

CHILDREN'S DIGITAL LITERACY: PARENTAL ROLE IN PROTECTION AMID PANDEMIC AND DIGITAL SHIFT

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Abstract

The COVID-19 pandemic has brought significant changes to family life, including the role of parents in accompanying their children in the digital era. This study examines the role of parents in supporting children's digital literacy during the pandemic, while also identifying challenges in minimizing the risks of exposure to harmful online content. Using a quantitative approach, the study involved 25,164 children and 14,169 parents across Indonesia. The findings show a drastic increase in children's gadget use, with the majority of time spent on online entertainment. However, parental supervision remains limited, both in terms of quantity and quality. Only 59.1% of fathers and 68% of mothers consistently provide digital literacy education. This lack of supervision exposes children to risks such as cyberbullying, exposure to harmful content, and technology addiction. The study highlights the importance of collaboration between parents and educational institutions in strengthening safe and beneficial digital literacy practices for children in the digital era.

Keywords: *Children's digital literacy, family education, harmful online content, parental supervision, technology addiction.*

INTRODUCTION

The World Health Organization (WHO) declared a global pandemic of COVID-19 on 11th March 2020, marking its widespread impact on health, social, economic, political, and educational (World Economic Forum, 2020; Chetty et al., 2024). In Indonesia, the pandemic prompted major changes, including the implementation of policies such as Large-Scale Social Restrictions (PSBB), The Community Activities Restrictions Enforcement (PPKM), and health protocols to curb the spread of the virus (Labetubun et al., 2021). In addition, adaptations such as Work From Home (WFH) were implemented in various sectors to reduce direct interactions, in line with the government's efforts to deal with a significant increase in cases (Ammade et al., 2022; Saraswati et al., 2024; Rimbawati, 2021).

During the COVID-19 pandemic, working and learning systems have undergone significant change up to Work From Home (WFH) and Distance Learning (PJJ) to minimise in-person meetings (Aristovnik et al., 2023; Al-Habaibeh et al., 2021). Whereas it aims to reduce the spread of the virus, according to Budnitz & Tranos (2022), this adaptation presents challenges since not all people are familiar with online activities. Technology support is key in supporting communication and remote activities, as stipulated in the Circular Letter of the Minister of Education and Culture No. 36962/MPK.A/HK/2020 which stipulates online learning and WFH policies as preventive measures (Schamilow et al., 2023; Al-Habaibeh et al., 2021).

As a result of societal adaptation, during the pandemic, there has been a significant surge in internet usage in

Indonesia (Siste et al., 2020), with the number of users reaching 210 million people in 2021, it makes the internet as a key necessity to support work and study during social distancing (Wicaksono & Simangunsong, 2022). However, Zeng et al. (2022) mentioned, this increasing use of digital technology needs to be balanced with extensive digital literacy, because there are still many individuals who have use it optimally, and potentially cause negative impacts on individual and social life (Reddy et al., 2023). Therefore, Deschênes (2024) explains that the digital literacy movement must be strengthened to improve technical skills while building the character of a nation which is wise in using technology.

During the pandemic, the shift of activities at home made the family as the main unit of digital literacy implementation, with parents playing an important role in introducing technology to their children (Romero, 2014; Utami et al., 2022). The work from home policy increases children's use of gadgets, both for learning and playing, which has a significant impact on their digital literacy development (Asmayawati, 2023). Whereas previously children were more physically active, now more time is spent technologically, so it is crucial for parents to teach using of gadgets wisely to prevent rule breaking or online violence which can affect children's behavioural development (Benedetto & Ingrassia, 2021).

Thus, the COVID-19 pandemic has brought major changes in children's lives, moreover regarding access and use of digital technology, which demands effective assistance from parents to develop healthy digital literacy (Khattar, 2024). Without adequate understanding, children are vulnerable to psychological impacts due to their unstable emotions and inability to objectively filter information, which can affect their behaviour, mental health and identity (McDool et al., 2020; Senekal et al., 2023). Digital literacy includes technology skills, critical thinking and social awareness, which can help children utilise technology wisely and avoid cyber threats (Harjono, 2019a; Rayhan, 2023). Therefore, parents and teachers need to provide control, select appropriate shows, and guidance to use technology as a positive impact (Muñoz-Carril et al., 2023; Marín & Castañeda, 2023).

In pandemic conditions, forcing many parents to work from home, information and communication technology has become an important part of the routine, so parents' understanding of digital literacy is needed to guide children to use technology wisely and safely (Romero, 2014; Benedetto & Ingrassia, 2021). This assistance ensures children not only use technology efficiently but also avoid negative impacts such as online violence and misuse of technology (Safitri & Muryanti, 2021). This study aims to examine the role of parents in implementing digital literacy in children and identify their vulnerability to cyber violence during the COVID-19 pandemic.

In the context of the fulfilment of children's rights, every child has the right to receive care from both parents and to obtain information that is appropriate to the child's age. Child Protection Law Number 35 of 2014 mentions the right to custody of children, including in article 7, article 14, and article 26. Furthermore, article 10 states that children have the right to provide and obtain information in accordance with their level of intelligence and age for self-development in accordance with the values of decency and propriety. In addition, Article 11 states that children also have the right to rest and spend their spare time for self-development. During the Covid pandemic, children spend more time at home and use more gadgets. The role of parents in parenting and guiding the use of devices is very important. Parents' digital literacy and understanding of parenting in the digital era are key.

LITERATURE REVIEW

In the context of digital literacy of children in Indonesia, digital literacy is recognised as an important competency to deal with the complexity of information in the digital movement, including the ability to manage, evaluate and create content responsibly (Vodā et al., 2022; Spante et al., 2018). Mustofa & Budiwati (2019) identified two main dimensions of digital literacy in children: digital participation, which includes the activities of creating, disseminating and organising media, and privacy management, which involves data management and control of personal accounts. They also proposed a phased approach involving family, school and community as digital literacy initiatives to support children's competency development in an increasingly connected world.

Salehudin (2020) found that the availability of facilities such as the internet, smartphones and laptops, as well as a conducive home environment and structured parental involvement, contributed significantly to improving the digital literacy of children aged 4-6 years. This is also in line with the study of Ozturk & Ohi (2022) in Turkey, which showed that access to electronic devices and the internet at home can support children's digital literacy, especially if supported by parents' guidance to avoid the negative impact of technology. These two studies highlight the importance of the interaction between digital competence, supporting infrastructure and socio-economic influences in promoting

effective digital literacy in families, forming the basis for further research on external and internal enabling factors in children's digital literacy development.

Sutrisna (2020) emphasises the importance of the parents' role in supporting children's digital literacy during the COVID-19 pandemic through the provision of relevant reading materials, carefully selected television shows and educational apps, and adequate access to technology devices and the internet to create a safe learning experience at home. Meanwhile, Zabidi & Tamami (2021) show the relevance of digital literacy in Islamic Boarding School (Pesantren)-based education, as in Pesantren Rakyat Al-Amin Malang, the utilisation of digital technology not only expands access to religious learning materials, but also encourages students' creativity and skills in the use of technology for educational purposes. Both studies highlight the importance of digital literacy in supporting education that is more adaptive to the needs of the younger generation in the digital era.

Based on the literature studies above, families, especially parents, have a key role in supporting children's digital literacy, both as facilitators who provide access to technology and as companions in digital learning. Parents are expected to not only ensure facilities such as digital devices and internet access availability, but also provide supervision of the content accessed and introduce basic digital skills (McClain, 2018; Zimmerman et al., 2008; Asmayawati, 2023). Research shows that active parental assistance can significantly improve children's digital literacy skills (Salehudin, 2020; Ozturk & Ohi, 2019; Sutrisna, 2020). Changes during the pandemic strengthening the dominance of technology make the study of the role of parents in assisting children's use of technology relevant, especially to address vulnerability to cyberbullying and negative content, and support child protection policies in the digital era.

METHODS

This study used a quantitative approach with online data collection through Google Form on 8-14 June 2020, involving 25,164 children aged 10-18 years and 14,169 parents from 34 provinces in Indonesia. Data were collected using sequential questionnaires distributed via WhatsApp, Instagram, and Facebook, with a quality control mechanism to test the validity and reliability of the data (Groves, 2011). A pre-test of the questionnaire was conducted to ensure the clarity and reliability of the instrument, so that the research results have high validity and reliability (Biemer & Lyberg, 2003).

Furthermore, quantitative analyses were used to evaluate trends in certain indicators through comparisons of proportions of values and analyses between variables to identify variations (Babbie, 2021), with SPSS software for data analysis. The focus was on examining parental involvement in supporting children's digital literacy during the COVID-19 pandemic, which is relevant to the changing educational methods of the time (Gonzalez-DeHass et al., 2022). Although the results cannot be generalised due to the sampling method, this study provides important insights into the situation of children in Indonesia during the pandemic, in line with similar studies on the role of parental support for children's education (Balayar & Langlais, 2022).

FINDINGS AND DISCUSSION

Findings

a. The Situation during Pandemic

Family nurturing plays a crucial role in shaping children's character, especially amid increased digital technology use during COVID-19. Digital literacy, guided by parents, supports children's development, but parental education level affects their ability to assist. Most parents (40.7%) had a high school education, while fewer had either low (2.1% no primary education, 9.1% primary school) or high education (6.1% master's and above).

Pandemic-induced work changes also influenced parenting, with varied work patterns affecting childcare and digital mentoring. According to Hoover-Dempsey and Sandler's model (Gonzalez-DeHass et al., 2022), parental engagement depends on perceived effectiveness, but confidence in technology and communication barriers pose challenges. Tech-savvy parents provide better digital literacy support.

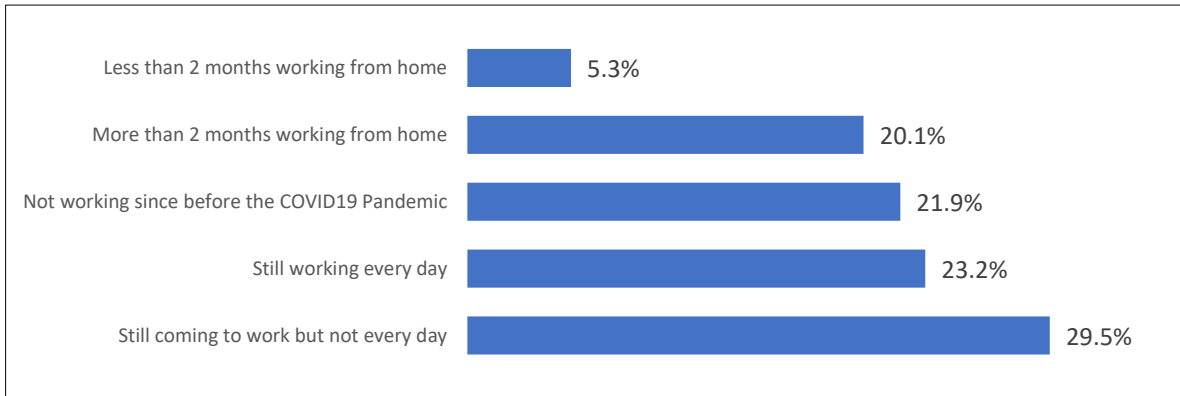


Figure 1. Employment Situation of Parent Respondents During the Covid-19 Pandemic

Changes in work patterns during COVID-19, particularly work-from-home policies, significantly impacted family dynamics, especially with children learning from home. While WFH fosters closer parent-child interactions that support education and well-being, challenges like work stress, family conflicts, and space limitations can increase tension and risk of abuse. Support from the government, schools, and communities is essential to maximize benefits and minimize risks, ensuring a healthy home environment. Figure 2 below shows the percentage of children's activities perceived by parents during the pandemic:

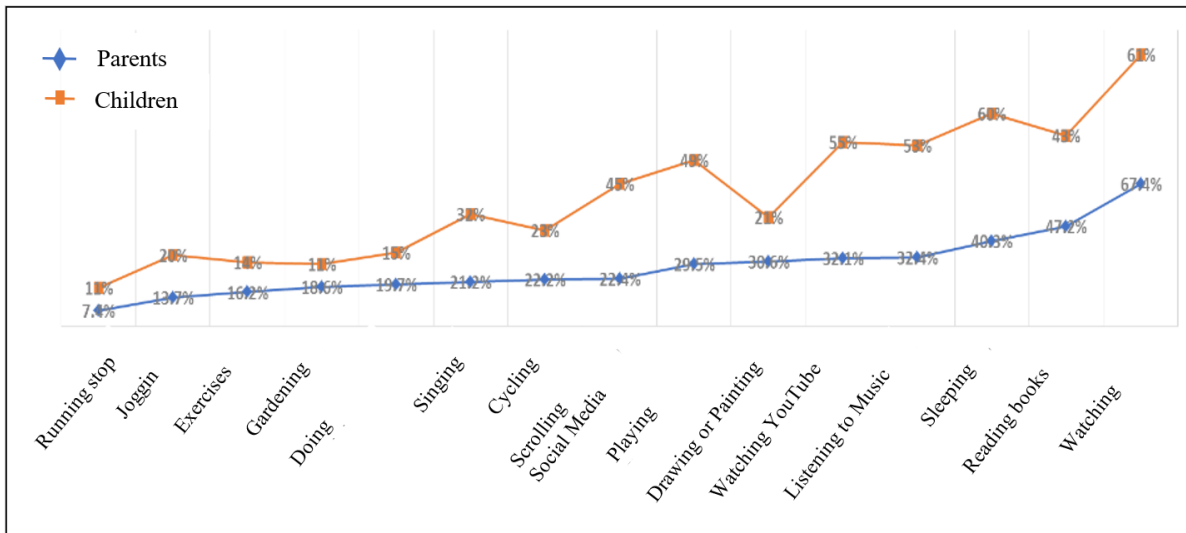


Figure 2. Children's Activities Other than Learning During the Covid-19 Pandemic

The COVID-19 pandemic altered children's activity patterns, revealing a gap between their own and parents' perceptions. Surveys show children engaged mostly in watching TV (61%), sleeping (60%), and YouTube (55%), while parents believed their children prioritized TV (67.4%), reading (47.2%), and sleeping (40.3%). Parents tended to underreport digital activities like gaming and social media, indicating observation bias or limited awareness.

This perception gap highlights the need for open communication to better understand children's activities. Eyler et al. (2021) confirm similar trends, where parents noted reduced physical activity while children focused on digital entertainment. Social barriers, including lack of playmates and supervision, further shaped these patterns. Tailored mentoring and educational programs are essential to support positive activities and strengthen parents' roles as caregivers.

b. Parent Assistance

Parental assistance when children are on the move remains an important need, even though it often conflicts with their own busy schedules. The data in Figure 3 below shows that during the Covid-19 Pandemic, 43.5% of parents always accompany their children, 29.8% often accompany them, and 21.9% only sometimes. In contrast, only 1.6% rarely accompanied their children, and 1.2% never. This figure reflects that in quantity,

parents' involvement in accompanying children, both in activities and in the utilisation of leisure time, is already at a fairly good level.

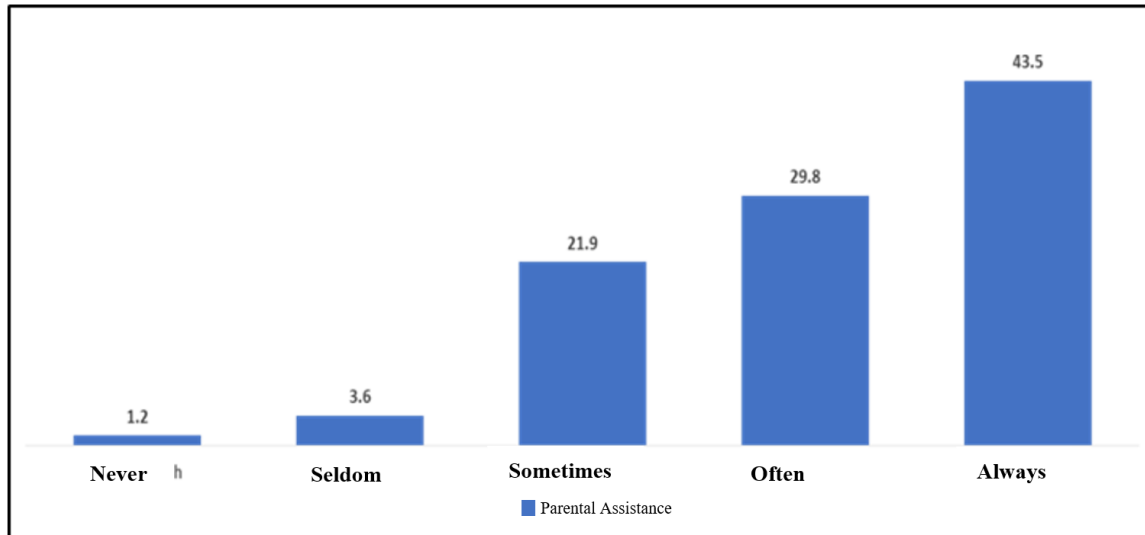


Figure 3. Level of Parental Assistance During the Pandemic

Although many parents have made efforts to accompany their children during the pandemic, the quality of assistance is an important aspect that needs to be considered, as physical presence does not always mean emotional engagement or meaningful interactions (Gao et al., 2024). The pressures of work and domestic responsibilities often reduce parents' full attention to their children. Therefore, mentoring should be focussed on positively impacting children's development, such as effective communication, support for creative exploration, and strengthening emotional relationships, as emphasised by Yang et al. (2023).

c. *Device Usage during the Pandemic*

The COVID-19 pandemic has transformed devices from a threat to an essential tool for children's learning, but a lack of digital literacy and understanding of online protection (Sonnenschein et al., 2023) increases the risk of inappropriate content and cyber threats. Strategic steps are needed to increase digital awareness and skills in children and parents to keep the use of devices safe and productive. Figure 4 below shows the percentage of device use other than for learning activities:

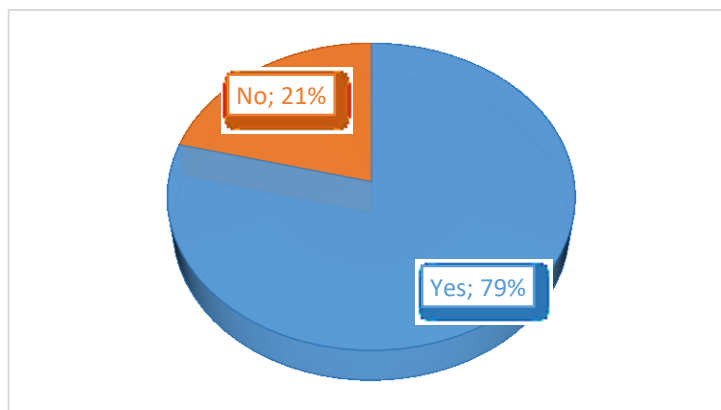


Figure 4. Percentage of Device Usage Other than for Learning

A survey found that only 21% of parents strictly limit mobile device use to learning, while 79% allow usage beyond study hours. This highlights mobile devices as essential for children, especially with online learning becoming a daily necessity. In response, parents accommodate this need by purchasing dedicated devices, lending personal ones, or organizing shared family use. Figure 5 below illustrates the pattern of device ownership among children during the pandemic, based on survey data.

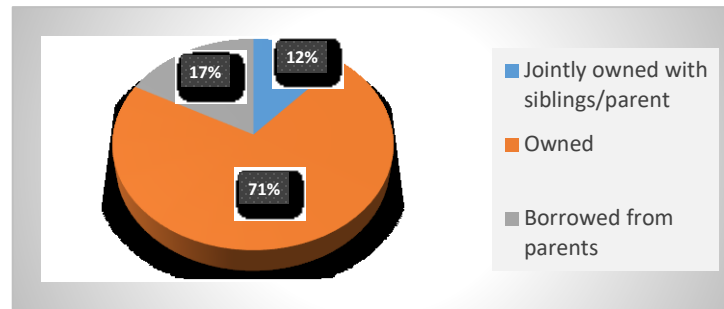


Figure 5. Percentage of Device Ownership

During the pandemic, 76.8% of parents allowed their children to use devices outside of learning, while 23.2% restricted it to learning only, in line with the findings of Indonesian Child Protection Commission (KPAI) (Author., 2015). However, such permission should be accompanied by intensive assistance, as without supervision, children are vulnerable to negative impacts, such as exposure to inappropriate content and addiction (Livingstone et al., 2018). In Indonesia, 64% of parents have difficulty monitoring their children's activities due to limited time or technological knowledge (Hidayati et al., 2023). Therefore, the role of parents is very important to ensure that the use of gadgets remains healthy and beneficial.

The duration of children's device use varied, with 36.5% using 1-2 hours per day, 34.8% for 2-5 hours, 25.4% more than 5 hours, and 3.3% only 1-4 times per week. This finding shows that prolonged use is at risk of becoming excessive without good management. Twenge & Campbell (2018) linked device use of more than 3 hours per day with the risk of psychological disorders, such as anxiety and depression. Santrock et al. (2021) also emphasised the importance of limiting screen time to maintain a balance of children's activities, including social interaction and physical play. The following figure 6 shows the duration of device use outside of learning purposes.



Figure 6. Duration of device use other than for learning purposes

Stiglic & Viner (2019) stated that the use of devices 2-5 hours per day outside of learning is considered excessive, especially for playing games, while use of more than 5 hours has negative impacts, such as physical, mental disorders, addiction, and disruption of learning focus, sleep, and other daily activities (G et al., 2024). The Indonesian Medical Association (2020) recommendations suggest a maximum screen time duration of 1-1.5 hours per day for children aged 6-12 years and 2 hours for 12-18 years (Mukaromah, 2020). Therefore, education on the use of devices is important to help children avoid adverse effects.

During the pandemic, the use of devices without parental assistance is a concern, with 52% of children using them to chat or watch YouTube, 50% to search for information, 42% to socialise, 31% to play online games, and 22% to use productivity apps or watch online films. The dominance of entertainment and social activities shows the need for effective time management and mentoring to prevent the negative impact of device use.

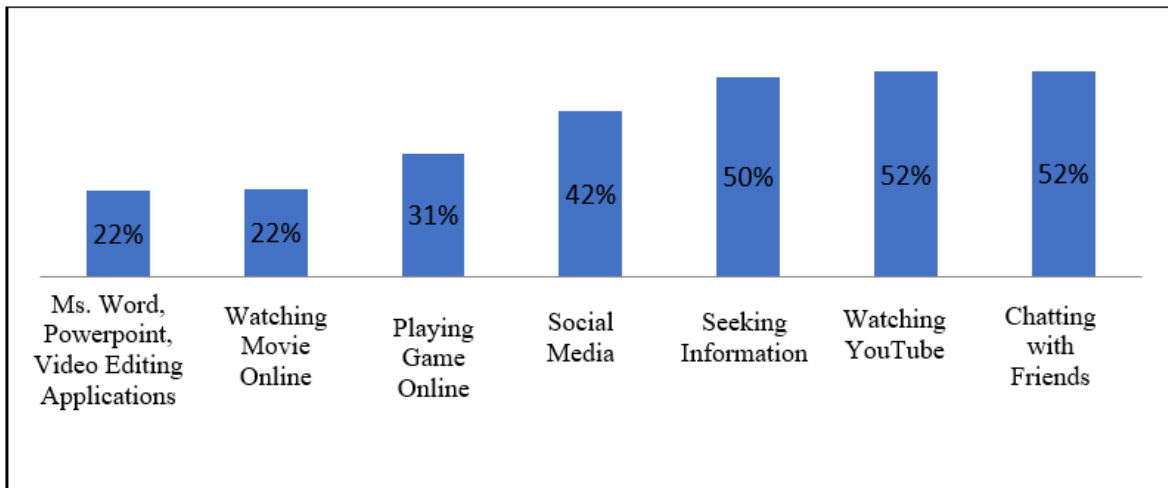


Figure 7. Types of Devices Used by Children

The survey reveals that children primarily use devices for chatting (45.8%), YouTube (60.4%), gaming (59%), and socializing (32.3%), while parents believe they use them more for information-seeking (71.6%) and entertainment. Other uses include productivity apps (26.4%) and online films (13.8%). This highlights the dominance of social and entertainment activities over education. Following Stiglic & Viner (2019), parental supervision is essential to encourage more productive and beneficial device use.

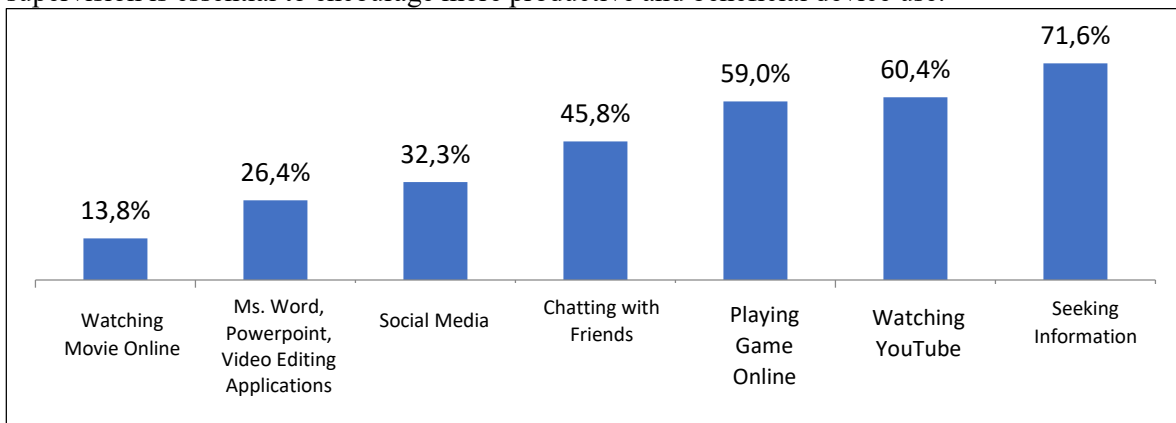


Figure 8. Children's Gadget Activities by Parents

The significant difference between parents' and children's perceptions of device use indicates a gap in understanding and supervision. Many parents feel they can supervise their children well, but in reality, children utilise devices for uncontrolled activities, such as accessing negative content that can damage their development, including violence and pornography. According to Priftis & Panagiotakos (2023), parents' inability to monitor the use of these devices can worsen the parenting process, as children are not only exposed to negative impacts directly, but also develop unhealthy behaviours.

d. *Mentoring Children in the Use of Gadgets*

The use of digital devices has become an important part of children's lives, providing opportunities for learning, entertainment, and social interaction, although parental assistance is still far from optimal (Clemente-Suárez et al., 2024; S. Livingstone & Helsper, 2008). Data from KPAI shows that the parenting quality index related to digital mentoring only reaches 3.45 on a scale of 5, with fathers contributing slightly better in technical aspects (Author., 2015; Clemente-Suárez et al., 2024). Effective mentoring requires structured parenting strategies, such as setting rules for duration, location, and content accessed, which can help children develop time management and decision-making skills (Duraiappah et al., 2021; Livingstone & Helsper, 2008). The active role of parents, including choosing educational apps with their children, not only enhances digital safety but also encourages responsible technology use habits (Kardefelt-Winther, 2017).

Direct assistance and active parental supervision while children use digital devices are important to

prevent negative impacts on children's development, including the risk of addiction, social-emotional and cognitive impairment (Ervina Anatasya et al., 2024; Kurnia et al., 2019). Studies show that proactive parental involvement can reduce the risk of exposure to inappropriate content, while regular checks on children's digital activity help ensure safe access (Banić & Orehovački, 2024). Management strategies, such as screen time restrictions and educational content selection, support children's holistic development and protect against threats such as cyberbullying and online exploitation (Livingstone & Helsper, 2020).

In terms of regulating the use of gadgets, it turns out that only 21% of parents have rules for using gadgets, and as many as 79% do not have rules for using gadgets. Whereas the rules for using devices are the opening key in digital literacy, what is allowed and not allowed in the use of devices. This right shows the low awareness in regulating children's technology use. As a result, children tend to freely use devices without restrictions, thus risking exposure to negative content such as pornography, gambling, and hoaxes, as well as experiencing serious addiction.

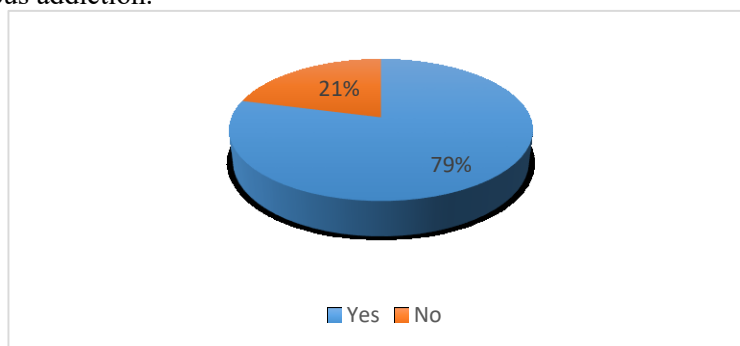


Figure 9. Rules for Parents' Use of Gadgets to Children

During the COVID-19 pandemic, the limitations of outdoor activities further emphasise the importance of parental assistance in managing duration and selecting content according to children's needs (Livingstone & Helsper, 2008). This assistance needs to be done with a positive approach, building trust, and effective communication, as explained by Hollmann et al. (2016), so that children can sort out information and form healthy digital habits. Figure 9 below shows the respondents' responses regarding the rules of using gadgets for their children.

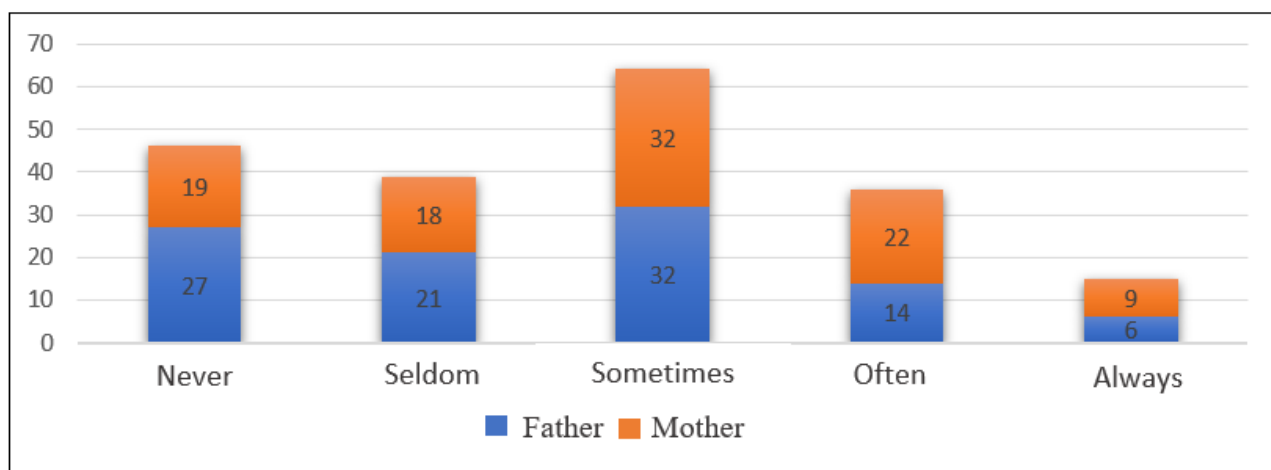


Figure 10. Rules for Using Gadgets

The survey shows that during COVID-19, parental involvement in children's digital device use declined, with mothers more engaged than fathers, despite research highlighting fathers' crucial role (Livingstone & Blum-Ross, 2020). This trend likely stems from mothers' increased domestic workload, while low joint parental involvement underscores the need for a collaborative approach. Inadequate mentoring impacts children's well-being, including supervision, protection, and emotional support (Henkelman & Everall, 2001; Ponti, 2023). To foster a safe digital environment, policies promoting shared parental responsibility in digital mentoring are essential.

Correlation analysis shows that increased device use correlates with lower parental assistance. Among children using devices for over 5 hours daily, only 7.6% receive constant supervision, while most receive occasional or rare assistance. A similar trend appears in the 3–5 hour group, with only 16.3% always accompanied. In contrast, children using devices for 1–2 hours daily receive more supervision, with 30.2% to 49.6% of parents frequently or always accompanying them. These findings suggest that parental supervision is more consistent at lower durations of device use, helping to manage the negative impact of technology use on children (Lee et al., 2022; Valkenburg, 2020).

Tabel 1. *Correlation between Duration of Device Use and Parental Assistance*

| NO. | Children are allowed to use devices outside of learning | Parents accompany and supervise when children use devices | | | | |
|-----|---|---|--------|-----------|-------|--------|
| | | Never | Seldom | Sometimes | Often | Always |
| 1 | 1 – 2 hours per day | 1.1% | 3.8% | 27.3% | 30.2% | 37.6% |
| 2 | 1 - 4 hours per day | 0.2% | 1.8% | 25.6% | 22.7% | 49.6% |
| 3 | 3 – 5 hours per day | 1.3% | 7.1% | 42.2% | 33.0% | 16.3% |
| 4 | More than 5 hours per day | 7.6% | 18.5% | 45.5% | 18.2% | 10.1% |

Some parents allow their children to use digital devices for more than five hours per day outside of learning activities, indicating a lack of mentoring that makes children vulnerable to risks such as misinformation, hoaxes, pornography, gambling, cyberbullying, and online sexual violence (Globokar, 2018). This condition violates Article 26A of Law Number 35 Year 2014, which requires parents to protect children from threats to their welfare. Consistent mentoring and strict supervision in the use of digital devices are strategic steps to protect children from harmful content and support their moral, emotional and psychological development. With a holistic approach, children can be moulded into individuals of good character and resilient to the risks of irresponsible internet use.

e. *Implementation of Digital Literacy*

Digital literacy includes not only an understanding of technological tools, but also the ability to educate users regarding the benefits and risks which can arise (Khosrow-Pour, D.B.A., 2019). One important aspect is parents' efforts in explaining the benefits as well as the negative impacts of device use and internet access to their children. A recent study showed that 98% of parents reported having discussed the benefits and risks of device use with their children, while only 2% reported not making such efforts.

From the child's perspective, the frequency and consistency of parental guidance showed significant variation between fathers and mothers. Specifically, 38.6% of children reported that their fathers 'often' and 20.5% 'always' provided explanations, while 43.3% of children observed that their mothers 'often' and 24.7% 'always' did so. On the other hand, in the lower frequency categories-'sometimes,' 'rarely,' and 'never'-22.3%, 8.5%, and 10.1% of children reported their father's involvement, respectively, while 19.6%, 6.4%, and 6% reported similar involvement from their mother. The following graph shows the survey data on the situation of receiving information about the impact of gadgets from their parents:

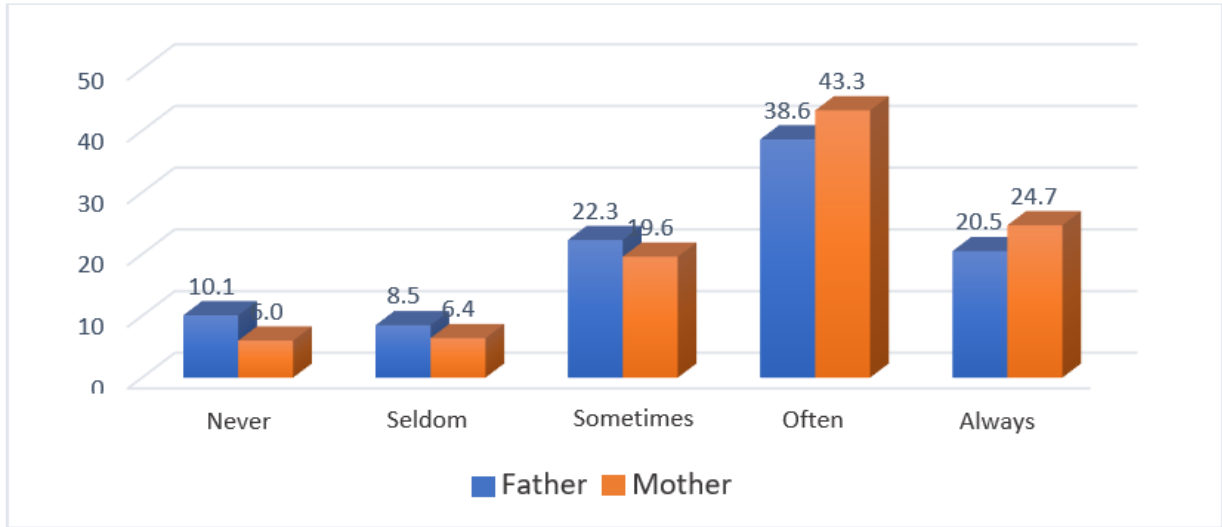


Figure 11. *Survey of Parents Explaining the Benefits and Risks of Gadgets*

This finding highlights inconsistencies in digital literacy education within families, with mothers more involved than fathers, reflecting gendered parenting roles. This contrasts with earlier research suggesting fathers excel in tech-related mentoring (Author, 2015). The lack of guidance for some children underscores the need for targeted interventions to enhance household digital literacy. Further research should examine the long-term effects of parental guidance on children's digital habits, including its role in mitigating risks like excessive screen time or harmful content exposure. Using parental mediation theory (Livingstone & Helsper, 2008), future studies can assess the impact of active mediation, restrictive mediation, and co-use strategies on children's digital engagement.

The survey reveals a gap between parents' beliefs and children's experiences regarding digital literacy education. While most parents believe they have informed their children about the benefits and risks of gadget use, only 59.1% of children reported receiving such guidance from their fathers, compared to 68% from their mothers. Despite parents' confidence in discussing digital risks, children's responses suggest inconsistencies in message delivery and reception. Figure 11 below shows the negative impact points that parents explain to their children:

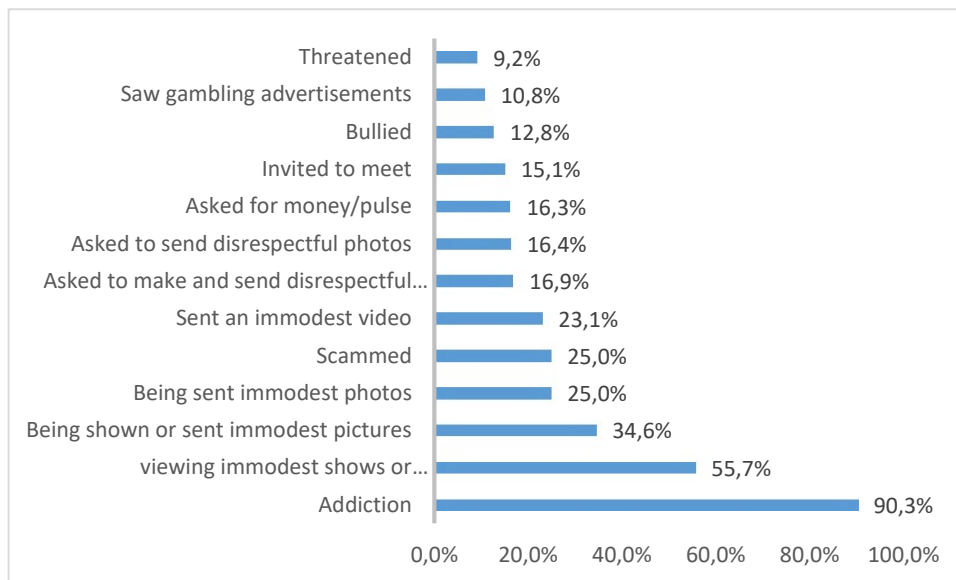


Figure 12. *Parent Explanation Points to Child*

The survey shows that 90.3% of parents recognize the risks of digital media addiction, with 55.7% warning about inappropriate content and 34.6% about harmful images. Additionally, 25% educate children on

scams and unsolicited photos, while 23.1% highlight inappropriate videos. Other concerns include coercion to create/send content (16.9%), financial fraud (16.3%), meeting invitations (15.1%), bullying (12.8%), gambling ads (10.8%), and threats (9.2%). Despite strong awareness, improving parental education and communication is crucial to bridge perception gaps and enhance online child protection.

f. *Child Protection Against Violence*

In addition, in accordance with Article 11 of Law No. 35 of 2014 on the amendment of Law No. 23 of 2002 on Child Protection, it states that, "Every child has the right to rest and utilise leisure time, mingle with children of the same age, play, recreate, and be creative in accordance with their interests, talents, and level of intelligence for self-development."

In the Covid-19 pandemic situation, this right is widely implemented through digital activities, including playing online games. Based on the research, 55% of children played online games during the pandemic, while the other 45% did not. The types of games played also vary, with 26% of children choosing war-themed games, 16% choosing adventure games, 12% choosing educational and creativity games, 6% playing sports games, 3% playing games with violent content (such as hitting, kicking, injuring), and 1% playing games with romance themes.

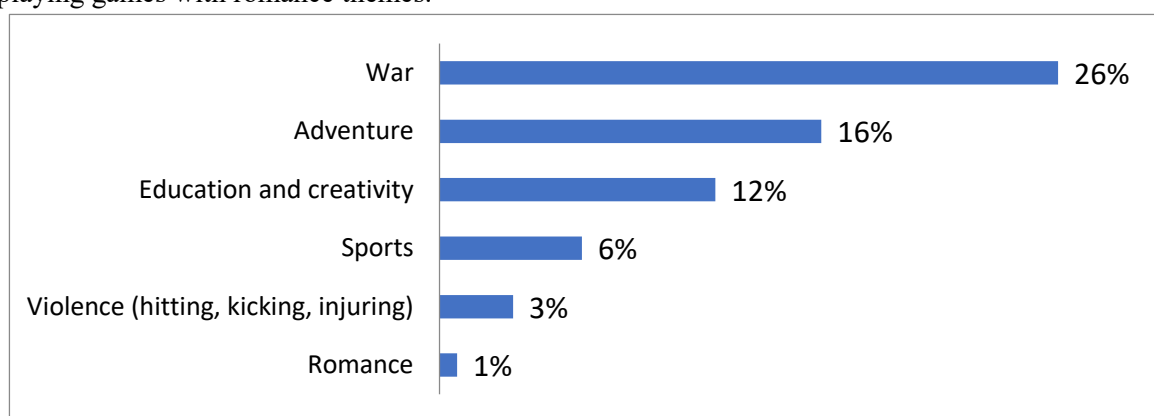


Figure 13. Children's Favourite Online Game Categories

These findings indicate significant shifts in children's play patterns during the pandemic, with diverse implications for their development. For example, educational and creativity games can provide positive cognitive stimulation, while games with violent content have the potential to negatively affect children's emotional and social development (Anderson et al., 2010; Gentile et al., 2004). Therefore, it is important to evaluate the long-term impact of online gaming on children's rights, particularly in relation to personal development as mandated by law. Then related to parents' perceptions of online games played by children, shown in Figure 13 below:

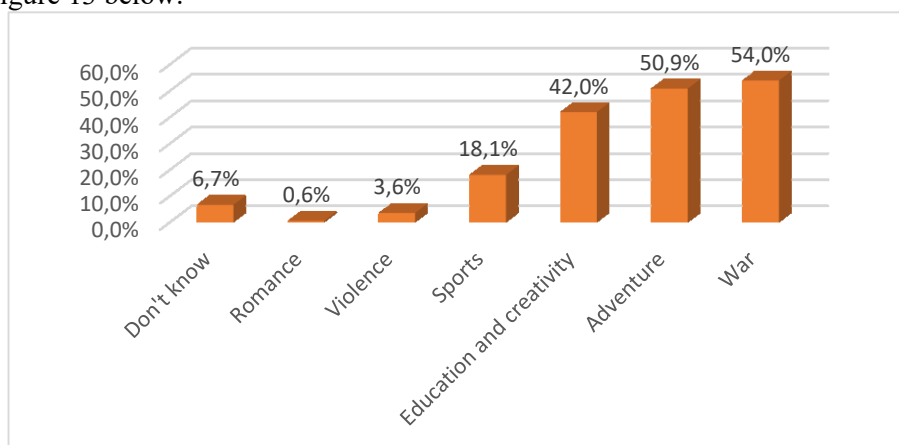


Figure 14. Categories of Online Games Frequently Played by Children

Online gaming can be beneficial for children if managed properly, with educational content and minimal disruption to essential activities like school or worship. Educational games enhance concentration,

creativity, and dexterity, but war-themed games—played by 26% of children—violate Ministerial Regulation No. 11/2016, which restricts violent content for children. Such exposure risks addiction, financial strain from in-game purchases, and negative physical and psychological effects. Strong parental supervision and careful content selection are crucial to safeguarding children's mental health and development.

The correlation between the length of time playing gadgets and the types of games played by children can be seen from the data presented in Table 2 below. In general, the types of online games that are most played are war, adventure, education, and creativity categories, as detailed below:

1. War games: Most frequently played, with 63% of children playing more than 5 hours per day, 58.6% for 3-5 hours, 48.9% for 1-2 hours, and 47% playing 1-4 hours per week.
2. Adventure games: Coming in second, with 57.7% of children playing 1-4 hours per week, 54.3% for 3-5 hours per day, 50% for 1-2 hours per day, and 43% playing more than 5 hours per day.
3. Educational and creativity games: Third place, played by 51.2% of children for 1-4 hours per week, 44.2% for 1-2 hours per day, 40.9% for 3-5 hours per day, and 34.1% for more than 5 hours per day.
4. Sports games: Play 1-4 hours per week (20.8%), 1-2 hours per day (18.7%), 3-5 hours per day (18.1%), and more than 5 hours per day (15%).
5. Romance and violent games: Only 1.2% of romance games were played 1-4 hours per week, while violent games reached 8.9% in the group that played more than 5 hours per day.

Although the percentage of children playing violent and romantic games is low, special attention is still needed to prevent negative impacts. The active involvement of parents in monitoring the types of games that children play is very important. In addition, education about the healthy use of technology needs to be given to children, including limiting the time to play gadgets according to expert recommendations, which is a maximum of 1-2 hours per day for school age.

Table 2. Correlation of Online Game Type with Duration of Play

| NO | Playing Hours | Type of Online Games | | | | | | |
|----|---------------------------|----------------------|----------|---------|-----------|--------------------------|--------|------------|
| | | War | Violence | Romance | Adventure | Education and Creativity | Sports | Don't Know |
| 1 | 1-2 hours per day | 48.9% | 1.7% | 0.4% | 50% | 44.2% | 18.7% | 6.2% |
| 2 | 1-4 hours per day | 47% | 3.6% | 1.2% | 57.7% | 51.2% | 20.8% | 3% |
| 3 | 3-5 hours per day | 58.6% | 4.2% | 0.5% | 54.3% | 40.9% | 18.1% | 6% |
| 4 | More than 5 hours per day | 63% | 8.9% | 0.9% | 43% | 34.1% | 15% | 12% |

Data shows that in addition to participating in online learning during the pandemic, many children spent time playing online games, especially war-themed, romantic and violent content. This has the potential to trigger aggressive behaviour or lack of emotional control due to lack of supervision Prescott et al. (2018). To prevent children from playing games more than learning during study from home, it is necessary to limit playing time, parental assistance, and provide alternative educational and recreational activities that are more constructive. Table 3 below shows the correlations associated with the types of online games.

Table 3. Correlation of Age, Gender, and Education with Type of Online Game

| NO | Type of Games | Age | | | Gender | | Educational Background | | | |
|--------------|--------------------------|----------|----------|----------|--------|--------|------------------------|--------------------|--------------------|---------------------|
| | | 10-12 yo | 13-15 yo | 16-18 yo | Male | Female | Elementary School | Junior High School | Senior High School | Not going to school |
| 1 | War | 73.1% | 73.5% | 74.8% | 74.2% | 73.6% | 72.8% | 73.5% | 74.8% | 85.7% |
| 2 | Violence | 8.9% | 8.5% | 9.2% | 9.3% | 8.5% | 9 % | 8.8% | 8.7% | 0% |
| 3 | Romance | 1.9% | 2% | 2.4% | 2.4% | 1.9% | 1.8% | 2% | 2.3% | 0% |
| 4 | Adventure | 46.3% | 45.0% | 46.2% | 45.8% | 45.4% | 45.7% | 45.5% | 45.6% | 57.1% |
| 5 | Education and Creativity | 35.2% | 32.2% | 32.7% | 32.4% | 33.2% | 34.2% | 32.7% | 32.5% | 42.9% |
| 6 | Sports | 17.1% | 16.9% | 17.1% | 16.5% | 17.3% | 17.1% | 16.6% | 17.4% | 42.9% |
| Total | | 1628 | 4853 | 2552 | 3391 | 5642 | 1415 | 4667 | 2937 | 14 |

War games are the most dominant genre across demographics with an average of more than 72% of players, especially out-of-school children (85.7%) and primary/middle school children (72.8%) (Granic et al., 2014). Its popularity is attributed to its adrenaline-pumping, challenging gameplay that provides social interaction, although it raises concerns about exposure to violence that may affect children's psychological and social development. Children are the largest group of players (74.8%), with a slight dominance of boys (74.2%). While the adventure genre, averaging 45%, is the second most popular choice, its appeal tends to be more specific than the universal appeal of war games (Anderson & Dill, 2000).

War-themed online games continue to attract children despite their potential negative impact on psychosocial development, including increased aggression and reduced empathy (Anderson et al., 2010). Weak parental supervision and inadequate enforcement of regulations, such as Ministerial Regulation No. 11/2016, worsen the issue. Additionally, cyber-violence risks are rising, with 22% of children exposed to disrespectful ads, 18% to gambling ads, and others facing serious exploitation, such as inappropriate image requests or meeting invitations (UNICEF, 2020). Stronger monitoring, digital literacy programs, and protection systems are essential to safeguard children from online threats.

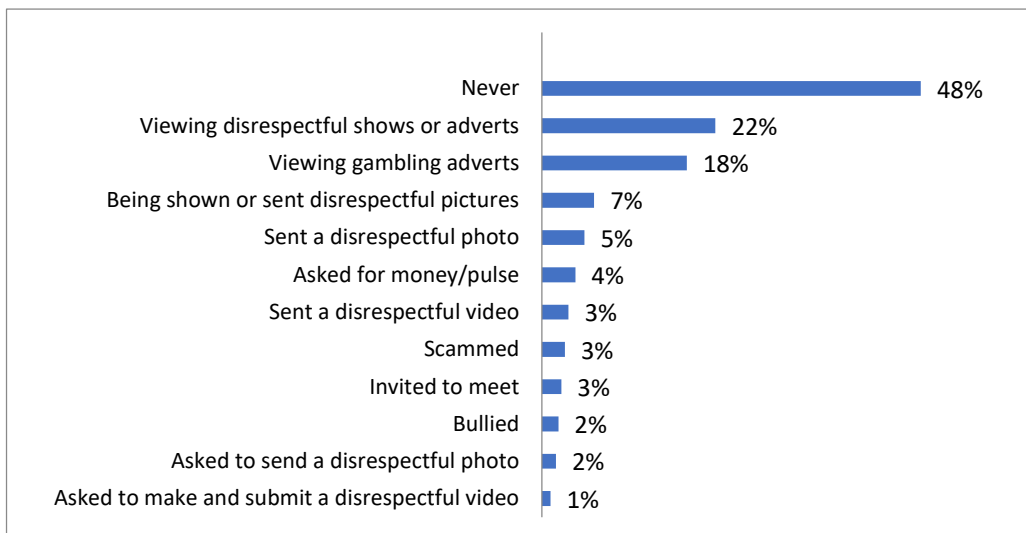


Figure 15. Percentage of Children Experiencing Cyber-Based Violence

Although the percentage is small, 1% of children experiencing cyberbullying represents approximately 250 children, a significant number given the impact on their psychological and 21 emotional developments. Unsupervised children on the internet are vulnerable to exposure to negative content, such as disrespectful adverts or gambling, which can lead them to explicit and harmful material (Livingstone et al., 2017). This exposure can lead to stress, fear, or unhealthy curiosity (Staksrud & Livingstone, 2009). Therefore, collaboration between parents, educators, and governments is needed to improve digital literacy, tighten supervision, and implement strategies such as parental controls, media literacy education, and restrictions on harmful advertising to protect children from these risks.

CONCLUSION

The COVID-19 pandemic has reshaped family life, turning homes into schools, workplaces, and places of worship. Parents face complex roles—parenting, assisting learning, working, and managing household needs—while ensuring children's rights remain a priority. Nearly half of children reported engaging in fewer productive activities, though parents generally viewed their children's activities as sufficient. While 43.5% of parents actively participated in their children's activities, digital literacy education remained inadequate, with only 59.1% of fathers and 68% of mothers providing guidance. Strengthening parental involvement is essential to better equip children for the digital era.

The study found that 7.6% of children used devices for over 5 hours daily without parental supervision, while 18.5% were rarely accompanied, 45.5% sometimes, 18.2% often, and 10.1% always supervised. Additionally, 74.8% of children in certain age groups played war-themed online games, highlighting the need for parental guidance to prevent exposure to harmful content. Children remain vulnerable to online violence, with 22% encountering disrespectful ads and 18% seeing gambling ads. Further, 7% were shown inappropriate images, 5% received disrespectful photos, and 4% were asked for money. Additionally, 3% each experienced trickery, received inappropriate videos, or were invited to meet in person, while 2% faced bullying or were asked for explicit content. These findings underscore the critical role of parental supervision in safeguarding children from digital risks.

AKNOWLEDGMENTS

This study is dedicated to the Indonesian Child Protection Commission (KPAI) for its support and commitment to child protection. We extend our gratitude to sponsors, funders, and resource persons who contributed to this research. Permission is sought from mentioned individuals and institutions.

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