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IMPACT OF SCREEN USE ON ADOLESCENTS' WORSENING MENTAL HEALTH

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Abstract: Excessive screen time, especially on social networks, has been associated with increased rates of anxiety and depression. The aim of this study is therefore to develop a study on the impact of screen use on the mental health of adolescents, showing how excessive use harms their quality of life. The methodology used in the study was a literature review, based on books and scientific articles from various databases on the subject. The results showed that excessive exposure to digital content, especially on social networks, can negatively affect young people's self-esteem, increase feelings of isolation and interfere with their ability to socialize in the real world. In addition, there is evidence that overexposure to screens directly affects adolescents' brain development, compromising cognitive functions such as attention, memory and emotional regulation. The conclusion emphasizes that the solution does not lie in banning the use of screens, but in promoting conscious and balanced use, which is why it is essential for parents, educators and health professionals to encourage healthy habits, such as setting limits on screen time, encouraging physical and social activities in person and digital education for a more conscious and safe consumption of content.

Keywords: Mental health. Screen. Social Media.

INTRODUCTION

In recent years, the popularization of electronic devices and the increase in screen time among adolescents have raised concerns about the impacts of this behavior on mental health (Vieira *et al.*, 2024). Excessive use of screens, including smartphones, tablets, computers and televisions, is associated with various psychological problems, such as anxiety, depression, sleep disorders and decreased social skills (Al-Khani *et al.*, 2021).

According to Souza *et al.* (2024), digital technology has become an integral part of young people's lives, being used for communication, entertainment and study. Research indicates that many adolescents spend an average of six to nine hours a day in front of screens, which significantly exceeds the recommendations of health experts, in which easy access to social networks, electronic games and videos on demand contributes to this high exposure time (Souza *et al.*, 2024).

According to Santos *et al.* (2024) excessive screen time, especially on social networks, has been associated with increased rates of anxiety and depression. Constant exposure to idealized content can lead to social comparison, creating feelings of inadequacy, low self-esteem and dissatisfaction with one's life, so adolescents who spend more time on social networks are more likely to develop depressive symptoms.

Geraldo *et al.* (2024) explain that exposure to the blue light emitted by screens, especially before bedtime, interferes with the production of melatonin, the hormone responsible for sleep, which can result in difficulties falling asleep, sleepless nights and, consequently, daytime fatigue, which directly impacts adolescents' mood and ability to concentrate.

In this context, excessive time on electronic devices can reduce face-to-face interaction between adolescents, harming the development of social skills, since many young people prefer virtual interactions to face-to-face meetings, which can lead to social isolation and make it difficult to build healthy interpersonal relationships (Costa *et al.*, 2020).

Frequent use of screens can affect areas of the brain responsible for controlling attention, emotions and reward. The dopaminergic system, activated by the use of social networks and electronic games, can lead to an addictive cycle of searching for quick and constant stimuli, reducing the ability to deal with boredom and impairing emotional regulation (Geraldo *et al.*, 2024).

Thus, the work has the following problem: how does the use of screens worsen the mental health of adolescents?

The aim of this work is to develop a study on the impact of screen use on the mental health of adolescents, showing how excessive use harms their quality of life.

Therefore, this topic is justified by its relevance, given that the impact of excessive screen use on adolescents' mental health is a worrying and multifactorial phenomenon, since prolonged exposure can trigger or worsen psychological problems, affect sleep and compromise social skills. In addition, according to Geraldo *et al.* (2024), excessive use has led to an increase in the number of diagnoses of psychiatric disorders in adolescents, with females suffering from anxiety and depression, while males have a significant number of cases of suicide and addiction to electronic games.

However, measures such as raising awareness, setting limits and encouraging alternative activities can minimize the negative effects and promote a more balanced use of technology.

METHODOLOGY

This study is a literature review with a qualitative approach, the aim of which is to analyze and synthesize the available knowledge on the impact of screen use on the worsening mental health of adolescents. The review is exploratory and descriptive in nature, seeking to understand the relationship between the excessive use of digital devices and their psychological and behavioral repercussions in this age group.

The search strategy was carried out in recognized scientific databases such as PubMed, Bireme, Scopus, SciELO and PsycINFO.

Controlled and non-controlled descriptors in Portuguese and English were used, according to the Medical Subject Headings (MeSH) and Health Sciences Descriptors (DeCS), such

as: "Screen time"; "Mental health"; "Adolescents"; "Psychological impact" and "Depression and anxiety".

The review included studies that met the following criteria: publications in the last five years (2019-2024); studies published in Portuguese, English and Spanish; research investigating the relationship between screen time and adolescent mental health and peer-reviewed articles, including clinical trials, observational studies, systematic reviews and meta-analyses.

The following were excluded: Studies with an exclusively adult or child population (under 10 years old); studies that do not directly address the psychological impacts of screen use; and case reports, editorials and expert opinions without empirical basis.

The data collected was analyzed using thematic analysis, seeking to identify patterns, relationships and main trends in the scientific findings. The results were interpreted critically, considering possible methodological biases and limitations of the studies reviewed.

As this is a literature review, the study did not involve experimentation on human beings, which means that it did not need to be approved by an ethics committee. However, the principles of scientific rigor and research ethics were followed, ensuring that all sources used were properly cited.

RESULTS AND DISCUSSIONS

In line with the existing literature, significant evidence has been identified on the negative effects of screen time, the internet and social media on mental health and well-being. Among the consequences pointed out are insomnia, depression, anxiety, attention deficit hyperactivity disorder (ADHD), poor school attendance, family conflicts, impulsivity, aggression and other disorders associated with the excessive use of these technologies (Eirich *et al.*, 2022; Nakshine *et al.*, 2022).

Another study established a relationship between Internet use and an increased risk of depression symptoms in female adolescents compared to boys; on the other hand, externalizing problems such as aggression, hyperactivity and inattention associated with screen time were more recurrent in boys than in girls (Liu *et al.*, 2022).

Research indicates that the lack of face-to-face interaction, excessive use of the internet and prolonged time in front of screens, especially in online multiplayer video games that prevent breaks or exits during matches, are factors that can trigger emotional, psychological and physiological impacts, these conditions favor the emergence of negative thoughts and reduce the feeling of personal fulfillment (Nakshine *et al.*, 2022).

The findings of the studies analyzed suggest that social comparison in the use of social networks may be associated with the development of depressive symptoms, however, when used in a balanced way, these platforms can also encourage healthy habits, strengthen social support and even serve as a channel for accessing information and help for adolescents at risk of depression (Torre *et al.*, 2020).

It should be noted that children aged between 8 and 10 spend an average of six hours a day in front of screens, while those aged between 11 and 14 spend up to nine hours a day, while adolescents aged between 15 and 25 spend around seven and a half hours a day using electronic devices, including television. With the popularization and accessibility of various electronic devices, screen time has become even more intense among the population (Oswald *et al.*, 2020).

However, research has shown that excessive use of digital media for more than a few hours a week has had a negative impact on well-being, life satisfaction and self-esteem, while time spent on non-screen activities, such as personal interactions, sports or physical activities, print media, schoolwork, reli-

gious services and paid employment, has been shown to be positively linked to adolescents' mental health (Jaoude *et al.*, 2020).

Other findings have indicated that the damage caused by screens and the internet differs from individual to individual, and some may be more vulnerable to such damage (Jaoude *et al.*, 2020).

The use of computers and electronic games showed a higher correlation with depressive symptoms, with video games especially aggravating anxiety, so resilience, which is defined as a dynamic psychophysiological construct that can be impacted by excessive use of screens, is an essential component (Nakshine *et al.*, 2022).

Observational studies indicate that spending more than 2 hours a day using social networks and electronic devices is associated with a higher incidence of depression symptoms and high suicide rates, however adolescents who maintain high levels of face-to-face interaction seem to be relatively protected from the negative effects of excessive time online (Jaoude *et al.*, 2020).

It should also be noted that social networks can have a detrimental impact on self-image and interpersonal relationships, mainly due to social comparison and *cyberbullying*. Another worrying point is the dissemination of content related to self-harm and suicide among adolescents (Jaoude *et al.*, 2020).

On the other hand, the effects of information and communication technologies (ICTs) on development are varied and can be both positive and negative. From a cognitive point of view, the use of screens can favor education, access to information and learning, however, early use of these technologies has been associated with reduced cognitive skills and poor academic performance (Oswald *et al.*, 2020).

For Oswald *et al.* (2020), excessive screen time also affects language development, as it reduces the frequency and quality of interactions between children and their caregivers.

Thus, excessive screen use also favors the appearance of symptoms of depression and anxiety, which are often accompanied by insomnia and excess weight, which affects emotional perception, favors aggressive behavior and compromises social and emotional skills (Muppalla *et al.*, 2023).

It is crucial to highlight the importance of preventing pre-judgment of technology-dependent children and young people, understanding how they feel about themselves and what worries them, cultivating an ideal perspective with a posture of attentive listening. When dealing with this situation of technological dependence, strategies are proposed to specifically address these challenges (Bekalu *et al.*, 2023).

According to Dienlin and Johannes (2020), excessive screen use can be linked to negative impacts on adolescents' well-being, including sleep deprivation, increased physiological stress, attention deficit hyperactivity disorder, reduced life satisfaction and possible health risks in adulthood.

The American Academy of Child and Adolescent Psychiatry (AACAP) points out that children between the ages of 8 and 12 spend an average of 4 to 6 hours a day connected, while adolescents can spend up to 9 hours a day in front of digital screens. These figures contrast significantly with the recommendations of the World Health Organization, which suggests a limit of 1 hour a day for pre-school children, no screen time for babies under one year old and, at maximum, 2 hours a day for other pediatric age groups (Glover; Ariefdjohan; Fritsch, 2022).

A study carried out by Ma and Sheng (2023) with adolescents from rural areas showed that prolonged time on the internet has a negative impact on their mental health, especially among girls. This adverse effect was observed mainly due to reduced sleep time and compromised parent-child relationships.

The frequent use of screens by children and adolescents can affect both the duration and quality of sleep, making it difficult to fall asleep and maintain sleep throughout the night, and sleep deprivation, in turn, can compromise emotional functions (Barreto *et al.*, 2023). When they don't get enough sleep, children and adolescents tend to become more irritable, impulsive and emotionally unstable, which can increase their vulnerability to depression (Barreto *et al.*, 2023).

Therefore, sleep deprivation is associated with negative behaviors, such as increased aggression, attention difficulties and poor academic performance, effects that can persist into adulthood (Oliveira *et al.*, 2021). With regard to differences between the sexes, research indicates that girls have a higher incidence of emotional symptoms compared to boys, which means that they are more likely to develop feelings such as sadness, anxiety and fear, suggesting a greater predisposition to emotional problems (Oliveira *et al.*, 2021).

Although there were more conduct problems, hyperactivity and pro-social behavior in boys than in girls, this suggests that boys were more likely to face behavioral problems, such as inappropriate behavior, concentration problems or hyperactive behavior, in contrast to girls. Boys were also more likely to face relationship problems with their peers (Lima; Sousa, 2023).

According to the study, by removing screens from children diagnosed with ASD, their brains will begin to develop in a normal way, which is why it is important to restrict the use of screens in children and adolescents, where parents and teachers should look for options that are attractive and capture children's attention (Bráulio *et al.*, 2023).

Authors such as Barreto *et al.* (2023) believe that excessive screen use can result in socialization difficulties, poor school performance, sleep and eating disorders, as well as

vision problems. In addition, the negative impacts of online gaming can be severe, reaching extreme cases such as suicide and even coma due to oxygen deprivation in the brain. It is essential to emphasize the importance of the act of playing for child development, as this activity contributes to the formation of character and allows for greater interaction with the external environment in a healthy way (Barreto *et al.*, 2023).

Santos (2023) even points out that early sexualization, driven by algorithms that prioritize sensationalist content and the pressure for “likes” and virtual validation, can distort young people’s self-image, encouraging behaviors and choices that imitate adult stereotypes, which not only impacts psychological and emotional development, but can also contribute to early eroticization, exposing adolescents to risks such as cyberbullying, harassment and even exploitation.

Controlling screen time is a major challenge for contemporary families, as these devices are deeply integrated into the daily lives of children and adults, arousing interest from the earliest years of life. It is worth noting that screens are often used as a resource to calm children down, which reinforces their presence in children’s routines (Puccinelli; Marques; Lopes, 2023).

Therefore, it is crucial to emphasize the presence of other elements that, in addition to screen time, can affect the health and mental well-being of young people, such as the context of use and the type of interactions on the internet, as Odgers and Jensen (2020) agree that the associations between the use of digital technologies and psychological well-being vary according to the type and particularities of the activities carried out on the internet.

FINAL CONSIDERATIONS

The impact of excessive screen use on adolescents’ mental health is a worrying reality, with growing evidence that prolonged time in front of electronic devices can contribute to an increase in psychological disorders such as anxiety, depression and sleep disturbances.

The literature review and the studies analyzed show that excessive exposure to digital content, especially on social networks, can negatively affect young people’s self-esteem, increase feelings of isolation and interfere with their ability to socialize in the real world.

In addition, there is evidence that overexposure to screens directly affects adolescents’ brain development, compromising cognitive functions such as attention, memory and emotional regulation. Privacy and security are also critical factors, since digital interaction can expose young people to risks such as cyberbullying and virtual harassment, amplifying the negative impacts on their mental health.

However, it is important to recognize that technology can also be used in a beneficial way, providing access to information, emotional support and valuable educational resources. Thus, the solution is not to ban the use of screens, but to promote conscious and balanced use, which is why it is essential for parents, educators and health professionals to encourage healthy habits, such as physical and social activities in person, time outdoors and encouragement to read

Therefore, a collective effort is needed to minimize the negative impacts of screens on adolescents’ mental health, balancing the technological benefits with practices that ensure the well-being and healthy development of this population. Future research is essential to better understand the consequences of prolonged screen use and to develop more effective intervention and prevention strategies.

REFERENCES

- AL-KHANI AM, SAQUIB J, RAJAB AM, KHALIFA MA, ALMAZROU A, SAQUIB N. Internet addiction in Gulf countries: A systematic review and meta-analysis. **Jornal of Behavioral Addictions**, 10(3):601-610, 2021.
- BARRETO, M. et al. Os impactos do tempo de tela no desenvolvimento infantil. **Revista SaúdeUNIFAN**, v. 3, n. 1, p. 58-66, 2023.
- BEKALU MA, SATO T, VISWANATH K. Conceptualizing and measuring social media use in health and well-being studies: systematic review. **Journal of Medical Internet Research**, 25(4):31-39, 2023.
- BRÁULIO, Eliziane; AVELAR, Gabriela; SILVA, Kaciane. **Riscos das Redes Sociais na Adolescência: um olhar sobre a saúde mental**. 2023. TCC (Psicologia) – Universidade Federal de Uberlândia, Uberlândia, 2023.
- DIENLIN, T.; JOHANNES, N. The impact of digital technology use on adolescent well-being. **Dialogues in Clinical Neuroscience**, v. 22, n. 2, p. 135–142, 2020
- EIRICH R, MCARTHUR BA, ANHORN C, MCGUINNESS C, CHRISTAKIS DA, MADIGAN S. Association of Screen Time With Internalizing and Externalizing Behavior Problems in Children 12 Years or Younger: A Systematic Review and Meta-analysis. **JAMA Psychiatry**, 79(5):393-405, 2022.
- GERALDO, W.R.M.; MOTA, L.B. DA. A atuação dos pais/responsáveis na promoção de saúde mental em crianças que fazem o uso excessivo da tecnologia. **Revista Contemporânea**, 4(10): 1-9, 2024. <https://doi.org/10.56083/RCV4N10-164>
- GLOVER, J.; ARIEFDJOHAN, M.; FRITSCH, S.L. Kids Anxiety and the Digital World. **Child and Adolescent Psychiatric Clinics of North America**, v. 31, n. 1, p. 71–90, 2022.
- JAOUDE EA, NAYLOR KT, PIGNATIELLO A. Smartphones, social media use and youth mental health. CMAJ: Canadian Medical Association Journal. **Journal de l'Association Medicale Canadienne**, 192(6):136-141, 2020.
- LIMA, Maria; SOUSA, Felipe. O uso excessivo de telas por crianças e adolescentes: uma análise do contexto da covid-19. **Revista Livre de Sustentabilidade e Empreendedorismo**, v. 8, n. 2, p. 90–108, 2023.
- LIU M, MARCO KEK, ZHANG J, XIAO J, DONG D, XUE P. Time Spent on Social Media and Risk of Depression in Adolescents: A Dose-Response Meta-Analysis. **International journal of environmental research and public health**, 19(9):51-64, 2022.
- MA, J.; SHENG, L. Internet use time and mental health among rural adolescents in China: A longitudinal study. **Journal of Affective Disorders**, v. 337, p. 18–26, 2023
- MUPPALLA SK, VUPPALAPATI S, PULLIAHGARU AR, SREENIVASULU H. Effects of excessive screen time on child development: an updated review and strategies for management. **Cureus**, 15(6):2-9, 2023.
- NAKSHINE VS, THUTE P, KHATIB MN, SARKAR B. Increased screen time as a cause of declining physical, psychological health, and sleep patterns: a literary review. **Cureus**, 14(10):3-10, 2022.
- ODGERS, C.L.; JENSEN, M.R. Annual Research Review: Adolescent Mental Health in the Digital age: facts, fears, and Future Directions. **Journal of Child Psychology and Psychiatry**, v. 61, n. 3, p. 336–348, 2020.
- OLIVEIRA, Anna; BISINOTO, Brunno; VAZ, Matheus; FRANÇA, Pablo; FARIAS, Rafael; FARIAS, Tiago; SILVESTRE, Marcela. Os impactos do uso de telas no neurodesenvolvimento infantil. **Revista Educação em Saúde**, 4(1): 1-9, 2021.
- OSWALD TK, RUMBOLD AR, KEDZIOR SGE, MOORE V. Psychological impacts of “screen time” and “green time” for children and adolescents: A systematic scoping review. **PloS one**, 15(9):4-10, 2020.
- PUCCINELLI, M. F.; MARQUES, F. M.; LOPES, R. DE C. S. Telas na Infância: Postagens de Especialistas em Grupos de Cuidadores no Facebook. **Psicologia: Ciência e Profissão**, 43(4): 1-9, 2023.

SANTOS, V.V. et al. Uso de telas e os perigos a saúde mental de crianças e adolescentes: revisão integrativa. **Revista Recien - Revista Científica de Enfermagem**, [S. l.], v. 14, n. 42, p. 169–184, 2024. DOI: 10.24276/rrecien2024.14.42.169184.

SANTOS, S.S. **Tutela da pureza: a gestão participativa no combate à erotização infantil**. 2023. Trabalho de conclusão de curso (Gestão Pública) - Várzea Grande, 2023.

SOUZA, L.C.F.P. et al. Impacto do uso exacerbado de tecnologias digitais para a saúde mental infanto-juvenil. **Revista Ibero-Americana De Humanidades, Ciências E Educação**, 10(7), 3378–3389, 2024. <https://doi.org/10.51891/rease.v10i7.14937>

TORRE, J.A.L. et al. Relationship Between Depression and the Use of Mobile Technologies and Social Media Among Adolescents: Umbrella Review. **Journal of Medical Internet Research**, 22(8):3-9, 2020.

VIEIRA, Luiza Lavynny; LOHANNY AZEVEDO VIANA, Camilla; OLIVEIRA DA SILVA, Julicléia; SANTOS DAS COSTAS, Itamara; DA SILVA MOURÃO, Ana Beatriz. Saúde mental: os riscos em crianças e adolescentes pelo uso excessivo de telas: uma revisão integrativa. **Revista Sociedade Científica**, [S. l.], v. 7, n. 1, p. 657–677, 2024. DOI: 10.61411/rsc20248117.