Uso excessivo de mídias sociais relacionado à saúde mental e à redução da qualidade do sono em estudantes

Excessive use of social media related to mental health and decreased sleep quality in students

Uso excesivo de redes sociales relacionado con la salud mental y reducción de la calidad del sueño en estudiantes

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ABSTRACT

Objective: To identify in the literature the relationship between the use of social media by students and its impact on mental health and sleep quality. **Methods:** Integrative literature review in databases such as PubMed, LILACS, SciELO, Acervo+ Index Base and Cochrane Library, including cross-sectional observational studies published from 2015 to 2021. The PICOS anagram was used (patient, intervention, comparison, result and type of study) to identify the research question. **Results:** A total of 2,144 articles were identified through databases and only 11 articles were included in this review. All studies located state that excessive use of social media before bedtime can impair sleep quality and negatively affect mental and physical health. **Final considerations:** It is necessary to make students, families and health professionals aware of the healthy use of social media. Compromised sleep quality can lead to cognitive, mood and learning impairments, in addition to influencing behavioral aspects such as irritability and reduced school performance. It is essential that actions are promoted that aim at a balance in the use of technologies and social media, aiming to protect the mental and physical health of students.

Keywords: Sleep deprivation, Sleep initiation and maintenance disorders, Social network, Sleep quality, Students.

RESUMO

Objetivo: Identificar na literatura a relação entre o uso de mídias sociais por estudantes e seu impacto na saúde mental e qualidade do sono. **Métodos:** Revisão integrativa da literatura em bases de dados como PubMed, LILACS, SciELO, Acervo+ *Index Base* e Cochrane Library, incluímos estudos observacionais transversais publicados de 2015 a 2021. Utilizou-se o anagrama PICOS (paciente, intervenção, comparação, resultado e tipo de estudo) para identificar a questão de pesquisa. **Resultados:** De 2.144 artigos identificados, 11 foram incluídos nesta revisão após a seleção. Todos os estudos mostraram que o uso excessivo de mídias sociais antes de dormir pode prejudicar a qualidade do sono e afetar negativamente a saúde mental e física dos estudantes. **Considerações finais:** Há necessidade de conscientização sobre o uso saudável de mídias sociais entre estudantes, família e profissionais da saúde. O comprometimento da qualidade do sono pode

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levar a prejuízos cognitivos, de humor e de aprendizagem, além de influenciar aspectos comportamentais como a irritabilidade e a redução do rendimento escolar. É fundamental que sejam promovidas ações que visem o equilíbrio no uso de tecnologias e mídias sociais, objetivando proteger a saúde mental e física dos estudantes.

Palavras-chave: Privação do sono, Distúrbios do início e da manutenção do sono, Rede social, Qualidade do sono, Estudantes.

RESUMEN

Objetivo: Identificar en la literatura la relación entre el uso de las redes sociales por parte de los estudiantes y su impacto en la salud mental y la calidad del sueño. **Métodos:** Revisión integrativa de literatura en bases de datos como PubMed, LILACS, SciELO, Acervo+ Index Base y Cochrane Library, incluyendo estudios observacionales transversales publicados desde 2015 hasta 2021. Se utilizó el anagrama PICOS para identificar la pregunta de investigación. **Resultados:** De los 2144 artículos identificados, 11 fueron seleccionados. Todos los estudios demostraron que el uso excesivo de las redes sociales antes de dormir afectar la calidad del sueño y tiene un impacto negativo en la salud mental y física de los estudiantes. **Consideraciones finales:** Es necesario concienciar sobre el uso saludable de las redes sociales entre estudiantes, familiares y profesionales de la salud. La calidad del sueño comprometida puede generar deficiencias cognitivas, del estado de ánimo y del aprendizaje, además de influir en aspectos del comportamiento como la irritabilidad y la reducción del rendimiento escolar. Por lo tanto, es fundamental promover acciones que apunten al equilibrio en el uso de las tecnologías y las redes sociales, con el objetivo de proteger la salud mental y física de los estudiantes.

Palabras clave: Privación de sueño, Trastornos del inicio y mantenimiento del sueño, Red social, Calidad del sueño, Estudiantes.

INTRODUCTION

Sleep is a physiological, active and survival phenomenon with several crucial functions such as maintaining metabolic balance, cellular repair, immunocompetence, 80% production of the growth hormone, cognitive and emotional processing and memory solidification (HASPEL JA, et al., 2020). During sleep, the brain consumes more oxygen and glucose with an increase in cerebral blood flow; it is structured in REM (rapid eye movement) and non-REM (AMBRA B, et al. 2017).

The former is also called paradoxical sleep because its waves are similar to those of the vigil state (ZANUTO EAC, et al., 2015; HASPEL JA, et al., 2020). Knowledge of the interaction between sleep, human physiology and with the environment where one sleeps contributes towards understanding sleep disorders and their consequences (ZANUTO EAC, et al., 2015; ELHAI JD, et al., 2015).

Nowadays, the internet and social networks have become an essential part of many people's lives. Despite its numerous benefits, such as accessing information, connecting with people around the world and creating new business opportunities, it is also important to consider its challenges. Among the benefits, the ease of access to information stands out, which can be used for personal and professional learning and development allowing people to connect and interact with friends and family, regardless of distance. However, the internet and social networks also present challenges, such as the dissemination of false information and its negative consequences for society. Furthermore, excessive use of these platforms can lead to mental health issues such as anxiety, depression and sleep disorders (MOROMIZATO MS, et al., 2017; RIEHM KE. et al., 2019).

Among the various sleep disorders described by the 3rd edition of the International Classification of Sleep Disorders (ICSD-3) there are those related to bad lifestyle habits, which are included in the group of extrinsic sleep disorders (WOODS HC and SCOTT H, 2016). These include disorders triggered by factors that are external to the organism and capable of affecting sleep, such as inadequate sleep hygiene and insomnia due to food allergies as well as sleep disorders related to the circadian rhythm associated to daytime hypersleepiness, such as the syndrome of the rapid change in time zones and shift work (AMBRA B, et al.,

2017). Several studies have shown that the excessive use of telephonic devices and social networks, especially during the time period prior to falling asleep, is one of the main reasons for extrinsic sleep disorders, especially initial insomnia (AMRA B, et al., 2017).

Some studies demonstrate that there is relationship between excessive use of social media and mental health problems in students. A study conducted by Woods HC and Scott H (2016) found that excessive use of social media can cause feelings of depression and anxiety in college students. Furthermore, another research by Lin LY et al. (2016) noted that excessive use of social media is associated with an increase in stress and anxiety in high school students.

Furthermore, excessive use of social media can impair sleep quality in students. As pointed out by a study conducted by Levenson JC, et al. (2016), frequent use of social media before bed can lead to lower quality sleep and an increase in the time needed to sleep. Other research by Sampasa KH, Hamilton HA, and Chaput JP (2018) showed that excessive use of social media at night is associated with an increased risk of insomnia in high school students.

Integrative literature review studies have been widely used in medicine as an essential tool for the synthesis and critical analysis of existing knowledge on a given topic. These studies allow for a systematic and rigorous assessment of available evidence in order to inform clinical practice and healthcare decision-making (WHITTEMORE R, and KNAFL H, 2015).

Some researchers highlight the importance of these studies in medicine, such as BRAMER WM, et al. (2017), who claim that integrative literature reviews are effective in collecting and synthesizing available evidence, allowing the identification of gaps in the literature and the improvement of clinical practice. In addition, these studies are fundamental for the formulation of evidence-based health policies.

In this context, this integrative literature review is justified because it aims to assess studies regarding the association between students use of mobile phones and social networks and their influence on physiological sleep, triggering sleep disorders, as well as identifying possible mechanisms involved in this association.

METHODS

This is an integrative review of the literature, the anagram PICOS (patient, intervention, comparison, result and type of study) was used to identify the research question: How does excessive use of social media affect mental health and sleep quality in students? And the bibliographical research was carried out in April 2022. (CARLSON NS, 2016).

Search strategies were developed individually for each of the following electronic databases: PubMed, Acervo + Index Base, LILACS, SciELO, Acervo + Index Base and Cochrane Library databases based on the approach: Patient, Intervention, Comparison and "Outcomes" (outcome) (PICOS).

Our strategy was targeted towards Population (students in general), Exposure (e.g. social media) and Outcomes (e.g. sleep disturbance and cognition disorders). Additional grey literature searches were conducted by visiting Google Scholar. The Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) were the basis for our selection of descriptors (the full search strategy is in **Chart 1**).

We chose to select articles published in the databases mentioned in the period from 2014 to 2021 because it was the moment of greatest changes concerning the sleep habits among students that occurred in the last seven years and the higher interest on smartphones, corroborating to insomnia and other negative effects on quality of life.

Chart 1 – Search strategy

Electronic databases	Search strategy
PubMed	(((("student" (All Fields] OR "students" [MeSH Terms] OR "students" [All Fields] OR "student" [All Fields] OR"students" (All Fields])) AND ("sleep" (MeSH Terms] OR "sleep" (All Fields] OR "sleep" [All Fields] OR "sleep"[All Fields] OR "sleeps" (All Fields]) AND ("social networking" (MeSH Terms] OR ("social" [All Fields] AND"networking" (All Fields]) OR "social networking" (All Fields]) OR ("internet access" [MeSH Terms] OR ("internet"[All Fields] AND "access" [All Fields]) OR "internet access" [All Fields]) OR ("smartphone" [MeSH Terms] OR"smartphone" [All Fields] OR "smartphones" (All Fields] OR "smartphones"(All Fields])) AND ((v_5 [Filter]) AND (ffrft [Filter]) AND (booksdocs [Filter] OR meta-analysis [Filter] OR randomizedcontrolledtrial [Filter] OR review[Filter]) AND (english (Filter]	OR portuguese (Filter] OR spanish (Filter]))
Acervo + *Index Base*	(((("student" OR"students" AND ("sleep" (MeSH Terms] OR "sleep" (All Fields] OR "sleep" [All Fields] OR "sleep"[All Fields] OR "sleeps" (All Fields]) AND ("social networking" (MeSH Terms] OR ("social" [All Fields] AND"networking" (All Fields]) OR "social networking" (All Fields]) OR ("internet access" [MeSH Terms] OR ("internet"[All Fields] AND "access" [All Fields])
LILACS	(((((students) AND (sleep)) AND (social networking)) OR (internet access)) OR (smartphone)) AND (fulltext:("1")AND db:("LILACS") AND type_of_study:("prevalence_studies" OR "prognostic_studies" OR "qualitative_research"OR "risk_factors_studies" OR "screening_studies" OR "evaluation_studies" OR "health_economic_evaluation")AND la:("pt" OR "en" OR "es")) AND (year_cluster: (2015 TO 2021])
SciELO	(((students) AND (sleep)) AND (social media)) OR (internet access)) OR (smartphone) AND year_cluster:("2020"OR "2019" OR "2018" OR "2017" OR "2016" OR "2015")) AND type:("research article" OR "case report" OR"short communication" OR "book review" OR "short report") And type :("en" OR "is" OR "en")
Cochrane Library	(((("student" (All Fields] OR "students" [MeSH Terms] OR "students" [All Fields] OR "student" [All Fields] OR"students" (All Fields])) AND ("sleep" (MeSH Terms] OR "sleep" (All Fields] OR "sleep" [All Fields] OR "sleep"[All Fields] OR "sleeps" (All Fields]) AND ("social networking" (MeSH Terms] OR ("social" [All Fields] AND"networking" (All Fields]) OR "social networking" (All Fields]) OR ("internet access" [MeSH Terms] OR ("internet"[All Fields] AND "access" [All Fields]) OR "internet access" [All Fields]) OR ("smartphone" [MeSH Terms] OR"smartphone" [All Fields] OR "smartphones" (All Fields] OR "smartphones"(All Fields]))

Source: Bezerra LB, et al., 2023.

We included all observational cross-sectional studies about the commitment of social media on sleep and cognition among the students. These were reported according to the full articles in English, Spanish and/or Portuguese, dating from 2014 to 2021, and available on the databases cholsen. And as exclusion criteria applied: articles that are not in full, published in other languages, outside the requested period, duplicate studies and that do not meet the proposed theme. In addition, they were also excluded: bibliographical reviews, clinical trials, editorial letters, studies involving animals; abstracts published in proceedings of events; studies that are not fully available in the searched databases and studies prior to 2015 not dealing with classical concepts related to the area of interest of this review.

Two steps were performed in the selection of studies. In the first stage, three reviewers independently examined titles and abstracts identified in all databases. Those that did not meet the pre-established selection criteria were excluded. In the second stage, the same reviewers assessed the full texts of these selected studies. In cases of disagreement regarding the exclusion of a title, a third reviewer analyzed the abstract or the full text.

An original data sheet was used to collect the required information from the selected studies. Two authors collected the information independently. All controversies in that process were discussed and decided by a third author to ensure the accuracy of the recorded information. The data collected consisted of study information (authors, year of publication), population (sample size, age of participants, gender), characteristics of sleep assessment methods and outcomes.

RESULTS

A total of 2144 articles were identified through databases. After removal of duplicates, 56 articles were sent for peer selection of title and abstract. Finally, 15 were forwarded for final analysis, when the full article was then read. Two studies were analysed (one of them was excluded because of the abstract), including a manual search of reference lists in the selected articles. In the end, 11 articles were included in this review. **Figure 1** shows the flowchart illustrating article selection and exclusion steps.

Figure 1 – Flowchart of the selection process of articles for integrative review.
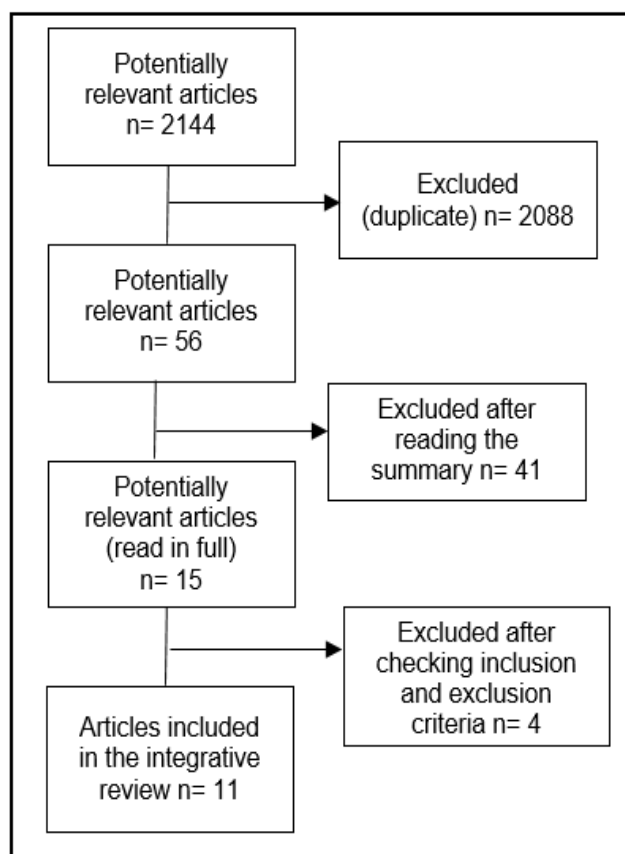
Source: Bezerra LB, et al., 2023.

Ten of the studies are transversals, and 1 study is cohort longitudinal. The sample size of the studies ranged from 90 to 17,000 students. These studies regarded age between 4 to 48 years. Regarding methodology, ten studies applied questionnaires. Three questionnaires regarded depression and anxiety due to the use of social networks, five of the questionnaires applied were about use and access to social networks while one questionnaire was about the sleepiness scale. The tenth study was held according to the data of surveillance research including the juvenile risk behavior which reunited sleep, physical activity and time on screen data.

Chart 2 summarizes the articles included in the final sample, covering in addition to the title of the articles, the authors and year of publication, type of study, objectives and conclusions, included in the main results.

Chart 2 - Articles selected for this integrative review.

N	Author (year)	Main findings
1	Ávila GB, et al., 2020	A cross-sectional study was carried out with a sample of students between 14 and 20 years of age, selected by random sampling to represent the 4,038 students of an educational institution in the south of Brazil. The aim of the study was to assess the prevalence of internet addiction (IA) and its associated factors among these students. The prevalence of UA was 50.8%, and the rate was higher among individuals who were screened positive for depressive or anxiety disorders than among those who were not (p = 0.003). The study also found an association between AI and access to certain types of content, such as games (p = 0.010), work and study (p = 0.030) and internet use to access sexual content (p < 0.001).
2	Moromizato MS, et al., 2017	Cross-sectional and descriptive study, with convenience sampling, carried out with medical students in 2015, anxiety and depressive symptoms were analysed using the Beck Anxiety Inventory (BAI) and the Beck Depression Inventory (BDI). The objective was to investigate the correlation between indicators of internet and social network use and the presence of anxious and depressive symptoms. Of the 169 students who participated in the survey, 98.8% (167) make daily use of the internet and/or social networks. No statistical association was found between the time spent on the internet and the presence of anxiety and depressive symptoms with the BAI and BDI scores.
3	Khoury JM, et al., 2019	Cross-sectional study aiming to understand the interface between smartphone addiction (SD) and Facebook addiction (DF) correlated with social problems. Undergraduate students from Universidade Federal de Minas Gerais, with age ranging between 18 and 35 years were recruited. In conclusion, co-occurrence of SA and FA correlated with higher levels of negative consequences and lower levels of social support satisfaction.
4	Britos M and Britez R, 2015	Cross-sectional study. The study has as intention to describe the level of use and access to Internet, cell phone and social networks (facebook, twitter) that have the students of Psychology UCSA. A survey was applied on the use and access to the virtual social networks facebook and twitter, the questionnaires CERI (Questionnaire of Internet-Related Experiences) and CERM (Questionnaire of Experiences Related to Mobile) by Beranuy, Chamarro, Graner and Carbonell Sánchez (2009). It is concluded that the largest number of students presented a higher score regarding the use of cell phones and a lower score regarding the use of the Internet.
5	Sales HFS, et al., 2018	The study was carried out in two phases, with the first phase adapting the Compulsive Internet Use Scale to assess smartphone addiction (Study 1) and the second phase validating the adapted scale (Study 2). The study involved a sample of 235 participants from the cities of Teresina and Picos and another sample of 297 participants from the city of Parnaíba, all located in the Brazilian state of Piauí. The results of the study suggest that the Smartphone Addiction Scale has good psychometric properties and can be effectively used for research purposes and to diagnose smartphone addiction, which is characterized by high scores on the scale.
6	Riehm KE, et al., 2020	A longitudinal cohort study was conducted to assess US adolescents through household interviews using audio computer-assisted self-interviewing. The study included a total of 6595 adolescents, aged 12-15 years during wave 1, with 3400 (51.3%) male participants. In the unadjusted analyses, spending more than 30 minutes on social media, compared to no use, was found to be associated with an increased risk of internalizing problems alone. The study concludes that adolescents who spend more than 3 hours per day on social media may be at a higher risk of mental health problems, particularly internalizing problems.

N	Author (year)	Main findings
7	Knell G, et al., 2019	Cross-sectional data from the 2011, 2013, 2015, and 2017 cycles of the Youth Risk Behavior Surveillance Survey were used. This study presents the prevalence and likelihood of US individuals younger than 18 years meeting recommendations on time spent sleeping, in physical activity, and in front of screens. A total of 59 397 participants were included in the unweighted data set and Study findings indicate that only 5% of US high school students (3% of girls; 7% of boys) spend the optimal time sleeping and being physically active while limiting screen time, with important disparities shown by vulnerable subgroups.
8	Boumosleh JN and Jaalouk D, 2017	A cross-sectional study was conducted with 688 undergraduate students at Notre Dame University (NDU) in Lebanon. The students were recruited from the pool of "Natural Sciences" general education requirement courses (GERs). The study aimed to 1) assess the prevalence of smartphone addiction symptoms in relation to physical, mental, and social health, and 2) investigate whether depression or anxiety, independently, contributes to smartphone addiction levels among Lebanese students while adjusting for other independent variables. The findings of the study suggest that the prevalence of smartphone addiction symptoms was high among the university students. Multiple independent risk factors for smartphone addiction were identified, including excessive smartphone use, Type A personality, depression, anxiety, and a lack of family social support (as indicated by not calling family members).
9	Guedes DP, et al., 2018	An epidemiological cross-sectional study was conducted in high schools with 2874 adolescents aged 14-19 years to determine the prevalence of excessive screen time and analyze associated factors. The study found that the prevalence of excessive screen time was 79.5% (95%CI 78.1-81.1), with a higher prevalence in males (84.3%) compared to females (76.1%; p<0.001). The authors concluded that excessive screen time was prevalent among high school adolescents, with male adolescents, younger age groups, and those from higher socioeconomic classes being more exposed to this outcome.
10	Bardini R, et al., 2017	Cross-sectional study of adolescents between 18 and 19 years old of seven Healthcare courses. They used the Epworth Sleepiness Scale (Scale SE) questionnaire to identify EDS. The purpose of the study was to estimate the prevalence of excessive daytime sleepiness (EDS) and associated factors in adolescent university students of health care in a high education institution. The authors concluded that the total of 113 university students participating in the research, 84,0% (n = 95) was female. Regarding to the use of substances in the last semester, 15,9% (n = 18) of the students used wakeness stimulants like, while 4,4% (n = 5) used hypnotics substances.
11	Karling TP, et al., 2021	Cross-sectional, observational and descriptive study whose objective was to estimate the prevalence of excessive daytime sleepiness (EDS) and associated factors in adolescent university students of health care in a high education institution. 251 people were interviewed through Instagram, the Nordic Questionnaire of Musculoskeletal Symptoms (QNSO) and pain with the Visual Analog Scale (VAS) were used. In conclusion, the results obtained in the study indicate that there is an occurrence of pain and symptoms of (text neck syndrome) in social media users.

Source: Bezerra LB, et al., 2023.

DISCUSSION

The results found on the study demonstrated the strict relation between the use of social media and the decrease on quality of sleep. Furthermore, it reveals that psychiatric disorders like anxiety, depression and irritability are related to the prolonged internet use. In addition, time spent on the screen is associated to a lower time spent on physical activity. With these evidence, one can note that it is plausible to demonstrate the decrease on quality of life among students (ÁVILA GB, et al., 2020).

However, internet is essential to daily life since the 90's. There is peer pressure to be connected to social media applications like WhatsApp (MOROMIZATO MS, et al., 2017). A study revealed that 98.8% of the students use the internet daily. Among these students, approximately half of them stated that they use it mainly to send instant messages. It is evident that the internet is a tool that promotes social contact and exchange of information. Currently, smartphones are the main piece to this virtual contact in real time, presenting solutions to various problems, also being of easy access (MOROMIZATO MS, et al., 2017). It was also determined that there is an increase of neuronal activity on nucleus accumbens by positive self judgement – higher than other people's positive judgement. There is also a positive relation between exaggerated use of Facebook and the neuronal effect of social reinforcement on magnetic resonance.

Nucleus accumbens is the brain's compensation center, which leads to a conclusion that people who access Facebook notice the "likes" as a reinforcement stimulus. This study revealed that students who access Facebook several times a day showed a decreased nucleus accumbens' volume. It was concluded that the recurrent checking on the application is a search for rewards, and that it can be a risk factor for developing internet dependency (KHOURY JM, et al., 2019). Furthermore, there is the negative effect of uncontrolled use and internet addiction, which has became an epidemic, and deserves attention since it is considered a worldwide mental health problem (MOROMIZATO MS, et al., 2017). Internet has become a mechanism of generating psychological dependency.

The percentage of individuals that suffer of an addiction is increasing (MALTA M, et al., 2010). It was demonstrated that the mesocortical-limbic reward system of internet dependent people is stimulated the same way as substance abuse, presenting neurological reactions, similar to drug addiction; but instead, they affect the individual in different ways, normally associated to behavioral addiction. There is also the negative effect of internet uncontrolled use and addiction.

Internet dependence as a result of the combined use of television and other screen devices for more than 2 hours a day, leads to sleep interruption due to nighttime access causing excessive fatigue. This problem impairs the academic and occupational functioning of students, in addition to affecting the immune system, making the patient vulnerable to diseases (GUEDES DP, et al., 2018; BARDINI R, et al., 2017). In eight out of the eleven studies found, excessive internet use can lead to various problems, like physical and psychological harming and daily activities conflict as well as in the relationship with friends and family. When the student opts to use their time of study or sleep to connect themselves, they become vulnerable to mood changes and to a variety of mental disorders (MORIMIZATO MS, et al., 2017).

The studies outstand the abuse of social media among young adults and adolescents. It is possible to infer that being adolescent can be considered a risk for developing internet dependence and their behavioral and emotional functioning include psychopathological risk elements. It is during adolescence that the separation from parents begin, as well as the search for individuality outside of the family to define a new identity. This part of the population is attracted to social media, where it is possible to maintain personal relationship and one can opt to be anonymous or to not show undesired characteristics, creating an online identity that will be used to deal with offline relationship (MALTA M, et al., 2010).

It was stablished in a study that depressive and anxious symptoms are related to internet dependency among adolescents. Beyond that, the depressive and anxious symptoms can precede internet dependence behaviors. These adolescents can use the internet to alleviate their pain as they can access various activities like games and anonymous communication (RIEHM KE, et al., 2019). This way, the presence of symptoms can be worsened by and generated by inadequate internet use. It is also plausible that as the symptoms are present, the exaggerated use acts as a compensation mechanism. It is also probable that the association

between internet use and the way anxiety is suppressed can be more important than the level of anxiety itself. Studies state that "access to internet lead by internal reasons of emotional regulation is more dysfunctional that the social use of internet, which may be more recreative" (MOROMIZATO MS, et al., 2017). It is the explanation for the increase of depression in adults – because the higher incidence of internet use is among 18 to 30 year-old people, who occupy 80% of consumption (SALES HF, et al., 2017).

With a high incidence of cell phone use, the sleep disorders start to show among the students because they state that it seems like the time goes faster when they are connected to the internet, and it is common that they feel worried or agitated. It is also common that they use their mobile phone when they feel bored, so the internet is a way of distraction (SALES HF, et al., 2017). This way, studies in the medical field reveal that mobile phones can affect biological systems, increasing the free radicals, damaging the health cells on the body, and changing the antioxidant defense of human tissues, which can lead to oxidative stress. Furthermore, this association has become more significant when associated to previous use of alcohol and marihuana and mental health disorders (KNELL G, et al., 2019).

This way, it is advised that children (6-12 years) sleep 9 to 12 hours and adolescents sleep 8 to 10 hours per night and that both have a time limit on the screen, it is, exposition to all digital media needs to be less than 2 hours in a 12-hour period (BOUMOSLEH JM, et al., 2017). However, the internet use is done in a precipitated way, and the time spent on smartphones is about 2,5 to 7,3 hours in some studies (BRITOS M and BRITEZ R, 2015). Excessive daytime sleepiness is evident, which is the extreme necessity to sleep associated to fatigue that resists to daily variations and to circadian rhythm. It was observed in a study that students have a high tendence to show sleep related disorders, and daytime sleepiness is more common. Sleep privation, fragmented sleep or staying a long time awake can result in bad sleep quality (KHOURY JM, et al., 2019). In a study, 35,9% of the sample stated that They felt tired during their daily activities because of smartphone use late night, 31,8% of them stated that their sleep quality was impaired, and 35,8% stated that they slept less than four hours due to the use of smartphones more than one time. 13 This decrease in sleep hours is related to excessive screen time use (BARBOSA SMML, et al., 2020).

Recently, the preoccupation with students' pattern of sleep has increased. Sleep related disorders, especially excessive daytime sleepiness, have become quite common among that group. College students are prone to modify their sleep pattern in consequence of changes in private life during the college course journey. The majority maintain nocturnal habits and have the necessity to stay awake during the day; this way, to supply this factor, many students end up doing psychoactive drugs. These sleep-awake cycle changes can result in commitment to health and wealth, lead to consequences on attention, concentration, mood, and self-esteem, decreasing the social and academic performance, beyond increasing the chance of accidents. Adding up, all these factors can lead to an impairment in quality of life, increase in psychiatric disorders and decrease in awake time. The quality of sleep associated to individual necessity that determines the good functioning of sleep and not the duration of sleep alone (KHOURY JM, et al., 2019).

Sleep hygiene in necessary to avoid the behaviors that impair healing sleep and to stablish regular sleep habits. Some habits should be executed, like not watching television or studying in the bed; the room should be silent and in a comfortable temperature; regularize the time to go to bed and get up as well as using the bedroom only to sleep and maintain sexual activity (KHOURY JM, et al., 2019). Considered the exposed, research related to sleep have been intensely increasing in the last two decades. Brain has specific periods to produce vital substances to its functioning. Some proteins are produced exclusively during *Rapid Eyes Movement* (REM) sleep phase and only happen during nigh time sleep. If there are less hours of sleep it can lead to losing REM periods and decreasing the rate of these proteins, committing brain functioning.

This way, it is possible to infer that sleeping, in contrast to what most students think, is not a waste of time. When there is any change in the sleep cycle, such as: going to bed very late and waking up early, some changes may occur, affecting the individual's life (BARDINI R, et al., 2017). Thus, it is important to establish an adequate sleep rhythm, such as organizing the routine and avoiding the use of central nervous system stimulants (KHOURY JM, et al., 2019; BARDINI R, et al., 2017).

FINAL CONSIDERATIONS

Through this review study, the relationship between reduced sleep quality and the consequent effects on mental health due to excessive use of screens, especially smartphones, can be observed. In addition, the repercussions of poor sleep quality are also demonstrated, a factor that can influence behavioral aspects such as irritability, as well as reduced academic and school performance. Social networks provide quick and direct contact between people; however, excessive use of the international computer network is harmful to students as it affects their cognitive and executive functions, such as concentration, voluntary attention, orientation and working memory. The need for awareness regarding the use of technologies was shown.

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