higher levels of smartphone addiction are linked to symptoms of anxiety, depression, and poor sleep (Hassan et al., 2024; Ratan et al., 2021). Additionally, the sex differences have been noted, with women often experiencing the emotional deregulations with increased smartphone use, while men tend to engage more with gaming and competitive applications (Varchetta et al., 2024). Problematic social media use (PSMU) has become a significant issue as the negative impact of social media has become increasingly evident. PSMU involves compulsive checking, excessive engagement, and neglecting offline tasks, which can exacerbate symptoms such as anxiety, social isolation, and poor academic, social performance (Marino et al., 2020; Marín-Díaz et al., 2019; Li et al., 2023; Chang et al., 2022). A study shows that negative social media use is linked to higher levels of anxiety, loneliness, and lower self-esteem (O'Day & Heimberg, 2021). Future research need to focus cognitive and emotional mechanisms driving these gendered patterns of behavior.

The recent study on young adults depicts that men scored high on social media addiction as compared to women which could be due to men dominant Pakistani society and men got more access to technology and to gain freedom (Shahid et al., 2024). Problematic gaming refers to obsessive video game use, often leading individuals to neglect their work, responsibilities, or family (Bussone et al., 2020; Ko & Yen, 2024). While gambling disorder primarily affects young men who use gaming as main form of leisure, there is a growing trend of problematic gaming that impacts more women, narrowing gap in gaming practices (Dieris-Hirche et al., 2020; King & Potenza, 2020). Taywade and Khubalka (2019) found that male participants primarily used smartphones for entertainment, while females used them for communication. Females tend to engage more frequently than males in online interpersonal communication, and information gathering and sharing (Sun et al., 2020). On the other hand, males are likely to engage in online activities such as gaming, shopping, and sexual searching. Still, internet access among females is expected to increase, and the gender gap in internet usage may decrease over time (Lin et al., 2021).

Despite this, men are still more prone to excessive smartphone use, gaming, and problematic social media use than women (Shahid et al., 2024; Khan et al., 2024; Kausar et al., 2024). The findings reveal notable distinctions: males exhibited significantly higher levels of problematic game use, while females were prone to problematic social media use & smartphone addiction. A study on college undergraduates revealed that cell-phone addiction is driven by different activities for men and women, with social media platforms like Instagram and Pinterest being more significant for both genders than gaming (Roberts et al., 2014). Gender differences were further highlighted by results showing that loneliness increased mediating role of phubbing in men, leading to greater depressive moods, while the effect was weaker in women (Ivanova et al., 2020). These differences were linked to underlying motivational and psychological factors, like social connectivity needs in females & competitive or escapist tendencies in males. Women

were found to exhibit higher levels of mobile phone addiction and social media use compared to men, with younger age and depressive symptoms as significant predictors (Kalaitzaki et al., 2024).

Social anxiety and the need to belong were key factors in social media addiction, particularly among women (Stănculescu & Griffiths, 2022). Moreover, men with high vulnerable narcissism & fear of missing out showed stronger addictive tendencies toward social media (Brailovskaia et al., 2023). Studies in Southeast Asia confirmed higher rates of internet and gaming addiction in men (Chia et al., 2020), while research also indicated that women are more affected by social media addiction (Mari et al., 2023). These findings emphasize the need for gender-specific interventions to address addiction patterns. The existing literature climaxes large overlap between smartphone addiction, problematic social media use, and problematic use of games in young adults, with a notable trend in Pakistan where men are more inclined to engage in these behaviors due to social and cultural factors. Despite the extensive research, there remains a gap in studies that specifically examine sex differences in smartphone addiction, problematic social media use, and problematic use of games on same young adults in Pakistan. The aim of study is to address this gap and propose relevant interventions & implementations for more effected gender.

Research Hypotheses

H1: There is likely to be a positive relationship between smartphone addiction, problematic social media use and problematic use of games.

H2: There is likely to significant sex differences amid study variables: smartphone addiction, problematic social media use & problematic use of games.

RESEARCH METHODOLOGY

This study employed a cross-sectional correlational research design with a purposive sampling technique to examine the relationships and gender differences between smartphone addiction, problematic social media use, and problematic use of games among young adults aged 18 to 30 years. The demographic variables included age, gender, employment status. Three established measures were used: Short Version of Smartphone Addiction Scale, the Bergen Social Media Addiction Scale, and Gaming Addiction Scale for Adolescents. A total of 342 participants (172 men and 170 women) completed a demographic questionnaire and the three addiction scales, taking approximately 15 to 20 minutes. The data analysis was conducted using SPSS version 25, with Pearson correlation analysis to explore the relationships between the study variables, and an independent samples t-test to assess the gender differences in mean scores across the variables.

Measures

The Smartphone Addiction Scale-Short Version (SAS-SV), developed by Kwon et al. (2013), is used to measure smartphone addiction. It consists of 10 items rated on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree), with reliability coefficient of 0.96. The Bergen Social Media Addiction Scale, created by Andreassen and colleagues, measures degree of addiction with a total score derived from six items, using a 5-point Likert scale from 1 (very

seldom) to 5 (very frequently). Several studies have confirmed the validity and reliability of the BSMAS through the exploratory and confirmatory factor analyses, showing strong internal consistency with the Cronbach's alpha values typically ranging from 0.82 to 0.93. The Gaming Addiction Scale for Adolescents, introduced by Lemmens et al. (2011), uses a Likert scale, with responses ranging from 1 (never) to 5 (very often), allowing scholars to define extent of gaming addiction.

Ethical Consideration

Throughout the course of research, all ethical considerations was strictly followed. The scales used were obtained with permission from their original developers and appropriate clearances to collect the data were secured. All participants were debriefed to minimize any biases, and responses remained anonymous. The study adhered to non-detrimental withdrawal policy, allowing participants to leave the study without consequence. There was no psychological or physical harm inflicted upon the participants, and all data presented in the research was valid. Sources were appropriately cited. Ethical clearance for publishing this paper was granted by research ethics committee. Participants signed an informed consent form, measures to ensure anonymity were implemented. To further respect participants' anonymity and facilitate easy access to survey, an online platform was used for data collection, which complied with ethical standards.

RESULT OF STUDY

Table 1

Demographic Characteristics of 342 participants

| Sample Characteristics | f | % | Mean | Standard Deviation |
|------------------------|-----|----|-------|--------------------|
| Gender | | | | |
| Men | 172 | 50 | | |
| Women | 170 | 50 | | |
| Age | | | 24.23 | 2.57 |
| Employment Status | | | | |
| Employed | 88 | 26 | | |
| Unemployed | 254 | 74 | | |

Note. f=frequency, %=Percentage

The study included 172 men (50%) and 170 women (50%), with mean age of 20.61 years and SD of 1.52. A minority of participants were employed (88, 26%), while majority were unemployed (254, 74%).

Table 2

Correlation among study variables (N=147).

| Variables | 1 | 2 | 3 |
|--------------------------|---|-------|-------|
| 1.Social Media Addiction | - | .43** | .16** |
| 2.Smart Phone Addiction | | - | .24** |
| 3. Gaming Addiction | | | - |

Note. **p<.01,

The table above reveals a positive and significant relationship between social media addiction & smartphone addiction ($r=.43^{**}$, $p<.01$). Additionally, there is significant positive relationship exists amid social media addiction and gaming addiction ($r=.16^{**}$, $p<.01$). Also, relationship between smartphone addiction and gaming addiction is also positive and significant ($r=.24^{**}$, $p<.01$).

Table 3
Gender Difference between Study Variables(N=342).

| | Men(n=172) | | Women(n=170) | | t(340) | P | Cohen's d |
|------|------------|-------|--------------|------|--------|-----|-----------|
| | M | SD | M | SD | | | |
| PSMU | 18.56 | 5.43 | 17.45 | 5.35 | 1.89 | .05 | 0.21 |
| SPA | 28.59 | 6.24 | 28.51 | 6.61 | .12 | .90 | 0.01 |
| PUOG | 61.63 | 10.16 | 61.40 | 9.95 | -.21 | .83 | 0.02 |

Note. M= Mean,SD= Standard Deviation, PSMU= Problematic Social Media Use, SPA=Smartphone Addiction, PUOG= Problematic Use of Games.

* $p<.05$. ** $p<.01$, *** $p<.001$

Table illustrates that men scored significantly high than women in term of variable problematic social media use while no gender differences was found in smartphone addiction and gaming addiction.

DISCUSSION

The purpose of study was to explore gender differences in smartphone addiction, problematic social media use, and problematic use of games among young adults in Pakistan, as no prior research has been conducted on these variables within this demographic. To address this gap, the study was conducted. The first hypothesis of study was supported, showing a significant relationship between smartphone addiction, problematic social media use, and problematic use of games among young adults. Our findings align with the previous systematic reviews indicating that problematic social media use (PSMU) and problematic smartphone use (PSU) are often interconnected, especially as smartphones are a common platform for social media, particularly for instant messaging apps like WhatsApp (Marino et al., 2021). Furthermore, our results mirror those of the Khan et al. (2024), which found a significant relationship between smartphone addiction and online social connectedness. In this regard, a study involving 383 Turkish undergraduates revealed that the smartphone addiction directly impacted the Internet Gaming Disorder (IGD), as well as partially mediated the link between aggression and IGD, emphasizing need for interventions to address both smartphone addiction and IGD (Yilmaz et al., 2023).

The second hypothesis was partially supported, as men scored significantly the higher than women in the problematic social media use, though no gender differences were found in the smartphone addiction or gaming addiction despite men scoring slightly high than women in these variables. This finding is consistent with a recent study on young adults, which showed that men scored higher in playing PUBG compared to women (Kausar et al., 2024). Another

study indicated that men played the Ludo Star game more frequently than women (Bashir et al., 2024). In terms of social media addiction, recent researchers found that the men had higher scores than women among young adults (Shahid et al., 2024; Fareed et al., 2024), aligning with our results. Additionally, a study of the young adults suggested that men are more prone to problematic smartphone use than women (Khan et al., 2024). Thus, studies in Southeast Asia confirmed higher rates of internet and gaming addiction in men (Chia et al., 2020). Study was conducted in Pakistan which could be the reason of men being scoring high on these variables since it is a men dominant society and men got more access to technology and freedom than women.

CONCLUSION

The study aimed to examine association & sex differences amid study variables: smartphone addiction, problematic social media use, and problematic use of games among young adults aged 18 to 30, both employed and unemployed. The findings showed a significant association amid study variables—smartphone addiction, problematic social media use, and problematic use of games—among young adults. Moreover, independent samples t-test revealed that men scored significantly higher than women. However, women scored lower than men on study variables of problematic use of games and smartphone addiction, while these two differences in means were not statistically significant. It is concluded that the study partially fulfills its aim.

Limitations & Recommendations

One limitation of the study is the use of purposive sampling; a stratified sampling technique could have provided more robust results. Another limitation is study's cross-sectional design; future research could benefit from a longitudinal approach to track gender differences over time. Additionally, study was conducted only in big Lahore, Karachi and Islamabad which may not fully represent the broader cultural context of Pakistan. Including data from a wider range of regions would offer more inclusive view. Study did not equivalently or relatively equivalently collected data from employed and unemployed individuals that limited study from finding differences amid them in term of study variables. It is suggested to take careful measure regarding categories of descriptive data in the future study to get more informative result.

Implications of Study

Study partially met its objectives, revealing gender differences in problematic social media use with men showing higher scores than women. This underscores need for raising awareness among youth about smart and beneficial use of social media, rather than allowing it to impair their lives through behavioral addiction. To address this, seminars, workshops, and virtual awareness campaigns led by professionals are vital. Interventions such as meditation, sports, exercise, and offline socialization are key to overcoming these issues and promoting a healthy lifestyle. The government must also implement effective policies to curb youth addiction to technology, and parents should be educated to allocate the proper time for their children's activities.

REFERENCES

- Abelsen, S. N., Vatne, S. H., Mikalef, P., & Choudrie, J. (2021). Digital working during the COVID-19 pandemic: how task-technology fit improves work performance and lessens feelings of loneliness. *Information Technology & People*, 36(5), 2063-2087.
- Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. Bergen Social Media Addiction Scale. *Psychology of Addictive Behaviors*. 110, 106335.
- Bashir, S., Shahid, M. S., & Salman, F. (2024). The Mediating Role Of Social Connectedness In Linking Ludo Star Game Addiction & Mental Health Problems In Young Adults. *Gomal University Journal of Research*, 40(3), 359-369.
- Berry, G. R., & Hughes, H. (2020). Integrating work-life balance with 24/7 information and communication technologies: Experience of adult students with online learning. *American Journal of Distance Education*, 34(2), 91-105.
- Billieux, J., Flayelle, M., Rumpf, H. J., & Stein, D. J. (2019). The High involvement versus pathological involvement in video games: A crucial distinction for ensuring the validity and utility of gaming disorder. *Current Addiction Reports*, 6, 323-330.
- Brailovskaia, J., Ozimek, P., Rohmann, E., & Bierhoff, H. W. (2023). Vulnerable narcissism, fear of missing out (FoMO) and addictive social media use: A gender comparison from Germany. *Computers in Human Behavior*, 144, 107725.
- Bussone, S., Trentini, C., Tambelli, R., & Carola, V. (2020). Early-life interpersonal and affective risk factors for pathological gaming. *Frontiers in psychiatry*, 11, 423.
- Chang, C. W., Huang, R. Y., Strong, C., Lin, Y. C., Tsai, C., Chen, I. H., & Griffiths, M. D. (2022). Reciprocal relationships between problematic social media use, problematic gaming, and psychological distress among university students: a 9-month longitudinal study. *Frontiers in public health*, 10, 858482.
- Chia, D. X., Ng, C. W., Kandasami, G., Seow, Y., Choo, C., Chew, P. K., & Zhang, M. W. (2020). Prevalence of internet addiction and gaming disorders in Southeast Asia: A meta-analysis. *International journal of environmental research and public health*, 17(7), 2582.
- Cho, Y. G. (2020). Excessive and problematic smartphone use and poor mental health in adolescents. *Korean Journal of Family Medicine*, 41(2), 73-74.
- Claesdoter, E., André, F., Fridh, M., Delfin, C., Hakanson, A., & Lindström, M. (2021). Gender-based differences and associated factors surrounding excessive smartphone use among adolescents: Cross-sectional study. *JMIR Pediatrics and Parenting*, 4(4), e30889.
- Coyne, P., & Woodruff, S. J. (2023). Taking a break: The effects of partaking in a two-week social media digital detox on problematic smartphone and social media use, and other health-related outcomes among young adults. *Behavioral Sciences*, 13(12), 1004.
- Dhiman, D. B. (2021). Impact of Smartphone: A review on negative effects on students. *Abid Ali, B.*(2021). *Impact of smartphone: A review on negative effects on students. PalArch's Journal of Archaeology of Egypt/Egyptology*, 18(4), 5710-5718.
- Dieris-Hirche, J., Pape, M., te Wildt, B. T., Kehyayan, A., Esch, M., Aicha, S., Herpertz, S., & Bottel, L. (2020). Problematic gaming behavior and personality traits of video gamers: A cross-sectional survey. *Computers in Human Behavior*, 106, 106272.

- Elhai, J. D., Gallinari, E. F., Rozgonjuk, D., & Yang, H. (2020). Depression, anxiety and fear of missing out as correlates of social, non-social and problematic smartphone use. *Addictive behaviors, 105*, 106335.
- Fagherazzi, G. (2023). Technologies will not make diabetes disappear: how to integrate the concept of diabetes distress into care. *Diabetes Epidemiology and Management, 11*, 100140.
- Fareed, S., Jabeen, S., Aurangzeb, S., & Aslam, R. (2024). Social Media Addiction, Social Media Use and Aggression in Young Adults. *Pakistan Journal of Humanities and Social Sciences, 12*(3), 2411-2416.
- Franjic, S. (2022). Wireless Technology is Easy to Use. *International Journal of Mathematical, Engineering, Biological and Applied Computing, 22-28*.
- Hassan, H., Lodhi, A., & Ahmad, M. (2024). Implications of smartphone addiction on mental health and academic performance of medical students. *Pakistan Journal of Physiology, 20*(3), 13-17.
- Ivanova, A., Gorbaniuk, O., Błachnio, A., Przepiórka, A., Mraka, N., Polishchuk, V., & Gorbaniuk, J. (2020). Mobile phone addiction, phubbing, and depression among men and women: A moderated mediation analysis. *Psychiatric Quarterly, 91*, 655-668.
- Jiang, M., Lam, A. H., Chiu, D. K., & Ho, K. K. (2023). Social media aids for business learning: A quantitative evaluation with the 5E instructional model. *Education and Information Technologies, 28*(9), 12269-12291.
- Kalaitzaki, A., Laconi, S., Spritzer, D. T., Hauck, S., Gnisci, A., Sergi, I., ... & Sahlan, R. N. (2024). The prevalence and predictors of problematic mobile phone use: a 14-country empirical survey. *International Journal of Mental Health and Addiction, 22*(1), 746-765.
- Kausar, R., Rana, H., Nouman, S., & Faisal, A. (2024). PUBG Game Addiction, Social Connectedness and Aggression in Young Adults. *Pakistan Journal of Humanities and Social Sciences, 12*(3), 2439-2446.
- Khan, P., Shahid, M. S., & Majid, H. A. (2024). Mediating Role Of Online Social Connectedness In Smartphone Addiction And Online Relationship Among Young Adults. *Gomal University Journal of Research, 40*(3), 327-336.
- King, D. L., & Potenza, M. (2020). Gaming disorder among female adolescents: A hidden problem? *Journal of Adolescent Health, 66*(6), 650-652.
- Ko, C. H., & Yen, J. Y. (2024). Internet gaming disorder. In *Tasman's Psychiatry* (pp. 2949-2969). Cham: Springer International Publishing.
- Kwon, M., Kim, D. J., Cho, H., & Yang, S. (2013). The smartphone addiction scale: development and validation of a short version for adolescents. *PloS one, 8*(12), e83558.
- Kwon, M., Kim, D. J., Cho, H., & Yang, S. (2013). The smartphone addiction scale: development and validation of a short version for adolescents. *PloS One, 8*(12), e83558.
- Lafrenière, M. A. K., Vallerand, R. J., Donahue, E. G., & Lavigne, G. L. (2009). On the costs and benefits of gaming: The role of passion. *CyberPsychology & Behavior, 12*(3), 285-290.
- Lai, G., & Fung, K. Y. (2020). From online strangers to offline friends: a qualitative study of video game players in Hong Kong. *Media, Culture & Society, 42*(4), 483-501.
- Lemmens, J. S., Valkenburg, P. M., & Peter, J. (2009). Development and validation of a game addiction scale for adolescents. *Media psychology, 12*(1), 77-95.

- Li, Y., Mu, W., Xie, X., & Kwok, S. Y. (2023). Network analysis of internet gaming disorder, problematic social media use, problematic smartphone use, psychological distress, and meaning in life among adolescents. *Digital Health, 9*, 20552076231158036.
- Lin, X., Gu, J. Y., Guo, W. J., Meng, Y. J., Wang, H. Y., Li, X. J., Deng, W., Zhao, L. S., Ma, X. H., Li, M. L., Chen, T., Cheng, A. S. K., & Li, T. (2021). The gender-sensitive social risk factors for internet addiction in college undergraduate students. *Psychiatry Investigation, 18*(7), 636-644.
- Mari, E., Biondi, S., Varchetta, M., Cricenti, C., Frascchetti, A., Pizzo, A., & Quaglieri, A. (2023). Gender differences in internet addiction: A study on variables related to its possible development. *Computers in Human Behavior Reports, 9*, 100247.
- Marín-Díaz, V., Vega-Gea, E., & Passey, D. (2019). Determination of problematic use of social networks by university students. *RIED. Revista Iberoamericana de Educación a Distancia, 22*(2), 135-152.
- Marino, C., Canale, N., Melodia, F., Spada, M. M., & Vieno, A. (2021). The overlap between problematic smartphone use and problematic social media use: a systematic review. *Current Addiction Reports, 1-12*.
- Marino, C., Gini, G., Angelini, F., Vieno, A., & Spada, M. (2020). Social norms and e-motions in problematic social media use among adolescents. *Addictive Behaviors Reports, 11*, 100250.
- Melodia, F., Canale, N., & Griffiths, M. D. (2020). The role of avoidance coping and escape motives in problematic online gaming: A systematic literature review. *International Journal of Mental Health and Addiction, 1-27*.
- Moreno, M., Riddle, K., Jenkins, M. C., Singh, A. P., Zhao, Q., & Eickhoff, J. (2022). Measuring problematic internet use, internet gaming disorder, and social media addiction in young adults: cross-sectional survey study. *JMIR public health and surveillance, 8*(1), e27719.
- Nawaz, S. (2023). Rethinking classifications and metrics for problematic smartphone use and dependence: Addressing the call for reassessment. *Computers in Human Behavior Reports, 100327*.
- Nursalam, N., Iswanti, I., Agustini, N., Rohmi, F., Permana, B., & Erwansyah, A. (2023). Factors contributing to online game addiction in adolescents: A systematic review. *International Journal of Public Health Science (IJPHS), 12*(4), 1763.
- O'Day, E. B., & Heimberg, R. G. (2021). Social media use, social anxiety, and loneliness: A systematic review. *Computers in Human Behavior Reports, 3*, 100070.
- Palomba, A. (2020). Gaming industry. *The Rowman & Littlefield Handbook of Media Management and Business, 2*, 285.
- Ratan, Z. A., Parrish, M., Zaman, S. B., Alotaibi, M. S., & Hosseinzadeh, H. (2021). Smartphone addiction and associated health outcomes in adult populations: A systematic review. *International Journal of Environmental Research and Public Health, 18*(22), 12257.
- Roberts, J., Yaya, L., & Manolis, C. (2014). The invisible addiction: Cell-phone activities and addiction among male and female college students. *Journal of behavioral addictions, 3*(4), 254-265.
- Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Montag, C. (2020). Fear of missing out (FOMO) and social media's impact on daily life productivity at work: Do WhatsApp, Facebook,

- Instagram, and Snapchat use disorders mediate that association? *Addictive Behaviors*, 110, 106487.
- Shahid, M. S., Bashir, S., & Fatima, S. (2024). Social Media Addiction and Aggression in Pakistani Young Adults: Social Connectedness as a Moderator. *Journal of Professional & Applied Psychology*, 5(3), 424-433.
- Shahid, M. S., Yousaf, R., & Munir, H. (2024). Social media addiction, depression and aggression in young adults. *Journal of Professional & Applied Psychology*, 5(2), 276-285.
- Singh, S., Dahiya, N., Singh, A. B., Kumar, R., & Balhara, Y. P. S. (2019). Gaming disorder among medical college students from India: Exploring pattern and correlates. *Industrial psychiatry journal*, 28(1), 107-114.
- Stănculescu, E., & Griffiths, M. D. (2022). Social media addiction profiles and their antecedents using latent profile analysis: The contribution of social anxiety, gender, & age. *Telematics and Informatics*, 74, 101879.
- Sun, B., Mao, H., & Yin, C. (2020). Male and female users' differences in online technology community based on text mining. *Frontiers in Psychology*, 11, 806.
- Tarafdar, M., Maier, C., Laumer, S., & Weitzel, T. (2020). Explaining link between technostress and technology addiction for social networking sites: A study of distraction as a coping behavior. *Information Systems Journal*, 30(1), 96-124.
- Taywade, A., & Khubalka, R. (2019). Gender differences in smartphone usage patterns of adolescents. *The International Journal of Indian Psychology*, 7(4).
- Ting, C. H., & Chen, Y. Y. (2020). Smartphone addiction. In *Adolescent addiction* (pp. 215-240). Academic Press.
- Torro, O. (2023). Social virtual reality: Design and potential for social exchange and cohesion in virtual teams.
- Varchetta, M., Tagliaferri, G., Mari, E., Cricenti, C., Giannini, M., & Vilar, M. (2024). Exploring gender differences in internet addiction and psychological factors: A study in a Spanish sample. *Brain Sciences*, 14(10), 1037.
- Wang, P., Liu, S., Zhao, M., Yang, X., Zhang, G., Chu, X., Wang, X., Zeng, P., & Lei, L. (2019). How is problematic smartphone use related to adolescent depression? A moderated mediation analysis. *Children and Youth Services Review*, 104, Article 104384.
- Wong, H. Y., Mo, H. Y., Potenza, M. N., Chan, M. N. M., Lau, W. M., Chui, T. K., ... & Lin, C. Y. (2020). Relationships amid severity of internet gaming disorder, severity of problematic social media use, sleep quality and psychological distress. *International journal of environmental research and public health*, 17(6), 1879.
- Wu, D., & Qiao, Y. (2024). Interwoven spaces: How interactions in physical space facilitate knowledge exchange and market transactions in virtual space. *Geoforum*, 151, 104010.
- Yilmaz, R., Sulak, S., Griffiths, M. D., & Yilmaz, F. G. K. (2023). An exploratory examination of relationship amid internet gaming disorder, smartphone addiction, social appearance anxiety and aggression among undergraduate students. *Journal of Affective Disorders Reports*, 11, 100483.