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Sleep Quality and Social Media Usage among College Students

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***Abstract*: Sleep is essential for a person's health and wellbeing, according to the national sleep foundation (NSF). Individual sleep needs vary. In general, most healthy adults are built for 16 hours of wakefulness and need an average of eight hours of sleep a night. Social media is computer-based technology that facilitates the sharing of ideas, thoughts, and information through the building of virtual network and communities. By design, social media is internet-based and gives users quick electronic communication of content. Social media, places where they can be entertained, communicated, and participated in a social environment. In the present study, the researcher has attempted to assess the relationship between sleep quality and social media usage among 64 college students comprising of 43 females and 21 males. A co relational research design was used in the present study. The Pittsburgh Sleep Quality Index (PSQI) developed by Carole Smyth in the Montefiore Medical Centre in 2012 was used to assess the sleep quality among the college going students and Social Media Usage by Patricia Kettle, Niall Gilmartin, Mary P.Corcoran, Delma Byre and Tian Hang Sun to asses social media usage. The result showed that there was no significant difference between male and female in sleep quality and there was no significant difference between male and female in social media usage. The Pearson's correlation results showed that there was a positive correlation between sleep quality and social media usage.**

***Keywords*: Sleep Quality, social media usage and college students.**

1. Introduction

Sleep is a pivotal modulator of hormone release, cardiovascular activity and glucose regulation, and it has been demonstrated that changes in sleep quality or duration have a significant impact on morbidity (Gangwisch et al., 2006; Banks and Dinges, 2007; Hall et al., 2008; Bixler, 2009). A Finnish study found that there has been a gradual reduction in sleep duration and an increase in sleep complaints over the last 30 years (Kronholm et al., 2008), and poor sleep quality is a common issue in modern society. Additionally, sleep quality is a relevant dimension with regards to sleep–wake functioning, and poor sleep quality has been found to be associated with poor academic achievement and health, as well as increased health care costs and absenteeism from work (Trockel et al., 2000). The prevalence of poor sleep quality in the community has been reported to be 26–35% using the Pittsburgh Sleep Quality Index (PSQI) (Chung and Tang, 2006; Stein et al., 2008; Yao et al., 2008). Sleep problems are common among university students (Yang et al 2003; Suen et al., 2008; Tsui and Wing, 2009), with the prevalence of poor sleep quality in this population having been reported as ranging from 19.17% to 57.5% (Feng et al., 2005; Suen et al., 2008). A comprehensive sleep profile includes sleep duration and sleep quality.

Getting enough quality sleep is important for maintaining cardiovascular health. However, most previous studies focused on sleep duration. A growing number of studies have demonstrated that short sleep duration increases the risk of cardiovascular disease.6–11 A few studies have also shown that poor sleep quality was associated with higher risk of cardiovascular disease.8–13 Some researchers have argued that sleep quality is more important than sleep duration.14,15 However, there are limited data about the joint effects of sleep quality and sleep duration on the risk of cardiovascular disease, especially from large, prospective cohort studies. People spend one-third of their lifetime asleep. Approximately onethird of the general population regularly suffers from sleep-related problems, and this figure has increased in recent years.

Social media (Perrin, 2015), and previous studies have shown that greater social media use is associated with lower stress levels (Hampton, Rainie, Lu, Shin, & Purcell, 2015). Measuring how young adults communicate their sleep habits on social media, and inversely how their social media habits are related to the quality of their sleep, is a growing field of research. Studies over the past decade have linked electronic media use by young adults with reduced total sleep time and sleep quality (Cain & Gradisar, 2010). More recently, studies have linked higher rates of social media use to greater sleep disturbance (Levenson, Shensa, Sidani, Colditz, & Primack, 2016) and obsessive Facebook checking (i.e., a task requiring less cognitive effort) to lower quality sleep (Mark, Wang, Niiya, & Reich, 2016). Higher daily use of texting among freshmen has also been linked to greater sleep problems (Murdock, 2013). Additionally, research focusing on Twitter use among the general population has shown that tweet sentiment varies throughout out the day as a consequence of people's sleep and circadian rhythm (Golder & Macy, 2011). Specifically, positive affectivity on Twitter is higher on weekdays and that it peaks as people wake up before gradually

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decreasing throughout the day (Golder & Macy, 2011). In this study, we sought to determine the relationship between quality of sleep for freshmen students and their patterns of social media use during their first quarter in college. Specifically, the study explored how variations in Twitter activity across the time of day and day of the week were associated with self-reported quality of sleep.

2. Review of Literature

Review of Literature in this study looks at various, previous research to understand the correlation and effects of the involved variables. Extensive research has been done on social media usage and sleep quality among college students and its application in a variety of settings separately. The variables chosen for this research have been conducted together before but on varied population and therefore, the scope is limited. The separate research used here has been done in order to get a holistic understanding of the topic.

Shu Hui Cheng a,b,1 , Chi-Chen Shih c,1 , I. Hui Lee b,d , Yi-Wen Hou c , Kao Chin Chen b,d , Kow-Tong Chen a,e , Yen Kuang Yang a,b,d,f , Yi Ching Yang c,e (2012) conducted a research on the sleep quality of incoming university students, This study was designed to examine the prevalence and the risk factors of poor sleep quality in 4318 incoming university students in Taiwan. a self-administered structured questionnaire, including items related to personal medical history and lifestyle habits, the Measurement of Support Functions (MSF), Pittsburgh Sleep Quality Index (PSQI), Chinese Internet Addiction Scale-Revision (CIAS-R), neuroticism subscale of the Maudsley Personality Inventory (MPI), and the 12-item Chinese Health Questionnaire (CHQ-12) was used in this study, Based on the results of multivariate logistic regression analysis, poor sleep quality was significantly associated with undergraduate students, female gender, skipping breakfast, tea drinking, a higher tendency toward internet addition, poor social support, higher neuroticism, and higher CHQ scores.

Wong, H. Y., Mo, H. Y., Potenza, M. N., Chan, M. N. M., Lau, W. M., Chui, T. K., ... & Lin, C. Y. (2020), conducted a study on Relationships between Severity of Internet Gaming Disorder, Severity of Problematic Social Media Use, Sleep Quality and Psychological Distress. This study aimed to investigate relationships between severities of internet gaming disorder (IGD) and problematic social media use (operationalized as social media addiction; SMA) with sleep quality and psychological distress among young adults. A cross-sectional study with snowball sampling was conducted among Hong Kong university students in 2019. All participants (n = 300; mean (SD) age = 20.89 (1.48); 122 males (40.67%)) responded to an online survey that included Chinese versions of the Internet Gaming Disorder Scale-Short Form (IGDS9-SF), Bergen Social Media Addiction Scale (BSMAS), Pittsburgh Sleep Quality Index (PSQI), and Depression Anxiety Stress Scales (DASS-21). Multiple linear regressions demonstrated that IGDS-SF9 scores demonstrated associations with psychological distress measures (standardized coefficient (β) = 0.295 for depression, 0.325 for anxiety, 0.339 for stress, all $p < 0.001$). BSMAS scores showed similar albeit numerically less robust associations ($\beta = 0.235$ for depression, $p < 0.001$; 0.219 for anxiety, $p = 0.001$; 0.262 for stress, $p < 0.001$). BSMAS scores demonstrated associations with poorer sleep quality ($\beta = 0.292$; $p < 0.001$) and IGDS9-SF scores ($\beta = 0.157$; $p = 0.024$) showed a significantly less robust association ($p = 0.01$ for comparing the two βs). These findings suggest that both severities of IGD and SMA associate with more psychological distress and poorer sleep quality, although the strengths of associations may differ.

Garett, R., Liu, S., & Young, S. D. (2018) conducted a study on the relationship between social media use and sleep quality among undergraduate students. This study aims to determine the relationship between social media use and sleep quality among freshman undergraduates during their first quarter in college. Specifically, we explored whether variations in Twitter use across the time of day and day of the week would be associated with self-reported sleep quality. We conducted a study of freshman Twitter-using students (N = 197) over their first quarter of college, between October and December of 2015. We collected students' tweets, labeled the content of the tweets according to different emotional states, and gave theme weekly surveys on sleep quality. Tweeting more frequently on weekday late nights was associated with lower sleep quality ($\beta = -0.937$, SE = 0.352); tweeting more frequently on weekday evenings was associated with better quality sleep ($\beta = 0.189$, SE = 0.097). Tweets during the weekday that were labeled related to the emotion of fear were associated with lower sleep quality ($\beta = -0.302$, SE = 0.131). Results suggest that social media use is associated with sleep quality among students. Results provided can be used to inform future interventions to improve sleep quality among college students.

Bowler, J., & Bourke, P. (2019), conducted a study on Facebook use and sleep quality: Light interacts with socially induced alertness It has been demonstrated that the use of social networking sites late at night can lead to sleep-related problems that extend into the next day. A common explanation is that the light emitted from screens is disrupting the users' circadian rhythms. An alternative explanation is that the social cognition inherent in the use of social networking sites is responsible. Here, the two factors were looked at together. Participants used Facebook on iPad tablets before sleep. This was done on different nights with two lighting conditions and with two levels of content. In the 'light' condition, blue wavelength light was manipulated so that it was either full wavelength or blue light filtered. In the 'alertness' condition, the personal significance of the content was changed from personally relevant to irrelevant. A modified version of the Pittsburgh Sleep Quality Index was used to measure sleep-related problems. No evidence was found that simply filtering blue light or simply removing relevant content improved sleep quality. However, the two factors interacted. The results suggest that the light emitted from screens can affect sleep quality under some conditions but this is behaviourally irrelevant in the context of normal Facebook usage.

Royant-Parola, S., Londe, V., Tréhout, S., & Hartley, S. (2017), conducted a study on The use of social media modifies

teenagers' sleep-related behaviour this study suggests that Modification of sleep behaviors in teenagers has been observed over the past 30years with a reduction in overall sleep time and an increasing number of teenagers suffering from sleep deprivation. Sleep deprivation is linked to physical problems such as obesity but also to change in performance at school and mood disorders. Changes have been associated with the use of screens, cell phones, Internet and social media. Use of screens has been shown to delay sleep onset and melatonin secretion and stimulation of wake systems by interaction with social media may exacerbate these effects. The links between the use of social media and sleep patterns have not been fully explored. Our study aimed to evaluate the effects of social media on teenagers' sleep and the impact of sleep deprivation.

Hussain, Z., & Griffiths, M. D. (2021), conducted a study on The associations between problematic social networking site use and sleep quality, attention-deficit hyperactivity disorder, depression, anxiety and stress. There is evidence that problematic SNS use (PSNSU) can have negative effects on health. The present study examined the associations between PSNSU, sleep quality, attention-deficit/hyperactivity disorder (ADHD), depression, anxiety and stress among SNS users. A total of 638 SNS users (mean age = 32.03 years, SD = 10.08) completed an online survey comprising instruments assessing SNS addiction, sleep quality, ADHD, depression, anxiety and stress. Regression analysis indicated that the factors of age ($\beta = -.24$, $p < .01$), relationship status (i.e., being in a relationship) ($\beta = -.09$, $p < .05$), ADHD ($\beta = .43$, $p < .01$) and anxiety ($\beta = .12$, $p < .01$) explained 23.9% of the variance in problematic SNS use. Bivariate correlations identified moderate positive correlations between PSNSU, poor sleep quality ($r = .24$, $p < .01$, $R2 = .06$), ADHD ($r = .47$, $p < .01$, $R2 = .22$), depression ($r = .32$, $p < .01$, $R2 = .10$), anxiety ($r = .38$, $p < .01$, $R2 = .14$) and stress ($r = .34$, $p < .01$, $R2 = .12$). The study demonstrated that PSNSU was associated with psychopathological and psychiatric disorders symptoms, the findings will help inform future interventions for reducing and tackling PSNSU.

Sampasa-Kanyinga, H., Hamilton, H. A., & Chaput, J. P. (2018), conducted a study on Use of social media is associated with short sleep duration in a dose–response manner in students aged 11 to 20 years. This study examined the association between social media and sleep duration among Canadian students aged 11–20. Data from 5242 students were obtained from the 2015 Ontario Student Drug Use and Health Survey, a province-wide, school-based survey that has been conducted every two years since 1977. We measured the respondents' sleep duration against the recommended ranges of 9–11 h per night at 11–13 years of age, 8–10 h at 14–17 and 7–9 h per night for those aged 18 years or more. Overall, 36.4% of students met or exceeded the recommended sleep duration and 63.6% slept less than recommended, with 73.4% of students reporting that they used social media for at least one hour per day. After adjusting for various covariates, the use of social media was associated with greater odds of short sleep duration in a dose–response manner (p for linear trend <0.001). Odds ratios ranged from 1.82 for social media use of at least one hour per day to 2.98 for at least five hours per day. Greater use of social media was associated with shorter sleep duration in a dose–response fashion among Canadian students aged 11–20.

Levenson, J. C., Shensa, A., Sidani, J. E., Colditz, J. B., & Primack, B. A. (2017), conducted a study on Social media use before bed and sleep disturbance among young adults in the United States: A nationally representative study. This study aimed to determine the independent association of SM use during the 30 minutes before bed and disturbed sleep while controlling for covariates including total SM use throughout the day. A nationally representative sample of 1763 US young adults aged 19–32. Participants estimated to what extent they used SM in the 30 minutes before bed. We assessed sleep disturbance using the brief Patient-Reported Outcomes Measurement Information System (PROMIS®) Sleep Disturbance measure. After testing the proportional odds assumption, we used to order logistic regression to compute the independent association between SM use before bed and sleep disturbance controlling for covariates, including total SM use. Compared with those who rarely or very rarely check SM in the 30 minutes before bed, those who often or very often check SM at that time had an adjusted odds ratio of 1.62 (95% confidence interval = 1.31–2.34) for increased sleep disturbance. Additionally, we found a significant linear trend in the odds ratios between the frequency of checking SM in the 30 minutes before bed and increased sleep disturbance (p = .007). Results were consistent in all sensitivity analyses.SM use in the 30 minutes before bed is independently associated with disturbed sleep among young adults. Future work should use qualitative and experimental methods to further elucidate the directionality of—and mechanisms underlying—this association.

Galland, B. C., Gray, A. R., Penno, J., Smith, C., Lobb, C., & Taylor, R. W. (2017), conducted a study on Gender differences in sleep hygiene practices and sleep quality in New Zealand adolescents aged 15 to 17 years. This study examined nationwide sample of New Zealand adolescents, self-reported sleep hygiene a total of 692 adolescents (59% girls), predominantly European (78%), with an average age of 16 years 9 months were recruited through schools, community advertising, and social media.All participants completed the Pittsburgh sleep quality index and Adolescent Sleep Hygiene Scale online, and questions about their height, weight, evening technology use, and caffeine consumption.Fifty-six percent of adolescents had poor sleep quality with a higher prevalence in girls (63.1%) than in boys (44.5%), and sleep hygiene (Adolescent Sleep Hygiene Scale) was significantly worse in girls. The findings highlight gender differences in sleep quality and some presleep behaviors of New Zealand youth, and support the role for good sleep hygiene practices to promote healthy sleep in adolescents.

3. Methods

1) Operational definition

Social Media usage is defined as the amount of time spent on the usage of social media. Sleep Quality is defined as the amount and quality of sleep an individual gets in order to function adequately.

2) Need for the study

Social media usage can affect the sleep quality among teen age students. Hence the aim of the study is to see to what extent there is a relationship between these two variables.

B. AIM

To study the relationship between sleep quality and social media usage among college students.

1) Research Questions

- Is there a relationship between sleep quality and social media usage among college students?
- Is there any gender difference between sleep quality among college students?
- Is there any gender difference between social media usage among college students?

C. Objective of the study

To assess the relationship between sleep quality and social media usage among college students.

To find out the gender difference between sleep quality among college students.

To find out the gender difference between social media usage among college students.

1) Hypothesis

- H01: There is a significant relationship between social media usage and sleep quality among college going students.
- H02: There is no significant difference in social media usage among college students.
- H03: There is no significant difference in sleep quality among college students.

2) Variables

Independent Variable: Social Media Usage

Dependent Variable: Sleep Quality

3) Sampling

In the present research the Sample size was 64 college students comprising of 43 females and 21 males between the age range of 19 to 22 using purposive sampling technique in the study.

4) Inclusion criteria

- Undergraduate students from BA, B. Com, BBA, BSc, BCA was included
- Social media user's minimum of two hours of usage time in a day.
- Students who can read English.

5) Exclusion criteria

- Other streams like Engineering, Medical, Fission Designing, Home science students were not included.
- Students who do not have access to social media was excluded.
- Students below the age 19 and above age 22 was not considered.

6) Tools for assessment

The Pittsburgh Sleep Quality Index (PSQI) developed by Carole Smyth (2012) in the Montefiore Medical Centre. The Pittsburgh Sleep Quality Index (PSQI) is an effective instrument used to measure the quality and patterns of sleep in the older adult. It differentiates "poor" from "good" sleep by measuring seven domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, and sleep disturbances, use of sleep medication, and daytime dysfunction over the last month. The client self-rates each of these seven areas of sleep. Scoring of the answers is based on a 0 to 3 scale, whereby 3 reflects the negative extreme on the 3-Likert Scale.

The PSQI has internal consistency and a reliability coefficient (Cronbach's alpha) of 0.83 for its seven components. Social Media Usage by Patricia Kettle, Niall Gilmartin, Mary P.Corcoran, Delma Byre and TianHang Sun (2016) from the Maynoooth Universty in Ireland. This scale assesses the social media usage of students for entertainment purpose, academic purpose, or other activities and the time they spend on each of these media. It also asses how social media usage affects their daily lives. The subsets 3 and 9 were used from this scale in our research, the 9th subscale is scored on s 3-point Likert scale with the scores ranging from Often to Never.

D. Research design

Correlational research design has been used in the present study.

E. Procedure

A Google form was created with a demographic sheet, consent form and two tools were used to collect data. The Google form was distributed among college going students through the online platform considering inclusion criteria. The responses were collected from the participants and the scores were analyzed using SPSS. Pearson's Correlation was used to find the relationship between sleep quality and social media usage among college students.

F. Ethical consideration

- Participation in this research was voluntary.
- Respect for the dignity of research participants has been prioritized.
- Full consent was obtained from the participants prior to the study.
- The research data was kept confidential.

Table 1: Shows the Pearson's Correlation between Sleep Quality and Social Media Usage among college students. There is a significant relationship between social media usage and sleep quality among college going students.

Table 1
Shows the Pearson's Correlation between Sleep Quality and Social Media Usage among college students.

	PSQI	SI
PSQI	1	
SI	.304**	1

P<0.05**

Table 1: The Pearson's correlation results showed that there was a positive correlation between sleep quality and social

media usage. Therefore, the directional hypothesis is been accepted that H1: There is a significant relationship between sleep quality and social media usage. A study conducted by Wong, H. Y., Mo, H. Y., Potenza, M. N., Chan, M. N. M., Lau, W. M., Chui, T. K., ... & Lin, C. Y. (2020) aimed to investigate relationships between severities of internet gaming disorder (IGD) and problematic social media use (operationalized as social media addiction; SMA) with sleep quality and psychological distress among young adults showed a positive correlation between severities of internet gaming disorder (IGD) and problematic social media use (operationalized as social media addiction; SMA).

Table 2: Shows the Independent Sample t-test of Social Media Usage among males and females

H02: There is no significant difference in social media usage among male and female college students.

Table 2
Shows the Independent Sample t-test of Social Media Usage among males and females

Social Media Usage	N	Mean	SD	df	p
Males	21	25.57	6.63	62	.818
Females	43	26.58	6.63		

Table 2 shows the difference of sleep quality and social media usage among college students. The sample consisted of 21 males and 43 females. Males obtained a mean score of 25.57 and SD of 6.63, and Females obtained a mean score of 26.58 and SD of 6.63. They obtained a df value of 62 and p value of .818.

Thus the p value is not significant under 0.05 level, which indicates that there is no significant difference among males and females in their social media usage. Thus, the null hypothesis which states that "There will be no significant difference between men and women on social media usage" is accepted.

Table 3: Shows the Independent Sample t-test of Sleep Quality among males and females

- H03: There is no significant difference in sleep quality among college students.

Table 3
Shows the Independent Sample t-test of Sleep Quality among males and females

Sleep Quality	N	Mean	SD	df	p
Males	21	7.10	2.21	62	.163
Females	43	6.84	3.03		

Table3: Shows the difference between sleep quality and social media usage among college students. The sample consisted of 21 males and 43 females. Males obtained a mean score of 7.10 and SD of 2.21, and Females obtained a mean score of 6.84 and SD of 3.03 They obtained a df value of 62 and p value of .163. Thus the p value is not significant under 0.05 level, which indicates that there is no significant difference among males and females in their sleep quality. Thus, the null hypothesis which states that "There will be no significant difference between male and female on sleep quality" is accepted. Galland, B. C., Gray, A. R., Penno, J., Smith, C., Lobb, C., & Taylor, R. W. (2017), conducted a study on Gender differences in sleep hygiene practices and sleep quality in New Zealand adolescents aged 15 to 17 years the study results indicated that Fifty-six percent of adolescents had poor sleep quality with a higher prevalence in girls (63.1%) than in boys (44.5%), and sleep hygiene (Adolescent Sleep Hygiene Scale) was significantly worse in girls. This study provides a contradicting opinion that females have poor quality of sleep than compared to males.

4. Summary and Conclusion

The purpose of the present research was to study the relationship between sleep quality and social media usage among college going students. The research was conducted by using two questionnaires, The Pittsburgh Sleep Quality Index (PSQI) developed by Carole Smyth and Social Media Usage by Patricia Kettle, Niall Gilmartin, Mary P.Corcoran, Delma Byre and TianHang Sun. The sample involved for the study was 64 college going students in the age group of 18-22 years, out of which 21 were males and 43 were females. The Pearson's correlation and independent sample t test was used to evaluate the data.

5. Conclusion

- Since the major purpose of this study was to examine relationship between social media usage on sleep quality of college going students. Depending on the findings of the study, the following concluding notes were made:
- The Pearson's correlation results showed that there was a positive correlation between sleep quality and social media usage.
- There was no significant difference between male and female in social media usage.
- There was no significant difference between male and female in sleep quality.
- Therefore, the study accepts the directional hypothesis which state's that H1: There is a significant relationship between sleep quality and social media usage among the college going students.
- The results were statistically significant.

6. Implications

- The findings of the present study can be used to develop interventions for people with poor quality of sleep and for college students using high amount of social media usage to avoid social media addiction.
- The findings will also help to develop qualitative study.

7. Limitations

- As the sample was taken only from a particular geographical area (Bengaluru city) it cannot be generalized to the whole population.
- A better statistical analysis could have been derived if sample size for men and women were equal.

- The sample of the study included college students between the age group of 18-24 years. The study could be conducted on a different age group.
- Participants had to fill the questionnaire online. This could have affected the concentration of participant resulting in inaccurate responses.

8. Suggestions for Further Research

- Same study can be carried out using larger population.
- Other streams like Engineering, Medical, Fission Designing, Home science students can be included.
- Intervention can be carried out to reduce the social media usage
- Qualitative study using focus group interview can be carried out to understand the socio emotional reasons for too much of social media usage.

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