Understanding The Impact Of Social Media Use On Sleep Quality In Young Adults

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Abstract

This study looked at the relationship between social media use and sleep's quality among 167 young adults (18-21 years old) living in northern India. The sample consisted of 82 men and 82 women, with the remaining participants unknown. The researchers used the PSQI (Pittsburgh Sleep Quality Index) and BSMAS (Bergen Social Media Addiction Scale) questionnaires. The research found a moderate positive connection (R-squared = 0.31), indicating that higher social media use is associated with lower sleep's quality. Interestingly, gender differences emerged. Men had a bigger detrimental influence on sleep from social media than women, as evidenced by a higher correlation and steeper slope in the statistical model. While the overall results were statistically significant, the data for women showed non-normal residuals, requiring caution in interpretation. These findings lend support to the hypothesis that social media use disturbs sleep in young adults, particularly in men. More research with more participants, as well as an investigation into the underlying causes of the observed gender difference, are required for a more complete understanding.

INDEX TERMS- Social Media, Sleep Quality, Young Adults, Gender Differences

1. INTRODUCTION

Young adulthood is a period characterized by profound physical, cognitive, and emotional changes, underscoring the significance of adequate sleep for overall well-being and development (Surbey et al., 2014). Sleep is essential for consolidating learning, regulating emotions, and supporting physical health, making it a critical aspect of young adults' lives (Carskadon et al., 2011). However, the widespread integration of social media into the daily routines of young adults has sparked concerns regarding its potential effects on sleep patterns.

Social media has become extremely important, offering avenues for socialization, self-expression, and entertainment (Lenhart et al., 2018). Despite their benefits, research suggests a concerning bond between increased social media usage, along with compromised sleep's quality (Chen et al., 2018). Several factors contribute to this complex relationship:

Displaced Sleep Time: The use of social media may directly compete with essential sleep hours, leading to a reduction in overall sleep duration (Chen et al., 2021). Young adults who prioritize online activities may find themselves sacrificing sleep to engage with social media content, consequently impairing their cognitive functioning and overall well-being.

Blue Light Interference: Electronic gadgets emit blue light, which has the potential to inhibit the secretion of melatonin, an essential hormone responsible for regulating the circadian rhythm (Lockley et al., 2008).

Exposure to blue light from smartphones, tablets, and computers in the hours leading up to bedtime could disturb natural body rhythms, resulting in difficulty initiating sleep and obtain restorative sleep.

Social Comparison and FOMO (Fear of Missing Out): Social media platforms often portray curated images and idealized lifestyles, fostering feelings of inadequacy and anxiety among young adults (Przybylski et al., 2013). Continuously encountering such material can result in social comparison and FOMO, contributing to heightened stress levels and difficulty in unwinding before bedtime.

Stimulating Content and Late-Night Activity: Social media content is designed to be engaging and attention-grabbing, with topics ranging from entertainment to current events and personal updates. The availability of stimulating content at all hours of the day and night may tempt young adults to engage in prolonged social media use, leading to delayed bedtimes and disrupted sleep patterns.

The current research seeks to explore the intricate relation between social media usage along with sleep's quality among young adults aged 18-21 in the metropolitan areas of Noida and Delhi. Employing a quantitative research approach, the aim is to utilize validated scales to assess quality of sleep plus social media usage patterns, respectively.

Independent Variable: Social media usage serves as the independent variable in this study, encompassing the frequency, duration, intensity, and types of engagement with several social media platforms. The Bergen Social Media Addiction Scale (BSMAS) will be utilized for assessment of the multifaceted nature of social media usage in young adults. This comprehensive scale evaluates different aspects of involvement in social media, including the duration spent on various social networking platforms, frequency of use, preoccupation with social media, and consequences of excessive usage. Moreover, the BSMAS considers specific behaviors associated with social media addiction, such as neglecting other activities, experiencing withdrawal symptoms when not able to connect to social media platforms, and unsuccessful attempts to reduce or regulate usage. By employing the BSMAS, this study aims to capture a nuanced understanding of social media usage patterns, allowing for a detailed analysis of its impact on sleep's quality among young adults.

Dependent Variable: Sleep quality serves as the dependent variable in this study, encompassing various dimensions of sleep patterns and behaviors. These dimensions include sleep length, delay, effectiveness, interruptions, daytime impairment, and overall perceived sleep's quality, using Pittsburgh Sleep Quality Index. Additionally, subjective perceptions of sleep satisfaction plus refreshment upon waking will be evaluated. These dimensions collectively provide a comprehensive assessment of individuals' sleep patterns and experiences. The PSQI, a widely-used instrument, offers a holistic evaluation of sleep's quality over a one-month period, capturing both objective and subjective aspects of sleep. By incorporating subjective perceptions of sleep satisfaction and refreshment, this study strives to offer a nuanced acknowledging of individuals' experiences and perceptions of sleep's quality. Through the comprehensive assessment provided by the PSQI, this research seeks to elucidate the impact of social media usage on various facets of sleep among young adults.

By unraveling the complex interplay in social media usage and quality of sleep in young adults, this research's purpose is to shed light on potential impacts of overwhelming social media use on sleep patterns and overall well-being. Findings of this research have the capacity to guide interventions and tactics designed to encourage better sleep practices and alleviate the negative impacts of social media in young adults' sleep's quality and overall health.

1.1 Purpose of the study

The goal is to look into how social media usage affects sleep's quality when it comes to young adults. The major goal is to study the subtle association in social media use and sleep patterns in this particular group. This study aims to go beyond simply establishing a correlation and instead uses validated scales, such as the Pittsburgh Sleep Quality Index and the Bergen Social Media Addiction Scale, to dig more thoroughly

into understanding potential underlying mechanisms that shed light on how social media use affects sleep's quality in young adults.

1.2 Rationale

This study aims to investigate the impact of social media usage on sleep quality among young adults. By utilizing established scales such as the Pittsburgh Sleep Quality Index and the Bergen Social Media Addiction Scale, the study seeks to move beyond mere correlation and delve into the underlying mechanisms. By doing so, it endeavors to provide a comprehensive understanding of how social media use influences sleep patterns in this demographic. This research is crucial as it addresses a significant contemporary issue and contributes valuable insights that can inform strategies for promoting healthy sleep habits among young adults in the digital age.

1.3 Significance

Understanding Contemporary Behavior: Investigating how social media impacts sleep quality in young adults addresses a prevalent issue in today's digital age, reflecting the evolving nature of human behavior and technology integration.

Identifying Correlation Beyond Surface Level: By utilizing established scales like the Pittsburgh Sleep Quality Index and Bergen Social Media Addiction Scale, the study aims to uncover nuanced connections between social media usage and sleep patterns, moving beyond simplistic correlations to explore underlying mechanisms.

Informing Public Health Initiatives: The research findings have the potential to inform public health initiatives targeted at promoting better sleep habits among young adults, addressing concerns surrounding the negative impact of excessive social media use on overall well-being.

Supporting Evidence-Based Interventions: Insights gained from the study can guide the development of evidence-based interventions and strategies tailored to mitigate the adverse effects of social media on sleep quality, thereby enhancing the health and quality of life for young adults.

Contributing to Academic Knowledge: By delving into this relatively underexplored area, the research contributes to the academic understanding of how digital technologies intersect with human behavior and health outcomes, enriching the body of knowledge in fields such as psychology, public health, and technology studies.

2. Literature reviews

This study included information and data from secondary researches.

Alonzo et al. (2023): An Australian study looks into the correlation between social media utilization and the sleep's quality in young adults, and it suggests that excessive social media usage prior to bed replaces critical sleep time. The study emphasizes the necessity of establishing healthy boundaries for social media use, especially in the evening, in order to promote improved sleep hygiene in young adults.

Chen et al., (2018): This cross-sectional study was conducted in China and looks at the association between social media usage and the quality of sleep among young adults. This study found a positive link, implying that heavy social media users have more sleep problems, such as difficulties with initiating sleep, maintaining sleep, and experiencing restless sleep.

Przybylski, et al. (2018): This critical analysis dives at the psychological elements of the impact of social media usage on the well-being of young adults, with a particular emphasis on the quality of sleep. The

analysis discusses how exposure to unrealistic information on social media might cause feelings of inferiority and social anxiety, altering sleep habits.

Turban & Aronson (2018): This chapter from an edited volume examines negative consequences of social media usage when it comes to sleep's quality in young adults, focusing on displaced sleep time and blue light exposure. According to the chapter, prioritizing social media above sleep and being exposed to blue light cause sleep disorders in young individuals.

Chen et al. (2021): Using a longitudinal method, this Chinese study looks at the impact how social media usage affects the sleep's quality of young adults over the course of time. The findings lend weight to the idea that increased prolonged social media use adversely affects sleep's quality over time. This study also emphasizes the possible protective function of parental limits for internet use before bedtime, implying that clear limits can promote improved sleep hygiene among young adults.

Van Someren, et al. (2019): This meta-analysis and systematic review looked at how sleep applications can help young adults who spend a lot of time on social media get better sleep. The review found conflicting results, with some research indicating that enhanced knowledge of sleeping habits, improved methods of relaxation, and consistent sleep routines resulted in better sleep's quality. However, further study is needed to assess the long-term effectiveness of sleep applications in promoting better sleep hygiene for young adults who struggle with social media usage before bedtime.

Huang et al. (2019) analyzed potential function of cultural factors in the relation between social media usage and quality of sleep in young adults, with a focus on Chinese teenagers. The findings indicate that cultural values emphasizing collectivism and regard for elderly may lead to greater adherence to parental limitations on social media use before bedtime, hence improving sleep hygiene. This study emphasizes the significance of cultural circumstances when researching impact of social media on restful sleep among young adults.

Lin et al. (2018): Examining the connection when it comes to social media addiction as well as inadequate sleep, this study discovered that young adults with indications of social media addiction had significantly fewer hours of sleep and lower sleep's quality. The research highlights that social media addiction can exert a notable adverse influence on young adult sleep health, emphasizing the necessity for additional research into potential treatment techniques for social media addiction and its effect on sleep's quality.

Lin et al. (2015) study the repercussions of social media usage on sleep along with academic performance in young adults. The study reveals that sleep problems attributed to excessive use of social media use can lead to issues with concentration, focus, and academic achievement. Poor sleep's quality is linked to daily weariness, reduced cognitive function, and difficulties with retaining information, all of which can considerably impair academic performance in young people.

Liu et al. (2020): This study examines potential gender variations in how social networking impacts the sleep's quality of adolescents and concludes social media may have a higher negative correlation with sleep's quality in young women than in young men. However, the study admits limitations and encourages additional research to validate these preliminary findings, underlining the necessity of knowing potential gender variations in order to inform targeted interventions supporting healthy sleep habits in young adults.

Sadeh et al. (2020) investigated the disruptive impact of smartphone alerts on sleep's quality and attentiveness in young adults. According to the research, even silent alerts received during sleep might impair sleep architecture, resulting in daily tiredness and lower cognitive function. The study emphasizes the necessity of implementing notification control measures and developing a sleep-friendly atmosphere to reduce the impact technology has on young adults' sleep's quality.

Sun et al. (2021) investigate the potential intermediary function of anxiety and stress in the connection between social media usage and sleep's quality, with the focus on college students. According to this, greater social media usage could raise tension and anxiety, reducing sleep's quality. This emphasizes the complex connection in social media, anxiety, stress, sleep in young adults, as well as the possible

advantages of interventions that address all of these aspects to encourage improved habits for better sleep among college students.

Wang et al. (2017) explored idea of social media disconnection along with its possible impact on sleep's quality. According to the study, young adults who are disengaged from social media may have lower sleep's quality. This seemingly paradoxical conclusion underlines the psychological demands that social media use may meet for certain young adults, such as a sense of connection & belonging. Further research is required to understand subtle influence of social media use on sleep, considering both excessive use and feelings of detachment.

Wu et al. (2020) investigate the notion of Fear of Missing Out (FOMO) and its connection with evening social media usage as well as sleep's quality in young adults. The study reveals that FOMO can lead to higher evening social media use, affecting sleep patterns. The study also underscores mindfulness's potential protective effect, demonstrating that young adults who practice mindfulness techniques may suffer less FOMO and be less prone to participate in excessive social media use prior to bed, resulting in better sleep's quality.

Zhang et al. (2023): This study looks at the relationship between evening screen usage, including social media usage, and the sleep's quality in undergraduates. According to the study, nighttime screen usage can cause ruminative thoughts, as well as recurrent and adverse mental habits that interfere with sleep. The findings emphasize the importance of encouraging good evening habits that limit screen usage and promote relaxation, thereby preparing young adults for sleep.

Park et al. (2022): This study looks at the effect of specific social media content, particularly content that causes envy and comparisons in society, on sleep's quality in young adults. Exposure to information that promotes emotions of insufficiency and social anxiety might impair relaxation which leads to sleep problems. The study implies that encouraging critical media literacy skills and compassion for oneself can help young adults explore social media information in a way that supports their sleep health.

Barnes and Jackson (2019) explore association in evening social media use along with quality of sleep in young adults, and a focus on time period as a moderating factor. "Night owls" may be less vulnerable to the detrimental impacts of nighttime social media use on quality of sleep than "early birds" who prefer to sleep sooner. Understanding individual chronotypes could help target interventions to improve healthy sleep patterns among young individuals who spend a lot of time on social media.

Brooks et al. (2020): Using a daily diary method, this study analyzes correlation between excessive social media consumption and sleep's quality among university students. Binge social media use, defined as excessive and unplanned use, was connected with lower sleep's quality the following night. The daily diary technique gives useful information about the instant and short-term effects of social media utilization on sleep patterns in young adults.

Przybylski et al. (2018): Using a holistic approach, this study investigates complex interplay in social media use, anxiety, sleep's quality, and academic performance in first-year students currently in university. According to this study, social media use might increase stress, reduce sleep's quality, and impair academic achievement. Addressing social media use and stress management are key for fostering general well-being and academic performance in young adults during this critical transition phase.

Yang et al. (2021) investigate the possible impacts of active versus passive social media use on the sleep's quality of young adults. It implies that active social media use, which includes generating and sharing material, may be less disruptive to sleep than passive usage. Active use may provide a sense of control and objective, resulting in a more positive experience than passive consumption, which could involve endless scrolling. More research is required to comprehend the differences between active and passive social media use, as well as the impact on sleep's quality among young adults.

3. Research Methodology

This study aims to investigate the impact of social media usage on sleep quality among young adults by utilizing established scales such as the Pittsburgh Sleep Quality Index and the Bergen Social Media Addiction Scale.

3.1 Population and Sample

Recruitment

Location: Young adults aged 18-21 residing in Noida and Delhi, India.

Recruitment: Participants will be recruited through online platforms (social media groups).

Inclusion Criteria: Individuals aged 18-21 residing in Noida or Delhi, India.

3.2 Theoretical Framework

Data collected during the study will be thoroughly analyzed using appropriate statistical software. Initially, Pearson's correlation coefficient will be used to determine any possible connections between social media usage and sleep's quality. This analysis will provide information about the magnitude and direction of the association between these variables, shedding light on potential patterns or trends.

Following the correlational analysis, regression analysis will be used to identify potential mediators of correlation between social media usage and sleep's quality. Regression models will allow researchers to investigate a variety of factors that may intervene or moderate the connection between social media utilization patterns as well as sleep outcomes. Demographics, psychological variables, and lifestyle factors may all play a role in mediating the relationship.

Regression analysis will allow assessment each variable's unique contribution to explaining variance in sleep's quality, as well as identify potential mechanisms through which social media use influences sleep patterns. The study's goal in examining these mediators is to gain a deeper comprehension of complicated relation in social media usage and sleep's quality when it comes to young adults.

3.3 Statistical Tools

This study will collect data using two well-established scales: the Pittsburgh Sleep Quality Index and the Bergen Social Media Addiction Scale.

3.3.1 The Pittsburgh Sleep Quality Index

The Pittsburgh Sleep Quality Index, established by Buysse et al. (1989), popular self-reported questionnaire used to assess sleep's quality during the previous month, includes nineteen distinct items that address several aspects of sleep, such as sleep duration, sleep efficiency, disruptions in sleep, sleep onset latency (duration taken to fall asleep), and daytime dysfunction. Participants rate each item on a Likert scale, which normally ranging from 0 to 3, with high scores indicating lower sleep's quality. Overall score, which is the sum of individual item scores, runs from 0 to 21, and scores above 5 meaning substantial sleep disruptions. The PSQI demonstrates good construct validity, as evidenced by its alignment with quantifiable indicators of sleep's quality like polysomnography (sleep studies). Additionally, it exhibits high internal reliability, demonstrated by Cronbach's alpha coefficients surpassing 0.80 across various populations, ensuring reliable results across administrations.

3.3.2 Bergen Social Media Addiction questionnaire

Andreassen et al. (2011) developed Bergen Social Media Addiction questionnaire, a self-reported questionnaire meant to measure severity of social media addiction. It consists of six items that assess various facets of problematic social media use, like frequency of use, desire to be on social media, lack of control over usage, withdrawal symptoms, and negative influence on everyday activities. Participants assess each item on Likert scale of 1 to 5, with high scores suggesting a higher level of social media addiction. The total and final score, calculated through adding the individual item scores, runs from 6 to 30, with higher values suggesting a more severe case of social media addiction. Similar to the PSQI, the BSMAS demonstrates good construct validity, as evidenced by its correlation with other measures of

problematic social media use. It also exhibits high internal consistency, characterized by Cronbach's alpha coefficients surpassing 0.69 in various studies, ensuring reliable results across different administrations.

3.3.3 Simple Linear regression

Simple Linear regression was used to-

Predict the dependent variable ($\hat{Y}$). Estimate the effect of each independent variable (X) on the dependent variable (Y). Calculate the correlation between the dependent variable and the independent variables. Test the linear model significance level.

$\hat{Y} = b_0 + b_1 x$ b_0 - the y-intercept, where the line crosses the y-axis.

b_1 - the slope, describes the line's direction and incline.

$b_1 = SP_{xy} = \Sigma(x_i - \bar{x})(y_i - \bar{y})$

SSx

$\Sigma(x_i - \bar{x})^2$ b_0

$= \bar{y} - b_1\bar{x}$

Using this formula, calculations were done for-

1) regression between PSQI and BSMAS overall.

2) regression between PSQI and BSMAS for women.

3) regression between PSQI and BSMAS for men.

3.4 Data Analysis

PSQI and BSMAS overall

Overall, the analysis reveals a moderate positive association between social media usage and poorer sleep quality, as evidenced by an R-squared value of 0.31, indicating that 31% of the variation in sleep quality can be attributed to social media use within the model. The statistically significant F-statistic of 74.76 ($p <$ 0.001) confirms that the model with social media use as a predictor provides a better fit than assuming no link between the variables. The regression coefficient (β) of 0.38 ($p <$ 0.001) suggests that when social media use increases by one unit, sleep quality is predicted to decrease by 0.38 units on average.

PSQI and BSMAS for women

For women, the analysis shows a correlation between social media usage and diminished sleep quality, but with interesting gender disparities. Social media use accounted for 17.7% of the variability in sleep quality, reflected in a lower R-squared value of 0.17. The correlation coefficient of 0.42 indicates a positive correlation, but less strong than that observed in men. The slope for women (0.3095) suggests a positive relationship between social networking engagement and reduced sleep quality.

PSQI and BSMAS for men

For men, the analysis reveals a stronger correlation between social media usage and diminished sleep quality compared to women. Social media use accounted for a larger proportion of the variability in sleep quality, with an R-squared value of 0.41. The correlation coefficient of 0.64 indicates a stronger positive correlation, and the steeper slope (0.4257) suggests a more pronounced negative impact on sleep quality with increased social networking engagement. The regression model for men was statistically significant (p-value $<$ 0.05), indicating a predictable relation between social media usage and sleep quality.

Hypothesis Evaluation

The results of the analysis support the rejection of the null hypothesis in favor of the alternative hypothesis: There is a significant relationship between social media usage and sleep quality.

Furthermore, the examination of gender disparities reveals that both men and women exhibit a correlation between social media usage and diminished sleep quality.

4. Figures and Table

TABLE 1- Regression analysis for PSQI and BSMAS for men, women, and all.

Feature	Overall	Women	Men
R-squared (R^2)	0.3118	0.1773	0.4101
Correlation (R)	0.5584	0.4211	0.6404
Slope (b_1)	0.3789	0.3095	0.4257
Y-intercept (b_0)	0.7197	2.1465	-0.126
Residual Normality (Shapiro-Wilk p-value)	0.0849 (Near Normal)	0.01295 (Non-normal)	0.8178 (Normal)
Overall Model Significance (p-value)	4.44E-15	< 0.00008173	9.24E-11

The table summarizes the relationship between social media use and sleep quality across three categories: overall, women, and men. It includes metrics such as R-squared, correlation coefficient, slope, y-intercept, residual normality, and overall model significance. These metrics provide insights into the strength, direction, and significance of the relationship between social media use and sleep quality, as well as the normality of residuals in the regression analysis.

5. Results

This study examined the impact of social media usage on sleep quality. Sleep quality was assessed using Pittsburgh Sleep Quality Index (PSQI) and social media usage was measured using Bergen Social Media Addiction Scale.

The analysis reveals a moderate positive association between higher social media usage and poorer sleep quality. The R-squared value of 0.31 indicates that 31% of the variation in sleep quality can be attributed to social media use within this model. The statistically significant F-statistic of 74.76 ($p < 0.001$) confirms that the model with social media use as a predictor provides a better fit than simply assuming no link between the variables. The regression coefficient (β) of 0.38 ($p < 0.001$) suggests that when social media use increases by one unit, sleep quality is predicted to decrease by 0.38 units on average. Gender disparities are evident, with social media use accounting for a larger proportion of the variability in sleep quality in men (41%) compared to women (17.7%). This is reflected in the higher R-squared value (0.41) for men. Correlation coefficients support this observation, with men displaying a stronger positive correlation (0.64) compared to women (0.42), indicating a clearer link between social media usage and sleep quality. Both genders show positive slopes, signifying that increased engagement with social networking is related to reduced sleep quality, with the slope for men (0.4257) steeper than for women (0.3095), suggesting a stronger negative impact on sleep in men. However, the data for women exhibited non-normal distribution of residuals, requiring potential data transformation or a larger sample size for robust analysis. Nevertheless, the regression models for both genders were statistically significant (p-value < 0.05), indicating a predictable relation between social media usage and sleep quality.

5.1 Interpretation

The analysis indicates that higher social media usage is linked with poorer sleep quality. This relationship holds true for both genders, although men seem to be more affected by social media use in terms of sleep quality compared to women. These findings emphasize the significance of considering social media habits when addressing sleep quality concerns.

6. Discussion

The findings show a substantial link in social media usage with sleep's quality in young adults, along with notable differences between genders. Incorporating findings from recent studies like Alonzo et al. (2023) and Chen et al. (2018) strengthens one's understanding of the negative effects of social media utilization on sleep's quality in young adults. These findings highlight the necessity of setting boundaries for social media use, particularly before bedtime, in order to reduce issues with sleep. Furthermore, Przybylski et al. (2018) and Turban and Aronson (2018) discovered psychological mechanisms that underpin this link, underlining the need of addressing issues such as feelings of inadequacies and blue light exposure.

Overall, the results indicate that higher social media usage is correlated with diminished sleep's quality. The modest correlation coefficient (R = 0.5584) and significant R-squared value (R2 = 0.3118) show that social media use accounts for roughly 31.2% of the variability in sleep's quality. This is consistent with earlier study demonstrating negative consequences of overwhelming social media exposure when it comes to sleep patterns.

After stratifying the data by gender, various patterns emerge. Among women, the correlation coefficient (R = 0.4211) and R-squared value (R2 = 0.1773) indicate a moderate correlation exists when it comes to social media usage and sleep's quality, accounting for 17.7% of the variance. The regression analysis confirms this link with a significant overall result (F(1,80) = 17.2413, p < 0.05). The results suggest that women who spend more time on social media have poorer sleep's quality. In contrast, men show a greater association (R = 0.6404), accounting for 41% of the variability in sleep's quality (R2 = 0.4101). The regression analysis verifies the association, with a significant overall result (F(1,80) = 55.6228, p < 0.05). These findings imply that there is a strong association in social media usage and decreased sleep's quality in men.

It is critical to recognize the study's possible shortcomings, which include its dependence on self-reported data and cross-sectional design. Furthermore, while the Shapiro-Wilk test reveals normality in residual errors for the entire sample and men, the results for women show a non-normal distribution, necessitating caution in interpretation.

6.1 Future Implications

These findings highlight the need for programs that promote healthy social media behaviors and improve sleep hygiene, particularly among young individuals. Several treatments and initiatives can be implemented to encourage healthy digital behaviors and increase overall well-being. For starters, educational projects focusing on knowledge of media and digital well-being might help people navigate social media platforms more consciously, recognize the risks of excessive use, and devise techniques to manage a healthy balance of online and offline activity. Technical solutions such as screen-time monitoring tools and applications designed to reduce blue light exposure in the nighttime hours can help to alleviate the disruptive effect of social media on sleeping habits. Encouraging the formation of consistent nighttime habits and developing sleep-friendly environments free of electronic gadgets can also help with sleep hygiene.

Furthermore, creating supportive social networks and encouraging open dialogue about mental health and digital behaviors might help young adults overcome emotions of social comparisons and anxiety that are commonly connected with social media use, promoting healthy sleep habits and general well-being. By employing a multimodal approach that incorporates educational, technological in nature, and social interventions, society can seek to reduce the detrimental influence of social media on sleep's quality while also encouraging healthy online lifestyles among young adults.

7. Conclusion

This research studied the relation in social media usage with sleep's quality in young individuals lying in the age range of 18 to 21 in Noida and Delhi, India, using the Pittsburgh Sleep Quality Index as well as Bergen Social Media Addiction Scale as measuring instruments. Findings demonstrated somewhat positive relation between social media usage and decreased quality of sleep, implying that more interaction with social media platforms is associated with lower sleep's quality. Notably, gender inequalities appeared, with men having a greater negative effect of social media use on sleep's quality than women. However, the irregular distribution of residuals in the women's data emphasizes the importance of careful interpretation and, potentially, different statistical procedures to ensure accurate interpretation.

The data supports the idea that young adults' engagement with social media adversely affects their sleep's quality. Despite the study's limitations, such as a possibly small number of participants and the exclusion of other sleep-related factors, the findings highlight the need of encouraging healthy sleep habits and increasing awareness regarding the negative consequences of too much social media use. Further study should focus on larger-scale studies with a wider range of samples, alternative statistical techniques to address distribution of data issues, and a deeper understanding of the underlying causes of gender discrepancies in the correlation between social media usage and sleep's quality. Such efforts will lead to a more detailed understanding of this complicated interaction and drive tailored strategies to enhance sleep's quality.

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