

Antecedents and Preventions of Problematic Internet Use: A Systematic Literature Review

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Abstract: The aim of this systematic literature review is to map the investigation in the subject of Problematic Internet Use (PIU) focuses on Evidences as well as Global Lessons. Further, this particular analysis endeavours to review the substantial facts and lessons used in PIU research and to estimate the severity of problems that persist when an individual uses the internet excessively. This review was guided and consistently compiled using PRISMA which is considered a rigorous method for conducting a literature review. Furthermore, the technique has a number of distinct unique advantages. Besides that, the authors have started the process by providing the full text of all related articles from the search engine. All articles next will be reviewed after full-text reading to ensure the suitability of focus literature. The initial search yielded 307 results. Following a thorough inspection of the articles' titles and abstracts, the articles that did not meet the inclusion criteria were excluded. In a total of 62 studies, trends in the study of all age levels as well as children, adolescent/emergent and adult PIU were discovered. These trends were conceptualized into specific, activity-related and contextual elements. Findings suggested that sociodemographic and psychosocial factors are actually likely the most explored that have demonstrated considerable relationships with PIU. While, more research focuses on activity-related factors are required in order to accomplish a clearer in terms of understanding the PIU behaviours and to incorporate into an extensive model which will guide future research in this growing industry.

1 INTRODUCTION

The usage of the Internet has grown dramatically over the last several decades and has become an important aspect of daily life by offering worldwide connectivity, access to information, and entertainment opportunities (Tomczyk & Solecki, 2019). The rapid advances in technological improvement and the global growth of the internet has significantly enhanced the quality of the majority of people all over the world.

The internet has broken through all borders across the world and has become an essential source of information and pleasure for individuals (Cacioppo, Barni, Correale, Mangialavori, Danioni, & Gori, 2019). Starting from emails, social networks, instant messaging, blogs and message boards has removed the barriers between public and anonymous to communicate about any topics (Randall, 2018). As to date, the collection of various resources and services

in the internet has successfully become the most powerful tool for all human beings that can bring millions users in a single room (Gansner, Belfort, Cook, Leahy, Colon-Perez, Mirza & Carson, 2019).

However, the rapid use of Internet technology has skyrocketed and currently affected many human's lives specifically those users who have a flimsy line between online and the actual world's interaction due to addictive reasons. This may exert many detrimental effects on their personal lives and surroundings (Ke & Wong, 2018). The presence of Problematic Internet use (PIU) has drawn attention since the early of 90's among public until professionals and has led to research relating to clinical cases that present negative behaviour (Randall, 2018).

The literature related to the concept of PIU has begun to accumulate since the majority countries in this world have started to issue a seriousness of PIU when the growth rate of PIU kept growing hundreds percent every single year. Though, many researchers

have defined the problems related to internet usage as an addiction, however some researchers do not believe the term 'addiction' appropriate to be use as the term is actually for physiological dependence which relates to stimulus such as substance (Tomczyk & Solecki, 2019; Laconi, Kaliszewska-Czeremska, Gnisci, Sergi, Barke, Jeromin, & Király, 2018).

Multiple terms exist in individual with excessive internet usage including Problematic Internet Use (Caplan, 2007), Pathological Internet Use (Davis, 2001), Internet Dependency (Scherer, 1997) and Internet Addiction (Young, 1996). Although there is a consensus among researchers that the 'PIU' phenomenon exists, there is no unified definition accepted by all researchers in the field. Before the existence of the term 'Problematic Internet Use', back to decades ago the term 'Pathological Internet Use' was more popular among researchers when the meaning behind the word was 'dependence in relation to the internet' (Sarchiapone & Wasserman, 2016).

Furthermore, the meaning also consists of two types: specific and generalized. 'Specific' refers to specific dependency, such as gaming or gambling (online) (Zhang & Bian, 2020). In other words, it was referring to a content-dependency, such as misuse of the internet in specific internet content (Tam, 2016). The dependency would still exist even though in the absence of the internet. Meanwhile, for 'generalized' dependency, it is described as online without clear purposes or in other meaning is 'wasting time' by using the internet specifically for social functions (Davis, 2001).

The same researchers have figured out the symptoms includes (1) obsessive thought towards internet, inability to decrease the dependency to the internet, diminished the impulse control, overly anticipating future online use, sense of guilt during online use, less time spent of offline activities and feeling internet is an only individual's friend (Zhang & Bian, 2020). Caplan (2002), second this by his assertion, explained the term 'addiction' should not be associated with the internet by suggesting a new term 'Problematic Internet Use (PIU)'.

Broadly speaking, PIU is often characterised as uncontrollable on a habit, substance or procrastinate that causes severe emotional, physiological and psychological reactions (Laconi, Kaliszewska, Gnisci, Sergi, Barke, Jeromin & Kiraly, 2018). The words were initially developed by Beard and Wolf (2001), who determined that the term 'problematic' is the most acceptable for usage since it has less theoretical inconsistencies than other terminologies. On the one hand, PIU can be accurately defined as a multifaceted illness characterised by cognitive and

behavioural symptoms that manifest as academic, social, or professional difficulties (Caplan, 2002).

Following Davis (2001)'s work, Caplan (2018) added the symptoms of PIU with mood alteration, perceived social control when communicating or interacting online instead of face-to-face and becoming compulsive-excessive use of the internet. Based on his own definition of PIU, Caplan (2018) has developed a measurement to access PIU that called as 'General Problematic Internet Use Scale (GPIUS)'. Following this, an individual who has potential high level of PIU might experience at least three of the symptoms including large numbers of usage during internet online, lack of control, has a negative consequences, always become procrastinate and lastly had negative consequences and continuation (Rial, Golpe, Isorna, Brana, & Gomez, 2018). Thus, this study aims to explore the antecedents and preventions of problematic internet use.

2 MATERIALS AND METHODS

A literature review is an essential process in academic research that identifies and enriches prior knowledge, which then updates as well as improves the knowledge of existing research. Therefore, this review was guided and consistently complied with the PRISMA procedure (refer Figure 1), which is considered as a rigorous method to conduct a literature review. Furthermore, the procedure offers several unique advantages. Firstly, it guides researchers in clearly defining research questions and directs researchers to identify the inclusion and exclusion criteria for literature. The procedure also provides guidelines for researchers to accurately determine substantial databases within a reasonable timeframe (Moher et al., 2016).

2.1 Search Strategy

Between May and July 2020, a literature search was conducted using (4) electronic databases; Psych-Article, Web of Science, Scopus and PubMed. All the databases are more comprehensive than other commonly used databases because it includes various multidisciplinary databases. Series of search strings was used by combining the following search terms (and their derivatives): 'Problematic Internet Use', 'Internet overuse', 'Addicted of Internet', 'Excessive internet use', 'Internet Addiction', 'Compulsive Internet use', 'Pathological Internet use' and 'Internet disorder'. Studies were selected based on the following inclusion criteria.

2.2 Search Process

The author has started the process by providing the full text of all related articles from the search engine. All articles next will be reviewed after full-text reading to ensure the suitability of focus literature. The initial search yielded 307 results. Following a thorough inspection of the articles' titles and abstracts, the articles that did not meet the inclusion criteria were excluded. The process of review is presented in Figure 1. Additional articles were identified through searching the citations in the literature selected, resulting in the inclusion of another nine studies.

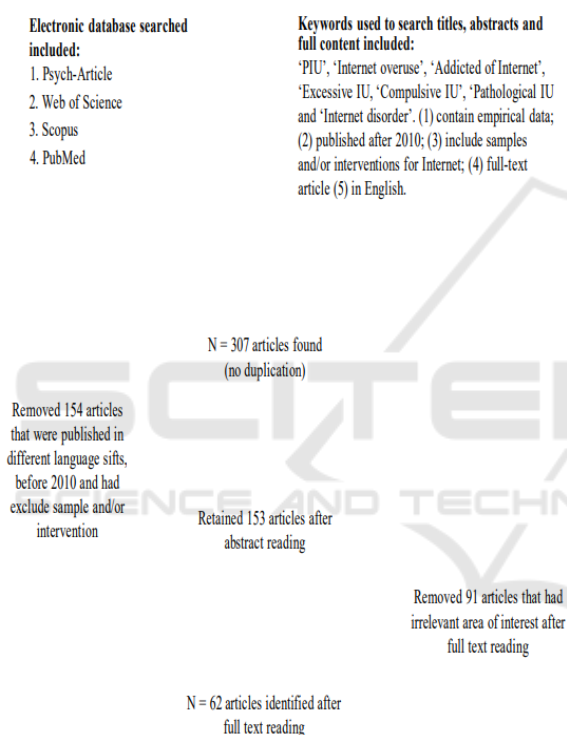


Figure 1: The Flow Diagram of The Study.

2.3 Inclusion and Exclusion Criteria

The current literature review that has the author included which: had to (1) relating to problematic internet use with contain of empirical data; (2) have been published after 2010; (3) include samples and/or interventions for Internet; (4) were published in peer-reviewed journals that focuses on social science (5) presented in full-text article; and (6) be published in English, as the present authors speak these language. The characteristics and basic information about the studies included in the review can be found in

3 RESULTS

3.1 Factors Associated with Problematic Internet Use

The Internet is seen as a technological marvel that facilitates the individual development especially towards children and adolescents, including the access to knowledge, study, problem-solving, innovation and critical thinking. The use of internet is usually something natural that everyone does in daily life, however the Internet has been shown to have a detrimental effect on the creation of personal skills due to unnecessary, unregulated and non-purposeful use. Tendencies to become over user towards internet have been studied in the past literature and the result comes out as it definitely has an impact on people's lives. Present studies interested in explanations why the internet can become problematic to use.

3.1.1 Sociodemographic Variable

Out of 28 studies related to sociodemographic variable has been fully reviewed, it is reported the level of family income (3), gender (5), living in urban and/or rural areas (4), age (12), family conflict (2) and financial difficulties (2) has reported to be associated with PIU. From our review, *gender* and *age* are the most commonly used variables which the results differ from one study to another. For example, studies by Liu et. al. (2013) found that girls in adolescent's age are more likely to have high levels of PIU than boys. these statements are supported by studies from western countries which express similar results (Randall, T. C., 2018; Kircaburun, K., & Griffiths, M. D., 2018).

However, new data indicated that both genders have a possibility of having a high level of PIU, although prior adult study revealed that boys are more likely to have a high degree of addiction (Ioannidis et. al., 2019; Wartberg, L., & Lindenberg, K., 2020). In terms of family conflict, evidence has indicated that children or adolescents who originate from broken families have a highly significant internet exposure that leads to PIU. The results clearly demonstrate that parents have a significant role in their children's lives, and those involved in family conflict have a higher risk of receiving PIU than those involved in non-family conflict. Aside from that, another intriguing result indicated that those who live in cities are more likely to be addicted than those who live in rural areas (Machimbarrena et. al., 2019). This is because certain counties have had the biggest economic downturns, causing them to become the least connected

countries. Furthermore, the presence of hurdles such as the fact that they cannot afford to have internet connection and that people are unaware of it, is the major reason why the number of individuals with high PIU in rural areas does not exceed the number of people with high PIU in urban areas.

3.1.2 Internet Use Exposure

Out of 21 studies related to Internet use exposure focusing on group age has been fully reviewed, 13 studies were found to be correlated with PIU in all age groups. Behind their high PIU levels there are many reasons. Studies have found that people with high PIU use the Internet as a tool of entertainment, online gaming and social life. With better internet coverage, the use would increase silently (Kircaburun, & Griffiths, 2018). For children, studies have shown that parents are the biggest influencer towards children's PIU and tend to be the first person introduce digital technologies to them. Even though they influence their children the most, many parents are still uncertain about how much their children have been in access with the internet daily due to lack of monitoring and lack of concern. This resulted in the inability of children with PIU to control and regulate the internet connection behaviour. Hence, it is not surprising when children become overused to this virtual world more easily when parents are not given close attention and monitor them deeply.

3.1.3 Psychosocial Factors

Out of 13 studies related to psychosocial factors that have been fully reviewed, 10 studies found that users with a high level of PIU have established a substantial interaction with psychosocial factors. As a result, internet users who report low life satisfaction, negative outcomes, a lack of trust and a lack of social support have a significant likelihood of being statistically associated with PIU and resulting in severe repercussions. The adverse effects between PIU are repression, family problems, and poor employee productivity. The severe effects of PIU are correlated not only with the quality of life and family institutions, but also with issues of health such as serious soleness and depression. The psychological dependency can begin to manifest various symptoms.

In another empirical study, the researcher identified people under serious PIU were started to neglect certain actual life responsibilities, to neglect daily tasks, to interrupt parental-child relations and began to avoid activities in everyday life. For instance, this claim can be contended by researchers in Southeast Asia who indicate that the group with

high PIU displayed higher levels of procrastination compared to people who are not under the group. As a result, preventative measures must be taken promptly to avoid the situation becoming further out of control.

3.2 Prevention of Problematic Internet Use

PIU has sent an alarming red alert to the majority of the world's countries and has taught many countries after the majority of PIU-related research showed substantial findings. According to the present research review, most studies have recommended several strategies for policymakers and governments to guarantee that the number of internet users with high PIU does not reach pandemic proportions.

3.2.1 Monitoring & Supervise

Out of 62 research that were thoroughly evaluated, 36 studies advised that the government, universities and parents take a proactive approach to preventing the PIU from becoming a severe pandemic. Researchers have revealed that earlier intervention required less time and effort needed. In other words, it is easier to promote and deal with someone who has a low level of PIU and are less influenced. There are particular difficulties for those who are already heavily addicted and unable to retain control over their minds and bodies (Gomez, Harris, Barreiro, Isorna, & Rial, 2018). According to the findings from researchers in China, each age group which includes children, adolescents, and adults has its own unique method of addressing the target audience. For example, children who have been diagnosed with a high PIU must be handled on an individual basis (Zhai, Li, Jia, Liu, Sun, & Wang, 2019). Direct eye contact and face-to-face communication are required.

Adults with high PIU, on the other hand need to be approached in a group or team. To keep the problems from worsening, every country should start by collaborating with professionals who are qualified to train people, such as delivering health information to the potential high level PIU. It is more sustainable and empowers everyone to care for their own bodies and situations (Kojima, Sato, Akiyama, Shinohara, Mizorogi, Suzuki, & Yamagata, 2019).

3.2.2 Strengthening and Developing Parenting Skills

Out of 62 research that have been fully reviewed, 12 studies proposed by providing free learning packages

to all parents or potential parents in order to provide an in-depth understanding of the role of parents and how to use appropriate parenting techniques. This includes two-way communication between parent and children as well as raising the children's self-esteem (Ioannidis, Hook, Goudriaan, Vlies, Fineberg, Grant, & Chamberlain, 2019).

Furthermore, research has shown that children who are subjected to tight parenting have a lower risk of developing PIU than children who are subjected to a non-strict parenting style. When explicit rules are established, children have a lower risk to develop PIU (Kircaburun & Griffiths, 2018). Other study, to date and emphasise has revealed a similar outcome on this subject. The study found that regardless of the difficulties that bind their children, parents play an essential role. This is because parents have a responsibility to train their children. If the parent has a strong relationship to their children and knows the appropriate role to portray in front of them, it will decrease the children's dangerous internet exposure (Randall, 2018).

3.2.3 Increasing Community Understanding with Fully Information Campaign

Out of 62 studies that have been fully reviewed, 6 studies suggested to sensitising and informing Government officials as well as community chiefs regarding the PIU by doing workshops as well as, ultimately, to legitimise the prevention programme. This is because current analysis reported that someone with PIU is usually addicted to surfing the web (not related to office work) throughout the business hours.

3.2.4 To Raise Awareness among Community

Out of 62 studies that have been fully reviewed, 5 studies suggested distribution of banners, pamphlets, stickers and leaflets on the nature as well as scope of the PIU by publishing of those in strategic locations across the town. A community wide regarding the seriousness of this 'drug' info campaign through talks and campaigns including several community groups (e.g. students), school teachers, religious groups, youth, and parents and in facilities.

3.2.5 Strengthening Parenting Abilities

Out of 62 studies that have been fully reviewed, 3 studies suggested developing learning packages for parenting education. This includes the coming things/topics as well as skill development: the nature,

extent and scope of the PIU. The parents' roles as prevention and great parenting education to understand the child even better and interaction in the family by increasing the discipline.

4 FINDINGS

To date, a total 62 studies have met the inclusion criteria. The majority of studies investigated the relationship between Problematic Internet Use and Social Demographic factors; however, other important factors such as Internal Exposure and Psychosocial on PIU were also included. Research from East Asia has been well represented the PIU in terms of demographics, with most studies from China, Hong Kong, and India. While for Western countries most studies related to PIU comes from Germany, Italy and Russia. The prevalence of generalised PIU ranged from 12.3 to 67.8 percent. The other findings have also shown that PIU can increase a range of risk factors including anxiety, mood disorders, suicidal inclinations, impulsivity, and aggression. More study is needed to see if the intervention strategies have an effect.

5 DISCUSSION

In the current modern century, Internet is 'no more' referring to what we do, however now people around the world started to have strong bond that relate to one another. Just like recently, the internet has drawn attention people around the world when many online networks started to shoot up an unprecedented number of virtual online 'audiences' due to the pandemic situation, Coronavirus 19 (Covid-19). These phenomena prove that modern technology has made people 'connect' their life into the virtual world easily no matter where they live. Based on the study view, the author highlighted that no standard diagnosis and criteria exists. Most of the previous studies revealed the effects of the internet on human cognitive ability. The impact of the internet on the human brain based on minor studies by previous researchers has shown that it can both improve certain cognitive abilities such as memory and learning, however major studies revealed that it can be detrimental and cause structural brain changes (Zhai, B., Li, D., Jia, J., Liu, Y., Sun, W., & Wang, Y., 2019). A recent meta-analysis of cognitive performance among people with high problematic internet usage found that this disorder was associated

with major cognitive deficits in executive control, concentration, motor inhibition, decision making, and executive function (Ioannidis, 2019).

In addition, PIU has possible effects on various interrelated features of cognition, namely memory, critical thought, metacognitive judgement, discovery (curiosity), and reading (Kircaburun, K., & Griffiths, M. D., 2018). As a result of this disparity in the population, people have become even more shallow thinkers (Ke, G. N., & Wong, S. F., 2018). This systematic review was aimed to track and analyze the topics related with Problematic Internet Use globally. The results highlighted the factors influencing the level of PIU and lessons globally based on journal review for 10 years of studies.

6 CONCLUSIONS

Overall, this paper has outlined factors of associated PIU, global lessons and potential strategy in combating PIU based on empirical literature of studies after 2010. The author also concludes that different group age of PIU have different approaches. To date, the diagnostic criteria to identify potential PIU disorders used are not yet globally agreed upon. Researchers are welcome to collaborate in future studies in order to develop better efficient and effective treatment approaches especially for those who started to have PIU symptoms. In this case, future studies will help to contribute to many people, especially policy makers and to healthcare. Ultimately, intervention and prevention policies could minimize all negative repercussions.

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CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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.
- Balhora, Y. P. S., Doric, A., Stevanovic, D., Knez, R., Singh, S., Chowdhury, M. R. R., & Arya, S. (2019). Correlates of Problematic Internet Use among college and university students in eight countries: An international cross-sectional study. *Asian Journal of Psychiatry*, 45, 113-120.
- Beard, K. W., & Wolf, E. M. (2001). Modification in the proposed diagnostic criteria for Internet addiction. *Cyberpsychology & behavior*, 4(3), 377-383.
- Caplan, S. E. (2002). Problematic Internet use and psychosocial well-being: development of a theory-based cognitive-behavioral measurement instrument. *Computers in human behavior*, 18(5), 553-575.
- Caplan, S. E. (2018). *The changing face of problematic internet use: An interpersonal approach*. Peter Lang International Academic Publishers.
- Cacioppo, M., Barni, D., Correale, C., Mangialavori, S., Danioni, F., & Gori, A. (2019). 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.
- Chang, S. M., & Lin, S. S. (2019). Online gaming motive profiles in late adolescence and the related longitudinal development of stress, depression, and problematic internet use. *Computers & Education*, 135, 123-137.
- Costa, R. M., Patrão, I., & Machado, M. (2019). Problematic internet use and feelings of loneliness. *International journal of psychiatry in clinical practice*, 23(2), 160-162.
- Fernandes, B., Maia, B. R., & Pontes, H. M. (2019). Internet addiction or problematic internet use? Which term should be used, *Psicologia*.
- Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in human behavior*, 17(2), 187-195.
- Gansner, M., Belfort, E., Cook, B., Leahy, C., Colon-Perez, A., Mirda, D., & Carson, N. (2019). Problematic internet use and associated high-risk behavior in an adolescent clinical sample: Results from a survey of psychiatrically hospitalized youth. *Cyberpsychology, Behavior, and Social Networking*, 22(5), 349-354.
- Gomez, P., Harris, S. K., Barreiro, C., Isorna, M., & Rial, A. (2018). Profiles of Internet use and parental involvement, and rates of online risks and problematic Internet use among Spanish adolescents. *Computers in Human Behaviour*, 75, 826-833.
- Ioannidis, K., Hook, R., Goudriaan, A. E., Vlies, S., Fineberg, N. A., Grant, J. E., & Chamberlain, S. R. (2019). Cognitive deficits in problematic internet use: meta-analysis of 40 studies. *The British Journal of Psychiatry*, 215(5), 639-646.

- Ke, G. N., & Wong, S. F. (2018). A healthy mind for problematic internet use. *Cyberpsychology, Behavior, and Social Networking*, 21(10), 637-645.
- Kojima, R., Sato, M., Akiyama, Y., Shinohara, R., Mizorogi, S., Suzuki, K., & Yamagata, Z. (2019). Problematic Internet use and its associations with health-related symptoms and lifestyle habits among rural Japanese adolescents. *Psychiatry and Clinical Neurosciences*, 73(1), 20-26.
- Kitazawa, M., Yoshimura, M., Murata, M., Sato-Fujimoto, Y., Hitokoto, H., Mimura, M., & Kishimoto, T. (2018). Associations between problematic Internet use and psychiatric symptoms among university students in Japan. *Psychiatry and clinical neurosciences*, 72(7), 531-539.
- Kircaburun, K., & Griffiths, M. D. (2018). The dark side of internet: Preliminary evidence for the associations of dark personality traits with specific online activities and problematic internet use. *Journal of behavioral addictions*, 7(4), 993-1003.
- Király, O., Potenza, M. N., Stein, D. J., King, D. L., Hodgins, D. C., Saunders, J. B., & Abbott, M. W. (2020). Preventing problematic internet use during the COVID-19 pandemic: Consensus guidance. *Comprehensive Psychiatry*, 152180.
- Laconi, S., Kaliszewska-Czeremska, K., Gnisci, A., Sergi, I., Barke, A., Jeromin, F., & Király, O. (2018). Cross-cultural study of Problematic Internet Use in nine European countries. *Computers in Human Behavior*, 84, 430-440.
- Lukavská, K., Vacek, J., & Gabhelík, R. (2020). The effects of parental control and warmth on problematic internet use in adolescents: A prospective cohort study. *Journal of Behavioral Addictions*.
- Machimbarrena, J. M., González-Cabrera, J., Ortega-Barón, J., Beranuy-Fargues, M., Álvarez-Bardón, A., & Tejero, B. (2019). Profiles of problematic internet use and its impact on Adolescents' health-related quality of life. *International Journal of Environmental Research and Public Health*, 16(20), 3877.
- Moher, D., Stewart, L., & Shekelle, P. (2016). Implementing PRISMA-P: recommendations for prospective authors. *Systematic Reviews*, 5(1), 1-2.
- Pasarelu, C. R., & Dobrean, A. (2018). An Investigation of Mediators for the Relationship between Parent Mental Health and Adolescent Problematic Internet Use: A Cross-Sectional Study in Romanian Adolescents. *Journal of Evidence-Based Psychotherapies*, 18(2).
- Prievara, D. K., Piko, B. F., & Luszczynska, A. (2019). Problematic internet use, social needs, and social support among youth. *International Journal of Mental Health and Addiction*, 17(4), 1008-1019.
- Randall, T. C. (2018). Predicting Problematic Internet Use in Adolescents: Its Relationship to Attachment and Parenting Behaviors (Doctoral dissertation, Alliant International University).
- Rial, A., Golpe, S., Isorna, M., Braña, T., & Gómez, P. (2018). Minors and problematic Internet use: Evidence for better prevention. *Computers in Human Behavior*, 87, 140-145.
- Sarchiapone, M., & Wasserman, C. (2016). Psychopathological factors associated with problematic alcohol and problematic Internet use in a sample of adolescents in Germany. *Psychiatry Res*. 2016, 240, 272-277.
- Scherer, K. R. (1997). The role of culture in emotion-antecedent appraisal. *Journal of personality and social psychology*, 73(5), 902.
- Schimmenti, A., Musetti, A., Costanzo, A., Terrone, G., Maganuco, N. R., Rinella, C. A., & Gervasi, A. M. (2019). The unfabulous four: Maladaptive personality functioning, insecure attachment, dissociative experiences, and problematic internet use among young adults. *International Journal of Mental Health and Addiction*, 1-15
- Tam, P. G. (2016). Problematic Internet use in youth: An outline and overview for health professionals. *Australian Clinical Psychologist*, 2(1), 802.
- Tomczyk, L., & Solecki, R. (2019). Problematic internet use and protective factors related to family and free time activities among young people. *Educational Sciences: Theory & Practice*, 19(3).
- Vargas, T., Maloney, J., Gupta, T., Damme, K. S., Kelley, N. J., & Mittal, V. A. (2019). Measuring facets of reward sensitivity, inhibition, and impulse control in individuals with problematic Internet use. *Psychiatry research*, 275, 351-358.
- Wartberg, L., & Lindenberg, K. (2020). Predictors of Spontaneous Remission of Problematic Internet Use in Adolescence: A One-Year Follow-Up Study. *International Journal of Environmental Research and Public Health*, 17(2), 448.
- Young, K. S. (1996). A case that breaks the stereotype. *Psychological reports*, 79, 899-902.
- 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.
- Zhang, M., & Bian, Y. (2020). An analysis of the brain structures underlying the link between pathological Internet use and anxiety. *Addictive Behaviors*, 112, 106632.
- Zhou, N., Cao, H., Li, X., Zhang, J., Yao, Y., Geng, X., & Fang, X. (2018). Internet addiction, problematic internet use, nonproblematic internet use among Chinese adolescents: Individual, parental, peer, and sociodemographic correlates. *Psychology of Addictive Behaviors*, 32(3), 365.