

RESEARCH ARTICLE

FAKTOR-FAKTOR YANG MEMPENGARUHI DAN MEMODERASI *SMARTPHONE ADDICTION PADA ANAK*

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ABSTRACT

Smartphone Addiction among children has become a complex and multidimensional phenomenon. Indonesia, as the fourth-largest smartphone user globally, faces significant challenges in addressing this issue. This study aims to identify factors influencing and moderating Smartphone Addiction among children. A literature review was conducted using national and international indexed databases from 2014 to 2024. The findings reveal nine primary factors influencing Smartphone Addiction: (1) duration and intensity of use, (2) smartphone ownership, (3) negative parenting styles, (4) demographic factors, (5) low physical activity, (6) usage motivation, (7) social media usage, (8) technological design, and (9) mental health. Additionally, five factors were identified as moderating these relationships: (1) parental roles and mediation, (2) positive parenting styles, (3) core self-evaluation, (4) connectedness to nature, and (5) gender. This study recommends a collaborative approach involving parents, educators, and policymakers to mitigate the risks of Smartphone Addiction through positive parenting, digital literacy, and smartphone usage restrictions to support children's mental and emotional development in the digital era. It is anticipated that this study will serve as a foundation for developing strategies to prevent Smartphone Addiction among children in Indonesia.

Keywords: addiction, smartphone, parenting

INTRODUCTION

Indonesia is the fourth-largest smartphone user in the world after China, India, and the United States (Statista, 2024). There has been a significant surge in smartphone users in Indonesia. In 2019, it was estimated that around 39.98 million Indonesians used smartphones, but this number nearly tripled in 2021, reaching 110.17 million users and is projected to rise to 228.91 million smartphone users by 2025 (Statista, 2024). This increase aligns with the rapid growth of internet users. Smartphones are increasingly favored because they combine the portability of mobile phones with the capabilities of computers and the internet, as well as multiple features such as applications, cameras, games, videos, and audio (Kim et al., 2014; Lin et al., 2014). This phenomenon certainly brings interesting implications for deeper investigation.

In Indonesia, the issue of smartphone or gadget addiction continues to draw serious

attention from various sectors. CNN Indonesia (2024) released the State of Mobile 2024 report, which stated that Indonesia ranks first as the country whose population spends the longest time using smartphones, with an average of 6.05 hours per day. Indonesia has even been noted as the highest-ranked country in smartphone usage since 2020. Berita Satu (2024) also reported that around 3,000 children and adolescents have undergone treatment at Menur Psychiatric Hospital, Surabaya, due to mental disorders caused by smartphone addiction.

These cases in Indonesia illustrate an iceberg phenomenon. Children who are reported to experience mental disorders represent only a small portion of the visible peak, while the majority of the issue lies beneath — the strong attachment of children to gadgets, especially smartphones. Permissive parenting or lack of parental supervision in children's smartphone use is one of the triggers of addiction. Parents often allow children to use smartphones without time limits or

proper control, which intensifies the risk of addiction (Lestari et al., 2020).

Children and adolescents rely heavily on smartphones in their daily activities, such as web browsing, watching videos, accessing social media, and playing games (Shin & Kim, 2019). The 2020 EU Kids Online Survey found that smartphones are the most frequently used and preferred devices among children for navigating the online world (Smahel et al., 2020). The deep attachment to smartphones places children in a high-risk group for developing Smartphone Addiction. Children in Indonesia tend to use smartphones for long periods, especially for gaming, watching videos, and accessing social media. This extensive duration of use becomes a major indicator of addiction, as children struggle to limit their screen time (D. I. Lestari et al., 2020).

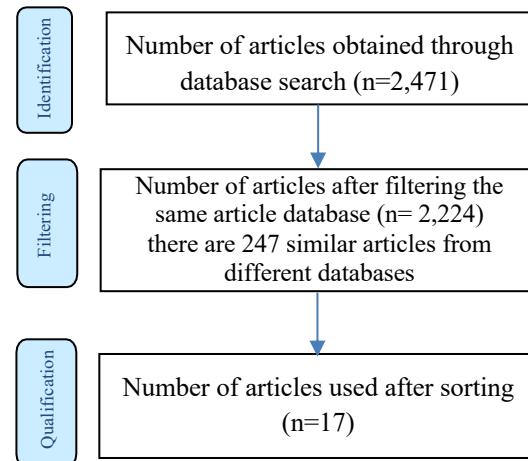
The phenomenon of Smartphone Addiction in Indonesia still requires extensive exploration. Research on Smartphone Addiction remains limited compared to studies on internet addiction (Siste et al., 2021). Therefore, this study aims to investigate the factors that influence Smartphone Addiction among children and identify the variables that can moderate the addiction. By understanding both influencing and moderating factors, it is expected that parents, educators, and policymakers can work collaboratively to prevent Smartphone Addiction in children. This study is also expected to contribute to further research on Smartphone Addiction in children, providing meaningful insights for media studies and psychological disciplines in the future.

METHOD

This research is a literature study using the PRISMA method (Figure 1). The literature search was conducted from January 1 to January 18, 2025, through electronic search sources including Garuda Dikti, SpringerLink, ScienceDirect, and Taylor & Francis Online. The search was carried out using the keywords “Smartphone Addiction” or “kecanduan smartphone.” From these online databases, a total of 2,471 articles were identified from Garuda Dikti (184), SpringerLink (927), ScienceDirect (987), and Taylor & Francis (373).

The collected literature was then screened and sorted based on several inclusion and exclusion criteria.

Figure 1. Literature Search Methods



Inclusion Criteria

1. Studies that explicitly use the terminology “Smartphone Addiction” or “kecanduan smartphone.”
2. Studies that examine the impact of Smartphone Addiction.
3. Studies that investigate factors that moderate smartphone addiction.
4. Articles published within the last 10 years (2014–2024).
5. Published in nationally or internationally indexed journals.

Exclusion Criteria

1. Studies that do not use the terminology “Smartphone Addiction” or “gadget addiction.”
2. Studies that do not discuss the impact of smartphone/gadget addiction.
3. Studies that do not examine moderating factors of smartphone/gadget addiction.
4. Articles published outside the last 10 years or outside the range of 2014–2024.
5. Journals that are not nationally or internationally indexed.

After completing the inclusion and exclusion process, we obtained 17 journal articles that met the predetermined criteria and will be further analyzed in this research.

1. *Smartphone Addiction*

Smartphones have evolved from wired telephones to mobile phones, but with much more advanced media technology, including: (1) adding computer and internet capabilities; (2) providing convergent services such as making calls, sending messages (SMS, e-mail, etc.), playing games, SNS, media player, camera, video, GPS, and more; (3) being supported with various dynamic applications tailored to users' needs; and (4) having an attractive interface with touch screens and continuously improved designs in lightweight and portable devices (Kim et al., 2014; Kwon et al., 2013).

Originally, the term addiction referred only to dependence on drugs or illegal substances. However, over time, the term has also been used to describe addiction to activities such as gambling, internet use, mobile phone use, and other behavioral addictions (Kim et al., 2014; Kwon et al., 2013). Previously, gambling and internet addiction were not included in the Diagnostic and Statistical Manual of Mental Disorders (DSM) classification. In the earlier diagnostic system, gambling was categorized as an impulse control disorder. After continuous research demonstrated similarities to drug and substance addiction, gambling and internet addiction were later included in the DSM based on neurobiological and psychopathological evidence (Kwon et al., 2013; Lin et al., 2014).

According to Kwon et al. (2013), Smartphone Addiction is a behavior that manifests dependence, tolerance, withdrawal, and social problems in daily life. Although Smartphone Addiction has not yet been classified in the latest fifth edition of the DSM, the American Psychiatric Association encourages further research on this topic. Existing studies show that Smartphone Addiction shares similar characteristics with gambling addiction, substance addiction, and especially internet addiction—which has already been included in DSM-5—such as withdrawal symptoms, tolerance, physical and psychological problems, and disruptions in daily

functioning (Lin et al., 2014). Ada beberapa pengukuran *Smartphone Addiction* yang banyak. Several measurements of Smartphone Addiction have been widely referenced in previous studies. One of the most frequently used is the Smartphone Addiction Scale (SAS) developed by Kwon et al. (2013), which identifies five factors that can be used to predict Smartphone Addiction, including:

1. Overuse: This refers to the uncontrolled use of smartphones. Individuals are more likely to seek help through a smartphone compared to others, always have a charging device ready, and always feel compelled to use the smartphone again even immediately after stopping using it.

2. Daily Life Disturbance: Disturbances in carrying out daily activities such as not being able to carry out planned work, difficulty concentrating while studying or working, experiencing health problems such as headaches, blurred vision, pain in the wrist, back of the neck, to sleep disorders.

3. Withdrawal: Withdrawal from smartphone use is characterized by the condition of individuals who cannot control the desire to use a smartphone immediately, characterized by feelings of impatience, anxiety, and constantly thinking about using a smartphone. Individuals also cannot give in to stop using smartphones and become annoyed when their smartphone usage activities are disrupted.

4. Tolerance: Tolerance is defined as a persistent but unsuccessful attempt to control smartphone use.

5. Cyberspace Oriented Relationship: Conditions that include the feeling that the relationship with friends through a smartphone feels closer than the relationship in the real world. This includes feeling out of control or lost when unable to use the smartphone, so as a consequence individuals always try to check the smartphone whenever and wherever.

6. Positive Anticipation: Defined as the positive feelings that arise when using a smartphone, such as vigor and stress reduction. However, there is a feeling of emptiness or emptiness when not using a smartphone. As a result, the smartphone has become a kind of companion that gives happiness, relieves sadness and anxiety, and makes the user feel safe and comfortable.

In a follow-up study, Kwon et al., 2013) developed a shorter version but still proved valid for smartphone Addiction measurement named Smartphone Addiction Scale – Short Version (SAS-SV) which contains only 10 question items so as to facilitate and memahmat charging time. This shorter version is also widely adapted including in several studies in Indonesia, among others, in the study of Arthy et al., (2019) and Dhamayanti et al., (2019) another Smartphone Addiction measurement tool development is the Smartphone Addiction Inventory (SPAI) by Lin et al., (2014). SPAI developed Lin et al., (2014.) by weighing the many similarities between Smartphone Addiction and internet addiction such as tolerance, withdrawal, uncontrolled behavior, and disruption of daily life. So that Lin et al., (2014). then compile SPAI by developing Chen Internet Addiction Scale (CIAS). From the research of Lin et al., (2014). found four factors that have a significant effect on Smartphone Addiction, namely: 1) Compulsive Behavior 2) Functional Impairment (sleep disorders, time management etc.), 3) Withdrawl, 4) Tolerance (spending time continuously for smartphones).

Tabel 1. Hasil Telaah Literatur

No.	Penulis (Tahun)	Judul Penelitian	Konsep/Teori	Temuan
1	Chang et al., (2019)	Children's use of mobile devices, Smartphone Addiction, and parental mediation in Taiwan	Media Use, Parental Mediation, Smartphone Addiction	Hasil penelitian menunjukkan bahwa siswa kelas lima menghabiskan waktu rata-rata 11 jam per minggu menggunakan ponsel pintar atau tablet. Prevalensi kecanduan ponsel pintar di kalangan siswa kelas lima mencapai 15,2%. Hasil analisis multivariat menunjukkan bahwa orang tua yang memiliki persepsi risiko dan efektivitas mediasi yang tinggi cenderung menerapkan mediasi yang membatasi penggunaan internet dan perangkat mobile oleh anak-anak mereka. Selain itu, hasil analisis multivariat juga menunjukkan bahwa anak-anak yang memiliki prestasi akademik buruk, depresi, memiliki ponsel pintar, sering bermain game di ponsel pintar/tablet, dan rutin menggunakan SNS dan pesan instan, memiliki tingkat mediasi pembatasan orang tua yang rendah, serta tingkat literasi keselamatan internet yang lebih rendah, lebih cenderung mengalami kecanduan smartphone
2	Lin et al., (2015)	Time distortion associated with Smartphone Addiction: Identifying Smartphone Addiction via an app	Smartphone Addiction	Kecanduan smartphone berhubungan dengan durasi penggunaan smartphone harian dan tren frekuensinya. Peneliti mengukur penggunaan berlebih berdasarkan durasi dan frekuensi penggunaan harian, serta hubungan antara gejala toleransi dengan tren durasi median dalam satu episode penggunaan. Waktu penggunaan yang dilaporkan sendiri dengan bantuan psikiater secara signifikan lebih rendah dibandingkan dengan waktu penggunaan smartphone total yang tercatat melalui aplikasi. Tingkat perbedaan dalam perkiraan tersebut berkorelasi positif dengan penggunaan smartphone yang sebenarnya. Studi menunjukkan bahwa kecanduan smartphone dapat diidentifikasi melalui wawancara diagnostik dan parameter yang dihasilkan aplikasi menggunakan analisis EMD.

3	Haug et al., (2015)	Smartphone use and Smartphone Addiction among young people in Switzerland	Smartphone Addiction, Health Behavior	<p>1. Kecanduan Smartphone: Sebanyak 256 siswa dari 1.519 peserta (16,9%) menunjukkan tanda-tanda kecanduan smartphone.</p> <p>2. Hubungan dengan Penggunaan Smartphone:</p> <ul style="list-style-type: none"> - Durasi penggunaan smartphone sehari-hari yang lebih lama berkaitan dengan kecanduan smartphone. - Waktu penggunaan pertama smartphone di pagi hari juga terkait dengan kecanduan. - Penggunaan SNS/Media Sosial dianggap paling relevan terhadap kebutuhan personal penggunaan merupakan indikator yang berhubungan kecanduan smartphone. <p>3. Kelompok yang Lebih Rentan:</p> <ul style="list-style-type: none"> - Kecanduan smartphone lebih tinggi pada remaja usia 15–16 tahun dibandingkan dengan dewasa muda (19 tahun ke atas). - Siswa dengan kedua orang tua yang lahir di luar Swiss lebih cenderung mengalami kecanduan smartphone. - Kecanduan smartphone lebih umum pada individu dengan aktivitas fisik yang rendah dan mereka yang melaporkan tingkat stres yang tinggi. <p>4. Alkohol dan Tembakau: Konsumsi alkohol dan tembakau tidak menunjukkan hubungan yang signifikan dengan kecanduan smartphone.</p>
4	Chen et al., (2017)	Examining the effects of motives and gender differences on Smartphone Addiction	Mood Regulation, Social Relationship	Hasil penelitian menunjukkan bahwa perceived enjoyment, mood regulation, pastime, dan conformity secara positif memengaruhi kecanduan smartphone. Namun, social relationship tidak memiliki efek yang signifikan. Selain itu, jenis kelamin memoderasi hubungan antara perceived enjoyment, pastime, dan conformity dengan kecanduan smartphone, menunjukkan bahwa laki-laki dan perempuan merespons penggunaan smartphone secara berbeda.
5	Jeong et al., 2024)	A Longitudinal Relationship Between Mother's Smartphone Addiction to Child's Smartphone Addiction	Smartphone Addiction	Hasil penelitian menunjukkan bahwa baik ketergantungan smartphone ibu maupun anak meningkat secara signifikan seiring waktu. Ketergantungan awal ibu terhadap smartphone berpengaruh signifikan terhadap ketergantungan awal anak dan laju perubahan anak. Perubahan ketergantungan anak juga dipengaruhi secara signifikan oleh perubahan pada ketergantungan smartphone ibu.

6	Yogesh et al., 2024)	Associations between Smartphone Addiction, parenting styles, and mental well-being among adolescents	Parenting Style, Mental Health	<p>Hasil penelitian ini menunjukkan bahwa:</p> <p>Prevalensi ketergantungan smartphone di kalangan remaja India adalah 64,6%. Tinggal di daerah perkotaan (AOR: 2,4, 95% CI: 1,8-3,3), pendidikan orang tua yang lebih tinggi (AOR: 3,3, 95% CI: 1,7-4,3 untuk ayah lulusan), penggunaan smartphone yang lebih lama (AOR: 2,08, 95% CI: 1,7-3,6 untuk >3 tahun), dan status sosial ekonomi yang lebih tinggi (AOR: 1,9, 95% CI: 1,5-3,51) berhubungan positif dengan ketergantungan smartphone.</p> <p>Gaya pengasuhan otoriter dan permisif pada kedua orang tua berhubungan positif dengan ketergantungan smartphone, sedangkan gaya pengasuhan otoritatif berhubungan negatif.</p> <p>Ketergantungan smartphone secara kuat berhubungan dengan masalah kesehatan mental, khususnya stres yang parah (AOR: 10,82, 95% CI: 5,11-22,88, $p < 0,001$).</p>
7	Yang et al., 2024)	Harsh parenting and Smartphone Addiction: The mediating role of core self-evaluation	Smartphone Addiction, Harsh Parenting	Hasil menunjukkan bahwa (a) pola asuh yang keras berhubungan positif dengan kecanduan smartphone, (b) core self-evaluation memediasi hubungan antara pola asuh yang keras dan kecanduan smartphone, dan (c) connectedness to nature dapat memoderasi hubungan antara pola asuh yang keras dan core self-evaluation.
8	Dhamayanti et al.,(2019)	Influence of Adolescents' Smartphone Addiction on Mental and Emotional Development	Smartphone Addiction, Emotional Development	<p>Hasil penelitian menunjukkan bahwa:</p> <p>Sebanyak 44,9% ($n=80$) subjek berada dalam kategori pengguna smartphone tingkat tinggi, sedangkan 55,1% ($n=98$) berada dalam kategori pengguna smartphone tingkat rendah.</p> <p>Persentase masalah mental dan emosional berdasarkan SDQ menunjukkan bahwa 60,7% subjek berada dalam kategori normal, 21,9% di kategori borderline, dan 17,4% di kategori abnormal.</p> <p>Subjek dengan tingkat kecanduan smartphone tinggi memiliki prevalensi masalah mental dan emosional yang lebih tinggi, dengan rasio prevalensi 1,425 dan CI 95% (1,141–1,779).</p> <p>Kesimpulannya, terdapat hubungan antara kecanduan smartphone dengan masalah mental-emosional pada remaja awal.</p>

9	D. I. Lestari et al., (2020)	Faktor-Faktor yang Berhubungan dengan Manajemen Pengasuhan Anak dalam Pencegahan Kecanduan Smartphone	Manajemen Pengasuhan, Kecanduan	<p>Hasil penelitian menunjukkan bahwa terdapat hubungan signifikan antara manajemen pengasuhan orang tua dengan pencegahan kecanduan smartphone pada anak usia sekolah di Kabupaten Jember. Hasil analisis menunjukkan:</p> <p>Komunikasi orang tua memiliki hubungan signifikan dengan manajemen pengasuhan ($p=0,016$).</p> <p>Tujuan dalam pengasuhan juga berhubungan signifikan ($p=0,025$).</p> <p>Disiplin dalam pengasuhan memberikan dampak signifikan ($p=0,029$).</p> <p>Mendengarkan secara penuh oleh orang tua terhadap anak berhubungan signifikan ($p=0,031$).</p> <p>Penerimaan diri dan tidak menghakimi orang tua terhadap anak juga signifikan ($p=0,011$).</p> <p>Hal ini menunjukkan bahwa keterlibatan aktif orang tua dalam berbagai aspek pengasuhan dapat membantu dalam mengurangi kecanduan smartphone pada anak.</p>
10	Rachmat, (2022)	Efektivitas Intervensi untuk Mengurangi Kecanduan Smartphone pada Anak Usia Dini	Intervensi, Pengurangan kecanduan	Hasilnya adalah berbagai intervensi dapat dilakukan oleh orang tua, namun perlu adanya pertimbangan dari karakteristik anak, lingkungan sosial budaya dan pola asuh yang diterapkan oleh orang tua. Namun dari berbagai intervensi yang disarankan tersebut, secara umum bahwa intervensi dengan mengurangi jam interaksi dengan smartphone, menggunakan aplikasi parental controlling adalah upaya konkret yang secara umum dapat dilakukan.
11	Mulyana et al., (2023)	Perilaku Kecanduan Bermain Gadget Pada Anak Usia Dini	Gadget Addiction	Ketergantungan gadget dapat disebabkan karena durasi penggunaan gadget yang melebihi batas wajarnya. Durasi yang panjang dan frekuensi yang sering dapat membuat anak menjadi pribadi yang antisosial (dalam Pebriana, 2017, hlm. 8). Hal tersebut terjadi karena anak sangat jarang berinteraksi dengan teman sebayanya ataupun dengan orang lain disebabkan oleh adanya penarikan diri terhadap lingkungan sekitar yang mana anak tersebut lebih tertarik untuk bermain gadget dibandingkan dengan bermain bersama temannya. Sehingga waktu yang seharusnya anak pergunakan untuk bermain atau berinteraksi dengan temannya menjadi berkurang juga disebabkan karena kurangnya kontrol dan pengawasan dari orang tua terhadap penggunaan gadget oleh anak dikarenakan kesibukan orang tuanya sehingga anak dibiarkan untuk bermain gadget semaunya.

12	Winda Adriani & Dasa Putri, (2024)	Mendeteksi Ancaman Kecanduan Gadget Pada Anak Usia Dini	Kecanduan Gadget, Pengasuhan	Ketergantungan anak usia dini pada gadget merupakan permasalahan yang signifikan. yang memiliki berbagai dampak negatif terhadap perkembangan dan kesejahteraan anak. Beberapa faktor penyebab kecanduan gadget meliputi pengasuhan yang tidak tepat, faktor neurosains, desain teknologi gadget yang menciptakan ketergantungan, dan pengaruh lingkungan sekitar. Ancaman kecanduan gadget pada anak usia dini mencakup gangguan tidur, sifat agresif, penghambatan pertumbuhan otak, ketergantungan pada teknologi, dan potensi gangguan mental. Orang tua memegang peran kunci dalam mencegah kecanduan gadget dengan membatasi waktu penggunaan gadget, memilih aplikasi yang sesuai, mengawasi penggunaan gadget, dan menjadi teladan yang baik. Orang tua juga seharusnya mengidentifikasi gejala-gejala kecanduan gadget pada anak. mereka, termasuk perubahan perilaku, fisik, emosional, sosial, dan prestasi akademik. Melalui keterlibatan proaktif Parents, dampak buruk kecanduan gawai pada anak usia dini dapat dikurangi.
13	U. Lestari et al., (2023)	Dampak Penggunaan Gadget Terhadap Perkembangan Psikologi Pada Anak Sekolah Dasar	Dampak Gadget, Perkembangan Psikologi	Dampak yang ditimbulkan yaitu dampak positif, anak mudah mencari informasi tentang pembelajaran, dan memudahkan untuk berkomunikasi dengan teman. Namun, dampak negatif yang ditimbulkan dari gadget, berpengaruh pada perkembangan psikologi anak, terutama aspek pertumbuhan emosi dan perkembangan moral. Dalam pertumbuhan emosi, anak yang menggunakan gadget menjadi mudah marah, suka membangkang, menirukan tingkah laku dalam gadget serta berbicara sendiri pada gadget. Sedangkan pengaruhnya terhadap perkembangan moral, berdampak pada kedisiplinan, anak menjadi malas melakukan apapun, meninggalkan kewajibannya untuk beribadah, dan berkurangnya waktu belajar akibat terlalu sering bermain game dan menonton youtube
14	Sari et al., (2022)	Pengaruh Perhatian Orang Tua Terhadap Kecanduan Smartphone pada Anak	Parental Attention, Smartphone Addiction	Kualitas perhatian orang tua yang baik diharapkan mampu menurunkan kecanduan smartphone pada anak. Tentu saja dibutuhkan kerja sama antara orang tua dan guru di sekolah untuk lebih memeroleh hasil yang optimal. Kerja sama dalam hal ini kolaborasi antara orang tua, guru mata pelajaran, wali kelas, serta guru Bimbingan dan Konseling dibutuhkan untuk mendapatkan hasil yang maksimal. Implikasi dari hasil penelitian ini adalah dibutuhkan penelitian lebih lanjut mengenai aspek-aspek perhatian orang tua yang mana yang lebih dominan dalam menurunkan tingkat kecanduan smartphone pada anak. Selain itu dibutuhkan pula penelitian lebih lanjut untuk mengetahui bagaimana upaya guru dalam menurunkan tingkat kecanduan smartphone pada anak.

15	Fauziyah et al., (2024)	Pengaruh Penggunaan Smartphone terhadap Perilaku Agresif Anak Usia 4-5 Tahun	Smartphone, Perilaku Agresif	Temuan penelitian menunjukkan bahwa (1) Intensitas penggunaan smartphone paling tinggi dari segi durasi penggunaan smartphone dalam sehari. (2) Data keseluruhan bersifat agresif perilaku pada anak usia 4-5 tahun sebesar 3,24. (3) Intensitas penggunaan smartphone mempengaruhi perilaku agresif pada anak usia 4-5 tahun.
16	Utami et al., 2024)	Pengaruh Penggunaan Smartphone Terhadap Perilaku Sosial Peserta Didik Kelas 5 SD	Penggunaan Smartphone, Perilaku Sosial	Sebagian besar peserta didik kelas 5 kecanduan untuk bermain smartphone. Pengaruh positif dari penggunaan smartphone peserta didik dapat lebih memahami mengenai teknologi. Pengaruh negatifnya terhadap perilaku sosial diantaranya emosional siswa meningkat dan sulit terkontrol, siswa menjadi lupa waktu, siswa suka minta uang keperluan untuk keperluan smartphone, siswa menjadi suka berbohong (tidak jujur), siswa kurang peduli dengan lingkungan sekitar, mengganggu kesehatan siswa, dan siswa menjadi pemalas dan sering mengabaikan kegiatan penting lainnya.
17	Agasi et al., 2022)	Pengaruh Pemakaian Gadget pada Peserta Didik Sekolah Dasar Berkaitan dengan Perkembangan Psikologinya	Gadget, Perkembangan Psikologi	Dampak positif yang ditimbulkan yaitu menambah wawasan siswa dan mempermudah siswa berkomunikasi dengan guru. Sedangkan dampak negatifnya yaitu mudah marah, menirukan tingkah laku pada gadget dan kecanduan memainkan gadget.

2. Factors affecting Smartphone Addiction

2.1 Duration and intensity of Smartphone use

Duration and intensity of smartphone use are dominant factors that contribute to smartphone addiction (Chang et al., 2019; Haug et al., 2015; Lin et al., 2015). The study by Chang et al. (2019) showed that children who spend longer periods using smartphones tend to have a higher risk of addiction. The average daily and weekly usage duration serves as a significant indicator, where children who use smartphones for more than 11 hours per week have a much higher prevalence of addiction. The longer and more frequently children use smartphones, the more vulnerable they are to developing Smartphone Addiction. Children who are addicted to smartphones tend to use them for 5 hours or more per day, or nearly 35 hours per week (Rachmat, 2022).

Additionally, Haug et al. (2015) found that smartphone use in the morning, especially immediately after waking up, has a strong correlation with addiction levels. Usage intensity—which includes frequency and consistency in accessing certain applications such as social media or games—is also a major determinant. Lin et al. (2015) noted that high-intensity smartphone use, measured by the median duration per session, reflects symptoms of tolerance, where users require longer use to achieve satisfaction. This condition is often exacerbated by a lack of parental supervision, allowing children to use smartphones without time restrictions.

Other research, such as that by Dhamayanti et al. (2019), revealed that children with long usage duration tend to experience negative impacts on their mental and emotional health, which subsequently reinforces the addiction cycle. In addition to addiction, children who use smartphones excessively are more likely to experience disorders.

Thus, the duration and intensity of smartphone use are not only triggering factors but also important indicators for identifying and addressing smartphone addiction in children. Interventions such as screen time regulation, restrictions on access to certain applications, and parental supervision are essential to mitigate these negative impacts.

2.2. Have Your Own Smartphone

Children who own their own smartphones are more vulnerable to addiction. Those who have personal smartphones tend to have less control over their usage compared to children who borrow devices from their parents. This increases the risk of addiction due to higher exposure to addictive applications such as social media, games, or video streaming (Chen et al., 2017). The study by Chang et al. (2019) also found that children who own smartphones tend to use them more intensively for gaming, accessing social media, or sending instant messages, which increases the likelihood of smartphone addiction.

Smartphone ownership also influences the duration and frequency of use, both of which are strong indicators of smartphone addiction (Haug et al., 2015; Lin et al., 2015). Children who own smartphones are more likely to develop uncontrolled usage habits compared to those who only use family or parental devices. Jeong et al. (2024) noted that smartphone ownership among children is often associated with high levels of dependence on smartphones, especially when parental supervision is lacking. Dhamayanti et al. (2019) also reported that smartphone ownership correlates with mental and emotional problems, such as depression and stress, which ultimately worsen addiction levels.

2.3 Negative parenting

Parenting style has been shown to play a significant role in the development of Smartphone Addiction among children. Harsh parenting tends to drive children to seek emotional compensation through excessive smartphone use (Yang et al., 2024). Authoritarian parenting is characterized by high control, dominance, and low responsiveness to children's needs, whereas permissive parenting is marked by low parental involvement, minimal boundaries, and excessive freedom (D. I. Lestari et al., 2020; Rachmat, 2022). Both parenting styles are associated with higher levels of smartphone addiction, as children tend to rely on smartphones as their primary source of comfort or escape when their emotional needs are not adequately fulfilled within the family environment (Yogesh et al., 2024).

2.4 Demographic Factors

The social environment, socioeconomic status and educational level of parents influence the prevalence of smartphone addiction in children.

Demographic factors play an important role in influencing the level of smartphone addiction in children and adolescents, as shown by various studies in the table of results provided. Age is an important indicator, with the adolescent age group (15-16 years) likely to be more susceptible to addiction than younger children or young adults (Haug et al., 2015) socioeconomic Status is also a significant factor; children from families with higher economic status have wider access to smartphone devices, which increases the intensity of Use and the risk of addiction (Yogesh et al., 2024) in addition, research shows that children in urban areas with wide access to technology are more susceptible to addiction (Yogesh et al., 2024). Children living in urban environments face greater risks due to higher social pressure to use technology and easier access to the internet.

Other factors such as parental education also influence the level of smartphone addiction. Parents with higher levels of education often have greater academic expectations of their children, which can lead to children using smartphones more for academic or entertainment activities as an escape from pressure (Yogesh et al., 2024)

This combination of demographic factors suggests that smartphone addiction is not only an individual problem but is also influenced by broader social and economic contexts. Therefore, a holistic approach that takes demographic factors into account in the design of interventions is essential to reduce the prevalence of smartphone addiction among children and adolescents.

2.5. Low physical activity

The link between physical activity and smartphone addiction is revealed in various studies in the table of research results. Research Haugi et al. (2014) showed that adolescents with low levels of physical activity have a higher risk of developing smartphone addiction. This is because the time that should be spent on physical activities or sports is replaced by

excessive use of smartphones, such as playing games, accessing social media, or watching videos. Children who engage less in physical activity tend to seek entertainment through digital devices, which ends up reinforcing unhealthy usage habits.

Furthermore, lack of physical activity is often associated with sedentary lifestyles, which can exacerbate the negative impact of smartphone use on mental and physical health. Children who spend more time in front of smartphone screens tend to experience social isolation, decreased sleep quality, and increased stress and anxiety (Dhamayanti et al., 2019). This trend further reinforces the cycle of dependence on smartphones as a means of escape from social or emotional reality.

Environmental factors also play a role. Children living in urban environments, with limited access to open spaces or sports facilities, are more likely to spend time indoors using smartphones. It is also compounded by social pressures and academic expectations that make children use smartphones more frequently to learn or communicate, but indirectly increase the risk of overuse (Yogesh et al., 2024)

In addition, the study of Haugi et al. (2014) highlighted that the association between low physical activity and smartphone addiction is more significant in the adolescent age group, which is in an important phase of development physically and mentally. Adolescents who are less physically active often have decreased social skills and a tendency to avoid face-to-face interactions, which ultimately makes them more dependent on smartphones as the main tool for communicating and socializing.

The involvement of children in physical activity can serve as a preventive strategy against smartphone addiction. Outdoor sports or recreational activities can reduce time spent in front of screens as well as provide significant physical, mental and social benefits. Parents and schools have an important role to play in encouraging active lifestyles, such as providing sports facilities, setting time for physical activity, and creating an environment that supports children to engage in non-digital activities. Thus, increased physical activity can be one of the main steps in reducing the risk of smartphone addiction in children and adolescents.

2.6. Motivation To Use Smartphone

Motivation plays a key role in encouraging excessive smartphone use behavior. Research shows that both internal and external motivation can affect the level of smartphone addiction in individuals, including children and adolescents. This type of motivation is related to emotional, social and recreational needs, which, if not properly managed, can lead to addiction. This article discusses the motivational aspects and types of motivation associated with smartphone addiction based on the relevant literature.

Types of motivation in Smartphone addiction

The motivations that drive smartphone use can be categorized into several types, as explained in the research of Chen et al. (2017):

1. **Perceived Enjoyment** Users often use smartphones to achieve a certain level of enjoyment. For example, playing games, watching videos, or browsing social media provide fun experiences that encourage addictive behavior. Individuals looking for instant entertainment tend to overuse smartphones to avoid boredom.
2. **Mood Regulation** Smartphones are used as a tool to regulate mood, such as reducing stress, anxiety, or feelings of sadness. Teens, in particular, tend to use social media or other apps as an emotional escape. Research Chen et al., (2017) found that this mood regulation is one of the main drivers of addiction in women.
3. **Pastime** Many users spend time on smartphones as a form of entertainment when no other activity is done. This motivation is often found in children and adolescents who have free access to devices without clear time restrictions (Chang et al., 2019).
4. **Conformity** Social conformity is becoming an important factor in the use of smartphones. Children and adolescents often feel compelled to use smartphones so as not to feel left behind or isolated from their peer group. This is reinforced by social pressure to

stay connected through social media or instant messaging apps (Chen et al., 2017)

5. **Social Relationship** Smartphones are also used to maintain and strengthen social relationships. Although this motivation appears to be positive, overuse for social purposes can become addictive when individuals feel the need to constantly connect without pauses (Haug et al., 2015)

2.7. Social Networking Sites (SNS)

Social Media or SNS is one of the most dominant applications used on smartphones. Its use is often the main trigger for smartphone addiction, especially among children and adolescents. Excessive use of social media not only increases smartphone addiction but also negatively affects mental health. Dhamayanti et al. (2019) found that children with high levels of smartphone addiction, often associated with social media use, had a higher prevalence of mental problems such as stress and anxiety. Social Media also has different types of apps that affect usage patterns and addiction levels. Chen et al. (2017) noted that platforms focused on entertainment and fun, such as TikTok or Instagram, are more likely to trigger addiction compared to platforms that are more informative or educational in nature. Here are some factors that have a significant effect on strengthening the relationship between social media and smartphone addiction.

1. Duration and frequency of social Media use

Research Haugi et al. (2014) showed that the duration of social media use to be one of the main indicators of smartphone addiction. The longer a person spends on social media, the more likely they are to develop an addiction. Children who used smartphones to access social media every day, especially in the morning, showed higher levels of addiction than users with lower durations.

2. Social needs and social pressures

Social Media serves as a platform to meet social needs, such as making friends, sharing information, and gaining recognition from others. However, Haugi et al. (2014) found that excessive use of social media is often

driven by social pressure to stay connected. This is especially true of teenagers who feel they must always be active on social media in order not to lag behind in their social interactions.

3. Unbalanced connectedness

Research Chang et al., (2019)) noted that children who use social media frequently are more prone to smartphone addiction. They tend to develop unhealthy patterns of use, such as checking notifications repeatedly or feeling anxious if they are not connected to social media. This unbalanced connectedness increases the risk of dependence on smartphones.

2.8. Smartphone Technology Design

The technological design of smartphones is designed to maximize user engagement through innovative features that often lead to overuse. Features such as push notifications, personalized algorithms and an attractive interface not only improve the user experience, but also contribute to addiction. The design aspect of technology has a significant role in increasing the risk of addiction, especially in children and adolescents. Here are some design features that contribute to Smartphone addiction

Push Notifications

Push notifications are one of the main elements designed to constantly attract the attention of users. Each notification creates a push to open the app, which often triggers repeated smartphone use. Adriani & Putri, (2024) noted that this feature can increase dependency on certain applications, especially social media.

Personalized algorithms

Personalization algorithms on apps such as social media, games, or streaming services are designed to deliver relevant and engaging content to users. Research Chang et al. (2019) showed that this algorithm makes it more difficult for users to stop using applications, as they are always presented with content that matches their preferences.

Interactive interface design

A well-designed and intuitive interface increases the appeal of the application, especially for children. Bright colors, animations and smooth user experience make the app more interesting and addictive. Sustainable research et al. (2022) showed that children are often attracted to apps with child-friendly designs, which contributes to overuse.

Gamification Features

Gamification elements, such as achievements, points, or levels, are often used in apps to increase engagement. Chen et al. (2017) noted that this feature encourages users to continue using the app for the sake of achieving certain rewards, which can lead to addiction.

Endless content design

Features like infinite scroll on social media or autoplay on streaming video services keep users stuck in an endless cycle of content consumption. Adriani & daughter, (2024) mentions that such a design is specifically designed to extend the duration of use, which is the main indicator of addiction.

2.9. Mental Health

Mental health, both in children and parents, has a significant influence on smartphone addiction in children, as shown in various studies in the table of results. Children who experience mental health problems, such as stress, depression, or anxiety, are more prone to overuse smartphones as an escape tool from their emotional distress (Haug et al., 2015) . Dhamayanti et al. (2019) found that children with high levels of smartphone addiction had a greater prevalence of mental-emotional disorders compared to those with moderate use. This excessive use of smartphones is often a form of maladaptive coping mechanism, especially when emotional support from the social environment is minimal. On the other hand, the mental health of parents also influences the level of addiction in children. Research Jeong et al. (2022) showed that the dependence of the smartphone on the mother significantly affects the degree of dependence of the child. Mothers who have smartphone addiction tend to have more difficulty implementing consistent and effective supervision of children, allowing children to use the device without restrictions. In addition, parenting that is not sensitive to the

emotional needs of children—which are often influenced by the mental health conditions of parents—exacerbates the risk of smartphone addiction in children. Thus, there is a reciprocal relationship between the mental health of parents and children that reinforces the risk of smartphone addiction, emphasizing the importance of interventions focused not only on the child's behavior but also on the emotional health of the family as a whole

3. Factors that moderate Smartphone Addiction

3.1 The role of parents and parental mediation

The role of parents and parental mediation play a key role in moderating the relationship between smartphone use and smartphone addiction in children, as revealed in various studies in the table of results. Parental mediation such as time restrictions and content supervision helps reduce the risk of addiction. Parents who are actively involved in parenting can also create a significant positive impact (Chang et al., 2019; D. I. Lestari et al., 2020)

Effective parental mediation, such as limiting the time of Use and selecting appropriate content, can weaken the negative relationship between the duration of smartphone use and the degree of addiction. Research Chang et al. (2019) showed that parents with a high risk perception of the negative impact of smartphones are more likely to apply restrictive mediation, which has been shown to reduce the risk of addiction in children. In addition, parental involvement in active surveillance also strengthens children's internet safety literacy, which in turn helps children make better decisions regarding smartphone use. Parental mediation not only limits use but also gives children an understanding of how to use technology wisely.

Thus, the role of parents as mediators is very important in reducing the negative impact of excessive smartphone use. An approach that involves open communication, consistent boundaries, and digital education can help create healthy patterns of smartphone use in children. These studies confirm that the active role of parents in parenting and mediation is key to preventing and reducing the risk of smartphone addiction in children.

3.2 Positive Parenting

Positive parental parenting plays an important role in moderating smartphone addiction in children, as revealed in various studies in the results table. (Yogesh et al., 2024) also states that authoritative parenting helps lower the risk of addiction. Parents with authoritative parenting patterns that provide warmth, are actively involved, and provide clear boundaries regarding smartphone use, can help prevent addiction in their children. The role of parents in providing active supervision has also been shown to be effective in preventing addiction (Chang et al., 2019; Lestari et al., 2020). Parents who are more involved and provide socio-emotional support to their children tend to have lower levels of smartphone addiction (Rachmat, 2023).

In addition, the implementation of effective parenting management can also moderate smartphone addiction in children. Effective parenting management involves variables such as good communication between parents and children, the application of discipline, as well as the ability to listen attentively, as identified by Lestari et al. (2020). The study found that positive communication, such as listening to children without judgment and providing explanations about time limits on smartphone use, can significantly reduce the risk of addiction. In addition, consistent application of discipline helps children understand the importance of limiting the duration of smartphone use. A non-judgmental acceptance of the child's needs, but accompanied by clear guidelines, also creates a nurturing atmosphere conducive to preventing addictive behavior.

Positive parenting not only moderates smartphone addiction through direct supervision, but also builds children's awareness of the healthy use of technology. Jeong et al. (2022) added that good parenting patterns also reflect parents' own technology behavior. Parents who set an example in managing smartphone use, such as limiting their own screen time, indirectly influence children's behavior.

Overall, positive parenting provides a strong foundation for reducing the negative impact of smartphones on children. By integrating good communication, consistent discipline, and understanding acceptance, parents can effectively moderate the risk of smartphone addiction.

3.3. Core Self-Evaluation (CSE)

Core self-evaluation (CSE) is a psychological concept that refers to a person's core evaluation of himself or herself, encompassing aspects of self-esteem, self-efficacy, emotional stability, and control over oneself (Yang et al., 2023). Individuals with a positive core self-evaluation are more resistant to the temptation of smartphones and tend to avoid addiction. (Lestari et al., 2020)

In the context of smartphone addiction, core self-evaluation plays an important role in moderating the relationship between external factors, such as harsh parenting patterns, and the risk of smartphone addiction in children. The study of Yang et al. (2023) showed that children with low core self-evaluation are more vulnerable to the negative impacts of harsh parenting patterns, such as lack of self-control and a tendency to compulsively use smartphones as a way of coping with emotional distress. In contrast, children with high core self-evaluations had a better capacity to manage stress and limit their smartphone use, even in less supportive environments.

Parental care management, as described by Lestari et al. (2020), has an important role in building a healthy core self-evaluation in children. Variables such as positive communication, application of discipline, and acceptance without judgment are key elements in parenting that support the development of CSE. Open communication helps children feel heard and valued, which increases their self-esteem. Consistent discipline teaches children responsibility and self-control, while nonjudgmental acceptance creates a sense of emotional security that strengthens a child's psychological stability.

The relationship between core self-evaluation and parental care management is evident in children's ability to regulate smartphone use behavior. Children who acquire supportive parenting are likely to be able to develop healthy self-control strategies, such as limiting screen time or refraining from the urge to constantly check their devices. In contrast, children with harsh parenting but who lack emotional support tend to develop low CSE, which increases their risk of smartphone addiction as a mechanism to escape emotional distress.

In conclusion, core self-evaluation is an important internal factor in moderating the impact of parenting on smartphone addiction. With a positive parenting approach, including effective communication, fair discipline, and emotional acceptance, parents can support the healthy development of CSE in children. This not only reduces the risk of smartphone addiction, but also helps the child better deal with other psychological challenges. The study by Yang et al. (2024) and Lestari et al. (2020) underscored the importance of integrating internal and external factors in managing the risk of smartphone addiction in children.

3.4. Connectedness to Nature (CtN)

Connectedness to Nature (CtN) is a concept that refers to a person's emotional connection to nature, including feelings of closeness, caring, and engagement with the natural environment. In the context of Smartphone Addiction, connectedness to nature plays an important moderation factor, as it can reduce the negative impact of hard parenting on smartphone addiction in children. Research Yang et al. (2024) showed that children who have high CtN are better able to cope with the emotional stress resulting from hard parenting, so they are less likely to overuse smartphones as an escape. In contrast, children with low CtN are more prone to addiction, mainly because they lack alternatives to relieve stress or occupy free time.

Parental care management, as explained by Lestari et al. (2020), can support the development of CtN through approaches involving activities in nature. Variables such as good communication, application of discipline, and nonjudgmental acceptance play an important role in encouraging children to engage in outdoor activities. Positive communication between parents and children can increase children's awareness of the benefits of nature, while consistent discipline helps manage smartphone use time so that children have time to interact with the natural environment. Non-judgmental acceptance creates a sense of comfort that allows children to explore nature without feeling pressured.

CtN also provides a healthy alternative for children to meet the emotional and social needs that are usually sought through smartphones. Children who connect with nature tend to be more physically active, have a

better sense of social engagement, and are able to reduce stress without relying on digital devices. In addition, activities with the family in nature, such as a walk in the park or gardening, strengthen family relationships while reducing children's screen time.

In conclusion, connectedness to nature serves as an effective protector against the risk of smartphone addiction, especially in situations where harsh parenting can potentially exert emotional stress. By encouraging activities in nature and practicing parenting that involves positive communication, consistent discipline, and emotional acceptance, parents can help children develop healthy relationships with technology and the surrounding environment. Studies by (Yang et al., 2024)) and Lestari et al. (2020) highlighted the importance of integrating nature-based approaches and wise parenting to mitigate smartphone addiction in children

3.5 Gender

Gender plays an important role in moderating Smartphone Addiction in children, as boys and girls exhibit different patterns of smartphone use, particularly in terms of motivation and response to technology. Research Chen et al. (2017) found that men tend to use smartphones for entertainment, such as playing games and pursuing instant pleasure (perceived enjoyment) as well as social conformity, while women use smartphones more for mood regulation (mood regulation) and maintaining social relationships (social relationships). This suggests that these different motivations for use may affect the way boys and girls respond to risk factors for smartphone addiction. For example, men with free access to gaming or social media tend to be more prone to compulsive patterns of use, while women are more prone to emotional distress from overuse for communication.

Gender also influences the effectiveness of technology-based interventions, such as parental control apps or digital monitoring. Boys tend to be more in need of direct restrictions on gaming apps, while girls may be more in need of education about managing the social pressures that arise from social media use. A combination of technology-based

approaches and wise parenting can help balance a child's needs based on their gender.

Gender moderated the relationship between motivation for smartphone use and addiction in different ways for men and women. Effective parenting management, such as positive communication, consistent discipline, and emotional acceptance, can help overcome these differences. Study by Chen et al., (2017) and Lestari et al., (2020) emphasized that gender-tailored parenting is critical to mitigating the risk of smartphone addiction in children.

CONCLUSION

Smartphone Addiction in children is a complex and multidimensional problem that involves a variety of interacting factors. Smartphone Addiction refers to excessive, uncontrolled, and negatively impacting smartphone usage behavior in everyday life and is usually measured by the Smartphone Addiction Scale (SAS) or Smartphone Addiction Inventory (SPA).

Based on an analysis of the literature, there are nine main factors that influence smartphone addiction in children. These factors are: (1) the duration and intensity of smartphone use, which is directly the main indicator in identifying the risk of addiction; (2) own smartphone ownership, which provides unlimited access to devices and applications, thereby increasing the likelihood of overuse; (3) negative parental attitudes, such as permissive or authoritarian styles, which contribute to uncontrolled smartphone use; (4) demographic factors, such as age, socioeconomic status, and urban environments, where children who live in cities or come from families with high economic status are more prone to addiction; (5) low physical activity, which increases dependence on smartphones for leisure; (6) motivation for smartphone use, such as mood regulation, pleasure, and social pressure, which are additional triggers; (7) use of social media or SNS, which offer social connectedness but often create pressure to stay connected; (8) the design of smartphone technology, including features such as push notifications and infinite scroll, which are designed to increase user engagement; and (9) mental health, both in children and parents, which affects the degree of dependence of children on smartphones.

In addition, there are five factors that moderate the relationship between smartphone use and addiction: (1) the role of parents and mediation, where limiting the time of Use and choosing content helps children manage their behavior more healthily; (2) positive parenting, such as an authoritative style that provides warmth and clear boundaries, favors the development of self-control in children; (3) core self-evaluation (CSE), which; (4) connectedness to nature (CtN), which provides a healthy alternative to meet a child's emotional and social needs without dependence on digital devices; and (5) Gender, which moderates patterns of addiction with males more driven by Entertainment and females more driven by emotional regulation.

The recommendations of these findings focus on collaboration between parents, educators, governments, and researchers. Parents need to adopt a positive parenting style by prioritizing open communication, active supervision, and consistent restrictions regarding smartphone use. In addition, parents can involve the child in physical activity and outdoor activities that increase the connection with nature. In the school environment, educators can integrate digital literacy into the curriculum to raise children's awareness of the healthy use of technology. The government is also playing a role in developing policies to limit children's screen time and supporting further research into the long-term impact of smartphone addiction in Indonesia. In the meantime, researchers need to continue studies on how social, economic, and technological factors influence addiction and develop relevant evidence-based interventions.

However, this study has limitations. First, most of the studies reviewed used a cross-sectional approach, making them less able to explain the long-term effects of smartphone addiction. Secondly, there are still limitations in the control variables, such as the influence of the social environment or peers, which may affect the results of the study. Third, this study does not fully reflect the social and cultural context in Indonesia. Therefore, further studies are needed to deepen the understanding of this phenomenon as well as to design effective interventions in reducing the risk of smartphone addiction in children and adolescents. By understanding the factors that influence and moderate smartphone addiction,

preventive and curative measures can be implemented to create a physically and mentally healthier generation.

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