The Impact of Social Media on the Onset of Anxiety in Children and Adolescents: A Literature Review

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Abstract. Social media has become an integral part of modern life, offering a wide range of communication and social interaction opportunities. Digital platforms, with their significant growth and development, have reshaped the current landscape by expanding access to information and transforming social connections and interactions. However, while they provide benefits, they can also have negative consequences for mental health, particularly concerning the development of anxiety disorders. Mental disorders, such as anxiety and depression, affect the lives of millions of people worldwide, manifesting in diverse and impactful ways. Nevertheless, a question arises in the face of this landscape: why has the current generation been so affected by these conditions? What are the stressors contributing to the exponential growth of anxiety and depression disorders in children and adolescents? Why have these afflictions been labelled as the "ailments of the century"? In this context, we aim to understand how social media has become an influential factor in mental health, especially regarding anxiety disorders. We will meticulously examine studies investigating the effects of excessive use of these digital tools, exploring how this phenomenon correlates with the rise in anxiety within the specific target audience.

Keywords. social media, internet, social networks, anxiety, mental health, children, adolescents.

1. Introduction

The internet, digital platforms, and social media greatly facilitate people's daily lives, assisting in research, schedule organization, maintaining contact and social relationships, acquiring new learning and knowledge, among other things. However, as we grow up in the midst of such daily conveniences, we have a generation that seeks instant gratification, expecting everything to happen very quickly and struggling with things that do not function as swiftly as the internet.

In the modern world, computers have become true technological marvels, with thousands of processors capable of executing numerous tasks simultaneously, demonstrating exemplary efficiency. Nevertheless, when we disconnect from this virtual universe, we encounter human beings around us, endowed only with a natural processor: the brain. Our existence is intrinsically linked to a chronological time that cannot be accelerated or paused, and to real-time dialogues where words cannot be thought, typed, and erased when regret sets in.

In recent years, social media has established itself ubiquitously in our society. Platforms such as Facebook, Instagram, Twitter, Snapchat, and TikTok have revolutionized the way we communicate, interact, and share information. While these technologies have brought benefits, such as expanding access to information and transforming social connections, they have also become a subject of growing concern regarding mental health, especially in terms of the development of anxiety disorders. This work will address the issue of misuse, as well as excessive use of the internet and social media, and how it affects the mental health of users, the impact it may have on the development of anxiety disorders, and how the young audience, in particular, is significantly affected by this phenomenon.

2. Methodology

For this study, a Bibliographic research approach was adopted, employing the method of Integrative Literature Review. The aim was to analyze existing articles that elucidate the correlation between problematic social media use and anxiety in the child and adolescent population. Boccato (2006, p. 266) emphasizes that the Bibliographic research seeks to solve a problem, the hypothesis, through theoretical

references that have been published, analyzing and discussing the scientific contributions.

Considering the vastness and quality of the numerous existing productions, this study defined inclusion and exclusion criteria for the selection of findings. To be included, articles had to address social media and anxiety, be in English or Portuguese, and provide clear information about the authors names and publication dates. Works that did not meet all of these inclusion criteria mentioned above were excluded from the analysis.

A search was conducted without limiting the publication year. The initial survey was conducted through sources such as PubMed, Scielo, Lilacs, Google Scholar, Elsevier, Scopus, and Web of Science, using the following keywords: social media, internet, social networks, anxiety, mental health, children and adolescents. The study examined how the relationship between problematic social media use and the development of anxiety in children and adolescents has been approached in recent years.

3. Results

3.1 Social media and problematic use

Martha Gabriel (2010, cited in Bobsin & Hoppen, 2014) describes virtual social networks as spaces of collaboration, interaction, and communication among people with specific interests in niches and topics. These networks consist of various interaction platforms such as Twitter, Facebook, Instagram, Snapchat, and many others. Social networks have transformed interpersonal relationships, favoring the development of non-hierarchical connections, eliminating barriers of time and space, and influencing people's behavior, altering the common form of interaction and communication (Gabriel, 2010, cited in Bobsin, Hoppen, 2014).

In recent years, media have acquired a distinct meaning from what they had previously, and their use has evolved with the emergence of numerous tools developed to be used within these media. Currently, the digital environment represents a new world. According to Santaella (2004, cited in Vermelho et al., 2014), in the early 1990s, the term "media" was mainly associated with mass media, such as newspapers, radio, magazines, and television, which were the main channels for transmitting news and information. Media encompassed all means in which advertising was used, from billboards to advertising messages in newspapers, radio, and TV. Thus, the term "media" was related to mass communication means, and due to the rapid growth of technologies, this term became fixed and mass media can no longer necessarily be considered as such.

According to the Global Digital Vision report, conducted in collaboration with We Are Social and Hootsuite, digital technology has become even more essential in people's lives, with social media, e-commerce, streaming content, and video games experiencing significant growth. The report indicates that 5.22 billion people use mobile devices, which is equivalent to 66.6% of the world's population. The number of unique mobile users grew by 1.8% (93 million) since January 2020, with a total of 8.02 billion mobile connections at the beginning of 2021. Global internet penetration reached 59.5%, and there are 4.20 billion social media users worldwide. In 2020, on average, more than 1.3 million new users joined social networks daily, which can be attributed to the impact of the COVID-19 pandemic quarantine (Kemp, 2021).

On the one hand, the internet and social networks have many qualities and benefits and can be well utilized when used in moderation. As mentioned earlier, social networks offer various functionalities, from professional purposes and networking to entertainment, distraction, and the opportunity to make new friends online on platforms like Facebook, Instagram, LinkedIn, Twitter, WhatsApp, and YouTube, each with its specific characteristics that benefit users in different ways. On the other hand, excessive use of social networks also has disadvantages, which arise when users cannot control their usage time, neglecting daily tasks and obligations to stay online. This behavior is more common in the child and adolescent population. Therefore, special care is needed regarding excessive use, as well as the dissemination of insensitive, disturbing, and obscene images and the spread of fake news. Furthermore, it is important to be vigilant about offensive comments, criticism, and groups that engage in cyberbullying, as these practices can negatively impact the mental health of the targeted users (Moromizato, et al., 2017).

The abusive and problematic use of these digital technologies has led to an information overload in society, resulting in significant side effects. Among the consequences of improper use of social networks are social isolation due to excessive use, changes in behavior, especially in children and adolescents, increased individualism, digital dependency, nomophobia (fear or panic of being away from one's cellphone or technological devices), depression, and anxiety disorders (Castro, Silva, 2017).

Platforms like Instagram and Facebook offer endless feeds of content, Netflix automatically moves to the next episode of a series, YouTube provides multiple video suggestions after each viewing, and Tinder encourages users to continuously swipe through photos in search of a better option. While users may benefit from these tools, they often struggle to use them in moderation. Tristan Harris, an expert in "ethics and design," argues that the problem lies not in people's lack of willpower but in the fact that "there are thousands of professionals on the other side of the screen whose job is to break down your self-control barriers" (Alter, 2018).

Greg Hochmuth (2015), one of the founding engineers of Instagram, observed that "the network takes on a life of its own, like an organism, and people can get obsessed," having recognized himself that he

was creating an addiction machine. Platforms like Instagram, as well as many other social networks, can become true time-consuming vortexes, where a person may not even realize how deeply they are getting entangled in them (Alter, 2018). This happens in part due to a tool present on social networks that has the ability to relate a user's profile to those of other members and offer content similar to what the user normally consumes. This interaction opens opportunities for targeted advertising, allowing companies to track their consumers' profiles for product promotion (Santos, Santos, 2013).

In the book "Dopamine Nation" (2021), Dr. Anna Lembke, psychiatrist and author, explores how excess pleasure can make people unhappy. Lembke explains that dopamine, the primary neurotransmitter involved in the brain's reward process, is used to assess the addictive potential of any behavior or substance. The more dopamine a behavior or substance releases in the brain and the more rapidly it does so, the more addictive it becomes. She argues that pleasure and suffering are processed in overlapping brain regions and operate as a balance, an opposing process mechanism. When this balance leans too much towards pleasure, the body creates self-regulating mechanisms to seek balance and homeostasis. However, with frequent exposure to the same pleasure stimulus, the balance tends to remain tilted in that direction, causing suffering to intensify with self-regulating mechanisms. This can lead to the need to use the stimulus not only to experience pleasure but also to feel "normal" and restore balance in the scale. This phenomenon occurs due to the process of neuroadaptation, in which repeated exposure to the same pleasure stimulus weakens the initial response, requiring increasingly higher doses to achieve the same level of satisfaction.

Nora Volkow, a neuroscientist, and her colleagues have demonstrated that prolonged and intense use of substances that increase dopamine can lead to a state of dopamine deficit (Volkow et al., 2002). Similarly, excessive stimulation, i.e., the problematic use of digital technologies, can cause desensitization of dopamine receptors, making it necessary for greater exposure to the stimulus to obtain pleasure. This reinforces behavior and sustains dependence, affecting psychosocial well-being (Young, 2011, cited in Azevedo et al., 2016).

3.2 Social media use and anxiety

With the increasing use of social networks, it is evident the correlation with real-world isolation, creating a barrier between online life and reality, which can lead to the development of mental disorders. The types of content posted and consumed by people play a significant role in mental health, as many of these posts reinforce narcissism, lifestyle consumption patterns, and status, contributing to the increased prevalence of various psychiatric disorders, including depressive symptoms, anxiety, and low self-esteem (Abjaude et al., 2020).

The virtual environment can seem like an attractive refuge for young people with feelings of anxiety and social fear due to its non-face-to-face nature of social interaction, providing a sense of relaxation and increased online engagement. However, in severe cases, this can lead to the replacement of real-world social relationships and even everyday activities. In children, this withdrawal from direct social interaction can hinder the development of effective social skills, compromising healthy social relationships in adolescence and adulthood (Markle, 2019; Young, 2019).

Among the numerous benefits brought by the internet as a whole, there are also drawbacks, such as its problematic use. The literature uses terms like "internet addiction", "pathological use" and "dependence", and all of them describe this problematic use of internet. This disorder is characterized by an internal concern with internet use, compulsive use, excessive time spent on the web, inability to manage this time, considering the offline world uninteresting, irritability when interrupted while connected, and a decrease in social relationships due to this use (Moromizato et al., 2017).

The uncontrolled and problematic use of the internet and social networks can affect mental health in various ways, including sleep disorders, a drop in academic and professional performance, mood disorders, hyperactivity and attention deficit, anxiety, social anxiety, depression, loneliness, low self-esteem, aggressive and compulsive behavior, suicidal ideation, and general mental health impairments (Moromizato et al., 2017). One of the main risks for the development of children and adolescents is low self-esteem, difficulties in building emotional relationships, lack of prospects, and problems in their sexual life (Eisenstein; Estefenon, 2011). Furthermore, technological dependence can lead to distancing from significant family relationships, a decreased ability to learn, and the development of disruptive behaviors (Fortim; Araujo, 2013).

Technology silently replaces common and traditional habits that involve physical interaction with people around us and with the environment we live in. The excessive use of technology undermines the emotional bond between family members and the lack of emotional reference leads to a difficult development for children, affecting cognitive aspects in the school environment because the imbalance between those cognitive and emotional aspects compromises students' school performance (Paiva, Costa, 2015). According to Silva and Silva (2017), daily internet use can lead to family conflicts due to a lack of interpersonal communication. Additionally, such use tends to foster superficial relationships, obstacles in the learning process, anxiety disorders, and difficulties related to concentration and focus. Technological innovations enable forms of communication that do not require direct physical contact, resulting in adverse consequences for

physical and psychological health, including impacts on social interactions, the development of problematic behaviors that can culminate in social isolation, alienation, financial problems, accidents, manifestations of fear, and dependence on these technological devices (Souza, Cunha, 2019).

A study developed by Rideout, Foher, and Roberts (2010), shows that the amount of time spent using media varies according to the type of media and the age of the child or adolescent: children aged 8 to 10 spend approximately eight hours a day using media, including television, music, computers, video games, and movies, while teenagers can reach 12 hours a day. Twenge and Campbell (2018) observe that the excessive use of digital screens, including smartphones, computers, video games, and television, is associated with lower psychological well-being and limited emotional regulation resources, such as difficulty calming down, difficulty getting along with others, an inability to complete tasks, low curiosity, and difficulty making friends.

Although the internet and technology provide numerous conveniences for daily life, they can also lead children and adolescents to consider them a refuge from the real world, especially those already experiencing anxiety, social phobia, and autism. Psychiatric problems and family dysfunctions are identified as significant factors in the development of technological dependence in children and adolescents (Young & Abreu, 2019). Lam (2015) suggests that teenagers use technology as a way to relieve stress and anxiety, becoming dependent on the internet as an ineffective coping strategy. This can lead to exacerbated stress and anxiety symptoms due to excessive internet use.

Users with compromised self-esteem may be at greater risk of developing such dependencies because the internet provides opportunities for communication with minor risks of rejection compared to face-to-face encounters, implying a possible enhancing effect on the development and maintenance of psychopathology (Lemos, Santana, 2012). The excessive and problematic use of social networks can lead to social avoidance, causing anxiety in real situations due to difficulty in dealing with social problems. Although the virtual environment may initially be used as an escape from negative emotions, it can paradoxically increase anxiety due to the constant need to check updates and continuous attention to the virtual world (Yucens & Uzer, 2020).

People develop a constant need to compulsively check their cell phones and social networks. So, when they cannot access the internet due to issues like a lack of signal, weak battery, or no new content to consume, they may experience anxiety crises. Furthermore, the constant desire to share aspects of their lives on social networks can lead to feelings of depression and anxiety if there is nothing to share. Despite facilitating daily life and providing ample access to information, the internet and social networks have contributed to people becoming extremely impatient due to getting accustomed to fast access to everything, generating distress when things do not work as quickly as on the internet, causing stress and the development and/or worsening of anxiety disorders (Rossi, et al., 2015). As pointed out by Twenge and Campbell (2018), individuals who spend a considerable amount of time on digital screens often demonstrate a lack of resources to regulate their emotions. These deficiencies include difficulties in calming down, social interaction skills, task completion, as well as a decrease in curiosity and the ability to establish friendships.

The fear, anxiety, and stress resulting from the lack of access to a cell phone today are so intense that the term "nomophobia" has been coined to describe this phenomenon. This reflects pathological and irrational fear of not being able to communicate via cell phone (Dongre et al., 2017; King, Nardi, 2010). Nomophobia is particularly studied among young people, who are the largest consumers of this technology and are more susceptible to negative consequences, such as distancing from in-person social relationships, loneliness, anxiety, and low well-being (Bragazzi & Del Puente, 2013, cited in Silva et al., 2020).

Currently, nomophobia is categorized as an anxiety disorder characterized by irrational and intense fear triggered by specific stimuli, such as certain objects or events. In this context, individuals develop irrational fear associated with situations like leaving home without their mobile device, the possibility of losing it, battery exhaustion, or loss of internet connectivity, resulting in high levels of anxiety. Under these circumstances, individuals show a preference for virtual interaction over in-person interaction, often incurring substantial expenses to acquire technologically advanced devices and ultimately experiencing deficits in sleep due to the extensive amount of time spent on internet browsing (Bragazzi & Del Puente, 2014, cited in Silva et al., 2020).

4. Conclusion

In conclusion, Martha Gabriel's description of virtual social networks as spaces of collaboration, interaction, and communication within specific interest niches has highlighted the transformative power of social media platforms. These platforms have redefined how people connect, communicate, and share information and over the years, the definition of "media" has evolved significantly. Once associated primarily with mass media, the term now encompasses the digital realm, where new tools and technologies have reshaped the landscape of information dissemination and communication.

The Global Digital Vision report underscores the increasing importance of digital technology in our lives, with significant growth in social media, e-commerce, streaming content, and video games. The

report highlights the widespread use of mobile devices and internet penetration, emphasizing the impact of the COVID-19 pandemic on these trends.

While social media and the internet offer numerous advantages, their excessive use, particularly among children and adolescents, can lead to negative consequences. These include social isolation, changes in behavior, digital dependency, and a range of mental health issues such as anxiety, depression, and low self-esteem. This happens because social media platforms are designed to capture users' attention and keep them engaged, and they can become addictive, creating a vicious cycle of increasing technology use. Dopamine, the neurotransmitter associated with pleasure, plays a key role in addiction, and excessive screen time can lead to dopamine imbalances, reinforcing technology dependence.

The misuse of technology can also have broader societal impacts, affecting family relationships, academic performance, and emotional well-being. Excessive screen time can lead to difficulties in managing emotions and building healthy social relationships, particularly in young people. The correlation between social media use and anxiety is evident, with online engagement sometimes providing a refuge from real-world social interaction. However, this can lead to social withdrawal and hinder the development of essential social skills. "Internet addiction" and "pathological use" are terms used to describe problematic internet use characterized by compulsive behavior, excessive time online, and an inability to manage online and offline activities. Such problematic use can result in sleep disorders, mood disorders, and academic or professional underperformance. The fear of being without a mobile device, known as "nomophobia," reflects a growing phenomenon linked to anxiety and the dependence on technology for social interaction. This intense fear can lead individuals to prioritize virtual interaction over in-person connections, potentially resulting in loneliness and anxiety.

In summary, while technology and social media offer many benefits, their excessive and problematic use can have significant consequences for mental health and social relationships, particularly among children and adolescents. Recognizing the potential risks and practicing moderation in technology use are crucial steps in fostering a healthy balance between the digital and real worlds.

We can see, then, the transformative and intricate role that the Internet and the social medias play in our lives. From the development of technologies to the global spread of digital connectivity, it has become clear that social networks have a profound impact on our society. They have the power to create transcendent connections and break down geographical barriers, but they also present significant challenges, especially when used excessively and indiscriminately. In this context, it is crucial to remember that technology itself is neither good nor bad, but rather how we use it that determines its impact on our lives.

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