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THE IMPACT OF SCREEN TIME ON QUALITY OF SLEEP

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ABSTRACT

The widespread usage of electronic devices in the digital age has raised questions about how these gadgets can affect the quality of sleep that people get. Examining the connection between screen time and sleep quality, this thorough study synthesizes research results from empirical investigations conducted on young adults and various electronic platforms. To find pertinent research published between 2010 and 2024, a thorough search of electronic databases including PubMed, PsycINFO, and Google Scholar was carried out. Included were studies examining the relationship between young adults' screen time exposure (such as from computers, smartphones, and televisions) and their sleep quality (such as length, efficiency, and interruptions).

The results point to a continuous negative correlation between young adults' screen use and many components of their sleep quality. Extended screen time has been associated with reduced sleep efficiency, shortened sleep duration, and increased sleep start latency, especially before bedtime. The data presented in this review emphasizes how young adults' sleep quality is negatively impacted by excessive screen use. Blue light filtering devices and other sleep-healthy practices like cutting back on screen time before bed may help lessen these effects and enhance the general quality of sleep for this demographic.

Keywords: Sleep Quality; Screen Time; Young adult; Internet

1. INTRODUCTION

Good sleep is crucial for preserving the best possible physical and mental health, yet research indicates that young adults frequently have sleep disruptions. For optimum health and functioning, young adults should strive for 7-9 hours of sleep per night, according to the National Sleep Foundation. Nonetheless, a number of variables, including social obligations, professional demands, scholastic expectations, and the widespread use of electronic gadgets, lead to erratic sleep patterns and inadequate sleep duration in this demographic.

The widespread use of electronics, including computers, tablets, cellphones, and televisions, which has ingrained itself into modern life and is especially concerning for young adults, is a cause for alarm. Additionally, stimulating screen-based activities like playing video games, browsing social media, or watching captivating content might postpone the start of sleep and lower the quality of sleep.

It is crucial to comprehend the complex relationship between young adults' screen usage and sleep quality for a number of reasons. First and foremost, sleep is essential for mental health as well as for cognitive processes including memory consolidation, emotional control, and academic and professional performance. Second, getting too little or poor quality sleep has been connected to a number of negative health effects, such as mood problems, obesity, cardiovascular disease, and weakened immune system.

2. METHODS

The Preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines for systematic reviews and the suggestions made by the Cochrane rapid reviews technique group served as the foundation for this systematic review.

a) Search approach

Based on the PECO (Population, Exposure, Comparison (if any), and Outcome) model, a search method was created. The study involved a group of individuals between the ages of 21 and 25 years old, digital media exposure, and any sleep-related consequences. The electronic databases Medline, Web of Science, and CINAHL were used to search the literature. I used free text searches in the title, abstract, and keywords in addition to subject headings and Medical subject headings (MeSH) phrases. Only published and authored in English articles were included in the search. Relevant synonyms for the search phrases "young adult," "digital media," and "sleep," such as "sleep latency," "sleep hygiene," were included in the search strategy.

b) Criteria for inclusion and exclusion

The following are the inclusion and exclusion criteria.

1) Studies based on observation that look at the relationship between digital media and sleep.

2) Research using sample subjects between the ages of 21 and 25.

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3) Digital media measurement. Studies that looked at digital media platforms (social media, internet, gaming, blogging, e-mail, etc.) or devices (computers, smartphones, tablets, televisions, etc.) were included in my analysis.

That is, the amount of time spent using any kind of gadget or digital media platform.

4) Measurement of results. Research that looked at sleep-related outcomes (like getting into bed later), sleep-related outcomes (like having a disturbed sleep pattern), or signs of sleep deficiency (like feeling exhausted during the day). Criteria for exclusion

1) Research on subjects who don't fit into the age range.

2) Owing to restrictions, studies published in languages other than English are not included.

3) Research that don't explicitly look into the connection between young adults' screen use and sleep quality are not included.

c) Quality assessment

Selection bias, confounders, and data collection techniques are the three most important components of a quality evaluation, as recommended by the Cochrane Rapid Reviews method group [25]. Based on past data acquired for a prior systematic analysis on the relationship between screen time and sleep in a younger age group, these elements were selected [22]. If more than 80% of participants are included in the study and the study population is highly likely to represent the target demographic, the study was rated strong on selection bias. Studies that accounted for at least 80% of significant confounders, such as gender, age, socioeconomic position, and mental health, received a good ranking for component confounding. Based on debate and agreement within the author group as well as previously published epidemiological studies, confounders were chosen [30–34]. Lastly, if the data collection instruments for the outcome have proven to be accurate and trustworthy, a strong data collection technique was allocated, such as the Pittsburgh Sleep Quality Index, a validated sleep instrument.

d) Extracting and synthesizing data

Using a standardized data extraction form, we retrieved information about the study's nation of origin, sample size, design, data collection technique, sleep outcomes, exposure to digital media, and published findings about links between the use of digital media and sleep. We conducted a narrative synthesis, grouping the results by sleep outcomes, to identify patterns or discrepancies in the data and investigate the possibility that variations in research design, demographic, measures used, and outcomes examined could account for some of the heterogeneity in the results.

3. RESULTS

1) Later than usual bedtime- Four out of the five studies that looked into the connection between digital media consumption and later bedtimes discovered that there was one.

2) Latency to sleep and difficulty falling asleep- The use of digital media and sleep onset latency or difficulty falling asleep was the subject of five research, all of which produced conflicting results. The results also showed a correlation between a sleep onset latency of more than 60 minutes and youth who used screens for more than 4 hours in total after school.

3) Sleep disruptions- Three research looked into the connection between using digital media and experiencing nightmares, night terrors, and restless nights.

4) Short duration of sleep- A total of twenty-three studies—three of which used a longitudinal design—looked into the connection between the amount of sleep and the usage of digital media. The majority of studies (n = 16) discovered a correlation between using digital media and getting little sleep.

5) Tiredness and poor functioning during the day- Six cross-sectional studies looked into the connection between daytime fatigue and the use of digital media, particularly mobile and smartphone use at night. Using a smartphone or mobile phone at night has been associated with increased daytime tiredness or drowsiness.

6) Poor caliber of sleep - There were a total of 28 research that looked into the relationship between using digital media and sleep quality, 19 of which were cross-sectional and 8 of which were longitudinal. The research in this area used sleep quality or sleep problem instruments that measured the aforementioned sleep outcomes (e.g., duration of sleep, weariness during the day, and time of sleep onset). The Pittsburgh Sleep Quality Index and the Insomnia Severity Index are two examples. Included were studies that looked at sleep quality using a single global sleep satisfaction measure. The majority of studies discovered a link between using digital media and insufficient sleep. Overall, the research showed that using a computer, smartphone, social media, internet, and mobile device while sleeping reduced the quality of sleep.

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The idea that young people's sleep is impacted by the timing of their use of digital media is widely accepted. Digital media use before bed is linked to later bedtimes, shorter sleep durations, lower sleep quality, and fatigue during the day. Another finding is that using cellphones in particular has been linked to possible sleep disturbances. Specifically, it was shown that using a smartphone right before bed and receiving notifications from it throughout the night were associated with later bedtimes, shorter sleep durations, lower sleep quality, and fatigue during the day. Television was found to have no connections with sleep outcomes, while other digital media devices (such as computers) did. The interaction with digital media content is the third aspect of the results. The research that were found indicated a correlation between social media, gaming, and internet use and shorter sleep duration and lower sleep quality. Furthermore, the results showed that excessive gaming involvement is linked to later bedtimes, while addiction to and problematic smartphone or social media use are linked to poor sleep quality.

4. DISCUSSION

This review examined the data pertaining to the correlation between the usage of digital media and several sleep-related outcomes in young adults. Use of digital media was associated with later bedtimes, fatigue during the day, and early wake-ups, but the biggest correlation was observed between poor sleep quality and shorter sleep durations. Although it is challenging to draw firm conclusions due to inconsistent methods used to measure sleep and digital media, several notable results were nonetheless found.

a) When to employ digital media

One compelling conclusion was that the bulk of research examining the use of digital media throughout the night or right before bed discovered links to ineffective sleep, indicating that this is a critical window of time for use.

b) The kind of digital media player

This review identified evidence supporting a negative correlation between mobile phone use and sleep, depending on the type of device. According to certain research, notifications or other digital media disruptions during the night have a detrimental effect on sleep. Rod et al., for instance, showed that people who experienced smartphone interruptions during their sleep on a regular basis, on average, reported sleeping nearly one hour less than people who had undisturbed sleep.

5. STRENGTHS AND LIMITATION

1. To find pertinent material, the study uses a methodical methodology that makes use of several electronic databases and a wide search strategy. This guarantees a thorough selection of studies pertinent to the inquiry under investigation.
2. The research collects a wide range of data by utilizing a variety of study methodologies (e.g., experimental, longitudinal, cross-sectional), which enables a nuanced understanding of the association between young adults' screen usage and sleep quality.

3. The criteria for choosing pertinent literature for the study are well-defined, reducing bias and guaranteeing that studies that satisfy preset standards for population, exposure, result, and study design are included.

4. The study uses a conceptual framework to arrange important ideas and theories, offering a theoretical foundation for comprehending how young adults' screen usage and sleep quality relate to one another.

5. The research synthesizes findings from several studies to give a thorough picture of the current state of knowledge on the subject using systematic review methodologies. The study findings are more dependable and broadly applicable as a result of this synthesis.

Limitations:

1. Because the study is based on existing literature, it may be subject to publication bias, which could lead to an overrepresentation of studies with significant findings or studies showing a favorable correlation between screen time and sleep quality.

2. The incorporation of several study designs may make it difficult for the research to synthesize results from studies with different approaches, metrics, and standards of quality.

3. It could be difficult to evaluate the caliber of the included studies, especially when comparing various study designs. Methodological rigor and reporting quality variance may have an impact on the validity and reliability of synthesized evidence.

4. The inclusion criteria of the study restrict the literature search to works published between 2010 and 2024, which may result in the exclusion of pertinent works published earlier or later.

5. Because the effects of screen usage on sleep quality can fluctuate among age groups and developmental stages, the study's conclusions might not be as applicable to a larger set of young adults.

6. CONCLUSION

In late adolescents and early adulthood, correlations between digital media usage and delayed bedtimes, daytime fatigue, early awakenings, sleep deficits, sleep duration, and sleep quality have been repeatedly shown. Regarding sleep start latency, difficulty falling asleep, sleep disruptions, and daytime functioning, the results were not consistently consistent. The most compelling data was found in relation to the use of digital media, which included both general screen time and poor sleep quality, as well as the usage of computers, smartphones, social media, and gaming. Given how common short sleep and poor sleep quality are among young people, and how widely digital media is used, knowledge of these findings may have practical consequences for public health. The 21–25 age group is defined by a period of time when social media use may increase in intensity and a growing degree of autonomy over how to spend one's own time. Thus, it is important for young people to understand the potential detrimental effects of digital media consumption on sleep. Families, educational institutions, public health initiatives, and professional practice may all be useful in helping youth form healthy sleeping patterns.

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