



LITERATURE REVIEW

HIGH-RISK INTERNET ADDICTION IN ADOLESCENTS DURING PANDEMIC COVID-19 AND PARENTS' ROLE

Risiko Tinggi Kecanduan Internet pada Remaja Selama Pandemi COVID-19 dan Peran Orangtua

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ARTICLE INFO

Article History:

Received July, 25th, 2020

Revised form November, 5th, 2021

Accepted November, 29th, 2021

Published online January, 30th, 2022

Keywords :

adolescents;
internet addiction;
coronavirus disease 2019;
education;
parenting

Kata Kunci:

remaja;
kecanduan internet;
coronavirus disease 2019;
pendidikan;
pola asuh

ABSTRACT

Background: The use of smartphones among adolescents has been increasing during the COVID-19 pandemic, especially using the internet daily, because adolescents do not have physical activities during the lockdown. Using the internet for doing assignments from school, using social media as a substitute for meeting with their friends directly, introducing new people and the internet for entertainment such as playing the game online, listening to music or watching a film. **Purpose:** This literature aimed to study the risk of internet addiction in adolescents during the COVID-19 pandemic and know parents' role to accompany adolescents while using the internet daily. **Methods:** A review of articles on internet use in adolescents during the pandemic was done to determine the risk of internet addiction. This article included article review, systematic review, research journals, qualitative and quantitative methods, and books. Meanwhile, the exclusion journals were not in English. The search of journals accessed from Google Scholar, Pubmed, and Science Direct with keywords 'adolescents', 'internet addiction', 'parenting', 'education' and 'COVID-19'. **Results:** Internet use has been increasing during the COVID-19 pandemic and is at risk of causing addiction to adolescents. Unattended use of the internet and time restrictions from parents are at risk of causing internet addiction in adolescents. **Conclusion:** Internet use has been increasing during the COVID-19 pandemic and is at risk of causing addiction in

How to Cite: Putri, A. N., Setiawati, Y., Shieh, Y. T., & Lin, S-H. (2022). High-risk internet addiction in adolescents during pandemic Covid-19 and parents' role. *Jurnal Berkala Epidemiologi*, 10(1), 11–20. <https://dx.doi.org/10.20473/jbe.v10i1.2022.11–20>

adolescents. Time restriction and parental supervision are needed for adolescents to use the internet daily.

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ABSTRAK

Latar Belakang: Penggunaan smartphone pada remaja meningkat di masa pandemi COVID-19 terutama untuk akses internet dalam kegiatan sehari-hari, karena remaja tidak mempunyai aktivitas fisik selama lockdown. Penggunaan internet umumnya digunakan para remaja untuk mengerjakan tugas dari sekolah, bermain sosial media sebagai pengganti dari bertemu dengan teman-teman secara langsung, berkenalan dengan orang baru dan internet digunakan sebagai hiburan misalnya bermain game online, mendengarkan musik atau melihat film. **Tujuan:** Literatur ini bertujuan mempelajari tentang risiko kecanduan internet pada remaja di masa pandemi COVID-19 dan mengetahui peran orang tua dalam mendampingi remaja selama menggunakan internet. **Metode:** Tinjauan pada artikel penggunaan internet pada remaja di masa pandemi untuk mengetahui risiko adiksi internet. Artikel ini memiliki kriteria inklusi review artikel, sistematic review, jurnal penelitian yang menggunakan metode kualitatif dan kuantitas serta buku. Kriteria eksklusi adalah jurnal yang tidak menggunakan bahasa Inggris. Pencarian jurnal diakses dari google scholar, Pubmed, Science Direct dengan kata kunci remaja, adiksi internet, pola asuh, education dan COVID-19. **Hasil:** Penggunaan internet meningkat di masa pandemi COVID-19 dan berisiko menyebabkan kecanduan pada remaja. Penggunaan internet tanpa pengawasan dari orang tua dan tanpa pembatasan jam dapat berisiko menyebabkan risiko terjadinya kecanduan internet pada remaja. **Kesimpulan:** Penggunaan internet meningkat di masa pandemi COVID-19 terutama pada remaja dan berisiko menyebabkan kecanduan. Pembatasan waktu dan pengawasan dari orang tua dalam penggunaan internet sangat dibutuhkan bagi remaja.

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INTRODUCTION

The digital revolution has increased and transformed how we communicate, educate, entertain, and behave like human beings. Most of the youth born in the 21st century use digital technology. It affected their life, called the digital millennial or Y generation (Kurniasanti, Assandi, Ismail, Nasrun, & Wiguna, 2019).

Adolescents feel anxious when they are separated from their gadgets. Consequently, they always want to get everything done quickly, up-to-date with new information, and get in touch with their friend. They prefer spending more time with gadgets to their families even though they are close together. They rarely have quality time for

their family since they are too busy playing with their devices. Thus, gadgets usage among children and teenagers make their parents worry about having less time with their children (Chasanah & Kilis, 2018).

Gadgets are modern telecommunication tools that many people use in their life. The gadget is a device that has more specific functions, is more practical, and is designed with advanced technology. Sophisticated telecommunication has significantly attracted many people. Whether they work in the office, study at school, stay at home, or in many other places, most of them already use gadgets (Frahasini, Astuti, & Atmaja, 2018).

Indonesia has much screen time, followed by the Philippines and China. The average use of

devices in Indonesia for almost two hundred and seventy hours for a month. It is equal to nine hours a day. Two hundred thirty-seven million Indonesian people are internet users. The population detail is 55% of teenagers aged 15-19 years old, 26% aged 20-29 years old, and the least is those aged 30 years and over (Chasanah & Kilis, 2018). According to research in Jordan, teenagers aged 16-17 years old have the highest prevalence of internet addiction. Female students had a higher percentage than males among students in junior high school (Malak, Khalifeh, & Shuhaiber, 2017), while sociodemographic had no significant effect on gadget addiction (Ayar et al., 2017). Countries with internet addiction are starting to set the rules for using the internet to prevent internet addiction. For example, the Chinese government regulations business hours for internet cafés and arranges the distances between school and internet cafe (Vondráčková & Gabrhelík, 2016).

The use of gadgets among teenagers is such a common phenomenon lately. There are at least six main reasons driving individuals to use devices for their daily lives, such as looking for any information, keeping in touch with others, being the result of affection, being part of a style, mobility, and the high of accessibility. Based on the adolescents thought, how gadgets enable to help them easily connect with their friends becomes the main reason that makes them likely to stay on the gadget (Chasanah & Kilis, 2018). There are many risk factors of internet addiction, such as poor parental warmth, poor parental supervision, low parent-child relationship, and elevated interparental conflict (Li et al., 2017).

Novel coronavirus (COVID-2019) overspread across all over countries, and it is causing a pandemic, also pneumonia. The epidemic brought both the death risk of infection and unbearable psychological pressure. The physical distancing and delays in initiating lockdowns across the country are the result of the continuous virus spreading (Cao et al., 2020). All face-to-face activities changed into online services during the pandemic, which increased internet use. One of the significant consequences might be an increase in playing the game online, especially in adolescents (Sun et al., 2020).

All children in a golden age phase need their parents' attention. Nevertheless, it never comes easy since busy parents cannot meet their expectations. They provide the gadget to their children to avoid boredom and replace their parents' existence. Nevertheless, they never come along with giving the monitoring and limitation

time. They often let their children use their gadgets without their monitored (Rosyati, Purwanto, Gumelar, Yulianti, & Mukharrom, 2020).

The internet is commonly used among businesses for electronic banking and home practice to send emails (Cho & Reuter, 2017). Using the internet without control will lead to psychosocial problems and impaired levels of functioning, which have attracted public interest around the world. The addictions are preoccupation and craving, loss of alternative interest, social retreat, tolerance, withdrawal, and loss of control of their attitude. Therefore, the term internet addiction has been proposed to describe the phenomenon of excessive use of specific online-application uncontrolled (e.g., online gaming, pornography, or social networking (Müller et al., 2016).

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), internet addiction is defined as a gaming disorder. It is stated that internet addiction refers to the persistent and recurrent use of online games that affect daily life. DSM-5 suggests there are five up to nine criteria in identifying internet gaming disorder within 12 months. These criteria include the games obsessed; withdrawal symptoms while gaming is taken away; tolerance; unsuccessful in controlling playing in games; losing interest in real life, old hobbies, and other entertain the exception of games. The following points are the excessive use of games despite knowledge of psychosocial problems; having deceived family members, using the game to relieve a negative mood; and losing their relationship, job, education, or career opportunity (American Psychiatric Association, 2013).

Internet addiction is related to compulsive behavior in using the internet in their daily lives for social interaction. The unrestrained internet using turned into coping mechanisms, especially to keep off problems and relieve their negative emotion. People who are using the internet have negative and positive effects. They reveal all negative feelings and loneliness goes. On the other hand, playing internet could be continuously and excessively. It makes addiction. Since internet use disorder has been discovered, many factors are associated with internet addiction. Those are social, psychological, and biological factors (Young, 2017).

Addiction conditions increase dopamine in the prefrontal and striatal areas, encouraging repeated use. It also decreases dopamine in the orbitofrontal cortex and cingulate gyrus, causing

compulsive behavior (Solinas, Belujon, Fernagut, Jaber, & Thiriet, 2019). Psychiatric disorders are often comorbid with internet addiction even if data limitation exists to proclaim the causal relationship of these associations. They are Attention Deficit Hyperactivity Disorder (ADHD), impulsivity and Autism Spectrum Disorders (ASD), depression, anxiety, bipolar disorder, alcohol abuse, Obsessive-Compulsive Disorders (OCD), alexithymia, trauma, and history of sexual abuse (Sussman, Harper, Stahl, & Weigle, 2018).

Parental participation in gadgets among adolescents is essential (Frahasini, Astuti, & Atmaja, 2018). The parents' attention is an essential support. They should supervise their children when using the internet (Wąsiński & Tomczyk, 2015). Parents always play a central role in the family, especially in making a big decisions. This kind of circumstance has to take for granted, such as they can ask their children to do the chores. The dividing of household chores to all family members can create a new environment where they can interact with each other instead. If possible, the parents make a rule about setting up a time to use gadgets to not interfere with the interaction between family members at home (Chasanah & Kilis, 2018). Parents give their children information about potential dangers in internet use. They can also share their experience using the internet. The relationship between parents-children builds their bonding. Children obey their parents' rules in internet use (Wąsiński & Tomczyk, 2015). This literature aims to discover high-risk internet addiction during pandemic COVID-19 and the parents' role in preventing internet addiction towards adolescents.

METHODS

Literature review on internet use in adolescents during the COVID-19 pandemic. The journal was taken using several databases, namely Pubmed, Science Direct and Google Scholar, to find articles relevant to the topic using the keywords 'adolescents', 'internet addiction', 'parenting', 'education' and 'COVID-19'. The search included journals in English only for the search result for articles according to crucial phrases, which obtained ten journals from Google Scholar, three journals from Science Direct, five

journals from Pubmed published in 2015 until 2020 and 2 Books (Figure 1).

RESULTS

The following is the obtained result of 18 articles published in 2015-2020 from google scholar, Pubmed and Science Direct within the keyword. Internet use has been increasing during the COVID-19 pandemic and is at risk of causing adolescents' addiction, so parental supervision of internet use is needed for adolescents (Table 1; Table 2; Table 3).

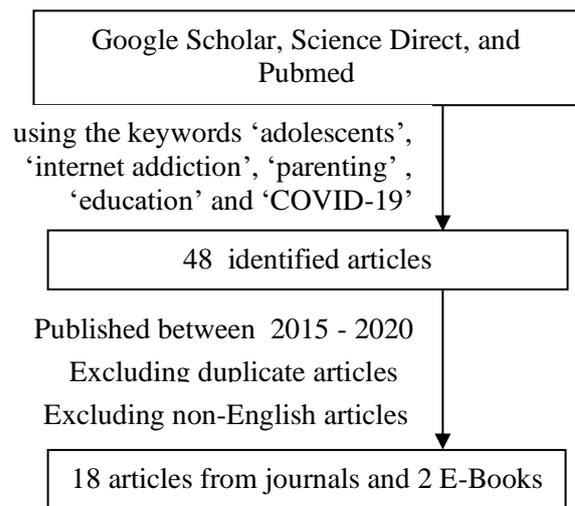


Figure 1. The Literature Selection Process based on The Inclusion Criteria

DISCUSSION

Information and communication technology has become an inseparable part of everyday life. Most people, especially adolescents, have spent their time with smartphones. Current smartphone technology can access the internet, take pictures, record video or sound, listen to music, and navigate. Smartphones are irreplaceable technological devices for internet users. Smartphones are mandatory communication tools with other people. Groups of children aged 6 to 10 years old and adolescents aged 11 to 15 years old have been using the internet since they were six years old. Studies on smartphone usage are mainly used to play the internet and not use the internet (Ayar et al., 2017).

Table 1
An Overview Studies Internet Addiction

Source	Population	Method	Purpose	Result	Conclusion
Müller et al (2016)	3710 students	Random sampling	<ul style="list-style-type: none"> • Knowing the relationship between SNS (Social Networking Sites) and internet addiction • Knowing the relationship between personality and SNS use 	<ul style="list-style-type: none"> • Women more often used SNS • Extroverted personalities used SNS more often 	SNS could cause internet addiction
Wegmann, Stodt, & Brand (2015)	334 adolescent and young adults	Random sampling	Analyzing the use of the internet on adolescents and young adults with anxiety	Excessive use of the internet caused anxiety and depression in adolescents and young adults	<ul style="list-style-type: none"> • Internet as an escape from unpleasant situations and negative emotional feelings • Users learned to regulate emotions for negative emotions in internet use
Wąsiński & Tomczyk (2015)	358 students	Qualitative research	Parent's role in reducing the risk of internet addiction	Parent's role in adolescents while they are online can reduce the risk of addiction	<ul style="list-style-type: none"> • Lack of parent's attention to accompanying online activities causes adolescents to use the internet limitless • Parents should be monitor contents while adolescents use internet
Malak, Khalifeh, & Shuhaiber (2017)	716 students	A descriptive correlational design	Internet addiction among students and factors affecting it	<ul style="list-style-type: none"> • The factors that influenced internet addiction consisted of age, school-age level, and parents' educational background • Internet addiction could raise anxiety and depression 	<ul style="list-style-type: none"> • Internet addiction was influenced by age, school-age level, and parents' educational background • A counseling program was recommended to increase awareness and family responsibility regarding internet addiction in children
Chasanah & Kilis (2018)	226 students	A non-experimental quantitative	Knowing that internet addiction affects family function in adolescents	<ul style="list-style-type: none"> • Internet addiction had negative impacts on family function • The dimension affecting internet addiction was the role of the family, including affective 	<ul style="list-style-type: none"> • Daily usage internet during holiday and after school make anxious and depression • Internet addiction influences on family functioning

(Continued)

Table 1
Continued

Source	Population	Method	Purpose	Result	Conclusion
Ayar et al (2017)	609 students from three schools in Western Turkey	Cross-sectional	Knowing the relationship between socio-demographics with internet addiction	<ul style="list-style-type: none"> • There was no influence between socio-demographics and the number of internet addictions. • Smartphone addiction was correlated with internet addiction 	Gender and social demographics did not affect internet addiction rates
Li et al (2017)	998 students in grades 7-11 from middle schools in Wuhan and Shanghai	Longitudinal study	Linked multiple exposure profile with adolescent internet addiction: insight from the person approach	Multiple risk profiles related to internet adolescents	Adolescents in the four profiles differed significantly in their exposures to various family, school, peer, and individual risk factors
Bener et al (2019)	3000 students in Turkish 18 – 25 years	Random sampling	Internet addiction, fatigue, and sleep problems among adolescents	<ul style="list-style-type: none"> • Prevalence of internet addiction on male more than female adolescents • Internet addiction makes less sleep 	<ul style="list-style-type: none"> • Duration of internet use, physical fatigue, tired eyes, hearing problems were significantly related with internet addiction • Gender, family income, father occupation, school performance, frequency and duration of watching TV, and physical activity are related with internet addiction
Frahasini, Astuti, & Atmaja (2018)	Every two students at primary, junior high school and senior high school	Random sampling	The impact of gadgets on children's social behavior	Gadgets had an impact on social behavior such as appearance, speech style, mindset, and ethical perspectives and norms in life	Gadgets used by children, including school-age, caused a shift in the local value of behavior so that it required the role of parents to accompany children while using gadgets
Sun et al (2020)	6416 Students		Knowing the impact of the COVID-19 pandemic with alcohol, smoking, and internet use, addiction	Internet use addiction was more significant than any other addiction during the COVID-19 pandemic	Using internet increase during the Covid-19 pandemic

Table 2

Theory of Internet Addiction

Author	Source	Results
Vondráčková & Gabrhelík (2016)	Journal	Government should have regulation to prevent internet addiction
American Psychiatric Association (2013)	Book	Criteria of internet addiction include obsessed, withdrawal, tolerance, unsuccessful in controlling using the internet, losing interest in real life, hobbies and other entertainment
Cho & Reuter (2017)	Journal	Internet is used commonly for business and home services. It needed practical intervention for internet addiction
Rich et al (2017)	Book	Conceptualize of internet addiction could be screening by Internet Addiction Diagnostic Questionnaire (IADQ)
Young (2017)	Journal	Internet addiction is not new and has been researched over last few decades especially in adolescents
Sussman, Harper, Stahl, & Weigle (2018)	Journal	Diagnosis of internet addiction is analogous for substance use or gambling disorders
Rosyati, Purwanto, Gumelar, Yulianti, & Mukharrom (2020)	Journal	Parents should have to restrict their child's online
Solinas, Belujon, Fernagut, Jaber, & Thiriet (2019)	Journal	Dopamine is involved in addiction processes, dopamine increased in prefrontal and striatal area which encourages motivation for repeated using
Cao et al (2020)	Journal	The physical distancing and lockdown are risk factor in internet addiction

They explore more time with peers than with their parents at the developmental stage in their teens. The presence of gadgets makes it easier for adolescents to connect with friends through social media and chat applications, so they don't need to meet face to face to communicate. Boys use gadgets as entertainment or playing games, while girls use gadgets as a social function, such as using social media applications, to increase the risk of internet addiction (Chasanah & Kilis, 2018). Adolescents' excessive internet use is a worldwide concern because it can lead to an addiction syndrome with the same neurobiological phenomena and mechanisms as substance or alcohol addiction (Müller et al., 2016). The definition of internet addiction cannot prevent the desire to use the internet excessively. They are prone to experience aggressive behavior and irritability when they lose their internet connection, which can cause social relations to deteriorate (Ayar et al., 2017).

Internet addiction has become a public health problem that cannot be ignored. Internet use can help divert from ongoing conflicts or get rid of negative emotions. Still, overuse of the internet can cause excessive anxiety when not using internet applications or lead to depression or other negative emotional disorders. One of the addictive behaviors is social networking sites (SNS). SNS is defined as a web-based virtual community that raises individual profiles (Wegmann, Stodt, & Brand, 2015). Research in China reported that

46.8% of research subjects experienced addiction on the internet. This prevalence increased to 23% from before the COVID-19 pandemic. In addition to an increase in internet addiction, it was found that the relapse rate for alcohol and substance addiction had also increased (Li et al., 2017). In adolescent girls, internet addiction was higher than boys (Ayar et al., 2017). The factors that influenced internet addiction in adolescents were

economic and social conditions, where the higher the family income, the higher the number of internet addictions. It was due to the ease of internet access obtained at home (Malak, Khalifeh, & Shuhaiber, 2017). Extrovert personality traits also affected the number of internet addiction because they required social interaction (Ayar et al., 2017).

The negative impact of excessive internet use could affect physical condition, the decline in academic achievement, decline social function and lead to psychiatric disorders, such as anxiety and depression. The decreased physical condition was caused by reduced physical activity, low diet, making it easier to cause obesity in adolescents. The academic field could cause decreased academic achievement because it does not focus on lessons and has problems related to time management (Chasanah & Kilis, 2018).

The role of parents in monitoring internet use is essential. The family is the first educational environment in the development of children from birth. Family environment affects social

development in children. Parents are the most crucial part of the family who plays a role in the family. The social interactions that exist in the family will influence children's behavior. If family members' interaction is good, family members will feel comfortable, but if the interaction is not proper, the family will only be a place to live without meaning. Supervising the use of the internet in adolescents plays a role in children's education (Frahasini, Astuti, & Atmaja, 2018).

Prevention of Internet Addiction

Internet addiction is an emergency condition in adolescents during this pandemic. Many regulations must be made to prevent internet addiction. It was influential in preventing internet addicts. It required family and environmental support (Table 3).

Education for Parents

The parents' attention is an essential support. They should supervise their children when they use the internet. Parents give their children information about potential dangers in internet use. They can also share their experience using the internet. The relationship between parents-children builds their bonding. Children obey their parents' rules in internet use (Wąsiński & Tomczyk, 2015).

Openness is defined as sharing their beliefs and opinions concerning their actions in cyberspaces with their parents. Parents should respect children's privacy to make them voluntarily allow their regulation without constant control (Wąsiński & Tomczyk, 2015).

Table 3
Prevention Program for Internet Addiction

Category	Program
Regulation at home	<ul style="list-style-type: none"> •Limitation of screen time •1.50 – 2 years old children: were abandoned using screen media •Preschool children: less than 1 hour to use the internet in a day •60 minutes of daily exercises •Family meal menu •Duration sleep of the night about 12 hours •Preventing spending more than 3 hours on an online application. It caused emotional problems, pro-social behavior issues, and decreased life satisfaction in children •Prohibiting gadget or internet access be put in children's room •Not using gadgets in the half-hour before sleeping •Limitation of the duration and content of internet access
Adult supervision of children's media use	<ul style="list-style-type: none"> •Constructing an agreement about the duration before using internet •Helping the children to learn using gadgets and how to stop •Evaluation and monitoring usage gadget between parents and children •No screen media and gadget exposure for children under 1.50 years old
The role of school and educator in preventing internet addiction	<ul style="list-style-type: none"> •Educating teachers, students, and parents about using internet wisely and the effects of using internet excessively •Early screening of internet addiction symptoms in school •Improve parent-child communication skill
Improvement of parenting skills	<ul style="list-style-type: none"> •Increase the frequency of parents and children's online activities so that internet use can be adjusted based on knowledge and necessity •Caring about parental mental health •Teaching parents how to guide children for paying more attention to other beneficial activities rather than the internet
Government regulation	<ul style="list-style-type: none"> •Age restriction in using the internet •Distance between internet cafés and schools should be addressed. It is within 200 meters •The business hours of internet cafes should be adjusted •Policies and regulations for online gambling companies

Source: Kurniasanti, Assandi, Ismail, Nasrun, & Wiguna (2019)

Safety indicates children's and parents' sharing confidence, which develops a participation pattern in cyberspace. It gives the children's protection against the unwanted consequences and understands the causes and the potential dangers which belong to the negative effect of internet addiction. This strategy education manifests itself through developed and shared communication rules within the family. These form the basis for sharing and understanding the individual narratives about experiences in cyberspaces (Wąsiński & Tomczyk, 2015).

CONCLUSION

As a sophisticated technology, the internet has made life much easier since it offers simplicity. The number of internet addictions is increasing during the COVID-19 pandemic. Nonetheless, some problems concerning pathological issues occur, namely internet addiction. Since it is impossible to separate it between adolescents' lives, they get a great chance to experience the negative impacts. Also, the leading internet addiction comes from behavioral addiction.

CONFLICT OF INTEREST

The authors declared no conflict of interest in this research.

AUTHOR CONTRIBUTION

AYP wrote this article. YS, YTS, and SHL give advice and suggestion in this article.

ACKNOWLEDGMENTS

None

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