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Associations between Friendship Networks and Internet Addictive Behaviors: Relationship Quality as a Mediator

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Abstract

The study examined the mediating role of relationship quality on the associations between friendship networks and internet addictive behaviors. Three hundred and sixty-four (364) undergraduate students comprising 199 males and 165 females (Mean Age = 22.53, SD = 3.94) selected from the Alex Ekwueme Federal University, Ndufu-Alike, participated in the study. Three measures were used in the study; the Interpersonal Relationship Questionnaire, the Friendship Network Satisfaction Scale, and the Internet Addiction Scale. Hayes regression-based PROCESS Macro results revealed that relationship quality significantly mediated the associations between friendship networks and internet addictive behaviors (95% CI = -.18, -.07). The study discussed the implication of the findings for psychologists, therapists, and relationship counselors.

Keywords: *friendship network, internet addiction, mediation, relationship quality, students*

Introduction

Man is not an island, is a familiar quote that can be traced as far back as 400years, written by an English poet John Donne, which depicts how far humans have come to see that relationship is important. On a large scale, wars happen because of human relationships, trade, peace, and unity, all from a relationship. Relationships spurn continuity of life, but the quality of this relationship either screams or echoes conflict (war) or peace. Human relationships have been given great importance, but not their due importance for what proper medium they should be exhibited. The internet, therefore, became a medium to enhance and foster the continuity of human relationships (friendship), to bring people from different poles together despite they are geographically far apart when the reason for an invention is over time forgotten, its purpose will be defeated.

However, there has been a remarkable change among the youths with access to the Internet and the propagation of Internet programs that the youths employ for entertainment and social interaction (Smahel, Brown, & Blinka, 2012). These changes have raised an alarm that some youths or emerging adults may be using the Internet so broadly that it hampers face-to-face interaction or other aspects of daily life. Some researchers, however, have termed such broad use as Internet addiction, which seems to jeopardize especially the

youths and emerging adults (Griffiths, Davies, & Chappell, 2004; Smahel, Sevcikova, Blinka, & Vesela, 2009; Tsai & Lin, 2003).

To date, research on internet addiction and related factors remain very important. Many of the concerns raised are related to the role of the Internet in adolescents' or emerging adults' friendship patterns. Therefore, this study focuses on the (indirect) impact of relationship quality on the link between friendship networks and Internet addiction behavior.

Theoretical framework

Friendship network and internet addictive behaviors

Adolescents and emerging adults are fronted with the developmental task of establishing close connections with their peers and intimate relations with romantic mates (Brown & Larson, 2009). These connections reflect youthful people's need to learn new patterns of communication with peers, seek a position within a group, and partake in their gests. Adolescents report that friends are their most significant sources of social support, even more than their family (Brown & Larson, 2009). Because it seems that Internet operation can widen and strengthen the contact of youthful people with friends and peers (Subrahmanyam & Smahel, 2011), the online communication of youths can have a strong developmental impact. Youthful people use the Internet constantly for communication with peers, including outsiders as well as friends (Smahel, 2003; Subrahmanyam & Greenfield, 2008).

The elevation of communication in youthful people's use of the Internet doesn't vary across different countries (Subrahmanyam & Smahel, 2011). As data from the World Internet Project show, Czech youth are no different from youths in the United States, Canada, Singapore, Hungary, and China in this sense (Subrahmanyam & Smahel, 2011). Although there are cross-cultural variations in the operation of different online applications (chat rooms, instant messengers, etc.), the pattern of entry into the use of the Internet is similar. Students make friends and ask them to promote a friendship network. Friendship networks are exposed to the huge imaginary world of the net until they become addicted, showing other internet addictions such as online games, cybersex, and cyber cheating.

However, internet addiction has been included in Section 3 of the DSM-V, which is reserved for medical conditions that require further investigation before being designated as a separate category of disorder (APA, 2013). Its prevalence in American and European

cultures is staggering – affecting up to 8.2% of their population. However, some reports suggest it affects up to 38% of the general population (Beard, 2005). Internet Addiction Disorder is usually divided into subtypes by activity, like gaming; online social networking (Masters, 2015), blogging, email, excessive, overwhelming, or inappropriate internet pornography use (Turel & Serenko, 2010), or internet shopping addiction. Similar to other addictions, those affected by Internet Addiction use the virtual phantasy world to attach with real people through the web, as a substitution for real-life human connection, which may be otherwise difficult to achieve normally (Samantray, 2017).

Consequently, Young (1998) stated that Internet addiction becomes a new clinical disease and a phenomenon of postmodern society, and worked with eight criteria of this syndrome: Internet connection takes longer than the user perceives; Repeated effort to cut down Internet use; Emergence of irritability, depression or frustration in the absence of Internet connection; Internet use as a means to control mood; A user prefers the Internet to other activities; Time spent on the Internet increases to achieve the same level of satisfaction by; A user lies to his/her surrounding about the time spent in cyberspace; and Strong commitment to the Internet. Subsequently, Young claims that Internet addiction is diagnosed when at least five out of the eight above-mentioned criteria are experienced by an individual.

Friendship network and relationship quality

The time students spend in school is essential to their maturity and aims to give them time to learn the responsibilities, norms, and roles they expect as adults (Lee et al., 2007). University students during this period not only determine their careers, but also acquire social status and positions through their work, and play a social role in enhancing their sense of self-worth and ego (Seo & Seong, 2020). The most important psychosocial development task for university students throughout this process is to escape adolescence, a phase in which they used to form social relationships within a restricted environment and learn how to properly form interpersonal relationships (Lee et al., 2007).

Over time, the focus of development during this period becomes centered on cultivating social skills that enable students to form close interpersonal relationships with others (Hong & Jeon, 2017). Thus, university students seek to directly form the various interpersonal relationships in offline zones, such as university societies and the corresponding activities,

utilizing social network services (SNS) such as Whatsapp, Facebook, and Instagram to freely and dynamically form interpersonal relationships online (Kwon et al., 2013).

According to the trend of the fourth Industrial Revolution, the use of smartphones is increasing, online communication is becoming more common, and online interpersonal relationships among university students are continuously growing, making the use of connective technological devices an inevitable part of university students' lives (Lee et al., 2011). The online space reduces the intensity of sensory stimuli that are generated in offline spaces, thus enabling inner emotions to be more easily expressed. This promotes the formation of new relationships and has the advantage of allowing individuals to maintain relationships with close friends in offline spaces (Leung, 2002). Such factors have increased online communications and have demonstrated a favorable function in promoting relationships with close friends in offline spaces (Kwon et al., 2013).

However, online interpersonal relationships also have an adverse function of only strengthening superficial relationships with strangers (Leung, 2002). Such relationships have been reported to undermine or limit friendships and reduce the amount of time shared in actual offline interactions between friends. In addition, online relationships have been reported to lead to adverse relationships (Kwon et al., 2013).

Relationship quality and internet addictive behaviors

Both the positive and negative effects of online interpersonal relationships can have different impacts on individuals, depending on who they form relationships with (Kwon et al., 2013). In general, increased communication in intimate relationships promotes self-expression, which has a positive effect on maintaining intimate relationships. However, if the purpose of the relationship is toxic, online activity, perceived depth of connection, and activity details are denied based on how often the person interacts with and contacts someone with the toxic purpose (Hsu et al., 2011).

In terms of analyzing interpersonal relationships, the theory of social network analysis (SNA), structurally studies the characteristics of relationships by reflecting actual interactions from the perspective of groups and individuals. This theory suggests that a higher number of online relationships with others, and being in closer proximity within the groups of relationships by structure, can lead to greater impacts and repercussions from the relationship, which increases the likelihood of sharing the negative purpose of the relationship. Furthermore, the transfer and exchange of information are actively promoted in this process,

leading to an increase and absorption of negative behaviors that are reported to cause addiction, disability, and overdependence (Jung & Baek, 2008).

The present study

The prevalence of the use of the internet and Internet-related tools has consistently increased year on year (Roser et al., 2020). In this current study, we will evaluate the association between friendship networks and the internet and addictive behaviors, with relationship quality playing a mediating role. As internet addictive behaviors are already a negative construct, the mediator is to be a solution to it. The quality of the relationship within the friendship network, can either positively affect (increase) relationship quality or negatively affect (decrease) the quality of the relationship. The mediating role of relationship quality in this study will aim at the positive aspect of relationship quality to reduce or remove internet addictive behaviors. In other words, we are evaluating how relationship quality through friendship networks can affect internet addictive behaviors (change the already existing negative variable)

The network of friendship in this study is based mainly on the online category of friendship network, but there are other categories, like; the offline and face-to-face friendship network categories. Each of these categories has over time been proven by research to affect young individuals' internet use, either positively or negatively. Dependent on the relationship quality (standard and value of the network) of friendship. According to Chou et al. (2015) Internet addiction mainly varies between 8% to 13% for university students and 1.4% to characterize by an inability to control Internet use. They claim that the international prevalence scale of Internet addiction is 17.9% for adolescents. However, 39% of the world population are exposed to internet use, while 6% are compulsive users and the percentage rises daily, especially for those in the area of E-learning and internet research supply (Cheng & Li, 2014).

This study intends to reduce the increasing spread of internet addictive behaviors that come with online exposure, especially among the most vulnerable population (young people) this study also intends to foster a positive relationship from its findings. This research work will be an invaluable source of literature for researchers, students, counselors, and psychologists who want to conduct research with the study variables in the future. Findings from it will help researchers suggest alternative effects of relationship quality on the link between friendship networks and internet addictive behaviors.

Hypotheses

1. Friendship networks will significantly be associated with internet addictive behaviors.
2. Relationship quality will significantly be associated with internet addictive behaviors.
3. Relationship quality will significantly mediate the relationship between friendship networks and internet addictive behaviors.

Conceptual model

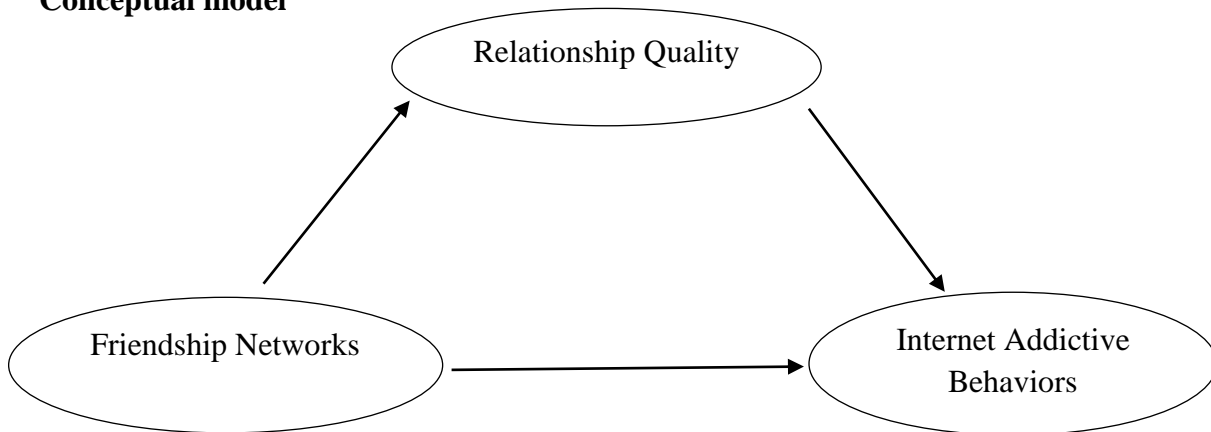


Figure 2: Conceptual model of the present study showing the mediating role of relationship quality on the associations between friendship networks and internet addictive behaviors

Method

Participants

A total of three hundred and sixty-four (364) undergraduate students drawn from Alex Ekwueme Federal University, Ndufu-Alike, participated in the study. From the sample selected, 54.7% (n = 199) were males and 45.3% (n = 165) were females. The participants were selected using a stratified random sampling method from various faculties in the institution. The average respondent age of the sample was 22.22 ($SD = 2.65$, ranging from 18 to 29 years).

Instruments

Three measures were used in this study: the Interpersonal Relationship Questionnaire, the Friendship Network Satisfaction Scale, and the Internet Addiction Scale. A demographic data questionnaire was used to obtain information about the participants' gender, age, and number of years online.

Interpersonal Relationships Questionnaire (IRQ): The participants responded to the 24-item Class D (interpersonal closeness) subscale of the Functional Idiographic Assessment Template-Questionnaire (FIAT-Q, Darrow et al., 2014). The questionnaire asked participants to rate, on a scale of 1 to 6 (where 1 = disagree strongly and 6 = agree strongly) showing the degree to which they disagree or agree with the scale items. A higher score indicates a greater level of problems in interpersonal functioning. The IRQ was subjected to a measure of internal consistency, and a Cronbach Alpha reliability coefficient of 0.80 was obtained (Darrow et al., 2014). Thus, the reliability coefficient of the IRQ in this study is 0.67.

Friendship Network Satisfaction (FNS): The participants responded to the 14-item Kaufman et al. (2021) FNS scale. Items in this scale were phrased in the form of statements and respondents were asked to rate their agreement with each on a 6-point scale from 0 (Not all Agree) to 5 (Completely Agree). The exploratory model resulted in a Closeness factor (8 items with loadings from .72 to .87) and a Socializing factor (6 items with loadings from .64 to .91). The two factors correlated at .77, explaining 72% of the common variance among the items. The coefficient alpha for these 14 items is .96 (Kaufman et al., 2021). Thus, the reliability coefficient of the FNS in this study is 0.91.

Internet Addiction Test (IAT): The Internet Addiction Test of Young (1998) aims at measuring the severity of compulsive internet use among individuals. This is a self-report test consisting of 20 items, including questions about how their internet use impacts their daily functioning and to what extent. The respondent usually chooses from a continuum of 6-point Likert scale of 0 (not applicable) to 5 (always). The test scores range from 0 to 100, with a higher score indicating greater Internet dependence. The IAT was subjected to measures of internal consistency in a Nigerian sample. From the result, the reliability coefficients obtained from Cronbach Alpha, Split-half, and Spearman-Brown are 0.852, 0.743, and 0.813 respectively (Omoyemiju & Popoola, 2020). Thus, the reliability coefficient of the IAT in this study is 0.86.

Procedure

The researchers introduced themselves to the participants in their different faculties to seek their permission to fill out the questionnaires. Those who gave their consent were given the questionnaires to fill out and return to the researchers. The researchers explained the nature of the study to the participants and what they were required to do.

Participants were informed that they were free to withdraw at any stage of the study, without any prejudice, and that their personal information would remain confidential. They were also encouraged to answer the questions as honestly as possible. The researcher encouraged participants to respond to all the items to obtain complete data.

In total, three hundred and eighty (380) copies of the questionnaire containing the three instruments were distributed to the students and three hundred and sixty-four (364) were properly completed and returned to the researchers and subsequently used for analysis.

Design/Statistics

The cross-sectional survey design was adopted. Pearson's correlation (r) analysis was conducted among the study variables while Hayes' PROCESS macro for SPSS was used to test the study's hypotheses. Pearson's correlation analysis was used to examine the relationship between the demographic factors and major factors (friendship networks, relationship quality, and internet addictive behaviors).

Model 4 of the Hayes (2018) PROCESS macro was used to explore the indirect effect of relationship quality on internet addictive behavior through friendship networks. The Hayes process macro is a bootstrapping statistical computer tool that may be used to investigate the impact of one or more mediating or moderating variables on the associations between the independent and dependent variables (Abu-Bader & Jones, 2021).

Results

The results of the findings of this study are presented here. The correlations of the demographic variables and main variables of the study are shown in Table 1, while findings of the Hayes PROCESS macro for hypotheses testing were presented in Table 2.

Table 1: Correlations of demographic variables, and study variables

Variables	M	SD	1	2	3	4	5	6
1 Gender	1.45	.50	-					
2 Age	22.22	2.63	-.34**	-				
3 Years Online	8.81	3.99	-.31**	.35**	-			
4 Friendship Networks	42.93	13.09	-.34**	.15*	.09	-		
5 Relationship Quality	73.75	12.45	.24**	-.21**	-.15*	-.33**	-	
6 IAB	44.38	15.54	.17**	-.05	.12*	.07	.31**	-

*Note: IAB = Internet Addictive Behaviors; * $p < .05$; ** $p < .001$. Gender was coded as: 1 = male, 2 = female*

In Table 1, males were older in age ($r = -.34, p < .001$), had more number of years online ($r = -.31, p < .001$), and had higher friendship networks ($r = -.34, p < .001$); while, females had higher relationship quality ($r = .24, p < .001$), and had higher level of internet addictive behaviors ($r = .17, p < .001$). Age was positively associated with higher number of years online ($r = .35, p < .001$), positively associated with higher friendship networks ($r = .15, p < .05$), and negatively associated with higher relationship quality ($r = -.18, p < .001$). Number of years online was negatively associated with higher relationship quality ($r = -.15, p < .05$), and positively associated with higher level of internet addictive behaviors ($r = .12, p < .05$). Friendship networks was negatively associated with higher relationship quality ($r = -.33, p < .001$), but, did not associate with internet addictive behaviors. Finally, relationship quality was positively associated with higher level of internet addictive behaviors ($r = .31, p < .001$).

Table 2: Mediating role of relationship quality on the associations between friendship networks and internet addictive behaviors

Variables	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% <i>CI</i>	<i>R</i> ²	<i>F</i>
Friendship Networks (FN)	.23	.06	3.70	.000	[.11, .35]	.13	27.40 (2, 261)**
Relationship Quality (RQ)	.47	.06	7.27	.000	[.34, .60]		
FN→RQ→IAB	-.12	.03			[-.18, -.07]		

Note: B = Regression coefficients; SE = Standard Error; t = Population t value; p = Probability level; CI = Upper & Lower Confidence Interval; IAB = Internet Addictive Behaviours

In Table 2 of the mediation model, friendship networks positively and significantly predicted internet addictive behaviors ($B = .23$, $p < .001$), indicating that for every unit rise in friendship networks, internet addictive behaviors increases by .23. Relationship quality also positively and significantly predicted internet addictive behaviors ($B = .47$, $p < .001$), indicating that for every one unit rise in relationship quality, internet addictive behaviors increases by .47. The R^2 showed that the predictors accounted for 13% of the variance in internet addictive behaviors, and the F statistics were significant, $F(2, 261) = 27.40$, $p < .001$.

The table further showed that relationship quality significantly mediated the associations between friendship networks and internet addictive behaviors, as the 95% bias-corrected bootstrap CI did not contain zero when the indirect effect of friendship networks on internet addictive behaviors via relationship quality was tested ($B = -.12$; 95% $CI = -.18, -.07$).

Discussion

Friendship network is continuous and wide-ranged when it comes to online friendship because the internet has given more than half of the world access to people on opposite sides of the globe. Jeong et al. (2016) state that entertaining content such as video, music, social networks, and games can cause addiction regardless of the media type. In this context let us state that the occurrence of Internet addiction is gender bound. From the result of this study, the male participants were older and they equally had a higher number of years of online interface because of use.

Consequently, the higher number of internet exposure years due to use may result in a higher friendship network than the female. Boys tend to have larger friendship networks oriented around common activities (e.g., sports), whereas girls have smaller networks with one or a few best friends (Benenson, 1990). This gave rise to spending more time with a few circles of friends. The result also shows that female participants have a higher relationship quality than males. Girls are more likely than boys to characterize friendships as having high intimacy, emotional involvement, and confidentiality (Waldrop & Halverson, 1975). Because of the female's high level of relationship quality due to intimacy or emotional involvement and constancy of interactions, there is a higher level of internet addictive behaviors associated with them or found in their gender.

Age in both genders is highly related to the number of years spent online and higher friendship networks in males, but age is incongruent or inconsistent with relationship quality in both gender. The number of years online for both gender is incongruent or inconsistent with relationship quality. That is; there is little or no influence of participants' number of years online on achieving or improving the quality of relationships. The number of years online rather increases the chances of internet addiction and the manifestation of other internet addictive behavior. For instance, having been exposed to social media involves chatting with strangers with whom you can express yourself without holding back because of the distance. The desire to be that free, especially when you are an introverted person, will spurn continuity and desire compulsive involvements until other aspects of the internet are better understood by the individual. The probability of a similar desire to rule an unexplored area of the internet is very high.

Internet programs and activities provide young people with new dimensions of social activities. Not only can youths initiate and maintain relationships with individuals they encounter only online but they also can use Internet features such as social networking sites or instant messaging to arrange or supplement face-to-face interactions with offline associates. Concerns that the Internet might be an inherently unhealthy venue for social interactions have subsided, but investigators have noted that some adolescents and emerging adults are so preoccupied with Internet activities that they show signs of addiction to these activities (Griffiths et al., 2004; Smahel et al., 2009; Tsai & Lin, 2003). From the findings, friendship networks have a low or an incongruent relationship/association with higher relationship quality. From the above results on a demographic variable over the mediator, we

found that age has less effect or cannot influence relationship quality. A friendship network according to the study does not or has no association with the improvement or increase of relationship quality, and a friendship network also has no relationship with internet addictive behaviors.

The quality of the relationship (negative/positive) can cause or result in internet addictive behaviors. Both the positive and adverse effects of online interpersonal relationships can have different effects on an individual according to who they establish the relationship with (Kwon et al., 2013). This means that the quality of relationship one has is what can affect or result in a certain behavioral pattern, but in this case, our evaluation is based on internet addictive behavioral patterns through friendship networks. Though, beyond the online category of friendship networks, the face-to-face friendship network quality can also affect or result in internet addiction and other internet-related addictive behaviors. When the purpose of the relationship is toxic, the online activities, the perceived depth of connection, and the details of the activities may change negatively depending on how often the individual interacts with and contacts the other party who has a toxic purpose (Hsu et al., 2011).

Moreover, friendship network has a positive significant relationship with internet addictive behaviors as a result of the role played by relationship quality, but with a lesser correlation compared to the positive and significant association between relationship quality as a mediator to internet addictive behaviors. We can better state that relationship quality successfully mediated the association between friendship networks and internet addictive behaviors.

The implication of the study

An analysis of the association between friendship networks and internet addiction: the influence of relationship quality, is very important in our contemporary society. We observed that every increase in the compulsive use of the internet has negative effects on human real-life relationships at large. So, this research work is expected to increase the awareness of people on the increasing negative effect of compulsive internet and how friendship network indirectly influences internet addictive behavior through relationship quality. To preserve the quality and reality of the human relationship (friendship) and life continuity.

Findings have shown that 39% of the world population are exposed to internet use, while 6% are compulsive users and the percentage rises daily, especially for those in the area of E-

learning, internet research, and young internet users (Cheng & Li, 2014). Therefore, this study implies that a higher quality of relationship in the network of the friendship of undergraduates can and will positively influence internet addictive behaviors, thereby turning down the rate of internet addiction. This research study also intends to foster a positive relationship from its findings.

This research work will be an invaluable source of literature for researchers, students, counselors, and psychologists who want to study the influence of relationship quality on friendship networks and internet addictive behaviors.

Conclusion

Based on the findings of this study, the researchers concluded that friendship quality can moderate the association between friendship networks and internet addictive behaviors. Friendship network was not significantly and directly associated with internet addictive behaviors but, was indirectly and significantly associated with internet addictive behaviors as a result of the mediating influence of relationship quality.

References

- Abu-Bader, S. & Jones, T. V. (2021). Statistical mediation analysis using the Sobel Test and Hayes SPSS Process Macro. *International Journal of Quantitative and Qualitative Research Methods*, 9(1), 42–61. Available at SSRN: <https://ssrn.com/abstract=3799204>.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Author. <https://doi.org/10.1176/appi.books.9780890425596>
- Beard, K. W. (2005). Internet addiction: a review of current assessment techniques and potential assessment questions. *Cyberpsychology and Behavior*, 8(1), 7–14.
- Benenson, J. F. (1990). Gender differences in social networks. *Journal of Early Adolescence*, 10, 472–495.
- Brown, B. B., & Larson, J. (2009). Peer relationships in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology (3rd ed.)*, 74–103). New York, NY: Wiley. doi:10.1002/9780470479193.adlpsy.002004
- Cheng, C., & Li, A. Y. (2014). Internet Addiction Prevalence and Quality of (Real) Life: A Meta-Analysis of 31 Nations Across Seven World Regions. *Cyberpsychology, Behavior and Social Networking*, 17(12), 755-760.
- Chou, W. P., Ko, C. H., Kaufman, E. A., Crowell, S. E., Hsiao, R. C., Wang, P. W., Lin, J. J. & Yen, C. F. (2015). Association of stress coping strategies with Internet addiction in

- college students: The moderating effect of depression. *Comprehensive Psychiatry*, 62, 27–33. <https://dx.doi.org/10.1016/j.comppsy.2015.06.004>.
- Darrow, S. M., Callaghan, G. C., Bonow, J. T., & Follette, W. C. (2014). The Functional Idiographic Assessment Template-Questionnaire (FIAT-Q): Initial Psychometric Properties. *Journal of Contextual Behavior Science*, 3(2), 124–135. doi:10.1016/j.jcbs.2014.02.002.
- Demircioğlu, Z. I., & Köse, A. G. (2021). Effects of attachment styles, dark triad, rejection sensitivity, and relationship satisfaction on social media addiction: A mediated model. *Current Psychology*, 40, 414–428. <https://doi.org/10.1007/s12144-018-9956-x>.
- Glaser, P., Liu, J. H., Hakim, M. A., Vilar, R., & Zhang, R. (2018). Is social media use for networking positive or negative? Offline social capital and internet addiction as mediators for the relationship between social media use and mental health. *New Zealand Journal of Psychology*, 47(3), 12–18.
- Griffiths, M., Davies, M. N. O., & Chappell, D. (2004). Online computer gaming: A comparison of adolescent and adult gamers. *Journal of Adolescence*, 27, 87–96. doi:10.1016/j.adolescence.2003.10.007
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis. A regression-based approach (2nd ed.)*. The Guilford Press.
- Hsu, C. W., Wang, C. C., & Tai, Y. T. (2011). The closer the relationship, the more the interaction on Facebook? Investigating the case of Taiwan users. *Cyberpsychology, Behavior, and Social Networking*, 14(7–8), 473–476. <https://doi.org/10.1089/cyber.2010.0267>.
- Jeong, S. H., Hyoungje, K., JungYoon, Y., & Hwang, Y. (2016) ‘What type of content are smartphone users addicted to?: SNS vs. Games’, *Computers in Human Behavior*, 54, 1017. <http://dx.doi.org/10.1016/j.chb.2015.07.035>
- Jung, S. M., & Baek, H. G. (2008). Exploratory and confirmatory factor analysis for developing a good secondary school scale based on the factors of effective schooling. *Journal of Digital Convergence*, 6(2), 41–53.
- Kaufman, V. A., Perez, J. C. Reise, S. P., Bradbury, T. N., & Karney, B. R. (2021). Friendship Network Satisfaction: A multifaceted construct scored as a unidimensional scale. *Journal of Social and Personal Relationships*, 1–22. doi:10.1177/02654075211025639.
- Kwon, J. H., Yook, S. A., Woo, S. B., & Cho, H. (2013). The effect of offline and online interpersonal relationships on social capital and subjective wellbeing. *Journal of Cybercommunication Academic Society*, 30(2), 5–32.
- Lee, G., Lee, J., & Kwon, S. (2011). Use of social networking sites and subjective well-being: A study in South Korea. *Cyberpsychology, Behavior, and Social Networking*, 14(3), 151–155. <https://doi.org/10.1089/cyber.2009.0382>.
- Leung, L. (2002). Loneliness, self-disclosure, and ICQ (I seek you) use. *CyberPsychology & Behavior*, 5(3), 241–251

- Masters, K. (2015). Social networking addiction among health sciences students in Oman. *Sultan Qaboos University Medical Journal*, 15(3), 357–363.
- Omoyemiju, M. A. & Popoola, B. I. (2021). Prevalence of internet addiction among university students in Nigeria. *British Journal of Guidance & Counselling*, 49(1), 132–139. doi:10.1080/03069885.2020.1729339.
- Pollet, T. V., Roberts, S. G., & Dunbar, R. I. (2011). Use of social network sites and instant messaging does not lead to increased offline social network size, or to emotionally closer relationships with offline network members. *Cyberpsychology, Behavior, and Social Networking*, 14(4), 253–258.
- Roser, M., Ritchie, H., & Ortiz-Ospina, E. (2020). *Internet*. Retrieved May 12, 2020, from <https://ourworldindata.org/internet>.
- Samantray, S. (2017). Internet addiction and relationships: the psychology behind it. *MOJ Addiction Medicine & Therapy*, 3(1), 11-13. DOI: 10.15406/mojamt.2017.03.00024.
- Seo, B. K., & Seong, M. H. (2020). Effects of perceived stress of university students on internet gaming disorder and lifestyle: Focusing on mediating effects of social supports. *The Journal of the Korea Contents Association*, 20(7), 653–664. <https://doi.org/10.5392/JKCA.2020.20.07.653>.
- Smahel, D. (2003). Komunikace adolescentu` v prostr`edi` internetu [Adolescents communication in Internet environment]. *Československá Psychologie*, 47, 144–156.
- Smahel, D., Blinka, L., & Ledabyl, O. (2008). Playing MMORPGs: Connections between addiction and identifying with a character. *CyberPsychology & Behavior*, 11, 715–718. doi:10.1089/cpb.2007.0210
- Smahel, D., Brown, B. B., & Blinka, L. (2012). Associations between online friendship and internet addiction among adolescents and emerging adults. *Developmental Psychology*, 48(2), 381–388.
- Smahel, D., Sevcikova, A., Blinka, L., & Vesela, M. (2009). Abha`ngigkeit und Internet-Applikationen: Spiele, Kommunikation und Sex-Webseiten [Addiction and Internet applications: Games, communication and sex web sites]. In B. U. Stetina & I. Kryspin-Exner (Eds.), *Gesundheit (spsychologie) und neue Medien* (pp. 544–582). Berlin, Germany: Springer. Doi:10.1007/978-3-211-72015-8_11
- Subrahmanyam, K., & Greenfield, P. M. (2008). Online communication and adolescent relationships. *The Future of Children*, 18, 119–146. doi:10.1353/foc.0.0006.
- Subrahmanyam, K., & Smahel, D. (2011). *Digital youth: The role of media in development*. New York, NY: Springer.
- Tsai, C.-C., & Lin, S. S. J. (2003). Internet addiction of adolescents in Taiwan: An interview study. *CyberPsychology & Behavior*, 6, 649–652. doi:10.1089/109493103322725432.
- Turel, O., & Serenko, A. (2010). Is mobile email addiction overlooked? *Communications of the ACM*, 53(5), 41–43.
- Waldrop, M. F., & Halverson, C. F. (1975), Intensive and extensive peer behavior: Longitudinal and cross-sectional analyses. *Child Development*, 46, 19–26.

Young, K. S. (1998). Internet addiction: The emergence of a new clinical disorder. *CyberPsychology and Behavior*, 1, 237–244. doi:10.1089/cpb.1998.1.237.

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