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The Relationship between Addictive Use of Social Media and Psychiatric Disorders: The Mediating Role of Emotion Dysregulation

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Abstract: The Internet and social media are configured as significant strategies for interpersonal communication, entertainment, and recognition of the individual's area of expertise. However, the facilities that the media provide lead to dependence on the use of networks, which motivates the expression of emotional changes as well as psychiatric disorders in those who are addicted to the media. With this reality, the purpose of the current Literature Review is to present the impacts that the non-moderate use of social networks causes on the physical and psychological health of the subject as an individual and social being. Thus, an active search was conducted in the PubMed and Science Direct databases to find the best and most reliable scientific evidence regarding the relationship between the addictive use of social media and psychiatric disorders with mediation in emotional dysregulation, concomitant to its link to mental health, self-mutilation, sleep deprivation, and altered self-perception.

Keywords: Internet Addiction Disorder; Emotional Regulation; Mental Disorders; Social Media.

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1. Introduction

The Internet has become an indispensable medium in the 21st century and has brought multiple viabilities. Together with changes in time management and behavior, it has led to side effects and probable comorbidities1. Today, even with ongoing research one can suggest a worrying epidemic [2]. The difficulties are apparent and emotional dysregulation is possibly among them. As a substrate of internet addiction, we have the picture of dependence on social networks, since problematic use is evidenced when subjects use the networks for longer, demonstrating mood swings, withdrawal symp-

toms, and conflicts. There is already data indicating a 70% increase in the time spent [2, 3].

Besides this, it is understood that the pleasure and satisfaction offered by the use of the media enables a decrease in stress, and may be an escape route when facing negative emotional situations, which corroborates the distancing from reality with consequent problems in the development of healthy social interactions and attempts to modulate emotions, evidencing emotional dysregulation supported by a suffering-relief cycle [1, 4]. From a neuroscientific standpoint, research shows that emotional dysregulation can be shown as implicit or explicit. Moreover, emerging studies in psychiatry indicate dysfunctional behaviors typified in social interactions, mobilizing correlatively the frontal, orbitofrontal gyrus, temporal, and limbic regions, including the ventrolateral region in adolescents [5].

Still in the scope of neuroscience, there are inconclusive studies about some psychiatric disorders6 that translate cognitive, behavioral, and physiological misalignments present in pictures of inattention, depression [7], anxiety, behavioral and substrate disorders, as well as in sleep disorders and suicidal ideation [8, 9]. As for frequency of use, there is content on overuse and on withdrawal. These indicate that prolonged abstinence from social network use can generate a set of probably positive results, although there are negative consequences for mental functioning, i.e., regarding affection, well-being and life satisfaction resulting from limited use, abandonment or abstinence that are hardly investigated [9].

In view of this context and of the still inconclusive studies, there is an urgent need for a Literature Review with the purpose of expanding the understanding of emotional dysregulation and correlated effects focused on the impact of excessive social-media use along with possible psychiatric disorders and their themes.

2. Material and methods

This article presents a narrative literature review based on the analysis of scientific articles published from 2018 to 2022, in PubMed and ScienceDirect, about social media addiction, psychiatric disorders and emotional dysregulation. In the application of the first set of criteria, titles that did not mention the theme “social media addiction, psychiatric disorders and emotional dysregulation” were excluded, as well as articles that were not included in the research period from 2018 to 2022 and articles that were not found in English. In the PubMed database, 11 articles were found through the keywords “(Social media addiction) AND (Psychiatric disorders) AND (Emotion dysregulation)”, from which 4 were selected following the first exclusion criteria - 2020 (3) - 2018 (1). From which 2 were selected following the second exclusion criteria - 2018(1) - 2020(1).

In PubMed database, in order to expand the margin of articles, 36 articles were found through the keywords “(Social media) AND (Mental health) AND (Emotional dysfunction)”, from which 9 were selected following the first exclusion criteria - 2013(1) - 2015(1) - 2017(1) - 2018(2) - 2019(2) - 2020 (1) - 2022 (1), and selected following the second exclusion criteria, remained the same, 9 articles. In the ScienceDirect database, were selected only review articles, found through the keywords “(Social media addiction) AND (Psychiatric disorders) AND (Emotion dysregulation)”, from which 48 were selected - 2022 (13) - 2021 (15) - 2020 (6) - 2019 (7) - 2018 (7). The second set of criteria was applied, from which were excluded the abstracts that did not address the theme of social media addiction, psychiatric disorders, and emotion dysregulation, which led to the exclusion of 46 articles. In total, 2 articles originally in English remained – 2021 (2).

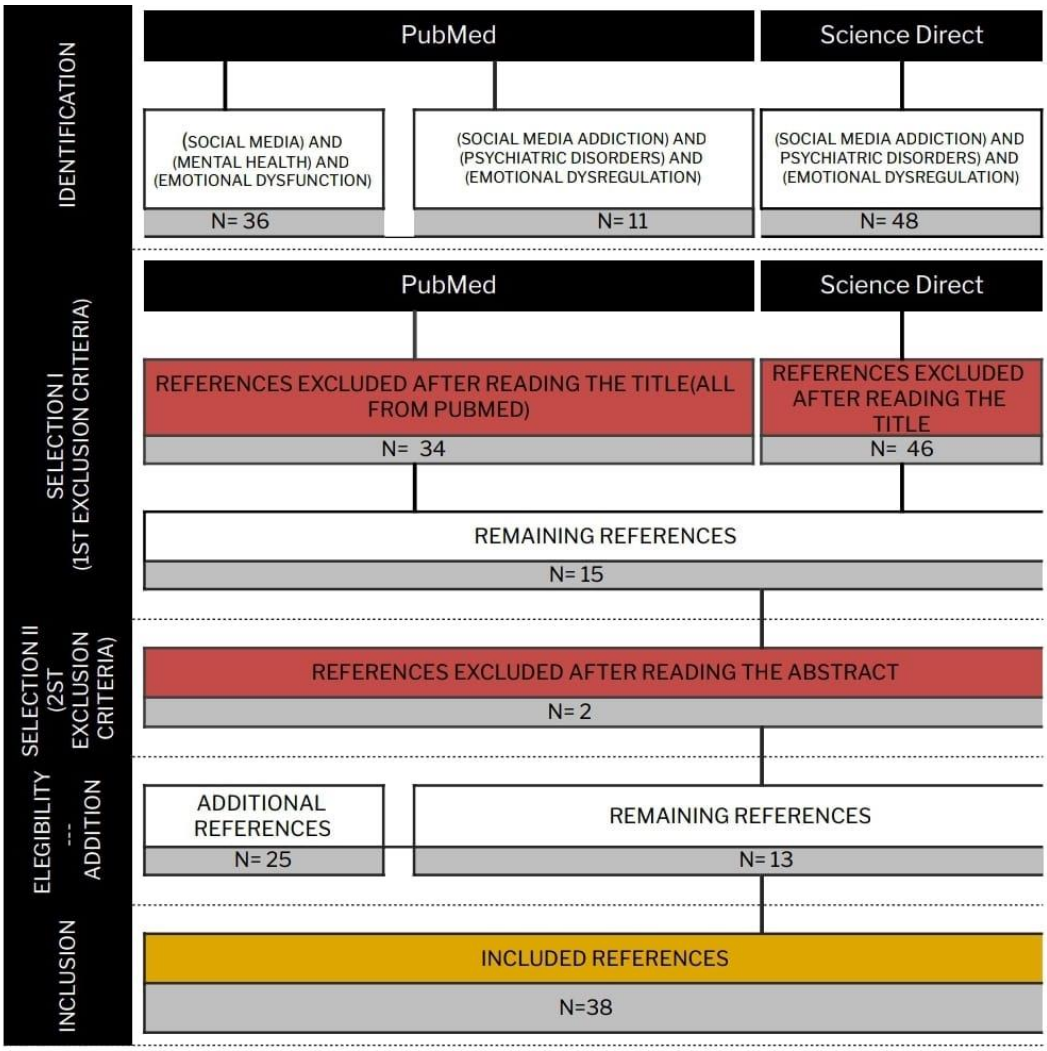
3. Results and discussion

3.1 Social Media Addiction and Mental Health

Data obtained in this study underscore the nonspecificity surrounding the term social media addiction. It appears in the databases synonymized as "problematic internet

use" (PIU) or excessive time use, which are generic terms that may consider other elements. In fact, we observed the opportunity for possible misunderstandings due to lack of consensus and in the use of terms [2, 17, 24[, since the digital world presents a plural and expansive context, where social media is one of the components of this ecosystem [16], which encompasses any application or digital software that allows social interaction. Another point in question was the lack of attention to the idiosyncratic characteristics of the individual and the peculiarities of digital media. These differ from one another, such as intent to use, length of stay, purchases or pornography sites, rewards. In addition to these, important markers in determining results, such as the ability to filter data [5], environment, physical, mental, and social health, and economic contribution, do not appear to subsidize data collection. Throughout the investigative process, we obtained expressive content about engagement and use of Facebook and Twitter1,16, as well as notes about PIU in other digital applications, such as video games and interactive games, various sites, and snapchats [2, 16, 23].

Figure 1. Articles addressing to Social Media Addiction and Psychiatric Disorders.



Given the need for more precise measurements, one can consider an effort toward improvement in evaluations. Neuroscience studies suggest that addiction behaviors are based on the same platform for all types of addiction, with cognitive, behavioral, and physiological symptoms that indicate continued use withdrawal, mood swings, and relapse, among others, characterized even in gambling1. It should be added that in the bias of data determination, psychometric support was found used for the Facebook - Bergen

Facebook Addiction Scale (BFAS), which brought other elements that led to the determination for Internet Misuse [16]. Even with the lack of consensus on relevant concepts, no counterpoints were identified in the evidence regarding emotional dysregulation [16].

One study examined variables such as fear of missing out, emotional support from media, and phubbing [27] (smartphone use in a crowded environment), associated with media addiction, along with emotional regulation and personality traits, providing new insights and an integrated assessment of media addiction [17]. It reveals the need for criteria, proper language, and objective characteristics regarding the structure and functioning of each of the media in question. This ensures a clinical judgment of the user as to the presence or absence of disorders of other addictions or comorbidities.

Under the preamble of mental health, copious studies on internalizing symptoms (anxiety, stress, depression) and externalizing symptoms (hyperactivity, aggressiveness, impulsivity) have brought about perspectives that stress various connections with dysfunctional behaviors, all which dialogue with the function of emotional dysregulation [2, 5, 9, 23, 25]. Emotional dysregulation is understood as the basis for dealing with high levels of stress [17]. They also identified that users addicted to digital media were more prone to deleterious effects in their life domains, being also sponsored by lower scores on the Tridimensional Personality Questionnaire (TPQ) that assesses novelty seeking, harm avoidance, and reward dependence. Furthermore, users assessed with full scores on the Difficulties in Emotion Regulation Scale (DERS) were significantly differentiated as risk groups, along with a progressive occurrence of depression, anxiety, and impulsivity [2].

On a side note, substrates of studies on emotion regulation and social media point in the direction of elements contained in the circuits of inhibitory control (IC) inclusive. IC is an element of executive function (EF) that enables the suppression of automatic predominant or prepotent responses and is one of the first higher-order emergent cognitive functions and a basal component in many other EFs. The IC involves plural regions of the brain, including the dorsal lateral prefrontal cortex (dlPFC), ventral lateral prefrontal cortex (vlPFC), motor cortex, and dorsal anterior cingulate cortex (dACC) [30].

Impulsive behavior, psychosocial adjustments [28], isolation, and mood correlated impairments were present symptom signs that refer directly or indirectly to emotion regulation, depression, and ODD (oppositional disruptive disorder). As for attention deficit hyperactivity disorder (ADHD), co-operating problems of sleep, overall screen time, and violent and fast-paced content, which activate dopamine and reward pathways, were found [31]. On another note, studies show perspectives in which media use can be configured as benign. This would provide opportunities for connection and communication, boost self-esteem, promote health, and create access to crucial medical information [26]. Furthermore, data on Facebook use exhibits a positive relationship with happiness. In light of this, the studies stand in contrast to previous results that led to a mostly negative view [29].

With massive evidence of detrimental impacts of social media on the mental health of adolescents and other users, it highlights the disproportion of empirical research that focuses on positive factors [26] that can bring well-being and beneficial individual attributes [9-11, 15], which encompass intelligence, problem-solving skills, as well as expanding the capacity for expression [26], for example. In the direction of mediating this picture, there are tools for evaluations found for "Facebook addiction" (FAD), which identified as markers the six addiction criteria (salience, mood modification, tolerance, withdrawal, conflict, and relapse) with results that pointed to the frequency of use, narcissistic personality trait, as well as symptoms of depression, anxiety, and, in the end, considerations about subjective happiness, besides its association with resilience being significantly negative [29]. The presence of inconclusive studies is observed in view of the need to add studies aimed at functional levels and greater human well-being in the world of social media [5].

3.2 Social Media Addiction and Self-Mutilation

Along with the refined content, addiction to social media creates unattainable standards of esthetics and appearance, which tends to impact mainly the mental health of adolescents, and may result in the development of depression, narcissism, and behavioral disorders such as the practice of self-mutilation [6]. It is important to point out that adolescents and young adults can suffer mood swings, decreased life satisfaction, and conflicts related to low self-esteem due to too much time spent online on Facebook [6]. The coordination of the results of these empirical studies is associated with data regarding emotional dysregulation, plus cyberbullying, suicide, and self-mutilation, all listed and linked to addiction to social networks [32]. Still in this context, a systematic review about self-harm and suicidal ideation was able to indicate the association of such practices with PIU, showing that there is normalization, glorification, encouragement, and dispute between users regarding these behaviors in social media [32]. In this perspective, data were mentioned that revealed that web use for a period exceeding five hours a day was affiliated with suicidal thoughts [32]. Further in this review, studies cited positive benefits and outcomes of Internet use, such as reduced loneliness and a potential protective influence of low levels of use when compared to no Internet use at all [32]. Furthermore, the use of online forums as a support network has been shown to reduce suicidal behavior [32]. Although studies on the benefits and harms of Internet use are essential, from the perspective presented in this review, it is suggested that the virtual environment can be a source of harmful knowledge for vulnerable individuals, especially children and young people [32].

Another investigation on the topic of suicide, a meta-analysis of multinational observational studies [33], which had as its theme the compulsive use of the Internet, is associated with increased suicidal tendency, even after the identification of probable variables that could confound the data ascertainment, such as signs of depression symptoms. Occurrences such as self-mutilation and suicidal thoughts, prove considerable potential damage by online media addiction related to self-destructive attitudes [32].

3.3 Social Media and the Subjective Dynamic

In a transversal perspective with the data analyzed, results were found that confirm that the internet is a medium where people search for elements that involve their subjectivity. They increasingly dive in search of something that meets their affections and expectations [11]. It is pointed out that digital designers use diversified sources of information to create visualization patterns aimed at capturing segments or targets, thus building sophisticated predictive models designed to maximize user engagement with each particular platform [37]. It is understood that subjective search is not a simple, causeless event. The excessive time spent on social networks is a consequence of the mechanisms created internally by each social network, which, by involving interactions and the possibility of exchanging information, causes each user to reinforce in his subjectivity investments in beliefs by searching and visualizing that which corresponds to his references of truth.

Business models are maintained in an attempt to keep the user in the role of consumer, with the maximum possible permanence in front of the screens, to affect the success of campaigns and achieve goals. The viewing orientation of these advertisements and their many functionalities serve this purpose for marketing engagement [34]. It is believed that the practice of virtual advertising can assume a nodal role in issues such as wellbeing and come to consolidate better components of conventional ways of dealing with social change, in an organized way and with the incorporation of activities. The practice relies on methods to create conversations, capture data, and other practices. Studies indicate that social marketing leads to a fertile environment for social and behavioral change [35].

Issues that involve and permeate individual subjectivity can be observed from another angle. When one is part of virtual communities, concepts and the way of interpreting situations are automatically influenced by other participants and by content contained in the network. Issues pertinent to mental health are exhaustively approached in research, having in mind that when people receive this expressive amount of information, they tend to change their view of the world and consequently of themselves, that is, they affect their subjectivity. Primi and collaborators [16] measured perceived loneliness and self-esteem in the Italian population, which already signals the attention to subjective aspects. According to other researchers, there are findings that show that social media can activate a unique type of social pressure through quantifiable social endorsement, which in turn may reinforce the importance of self-presentation during adolescence, including in social media [12]. This fact provokes the scientific community, which finds a vast field to be investigated in all its complexity, including topics on emotional dysregulation as a mental health issue, which refers to the way people perceive themselves and behave in order to live together in this new digital world.

Self-perception as a subjective internal view deals with concepts internalized by each person about himself, being to a greater or lesser degree due to age, low education, income, race, marital status, smoking, physical activity, alcohol consumption, presence of chronic morbidity, and body mass index [36]. In this way, self-perception is altered, and it can be positive or negative, which means that social networks affect people in their self-perception. In their presentation before others, they exhibit change in their personal positioning in order to gain the acceptance of others. Further research shows that social media encourages social comparisons among its users, as they are exposed to an abundance of content shared by plural users, many being popular or celebrities. These comparisons have been studied and fell into three possible categories, being: upward (where the target is considered higher), downward (where the target is considered lower), or lateral (where the target is considered even). Comparisons made on social media are more likely to be upward, since many users tend to present an idealized version of themselves and their lives, so social media users are likely to believe that other people are happier and live a better life. Still on this comparison, it has been associated with negative psychological outcomes such as suicidal ideation, such as low self-esteem and depression [37].

3.4 Smartphone use, sleep deprivation, and mental health

Caution with access to electronic devices is a concern for the scientific community investigating sleep disorders. Social media and video games are accessible settings that are justified by the exposure of the individual to unknown spheres of possible violence of all kinds, such as cyberbullying and sexting (sending erotic text messages). This is a social determinant for the generation of fear, cruelty, and loss of sensitivity in children and adolescents. In this perspective, research sustains that excessive exposure to violent content in games, for example, corroborates alterations in some brain regions. As an example of elements of the brain anatomy responsible for emotional regulation, we have the amygdala and the anterior cingulate cortex. The interpersonal difficulty of those who use games with aggressive content is prominently present; and as for smartphones (phubbing), it is noted that 25% of people who spend more time on Facebook and Twitter do not have healthy social relationships. The preference for faster forms of communication is an event that evidences the scarcity in the search for creative and physical activities that require better elaborated cognitive and behavioral skills. Even if empowered, by the excess of information, users are hindered and exhibit stress and anxiety [6, 10, 12].

Receiving likes and views on social media carries the event of feedback along with a meaning of reward followed by a sense of belonging and social welcome. This satisfying experience can facilitate the unfolding of an emotional attachment to the social-media platform. An example is the involvement of excessive use of Facebook to reinforce the experience of gratification. The obsession and addiction can contribute to compromised

distorted thoughts, interference with the time spent on the network, mood swings with a sense of fullness upon use, relapse into media-addicted behaviors after a failed attempt to reduce use, withdrawal symptoms such as nervousness and gradual malaise upon discontinuing use, and the emergence of interpersonal problems caused by intensive use. It is reported, however, that all the referenced elements follow the mental health criteria for addiction assessment and, although the addictive use of social media such as the Facebook platform, for example, is characterized, it is not listed as a nondescript psychiatric disorder in the Diagnostic and Statistical Manual of Mental Disorders, 5th ed. (DSM-V) [38] classification system developed by the A.P.A. (American Psychiatric Association).

It is unsuspected, with regard to brain and consequently behavioral reaction, that the use of digital technology has both positive and negative traits. Functional imaging scans have found that elderly laymen using the Internet significantly increase their neural activity during illusory web searches. Similarly, computer programs and video games appear to act on memory, multitasking practices, and cognitive ability. Apps and digital strategies act as positively effective interveners on mood and behaviors. However, data on sleep studies corroborate that the immoderate use of smartphones and tablets at least three hours before bedtime leads to a sleep consequently interrupted by the bright light of the cell phone screens, preventing the individual from constituting deep sleep. It is true that the human circadian rhythm cannot discern between the sun and a computer screen, that is, the light can confuse the brain, following in failure to sleep. Technological devices cooperate in causing 45% of teenagers to sleep less than the recommended 8 hours. Sleep deprivation brings a humoral effect of irritability, social inabilities, and a negative impact on memory that can decrease performance [6, 10].

Further research into the growing use of electronic social media describes the condition of "fear of missing out" subsidized by uninterrupted connection and justified by checking for something new, generating a repetitive cycle of going back and forth to the networks. Another finding is the present association between increased media use and anxious and depressive conditions; also, the frequency of texting while using media throughout the day and sleep disturbances, those related to falling asleep time. In a cross-sectional observational study of 855 hospital staff and university students, it was found that about 70% of the participants stayed on the media when going to bed, with almost 15% spending an hour or more per night on it. The statistics on bedtime use do not vary by gender, but rather by age group, with younger and middle-aged users as superior compared to the elderly3. In equating with those who do not use social media in bed, individuals with high use in bed were more inclined to insomnia, anxiety, and shortened sleep during the week, but not depression or daytime sleepiness. However, decreased media use in the sleeping place only increased the likelihood of shortened sleep duration during the week3.

Another point regarding the degrading sleep condition, is the association with brain changes such as reduced functional connectivity and decreased gray matter volume. Similarly, there is a risk of age-related cognitive impairment and Alzheimer's disease. It is uncertain whether the act of looking at screens or media content disrupts sleep across the board, although it is feasible that the wavelength of light exposure affects the wake-sleep cycle. Another study indicates that computer and telephone Light Emitting Diode (LED) screens emit slow-wave blue light that disrupts the circadian rhythm. It has been validated that exposure to LED versus non-LED screens produces changes in melatonin levels and sleep quality, and such exposure decreases cognition. Media use in bed is linked to sleep and mood dysfunction in adults, and this data is relevant to those involved - medical staff, therapists, and the public; limiting media use in bed may be a potential intervention strategy for sleep hygiene and mental health. Therefore, there is recognition of the impact of screen time on sleep as a moderator of negative effects on cognition and brain function. Further investigation of the advantages and disadvantages of technology on brain health is needed to further elucidate the mechanisms and causal relationships assumed.

4. Conclusion

In the scope of this review study, the theme of mental health and the finding of emotional regulation as a factor of exchange has brought a demand associated with neuroscientific, psychological, and psychosocial factors in the last 10 years. Among the findings in the indicated databases, there were limitations in several studies, and the typification of the media proved deficient in the face of the need for more specific data that would examine, for example, the association of media use, whether passively or actively, as well as the reality of bidirectionality - positive or negative, why, and how potential preventive actions can neutralize, maximize, or minimize effects. Still, positive effects were detected in combating loneliness and seeking help.

Mental disorders focused massively on depression, ADHD and maladaptive behaviors. It is worth noting that PIU also contributes to impulsive behaviors, the practice of self-mutilation, noise in self-perception, sleep disorders and suicidal ideation, which although increasingly gaining the agendas of research, the data are still little expressive. The evaluation systems reviewed were poor, as well as the correlation of control markers (population, gender, and psychosocial and subjective information) as to the guideline for screening, referencing the length of stay and the predominantly adolescent population. A reduced number of meta-analyses and a greater presence of reviews were detected, which involves the qualitative and quantitative content of the investigations.

Considerations for screening, prevention and rehabilitation involving parenting, conscious monitoring, psychotherapies based on scientific evidence, contagious effect of suicide, affecting occupational and academic performance, are some of the subjects little present or absent in these searches with their descriptors, which relate directly or indirectly with emotional regulation in physical and mental dimensions and indicate need for increase and expansion. In summary, there is an extensive demand for more in-depth studies that can provide a better outline of the theoretical practices and praxis in the digital media dynamic.

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