

Supplementary File

Characteristics of Included articles

No	Author / Country	Objective	Theoretical Framework	Attributes/Dimensions	Antecedents	Scale to measure DV	Study Design/ Sample	Score
1	(Vukosavljevic-Gvozden et al., 2015) Serbia	To confirm the mediating role of psychopathological symptoms between irrational beliefs and internet gaming addiction.	Cognitive-Behavioral Therapeutic Perspective.	Frequency of certain thoughts, feelings, and behaviors associated with online gaming in the last six months.	Psychopathology factors include somatization, interpersonal sensitivity, obsessive-compulsive, phobic anxiety, depression, anxiety, hostility, paranoid ideation, and psychoticism. Those factors are considered as an indirect factor of irrational beliefs and a direct factor of online game addiction.	Game Addiction Scale (GAS) (Lemmens et al., 2009). Cronbach's alpha .92.	A correlational, cross sectional study ($n = 219$) Sampling: Not Reported	Medium
2	(Müller et al., 2015) Germany, Greece, Iceland, The Netherlands, Poland, Romania, Spain	To determine the association between socio-demographic factors and psychopathological factors with internet gaming disorder among European adolescents.	Literature review	Internet gaming disorder following Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013).	Internet gaming behavior was influenced by the parent's marital status (divorce), the mother with no formal education (not the father's education and employment status), all game genres, gender, age, and country.	Assessment of Internet and Computer game Addiction—Gaming Module (AICA-S-gaming) (Woelfling et al., 2011). Cronbach's alpha .84.	A cross sectional study ($n = 12,938$) Stratified random sampling	High
3	(Billieux et al., 2015) Geneva	To identify reliable subtypes of problematic online gamers through cluster analysis.	Literature review	Internet gaming disorder by Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013).	Problematic online gamers are influenced by psychological risk factors: impulsivity, self-esteem, motives to play (feeling of achievement, making friends, relief from negative emotion, feeling of excitement, passing time).	Internet Addiction Test (Khazaal et al., 2008). Cronbach's alpha .89.	A cross sectional survey ($n = 1,057$) Sampling: Not reported	Medium
4	(Walther et al., 2012) Germany	To identify the correlations between personality factors and gambling, substance use, and computer gaming.	Literature review	Gaming addiction is nonsubstance-related addiction, focusing on specific behavior, producing short-term rewards, and impact on harmful consequences due to diminished control over the behavior.	Gaming addiction is associated with personality factors, such as social anxiety, impulsivity, ADHD, sensation seeking, extraversion, irritability/aggression, loneliness, social self-efficacy, and self-esteem. The other factors of gaming addiction include gender, socio-economic status, parental monitoring, and age.	The original 14-item Video Game Dependency Scale KFN-CSAS-II (Rehbein et al., 2010). Cronbach's alpha .90.	A cross sectional survey ($n = 2,553$) Sampling: Not reported	Medium
5	(Chen et al., 2015) Taiwan	To determine factors related to Internet addiction among elementary and junior high school students in Taiwan	Literature review	Four components of internet addiction: a loss of the sense of time or a neglect of basic drives; withdrawal behaviors; tolerant behavior, and negative repercussions.	Factors correlated with internet addiction: male, low-income family support, protective parenting, poor academic performance, autistic traits, impaired social adjustment, ADHD-related symptoms.	The Chen Internet Addiction Scale (CIAS) (Chen et al., 2003) Cronbach's alpha .90.	A questionnaire-based survey ($n = 1,153$) Sampling: Not reported	Medium
6	(Porter et al., 2010) Australia	To identify the problem of video game use and its related variables.	Literature review	Excessive use of one or more video games, which leads to preoccupation, a loss of control, and other negative psychosocial and/or physical consequences.	Easier to meet new people online. Having fewer friends in real life is a factor of video game use problems.	A 33-item video game use questionnaire (VGUQ) (Porter et al., 2010) Validity and reliability: not reported	A cross sectional survey ($n = 1,945$) Sampling: Not reported	Medium
7	(Frangos et al., 2011) Greece	To examine the correlation between Problematic Internet Use (PIU) and its related factors among university students in Greece.	Literature review	Excessive, problematic, or maladaptive internet use	Factors associated with PIU: gender, the grade of studies during the previous semester, parental family status, staying or not with parents, subscription to the Internet, and enrollment of the student in an unemployment program. Other associated factors include smoking, drinking alcohol or coffee, and taking drugs.	Self-development: Problematic Internet Use Diagnostic Test (PIUDT) with confirmatory factor analysis with a satisfactory model.	A cross sectional study ($n = 2,358$) Sampling: Not reported	Medium

8	(Smith et al., 2015) Australia	To identify video gaming hours and its related factors	Literature review	Not clearly described	Ownership of adolescents' devices, location (i.e., bedroom), and parents discussing cybersafety are associated with video game play.	7-item questionnaire "What Parents Say and Do" (WPSAD) (King et al., 2015) Cronbach's alpha .61.	A correlational study (n = 422) Sampling: Not reported	Medium
9	(Toker & Baturay, 2016) Turkey	To identify antecedents and consequences of game addiction	Literature review	The activity cannot be described as addiction of there is no negative consequence in the gamer's life, although the gamer is playing 14 hours a day.	The antecedents of game addiction are socioeconomic status, mother's employment, mother's educational level smoking, computer-ownership, gender, online and computer gaming.	Yes/No type questionnaire game addiction (Çakır et al., 2011) Cronbach's alpha .85.	A correlational study (n = 159) Sampling: Not reported	Medium
10	(Tsitsika et al., 2014) Greece, Spain, Romania, Poland, Germany, The Netherlands, and Iceland	To investigate the correlation between psychosocial characteristics and prevalence of Internet addictive behavior (IAB) among adolescents.	Literature review	Internet addictive behavior is a behavioral pattern characterized by loss of control, leading to isolation and neglect of social, academic, recreational, and personal health.	Influencing factors include frequent use of specific online activities (e.g., gambling, social networking, gaming) at least six days/week, lower educational level of the parents, earlier age at first use of the Internet, greater use of social networking sites and gaming sites, internalizing problems (anxiety, depression, somatic complaints, social problems, thought problems, attention problems), externalizing problems (rule-breaking behavior, aggressive behavior).	Internet Addiction Test (IAT) (Young, 1998) Cronbach's alpha .92.	A cross sectional school-based survey study (n = 13,284) A clustered probability sampling method	High
11	(Kuss et al., 2013) United Kingdom	To assess the relationship between personality traits and prevalence of potential internet addiction.	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013).	Internet addiction is associated with the use of online gaming and social applications and personality traits.	The compulsive internet use scale (CIUS) (Meerkerk et al., 2009) Cronbach's alpha .88.	A monitor study (n = 3,105) A stratified sampling method	High
12	(Xu et al., 2012) China	To identify the correlation of motivation, prevention factors, and online game addiction	Literature review	Game addiction is manifested through six core symptoms: relapse and reinstatement, conflict, withdrawal, and behavioral salience.	There are three groups of factors: 1) Motivating factors include the need for advancement, need for relationship, need for mastering a game's mechanics, need for escapism. 2) Prevention and harm reduction factors: attention switching, parental monitoring, dissuasion, rationalization/ education, resource restriction, and perceived cost. 3) Game playing is considered a mediating variable of those factors.	Charlton and Danforth's scale (Charlton & Danforth, 2007) Cronbach's alpha .83.	A paper-based survey (n= 623) A convenience sampling method	Medium
13	(Hu et al., 2017) China	To examine the association between sensation seeking and online gaming addiction in adolescents.	Dual systems model and biosocial-affect model of adolescent sensation seeking and problem behaviors.	Addiction is characterized by being preoccupied with computer games, withdrawal, and escape from the real world.	Sensation seeking, positive affective associations with online games, and impulsivity were significantly and positively associated with online gaming addiction. Affective associations and impulsivity are mediating factors of the correlation between sensation seeking and gaming addiction.	Chinese Internet Addiction Scale (CIAS) (Chen et al., 2003) Cronbach's alpha .94.	A correlational study (n = 375) Sampling: Not reported	Medium
14	(Wang et al., 2014) Hong Kong	To investigate factors of video and internet gaming addiction among Hong Kong adolescents	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013).	Significant factors of gaming addiction: gender (boys), poor academic performance, perceived family disharmony, finding more friends.	Game Addiction Scale (GAS) (Lemmens et al., 2009) Cronbach's alpha .93.	A cross-sectional study (n = 503) Random sampling only for school, not for participants.	Medium
15	(Milani et al., 2018) Italy	To identify risk factors of internet gaming disorder	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013).	Significant factors of internet gaming disorder are age, gender, IAT (internet addiction test) score, and avoidance coping strategy	Internet addiction test (Young, 1998) Cronbach's alpha .89. Video game addiction (Gentile, 2009) Cronbach's alpha .71.	A cross-sectional study (n = 612) Convenience sampling	Medium

16	(Wittek et al., 2016) Norway	To identify the predictors of video game addiction.	Literature review	Problematic or pathological use of video games, which leads to functional impairment in daily life.	The predictors of video game addiction are gender (male), age group (young), place of birth (Africa, Asia, South-and Middle America, poor psychosomatic health. Video gaming addiction was positively associated with neuroticism and negatively associated with conscientiousness.	Game addiction scale (Lemmens et al., 2009) Cronbach's alpha .84.	A cross-sectional study (n = 3,389). Random sampling	Medium
17	(Vollmer et al., 2014) Turkey	To identify the computer game addiction and its relationship with personality and chronotype.	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013).	Significant factors of gaming addiction: gender (males), age (young), chronotype (evening type), usage time, and Big 5 personality.	Computer game addiction scale (CGA) (Ayas et al., 2011) Cronbach's alpha .92.	A cross-sectional survey (n = 741) Convenience sampling method	Medium
18	(Gunuc, 2017) Turkey	To determine if the peer influences the internet and digital game addiction	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013).	Peer influence is the essential factor of the Internet and digital game addictions.	Digital game addiction questionnaire (DGAQ) – Self-development. Cronbach's alpha .71. Internet Addiction scale (IAS) (Günüç & Kayrı, 2010) Cronbach's alpha .94.	A correlational study (n = 184) Purposive sampling	Medium
19	(Pawlowska et al., 2018) Poland	To determine the correlation between demographic and family-related factors and online gaming addiction	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013)	Major predictors of online gaming addiction included male gender, urban residence, domestic violence, mother's child-raising rules being challenged by the father, and the child's sense of responsibility for his/her parents.	Online gaming addiction questionnaire (Potembska & Pawlowska, 2014). Validity and reliability: not reported	A correlational study (n = 827) Sampling: Not reported	Medium
20	(Wong & Lam, 2016) Hong Kong	To investigate adolescent gaming behavior and addiction in Hong Kong teenagers	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013)	Psychological risk factors of gaming addiction: low self-esteem, seeking aggressive and exciting experiences, killing time and obtaining satisfaction, coping with problems and negative emotions, obsession with achieving higher status or rankings. Environmental and social factors of gaming addiction: accessibility to internet cafes, aggressive promotional activities, peer pressure, family influence and early gaming, perceived parental approval, lack of parental supervision, and low-income family relationship.	Researchers themselves	A qualitative study (n=13) Convenience sampling	Medium
21	(Bekir & Çelik, 2019) Turkey	To examine factors contributing to adolescents' online game addiction	Literature review	Online gaming addiction is a sub-branch of internet addiction.	Sensation seeking and basic psychological needs (need for autonomy, competence, and relatedness) are related to online gaming addiction.	Online game addiction scale (OGAS) (Kaya, 2013) Cronbach's alpha .91.	A correlational study (n=214) Criterion sampling method	Medium
22	(Shek & Yu, 2016) Hong Kong	To identify the prevalence, change, and correlates of internet addiction in adolescent	Literature review	Intense preoccupation with using the Internet, excessive amounts of time spent online, feeling that the world without the Internet is boring, and decreased social interaction with real people	Gender, family economic disadvantage are significant factors of internet addiction. Positive youth development was negatively associated with Internet addiction.	The Chinese version of Young's 10-item Internet Addiction Test (IAT) (Shek et al., 2008) Cronbach's alpha .79.	A longitudinal study (n = 3,498) Sampling: Not reported	Medium
23	(Moslehpour & Batjargal, 2013)	To investigate the factors influencing internet addiction	Literature review	Addiction is defined based on the Diagnostic and	Influencing factors of internet addiction are online friends, stress, loneliness, and entertainment	Internet addiction test (Young, 1998).	A cross-sectional study (n= 264)	Medium

	Malaysia & Mongolia	among adolescents of Mongolia and Malaysia		Statistical Manual of Mental Disorders (4th ed.; DSM-4)		Reliability: not reported.	Convenience sampling	
24	(Sul, 2015) Korea	To analyze determinants of Internet game addiction of Korean adolescents	Literature review	Addiction is a phenomenon that affects social and financial life and is related to smoking, gambling, and alcohol, characterized by compulsive obsession, continuous use, and inability to restrain oneself.	Determinant factors of addiction: gender, time spending on leisure, participation in family leisure, and leisure satisfaction level.	Youth game addiction scale by the National Youth Policy Institute of South Korea. Validity and reliability: not reported.	Survey (n= 3356) Stratified multistage cluster sampling	Medium
25	(Rho et al., 2016) Korea	To identify predictors and patterns of problematic internet game use.	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013)	Six important predictors: gaming costs, average weekday gaming time, self-perceptions of addiction to Internet game use, offline Internet gaming community meeting attendance, average weekend and holiday gaming time, and marital status.	Internet addiction Scale by Korea National Information Society Agency. Validity and reliability: not reported.	A cross-sectional study (n=3370). Sampling: Not reported	Medium
26	(Spilkova et al., 2017) Czech Republic	To reveal factors of excessive use of social media and excessive online gaming	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013)	Determinant factors include gender, daily smoking, and binge drinking.	Self-instrument development. Cronbach's alpha: .87.	A cross-sectional study (n = 4,887) Stratified random sampling.	Medium
27	(King & Delfabbro, 2017) Adelaide, South Australia	To identify the correlation between parent-child relationship and adolescents' Internet gaming problems	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013)	Parent-child relationships have a weak correlate of Internet gaming problems	The DSM-5 Internet Gaming Disorder (IGD) checklist Cronbach's alpha: .78.	A cross-sectional survey (n=824) Random sampling	High
28	(Kwak et al., 2018) South Korea	To determine the correlation between adolescents' smartphone addiction and relationship with parents, peers, and teachers	Literature review	Addictive use or excessive reliance on smartphones are signs of depression, anxiety, aggressiveness, intimidation, a deficit of attention, and a negative self-concept	Parental neglect was significantly associated with adolescents' smartphone addiction. The relational maladjustment with peers negatively influenced smartphone addiction.	Internet addiction test (Young, 1998) Cronbach's alpha: .92.	A cross-sectional study (n=2182) Purposive sampling	Medium
29	(Jeong et al., 2015) South Korea	To examine the relationship between the big five personality traits and game addiction	Literature review	Excessive use of Internet services as to lose controlling ability in social relationship and daily works. The addictive symptoms include withdrawal, tolerance, salience, and dependence, resulting in pathological addictions such as alcoholics, gambling, and material addicts.	Neuroticism increases game addiction with no effect of extraversion on the addiction. General self-efficacy negatively affected game addiction, whereas game self-efficacy increased the degree of game addiction. Loneliness enhanced game addiction, while depression showed a negative effect on the addiction.	Revised Internet addiction test (Young, 1998) Cronbach's alpha: .91.	A cross-sectional survey (n=789) Random sampling	Medium
30	(Laconi et al., 2017) France	To explore the relationships between internet gaming disorder, time spent on the internet, gaming time and gaming motives, game genre, and psychopathology	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013)	Time spent on the internet, gaming motives and depressive symptoms were significant predictors of Internet gaming disorder	The Internet Gaming Disorder test-10 (IGDT-10) (Király et al., 2017) Reliability: not reported.	A cross-sectional study (n=418) Sampling: Not reported	Medium

31	(Torres-Rodríguez et al., 2018) Barcelona	To examine the psychological characteristics of treatment-seeking adolescents with gaming disorder	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013)	Several personality traits were found to be highly associated with internet gaming disorder, including introversion, inhibition, self-devaluation, interpersonal sensibility, submissiveness, phobic anxiety, obsessive-compulsive tendencies, and hostility, as well as paranoid and borderline personality traits	Internet Gaming Disorder Test (IGD-20 Test) (Fuster et al., 2016) Reliability: not reported.	A cross-sectional study (n=55) Sampling: Not reported	Medium
32	(Stavropoulos et al., 2016) Greece	To examine the role of conscientiousness (as a personality trait) and classroom hostility (as a contextual factor) in the development of Internet Addiction	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) (American Psychiatric Association, 2013).	Lower conscientiousness was associated with IA, and this did not change over time	Internet addiction test (Young, 1998) Cronbach's alpha: .93.	A longitudinal study (n=648) Randomized stratified sampling	High
33	(Bianchini et al., 2017) Italia	To examine the prevalence of internet addiction and its associated factors in Italian students	Literature review	Pathological and compulsive use of the internet with the presence of factors such as withdrawal syndrome, tolerance, impulsive usage, and inability to control the usage	Only age was associated with internet addiction.	Internet addiction test (Young, 1998) Reliability: Not reported	Observational study (n= 1,129) Sampling: Not reported	Medium
34	(Choo et al., 2015) Singapore	To examine the main effects of parent-child closeness and parental restriction of child video-gaming on children and adolescents' pathological symptoms of video-gaming	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	Predictors of adolescents' pathological symptoms of video-gaming are parent-child bond and gender	A 10-item screening instrument derived from the pathological gambling items of the DSM-IV.	A two-wave longitudinal study (n= 2974) Convenience sampling	Medium
35	(Peeters et al., 2018) Holland	To identify predictors of internet gaming disorder symptoms in young adolescents	Theoretical mechanism (social vulnerability, life dissatisfaction, attention problems)	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	Social vulnerability, life dissatisfaction, attention problems were predictors of internet gaming disorder symptoms	Internet gaming disorder scale (Lemmens et al., 2015) Cronbach's alpha: .77.	A longitudinal study (n=354) Sampling: Not reported	Medium
36	(Karaca et al., 2020) Istanbul	To investigate the online game addiction (OGA) level and the risk factors involved in OGA among middle school students	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	Risk factors for online game addiction are older age, a higher level of social anxiety (SA), having parents who completed high school or a higher level of education, having a mother who is employed, and the time spent on the computer	Computer Game Addiction Scale for Children (CGASC) (Horzum et al., 2016) Cronbach's alpha: .90.	A cross-sectional study (n=1174) Random sampling	Medium
37	(Samarein et al., 2013) Iran	To identify the relationship between personality traits and Internet addiction disorder among adolescents and young adults.	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-4)	Internet addiction is significantly positively correlated to neuroticism and negatively correlated to extraversion, agreeableness, and conscientiousness. Males scored significantly higher on Internet addiction as compared to females.	Internet addiction test (Young, 1998) Cronbach's alpha: .82.	A correlational study (n= 400) Stratified sampling	Medium
38	(Lim & Nam, 2018) Korea	To identify the relationships between problematic Internet use (PIU) and Internet use and psychological functioning variables	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	Age cohorts were only found in the relationships between PIU and Internet use time and purpose	K-scale for children and adolescents. Cronbach's alpha: .92, .83.	A national survey. Children (n=1221), Adolescents (n=3671) Sampling: Not reported	Medium
39	(Sun et al., 2015) China	To understand the antecedents of mobile game addiction	Literature review	Users strongly rely on mobile games and cannot help playing mobile games repeatedly in a comparatively long time,	Perceived visibility and perceived enjoyment are positively associated with the flow, which in turn affects addiction. Perceived visibility has a direct effect on addiction.	Game addiction scale by Griffiths (1998) Reliability: not reported.	A correlational survey (n=234) Sampling: Not reported	Medium

				which causes physical, mental, and social damage.				
40	(Tian et al., 2019) China	To investigate the relationship between sensation seeking and adolescent Internet gaming addiction, and correlation with peer affiliation and parental knowledge	Literature review	An uncontrollable, excessive, and compulsive use of Internet games	The positive association between sensation seeking and adolescent internet gaming addiction was partially mediated by deviant peer affiliation. In addition, this indirect link was significantly moderated by parental knowledge. Specifically, the indirect path from sensation seeking to adolescent internet gaming addiction was stronger for adolescents with low parental knowledge than those with high parental knowledge.	The 11-item IGA questionnaire (Yu et al., 2015) Cronbach's alpha: .83.	Structural equation model (n= 1293) Random cluster approach	Medium
41	(Kim & Kim, 2017) Korea	To identify the relationship between social interaction factors and excessive online game usage	Literature review	Excessive online game usage	Social interaction factors are significantly correlated with excessive online game usage and partially moderated by online self-identity.	Excessive Online Game Usage (EOGU) instrument developed with confirmatory factor analysis.	A correlational study (n=179) Sampling: Not reported	Medium
42	(Mehroof & Griffiths, 2010) United Kingdom	To examine the relationship between personality traits and online gaming addiction	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	Five traits (neuroticism, sensation seeking, trait anxiety, state anxiety, and aggression) are significantly associated with online gaming addiction.	Game Addiction Scale (GAS) (Lemmens et al., 2009). Reliability: not reported.	A cross-sectional study (n=123) Sampling: not reported	Medium
43	(Chang et al., 2014) Taiwan	To identify predictors of initiation and persistence of internet addiction among adolescents	Literature review	Preoccupation, uncontrolled impulse, use that is more than intended, tolerance, withdrawal, impairment of control, the devotion of excessive time and effort, and impaired decision-making	Predictors of internet addiction: greater engagement in online activities (i.e., social network website use, online gaming), depression and lower school bonding in grade 10 coupled with an increase in online activities, depression and smoking from grades 10 to 11	Chen Internet Addiction Scale (Chen et al., 2003) Cronbach's alpha: .94.	A cross-sectional study (n=1602) A probability-proportionate-to-size sampling	High
44	(Lee et al., 2017) Korea	To identify risk factors for smartphone addiction in Korean adolescents	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	This study demonstrated that the risk factors for smartphone addiction were female, preoccupation, conflict, and use for the ubiquitous trait. The protective factor was use for learning.	Korean Smartphone Addiction Proneness Scale (Kim et al., 2014) Cronbach's alpha: .88.	A cross-sectional study (n=370) Sampling: Not reported.	
45	(Andreassen et al., 2013) Norway	To identify the relationships between the five-factor model of personality and behavioral addiction	Personality theory	Excessive and uncontrollable use.	Neuroticism and extroversion are positively associated with a behavioral addiction. Openness to experience, agreeableness, and conscientiousness are negatively related to behavioral addiction.	Bergen Facebook Addiction Scale (BFAS) (Griffiths, 2005). Cronbach's alpha: .86. Game Addiction Scale for Adolescents (GASA) (Griffiths, 2005). Cronbach's alpha: .83.	A cross-sectional study (n=218) Sampling: Not reported.	Medium
46	(Bonnaire & Phan, 2017) France	To identify the correlation between parental attitudes, family functioning, and internet gaming disorder	Literature review	Addiction is defined based on the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	Parental monitoring, conflicts, and family relationships are correlated with internet game disorder	Game addiction scale (Lemmens et al., 2009) Reliability: not reported	A cross-sectional study (n=434) Sampling: Not reported.	Medium
47	(Choi & Yoo, 2015) Korea	To identify the correlation between family types (multicultural/dual-income) and adolescents' online game addiction, delinquency, and online gaming (eSports) participation motivation	Literature review	Excessive and compulsive use of video games that result in social and/or emotional problems; despite these problems, the gamer is unable to control this excessive use.	Adolescents from dual-income families scored significantly higher on all factors related to juvenile delinquency and addiction factors. Adolescents from multicultural families revealed significantly higher scores on an addiction factor, "mood modification". Adolescents in dual-income families were motivated to play online games to pass the time, and	Game addiction scale (Lemmens et al., 2009) Cronbach's alpha: .84 (from the previous study).	A cross-sectional study (n=246) Purposive sampling	Medium

					adolescents in multicultural families play online games to engage in social interaction			
48	(Charoenwanit & Sumneangsator, 2014) Thailand	To identify predictors of game addiction in children and adolescents	McMaster Model of Family Function of Epstein and colleagues (1980)	An individual compulsively dedicates time and attention to playing the game to the point where daily activities and normal routines are negatively affected	Self-esteem and family function predict game addiction in children and adolescent	Game Addiction Screening Test of Chanwit Pornnoppadon and colleagues (2009) Cronbach's alpha: .90.	A cross-sectional study (n=390) Sampling: Not reported	Medium
49	(Hull et al., 2013) USA & UK	To analyze whether certain structural characteristics of video games, flow, and global happiness could be predictive of video game addiction.	Literature review	Addiction is characterized by salience, mood modification, tolerance, withdrawal, conflict, and relapse	The structural characteristics of video games, elements of the flow experience, and general happiness accounted for 49.2% of the total variance in game addiction	Game addiction scale (Lemmens et al., 2009) Reliability is reported from previous studies	A cross-sectional survey (n=110) Opportunity sampling	Medium
50	(Toker & Baturay, 2016) Turkey	To identify antecedents and consequences of game addiction	Literature review	Multiple constructs	Socio-economic status, gender, online and computer gaming affect game addiction significantly.	Game addiction scale (Çakir et al., 2011; Horzum et al., 2016) Cronbach's alpha: .86, .95.	A correlational study (n=159) Sampling: Not reported	Medium
51	(Lin et al., 2011) Taiwan	To examine the prevalence of Internet addiction and associated psychosocial risk factors	Literature review	A new unrecognized clinical disorder that greatly affects a user's ability to control his/her online use and causes relationship, occupational, and social problems	More depressive symptoms, higher Internet usage time, higher positive outcome expectancy of Internet use, lower satisfaction with academic performance, lower refusal self-efficacy of Internet use, higher impulsivity, being male, and insecure attachment style were positively correlated with Internet addiction	The Chen Internet Addiction Scale—Revision (CIAS-R) Cronbach's alpha: .95.	A cross-sectional study (n=3,616) Stratified and random cluster sampling	Medium
52	(Wu, Ko, et al., 2016) Taiwan	To examine the role of positive outcome expectancy in the relationship between peer/parental influence and Internet gaming addiction (IGA) among adolescents in Taiwan.	Literature review	Multiple constructs	The three types of peer influences (positive attitudes toward Internet gaming, frequency of Internet game use, and invitation to play) and positive outcome expectancy were significantly and positively correlated with IGA. Peers' positive attitude or the frequency of peers' Internet game use positively predicted IGA and was fully mediated through positive outcome expectancy of Internet gaming. The frequency of peers' invitation to play Internet games directly and indirectly predicted IGA severity through a partial mediation of positive outcome expectancy of Internet gaming.	Chen Internet Addiction Scale (Chen et al., 2003) The criterion-related validity between each subscale ranged from .70 to .81.	A cross-sectional study (n= 2,104) Stratified and clustered sampling	High
53	(Ding et al., 2017) China	To test a moderated mediation model of the family, peer, and individual characteristics on adolescent internet addiction	Ecological model and literature review	Inability to control one's use of the internet, which leads to negative consequences in daily life, academic adjustment, mental health, and substance use problems.	Findings indicated that the impact of parental monitoring in internet addiction was partially mediated by deviant peer affiliation; effortful control moderated the first stage of the indirect relationship. For low effortful control adolescents, perceived parental monitoring negatively predicted deviant peer affiliation. Conversely, the indirect path was not significant for high effortful control adolescents.	Internet addiction scale (Young, 1998) Cronbach's alpha: .91.	A cross-sectional study (n=747) Random sampling	High
54	(Kim et al., 2018) Korea	To investigate in gender-sensitive manner factors related to at-risk/problematic Internet use (ARPIU)	Literature review	Multiple domains	Among boys, novelty-seeking, harm avoidance, self-transcendence, and daily time spent gaming statistically predicted ARPIU. Among girls, daily time spent gaming, number of best friends, self-directedness, and cooperation statistically predicted ARPIU.	Young's online Internet Addiction Test (IAT) Cronbach's alpha: .92.	A cross-sectional study (n=653) Random sampling	Medium
55	(Dong et al., 2013) China	To examine the potential personality predictors of Internet addicts	Literature review	Extensive use, limited physical activity, experience physical and mental health problems.	Internet addiction was accounted by three independent variables: Neuroticism/Stability, Psychoticism/Socialization, and Lie	Internet Addiction Test (IAT) (Young, 1998) Reliability: not reported	A cross-sectional study (n=917) Random sampling	Medium

56	(Dhir et al., 2015) India	To predict adolescent internet addiction	Uses and Gratifications theoretical framework	Multiple constructs	Gender (male adolescents), daily internet use, and connecting gratification are the strongest variable.	Young's online Internet Addiction Test (IAT) Cronbach's alpha:.88.	A correlational study (n=1914) Random sampling	High
57	(Li et al., 2014) China	To examine how parental behavior and self-control influence internet addiction	Literature review	Excessive internet use, such as salience, tolerance, and withdrawal symptoms, physical condition, time management, and social functioning	Low self-control capacity had a negative correlation with parents' positive support and a positive correlation with the negative control. Internet addiction was explained negatively by parents' positive support and positively by parents' negative control and low individual capacity of self-control.	Chinese Internet Addiction Scale (CIAS) (Chen et al., 2003) Cronbach's alpha:.95.	A cross-sectional study (n=966) Sampling: Not reported	Medium
58	(Rehbein et al., 2010) Germany	To identify the causes of gaming addiction	Literature review	Addiction is defined based on Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	The data show that 15-year-old video game addicts had already exhibited a number of specific risk factors at the age of 10. Male gender, students from single-parent families, students with low experienced school well-being and with a weaker social integration seem to be particularly at risk.	Video Game Addiction scale (CSAS) Cronbach's alpha:.92.	A two-wave longitudinal survey (n=406) Sampling: Not reported	Medium
59	(Hyun et al., 2015) Korea	To identify risk factors of online game addiction	Literature review	A mental health problem that may impair daily life, academic performance, family relationships, and emotional development	Individual factors (sex and age), cognitive factors (IQ and perseverative errors), psychopathological conditions (ADHD, depression, anxiety, and self-esteem) are associated with online game addiction	Young online gaming addiction scale. Reliability: not reported.	A cross-sectional study (n=263) Sampling: not reported	Medium
60	(Lee & Kim, 2017) Korea	To identify predictors of online game addiction	Literature review	Addiction is defined based on Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5)	Online game playing time was an important predictor of game addiction, especially among those who played PC online games late at night. Among the game genres, RPG, simulation, and casual games were positively associated with addictive behavior. While play and the leisure environment had little effect on game addiction, the extent of satisfaction with relationships with parents, friends, and teachers did have a significant influence	Korean game addiction scale Cronbach's alpha: >.80.	A cross-sectional survey (n=1556) Random sampling	High
61	(Wu, Zhang, et al., 2016) China	To identify factors of internet addiction	Literature review	Excessive, obsessive-compulsive, uncontrollable, tolerance-causing use of the internet, which causes significant distress and impairments in daily functioning	Parental control, per capita annual household income, academic performance, access to the internet, online activities related to internet addiction. Social support has a negative effect on internet addiction	Young's online Internet Addiction Test (IAT). Reliability report from previous studies.	A cross-sectional study (n=10,574) Stratified cluster random sampling	Medium
62	(Adiele & Olatokun, 2014) Nigeria	To identify determinants of internet addiction among adolescents	Literature review	Multiple constructs	Extrinsic reason: using the internet to communicate on important matters, getting-sex oriented materials, and making money (especially amongst females). Intrinsic: the reason for going online	Young's online Internet Addiction Test (IAT). Reliability report from previous studies.	A cross-sectional survey (n=450) Sampling: Not reported	Medium

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