

Relationship between Social Media, Poor Sleep Quality and Anxiety

Dr. Ravindra Singh¹, Shelly Arya², Bhanu Chadha³

¹Assistant Professor Psychology Department of Humanities and Social Sciences Graphic Era University, Dehradun

²MA Psychology Department of Humanities and Social Sciences Graphic Era University, Dehradun

³Research scholar, Department of English, Graphic Era Hill University, Dehradun

ABSTRACT

Since due to covid everyone drifted from offline to online mode hence the dependency on devices especially mobile phones has drastically increased which made a large number of adult populations indulge in social networking sites like Facebook, Instagram, Twitter, Snapchat etc. The time spent on social media has increased a lot, and using social media before going to bed has led to an erratic sleep schedule for individuals. The poor-quality sleep has been the utmost concern as well as it hampers the thinking and working capabilities of individuals, as it creates worry and fear in an individual which can further lead to mental health issues like, stress, anxiety, depression, etc. The study highlights the issue concerning the use of social media before bedtime and how it causes poor sleep quality and mental health issues like anxiety. A correlation study was conducted between social media use and how it affects sleep quality as well as how it can cause anxiety. A sample of one 154 adults was studied through a simple random sampling technique. The study conducted shows a positive relationship between social media use before bedtime and how it affects sleep quality which further leads to mental health issues like anxiety. As discussed in the paper the frequency of social media use, as well as the duration of time, spend also shows a significant effect on the sleep quality and anxiety level of the population.

Keywords: Social Media, Sleep, Anxiety, Sleep Quality, Mental Health

INTRODUCTION

This is a technologically engrossed era where everyone especially teenagers and adults are indulged in social networking platforms. Over 3.6 billion people used social media globally in 2020, with that figure expected to rise to nearly 4.41 billion by 2025 (Published by Statista Research Department, Jan 28, 2022). Research by Global Web Index suggests **58.4% of the world's population uses social media. The average daily usage is 2 hours and 27 minutes.** The use of social media has been on a rise for the past few years.

From offices to schools, the shift from offline to online mode contributed to the excessive use of gadgets, which further led to a dependency on them. The use of social media platforms like Facebook, Instagram, and Snapchat has increased and become a fad for all generations whether be it children, teenagers, adults or old age as it has become a part of their daily activity. With an increase in on-screen time, the rise of mental health issues and sleep quality has also increased. Social media has both positive as well as negative aspects but the negative aspects have been climbing up the charts over the past few years due to its excessive usage.

Sleep is an essential function that allows the body and mind to recharge, leaving you refreshed and alert when you wake up. Healthy sleep also helps the body remain healthy and stave off diseases. Without enough sleep, there can be impediments to the function of the brain which helps to perform various daily task. On average 7 to 9 hours of sleep is considered to suffice for the mind and body to stay fresh and active. Using social media before bedtime has led to poor quality of sleep due to delayed bedtime. Sleep quality is the satisfaction an individual has with his sleep experience, which integrates the aspects of sleep initiation, sleep maintenance, sleep volume, and refreshment when awake. A good sleep quality promotes a healthy lifestyle and poor sleep quality makes a person irritable, angry, lethargic as well as depressed. The use of social sites before sleep has led to an erratic sleep pattern for individuals This shift in sleeping patterns causes not only sleeplessness or insufficient sleep hours but also a variety of mental health issues such as anxiety , depression , stress etc.

The habit of individuals checking their social media accounts every minute, feeling the need to be updated on various issues within their social group, and having a FOMO (fear of missing out), is the result of their regular use of social media. The addiction to social media sites makes people forget their real-life responsibilities and they live in an imaginary world of specified standards. More engagement on social media accounts makes people compare themselves with others like their physical appearance, weight, color, lifestyle, etc which lowers the self-esteem of individuals if they don't find themselves fitting in a particular social group they can correlate with. This exigency of being accepted by others leads to fear and anxiety of being left out. People stay awakened whole night and forget about everything happening around them. Adults are actively engaged in screen time just before their bedtime, contributing to hampering their sleep quality as well as cognition. Which has a negative impact on how they think and feel, which further leads to anxiety and depression

Anxiety is a feeling of discomfort, unease, or worries about any thought or event which makes a person feel tensed persistently. Anxiety can lead to physical changes like increased blood pressure, feeling restless, excessive sweating, etc. Negative thoughts and poor thinking can also trigger anxiety as sufficient sleep keeps the mind active for performing any task a good sleep can help to tackle anxiety.

Mental health should be the utmost important part of everyone's life. A mentally fit individual eventually becomes a productive part of a healthy society. For an individual to have a healthy mind and body they must have a proper routine as well as enough sleep. The more satisfied an individual

is with their sleep, the more they can work to their full potential and live a healthy life free from mental health concerns.

The study examined the overindulgence of young adults on social media networks and the association between poor sleep quality and mental health concerns like anxiety. Since adults are usually the population on social media and according to a survey report adults complain the most about sleep disturbances and disorganized sleeping patterns so the participants of the current study were young adults.

The Rationale of the Study:

The adults are the most technologically indulged population, most of their time is usually spent on social networking sites be it for making connections, knowing people, learning new skills, getting entertained etc. This overindulgence on social media has led to poor sleep habits which hamper their cognition and thinking abilities making them vulnerable to mental health issues like anxiety among adults. The study aims to work on the issue of social media use before bed and how it causes a change in sleeping patterns. With the increase in the use of social media, the sleeping pattern of young adults has changed over the past few years which leads to poor sleep quality and makes them prone to mental health issues like stress, anxiety, and depression.

Review of literature:

(Seabrook, Kern & Rickard, 2016) conducted a study to assess how anxiety and depression symptoms were associated with social media use and also assessment of mental health in context with the overall well-being. Positive interaction with social media leads to a lower level of depression and anxiety symptoms whereas social comparison and negative social media interaction resulted in high level of anxiety and depression symptoms. Also social media use was negatively related to loneliness and promote higher self-esteem and better life satisfaction. **(Woods & Scott, 2016)** examined the issues like sleep quality, anxiety, depression and self-esteem due to social media use in 467 Scottish adolescents. Dimensions taken were overall social media use, night time specific use of social media, sleep quality and level of anxiety and depression. The study concluded positive relationship between late night use of social media and poor sleep quality and also overall use of social media also resulted the same and adults who were emotionally indulged in social media use were more likely to experience symptoms of anxiety and depression and even low self-esteem.

(Levenson, Shensa, Sidani, Colditz & Primack, 2017) conducted a study on 1763 US young adults using the brief Patient-Reported Outcomes Measurement Information System (PROMIS®) on how the use of social media 30 minutes before bed time can be associated with sleep disturbances. The study showed a positive relation between social media use before bed time as well as frequency of using social media and how both the parameters lead to higher sleep disturbances. **(Primack et al., 2017)** examined the association between more time spent on social media and how it increases the likelihood of depression and anxiety, independent of the use of multiple social media sites among 1787 U.S. young adults were assessed using Patient-Reported Outcomes Measurement Information System (PROMIS), for time spent on social media and for multiple media adapted Pew Internet Research scale was used. The result concluded that the multiple social media platform was directly influencing anxiety and depression symptoms.

(Shensa, Sidani, Dew, Escobar-Viera & Primack, 2018) conducted a survey on US adults which showed a heterogeneous result on how social media use was positively associated with depression and anxiety. The study had five variables namely time spent, frequency of use, how many platforms used, intensity and problematic use of social media to measure its impact on mental health. All the variables neither showed negative nor positive relationship. The study results were either way for social media use patterns and how it promotes anxiety and depression.

(Keles, McCrae & Grealish, 2019). The study highlights the correlation between use of social media on the psychological issues like depression and anxiety. The 4 factors that were assessed were time spent, activity, investment and addiction. It was reasonable to say that there's an 'association' between social media use and mental well-being but it was not certain to decide if social media use positively affects mental health issues or people who already had mental health issues used social media and that had an impact on their mental health. The study by (Schønning,

Hjetland, Aarø & Skogen, 2020) examined the impact of social media usage and it was found that the frequency and duration of social media use was a defining measure for assessing the use of social media and the negative effect it has on the mental health of the adults. The study suggests that excessive use of social media has very little positive effect. (Tandon, Kaur, Dhir & Mäntymäki, 2020) conducted a study eight hypotheses were proposed and tested to investigate the relationships between FOMO, compulsive social media use (CSMU), psychological well-being (anxiety and depression), poor sleep hygiene, and problematic sleep caused by social media use on adults and working professionals. For working professionals FOMO and CSMU didn't show a direct effect on sleep issues due to poor social media sleep hygiene but it was evident for adults. Anxiety and depression were positively associated with CSMU and FOMO for both the groups. (Sümen & Evgin, 2021) examined how social media addiction was associated with psychological issues and sleep quality. Social media addiction was found to be positively correlated with conduct and emotional problems, attention deficit/hyperactivity, peer problems, and poor sleep quality in students, and negatively correlated with prosocial behaviour and sleep quality. (Alonzo, Hussain, Stranges & Anderson, 2021) examined the association between how use of social media, sleep quality and psychological health concerns like anxiety and depression on adults. The study found a positive relationship between social media use and poor mental health and poor sleep quality. Also excessive and frequent social media use was linked to poor mental health and poor sleep quality. (Zhao & Wu, 2022) conducted a study to examine how digital use can lead to sleeping issues among Chinese adults. The result showed a positive association between later bedtime and excessive use of digital media. The control use of digital media was associated with proper sleep quality. (Liu et al., 2022) examined the impact of screen media overuse on the health of children and adolescents. The result of the study suggested the association of screen media overuse with poor sleep quality, short duration sleep, obesity and more internalized and externalized problems.

The objective of the study: It aims to measure how use of social media before bed time disturbs the sleep quality and leads to mental health issues like anxiety.

1. To measure the effect on the anxiety symptoms on sleep quality.
2. To measure the effect of social media use before bed time on sleep quality and anxiety

3. To measure how time spend on social media effect sleep quality and anxiety .
4. To measure the frequency of social media use and its effect on sleep quality and anxiety.
5. To measure the impact of social media addiction and how it impacts sleep quality and anxiety.

Hypothesis:

1. Anxiety symptoms are positively related to poor sleep quality
2. The hour spent on social media is positively related to sleep quality and anxiety.
3. The frequency of social media is positively related to sleep quality and anxiety.
4. Use of social media before bedtime is positively related to poor sleep quality and anxiety.
5. Social media addiction is positively affects sleep quality and anxiety.

Methodology:

Sample:

In the study we used simple random sampling technique on one hundred fifty adults (age 18 to 30 years) from Dehradun. The correlation study was conducted by briefing about the topic of concern, the questionnaire was distributed using google form. Participant's confidentiality was looked after and informed consent was taken into consideration.

Measures:

The tool used for assessing sleep quality was Pittsburgh Sleep Quality Index (PSIQ) by Buysse and his colleagues (1988) consisting of 19 items, for assessing level of anxiety Hamilton Anxiety Rating Scale (HAM-A) by Br J Med Psychol 1959 and Use of social media survey that consist of 10 items use to assess the social media use and self-administered questionnaire consists of 4 sections of demographic details .The questionnaire consists of a total of 33 items. The self-administered questionnaire consists of 4 sections of demographic details which contains details like (initials, age, residence, location, and past psychological history)

To measure sleep quality: Pittsburgh Sleep Quality Index (PSQI) (19 Items) was used which assess the sleep quality and disturbances of the individual over the past 1 month. There are 7 components for all the 19 questions namely sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, daytime dysfunction, use of sleeping medication. All these seven components summed up give the overall global score.

To measure anxiety symptoms: Hamilton Anxiety Rating Scale (HAM-A) (14 Items) was used. Each item was scored on the scale of 0 (not present) to 4 (severe), with a total score range from 0-56. Score less than 17 indicates mild severity,18-24 indicates moderate severity and 25 – 30 moderate to severe.

Use of social media questionnaire (10 items) the questionnaire consist of items like which social media platform you are most active, how many hours you spend on social media, for which purpose you use social media, frequency of using social media, when you assess social media, do you use social media before going to bed and after waking up in the morning , do you find yourself social media addict.

Research Design: Research is directed to assess the use of social media and how it can lead to poor sleep quality and mental health issues like anxiety. Social media use has been assessed in aspects like social media use before going to bed, frequency of use, time spent, etc.

Procedure: Google forms were circulated among the participants via mail. They were briefed about the questionnaire. The participants were given assistance when required. The scores were calculated after the data collection using the manual of the respective questionnaire.

Statistical Analysis:

Correlation analysis and multiple regression have been used in the current study.

Result:

The study conducted shows a positive relationship between social media use and how it affects sleep quality which further leads to mental health issues like anxiety. As discussed in the paper the frequency, as well as duration of time spend also shows significant effect on the sleep quality and anxiety level of the participants.

Result:

The tables depict the interpretation of the data collected.

Table 1. shows the mean differences between social media use, HAM, and PQSI. The mean score for social media use i.e. Frequency of use is 3.85, the hour spend on social media is 3.82, bedtime use is 1.82 and social media addict is 1.73 .The mean of HAM and PSQI is 16.12 and 12.82 respectively. The standard deviation of HAM is 10.78 and for PSQI is 4.43 , for social media use the standard deviation of the frequency of use is 1.37, the hour spend on social media is 1.38, bedtime use is .381 social media addict is .447

Table 1 .Mean Measure

	N	Mean	Std. Deviation
PSQI score	154	12.82	4.432
HAM scores	154	16.12	10.783
Hour spend on social media	154	3.82	1.382
Frequency of use	154	3.85	1.379
Bedtime use	154	1.82	.381
Social media addict	154	1.73	.447

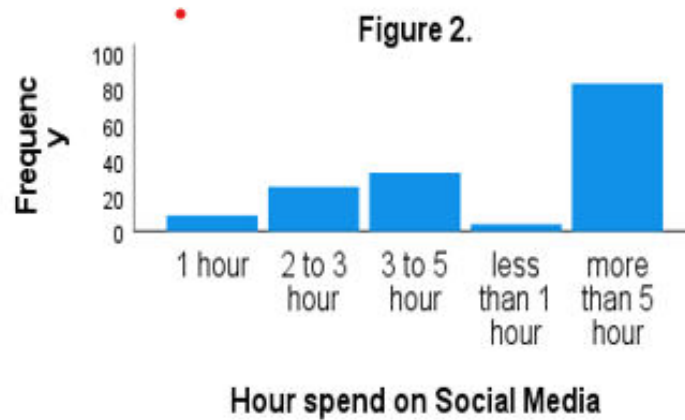
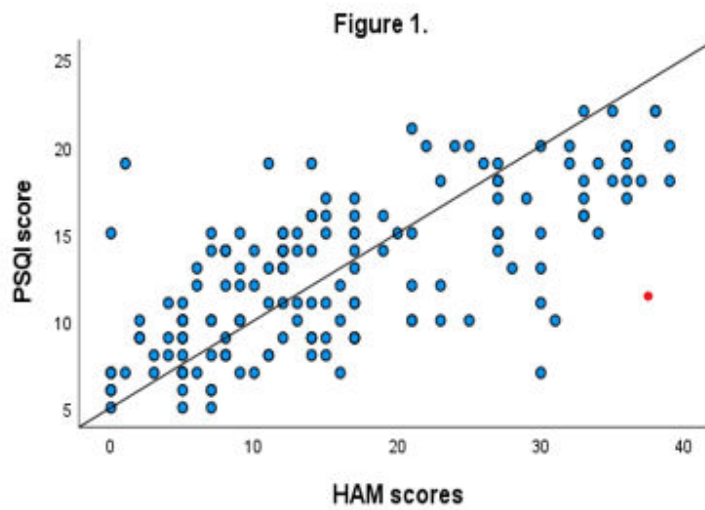
Table 2. shows the correlation analysis of PSQI with HAM so as to find out the relationship between the two variables. Pearson Product moment correlation method along with 2 – tailed test was run. The r square value is .480 which accounts for a 48% variance in anxiety and sleep quality. That depicts there is a significant correlation between sleep quality and anxiety, indicating poor sleep quality leads to higher anxiety symptoms ($r = .693$; $p = < .001$) as shown in Figure1.

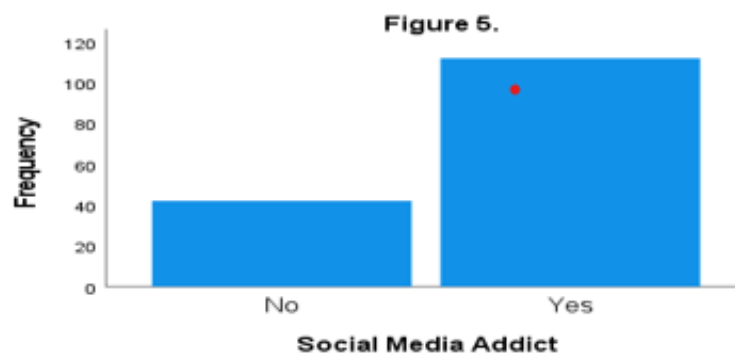
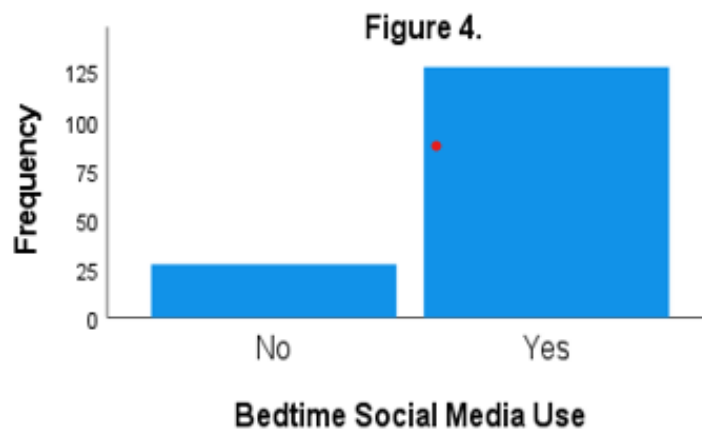
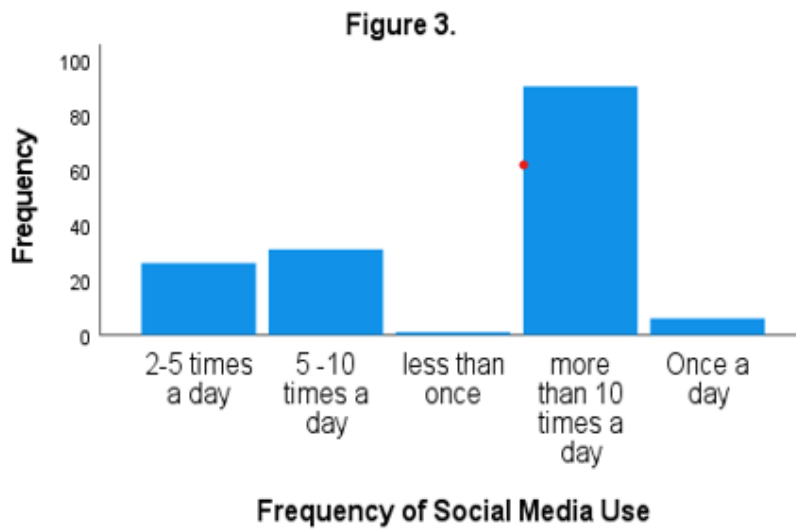
Table 2. Correlational analysis of PSQI with HAM

		HAM scores	PSQI score
HAM scores	Pearson Correlation	1	.693**
	Sig. (2-tailed)		<.001
	N	154	154
PSQI score	Pearson Correlation	.693**	1
	Sig. (2-tailed)	<.001	
	N	154	154

** . Correlation is significant at the 0.01 level (2-tailed).

Figures:







The following figures show social media usage data. Figure 2 depicts that participants spent moderately 3 to 5 hours a day and a maximum of 5 hours every day on social media(53.9%) figure 3 depicts the frequency of using social media which is highest for more than 10 times a day (58.4 %), figure 4 show that maximum participants check their phones during their bedtime (91.6) figure 5 shows that most of the participants find themselves social media addict (72.7%) and figure 6 depicts the total sleeping hour of the participant which was highest 36.4% for 5 hours and moderate for 6 hours (23.4 %)

Table 3: The table shows the correlational analysis of social media use with sleep quality. Pearson correlational analysis along with 2 tailed test was run. the r square value was .50 which accounts for 50% variance. When examined it showed a positive relationship between poor sleep quality and excessive use of social media on subscales frequency of social media use, hour spend on social media, bedtime social media use, and Social media addict i.e. $r = -.223, .347, .356,$ and $.374$ and a p-value $<.001, .005, <.001,$ and $<.001$ respectively.

Table 3. Correlational Analysis of Social Media Use with PSQI

		PSQI score	Frequency of Social Media use	Hour spend on Social Media	Bedtime Social Media use	Social Media Addict
PSQI score	Pearson Correlation	1	.223**	.337**	.356**	.374**
	Sig. (2-tailed)		.005	<.001	<.001	<.001
	N	154	154	154	154	154
Frequency of Social Media Use	Pearson Correlation	.223**	1	.438**	.345**	.264**
	Sig. (2-tailed)	.005		<.001	<.001	<.001
	N	154	154	154	154	154
Hour spend on Social Media	Pearson Correlation	.337**	.438**	1	.412**	.589**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001
	N	154	154	154	154	154
Bedtime Social Media Use	Pearson Correlation	.356**	.345**	.412**	1	.676**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001
	N	154	154	154	154	154
Social Media Addict	Pearson Correlation	.374**	.264**	.589**	.676**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	
	N	154	154	154	154	154

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4. The table shows the correlational analysis of social media with HAM. Pearson correlation analysis and 2tailed test was run. The r square value was .480 variance accounted for 48% .Which showed a significant relationship between excessive use of social media on the subscale hour spend on social media, the frequency of use, bedtime use and social media addict and anxiety symptoms . r = .321, .270, .285, .311 and p value= < .001 respectively

Table 4. Correlational Analysis Of Social Media use with HAM

		HAM scores	Frequency of Social Media use	Hour spend on Social Media	Bedtime Social Media use	Social Media Addict
HAM scores	Pearson Correlation	1	.270*	.321**	.285**	.311**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001
	N	154	154	154	154	154
Frequency of Social Media use	Pearson Correlation	.191*	1	.438**	.345**	.264**
	Sig. (2-tailed)	.018		<.001	<.001	<.001
	N	154	154	154	154	154
Hour spend on Social Media	Pearson Correlation	.321**	.438**	1	.412**	.589**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001
	N	154	154	154	154	154
Bedtime Social Media use	Pearson Correlation	.285**	.345**	.412**	1	.676**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001
	N	154	154	154	154	154
Social Media Addict	Pearson Correlation	.311**	.264**	.589**	.676**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	
	N	154	154	154	154	154

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Discussion and Conclusion:

As a result of the study use of social media is found to hamper the sleep quality of the participant as well as trigger anxiety symptoms. The result suggests that most of the participants approximately 53.9 % use social media for more than 5 hours in a day, as well as 91.6%, check their social media before going to be, and 58.4% use social media more than 10 times a day which contributes to decreasing sleep quality leading which further leads to anxiety symptoms. The result of the study also showed that on average participant sleep for a total 5 hours a day which is less than the average sleep hour (7-8 hour) for the body to function properly. Which contributes to sleep disturbances, less concentration while working, restlessness, moody and further which gives rise to anxiety.

The massive use of social media has been in the rise due to the pandemic as everyone drifted to digital mode. Young adults especially are the most engrossed population occupied with all types of gadgets as well as social networking sites. The more the indulgence with the gadgets the lower the sleep quality .In a study conducted on adolescents school students in Nepal also showed that 56 % of the adolescent who were social media addicted had poor sleep quality and 67% of the adolescents had smart phones as a source of social media network.

Other study conducted on emerging adults in the U.S concluded that excessive time spent on daily usage of social networking sites was positively associated with higher anxiety symptoms. About 58 % of the adults had anxiety symptoms due to more time spent on social media. The result highlights the need of limiting social media usage in a boundless manner so as to have good sleep quality as well as a healthy lifestyle and reduce the risk of mental health issues like anxiety, depression and stress.

In conclusion this study conducted on young adults addressed the relationship of boundless use of social media and its impact it degrades the sleep quality as well as give rise to higher anxiety symptoms. The result revealed a high relationship of media usage with the poor sleep outcomes and mental health issue like anxiety

References:

1. Alonzo, R., Hussain, J., Stranges, S., & Anderson, K. (2021). Interplay between social media use, sleep quality, and mental health in youth: A systematic review. *Sleep Medicine Reviews*, 56, 101414. doi: 10.1016/j.smr.2020.101414
2. Bányai, F., Zsila, Á., Király, O., Maraz, A., Elekes, Z., & Griffiths, M. et al. (2017). Problematic Social Media Use: Results from a Large-Scale Nationally Representative Adolescent Sample. *PLOS ONE*, 12(1), e0169839. doi: 10.1371/journal.pone.0169839
3. Boer, M., Stevens, G., Finkenauer, C., de Looze, M., & van den Eijnden, R. (2021). Social media use intensity, social media use problems, and mental health among adolescents: Investigating directionality and mediating processes. *Computers In Human Behavior*, 116, 106645. doi: 10.1016/j.chb.2020.106645
4. Evers, K., Chen, S., Rothmann, S., Dhir, A., & Pallesen, S. (2020). Investigating the relation among disturbed sleep due to social media use, school burnout, and academic performance. *Journal Of Adolescence*, 84(1), 156-164. doi: 10.1016/j.adolescence.2020.08.011
5. Hale, L., Kirschen, G., LeBourgeois, M., Gradisar, M., Garrison, M., & Montgomery-Downs, H. et al. (2018). Youth Screen Media Habits and Sleep. *Child And Adolescent Psychiatric Clinics Of North America*, 27(2), 229-245. doi: 10.1016/j.chc.2017.11.014
6. Keles, B., McCrae, N., & Grealish, A. (2019). A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents. *International Journal Of Adolescence And Youth*, 25(1), 79-93. doi: 10.1080/02673843.2019.1590851
7. Kline, C. (2013). Sleep Quality. *Encyclopedia Of Behavioral Medicine*, 1811-1813. doi: 10.1007/978-1-4419-1005-9_849
8. Lin, L., Sidani, J., Shensa, A., Radovic, A., Miller, E., & Colditz, J. et al. (2016). ASSOCIATION BETWEEN SOCIAL MEDIA USE AND DEPRESSION AMONG U.S. YOUNG ADULTS. *Depression And Anxiety*, 33(4), 323-331. doi: 10.1002/da.22466
9. Liu, J., Riesch, S., Tien, J., Lipman, T., Pinto-Martin, J., & O'Sullivan, A. (2022). Screen Media Overuse and Associated Physical, Cognitive, and Emotional/Behavioral Outcomes in Children and Adolescents: An Integrative Review. *Journal Of Pediatric Health Care*, 36(2), 99-109. doi: 10.1016/j.pedhc.2021.06.003

10. Levenson, J., Shensa, A., Sidani, J., Colditz, J., & Primack, B. (2016). The association between social media use and sleep disturbance among young adults. *Preventive Medicine*, 85, 36-41. doi: 10.1016/j.ypmed.2016.01.001.
11. Lund, L., Sølvhøj, I., Danielsen, D., & Andersen, S. (2021). Electronic media use and sleep in children and adolescents in western countries: a systematic review. *BMC Public Health*, 21(1). doi: 10.1186/s12889-021-11640-9
12. Nelson, K., Davis, J., & Corbett, C. (2021). Sleep quality: An evolutionary concept analysis. *Nursing Forum*, 57(1), 144-151. doi: 10.1111/nuf.12659
13. Pirdehghan, A., Khezme, E., & Panahi, S. (2021). Social Media Use and Sleep Disturbance among Adolescents: A Cross-Sectional Study. *Iranian Journal Of Psychiatry*. doi: 10.18502/ijps.v16i2.5814
14. Primack, B., Shensa, A., Escobar-Viera, C., Barrett, E., Sidani, J., Colditz, J., & James, A. (2017). Use of multiple social media platforms and symptoms of depression and anxiety: A nationally-representative study among U.S. young adults. *Computers In Human Behavior*, 69, 1-9. doi: 10.1016/j.chb.2016.11.013
15. Remes, O., Brayne, C., van der Linde, R., & Lafortune, L. (2016). A systematic review of reviews on the prevalence of anxiety disorders in adult populations. *Brain And Behavior*, 6(7), e00497. doi: 10.1002/brb3.497
16. Seabrook, E., Kern, M., & Rickard, N. (2016). Social Networking Sites, Depression, and Anxiety: A Systematic Review. *JMIR Mental Health*, 3(4), e50. doi: 10.2196/mental.5842.
17. Schønning, V., Hjetland, G., Aarø, L., & Skogen, J. (2020). Social Media Use and Mental Health and Well-Being Among Adolescents – A Scoping Review. *Frontiers In Psychology*, 11. doi: 10.3389/fpsyg.2020.01949
18. Shensa, A., Sidani, J., Dew, M., Escobar-Viera, C., & Primack, B. (2018). Social Media Use and Depression and Anxiety Symptoms: A Cluster Analysis. *American Journal Of Health Behavior*, 42(2), 116-128. doi: 10.5993/ajhb.42.2.11
19. Sümen, A., & Evgin, D. (2021). Social Media Addiction in High School Students: A Cross-Sectional Study Examining Its Relationship with Sleep Quality and Psychological Problems. *Child Indicators Research*, 14(6), 2265-2283. doi: 10.1007/s12187-021-09838-9
20. Tandon, A., Kaur, P., Dhir, A., & Mäntymäki, M. (2020). Sleepless due to social media? Investigating problematic sleep due to social media and social media sleep hygiene. *Computers In Human Behavior*, 113, 106487. doi: 10.1016/j.chb.2020.106487
21. Van den Eijnden, R., Geurts, S., ter Bogt, T., van der Rijst, V., & Koning, I. (2021). Social Media Use and Adolescents' Sleep: A Longitudinal Study on the Protective Role of Parental Rules Regarding Internet Use before Sleep. *International Journal Of Environmental Research And Public Health*, 18(3), 1346. doi: 10.3390/ijerph18031346
22. Vannucci, A., Flannery, K., & Ohannessian, C. (2017). Social media use and anxiety in emerging adults. *Journal Of Affective Disorders*, 207, 163-166. doi: 10.1016/j.jad.2016.08.040
23. Vannucci, A., & McCauley Ohannessian, C. (2019). Social Media Use Subgroups Differentially Predict Psychosocial Well-Being During Early Adolescence. *Journal Of Youth And Adolescence*, 48(8), 1469-1493. doi: 10.1007/s10964-019-01060-9

24. Vannucci, A., Ohannessian, C., & Gagnon, S. (2018). Use of Multiple Social Media Platforms in Relation to Psychological Functioning in Emerging Adults. *Emerging Adulthood*, 7(6), 501-506. doi: 10.1177/2167696818782309
25. Woods, H., & Scott, H. (2016). #Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal Of Adolescence*, 51(1), 41-49. doi: 10.1016/j.adolescence.2016.05.008
26. Wilson, C., & Stock, J. (2021). ‘Social media comes with good and bad sides, doesn’t it?’ A balancing act of the benefits and risks of social media use by young adults with long-term conditions. *Health: An Interdisciplinary Journal For The Social Study Of Health, Illness And Medicine*, 25(5), 515-534. doi: 10.1177/13634593211023130
27. Wu, A., Cheung, V., Ku, L., & Hung, E. (2013). Psychological risk factors of addiction to social networking sites among Chinese smartphone users. *Journal Of Behavioral Addictions*, 2(3), 160-166. doi: 10.1556/jba.2.2013.006
28. Zhang, J., Marino, C., Canale, N., Charrier, L., Lazzeri, G., Nardone, P., & Vieno, A. (2022). The Effect of Problematic Social Media Use on Happiness among Adolescents: The Mediating Role of Lifestyle Habits. *International Journal Of Environmental Research And Public Health*, 19(5), 2576. doi: 10.3390/ijerph19052576
29. Zendle, D., & Bowden-Jones, H. (2019). Is excessive use of social media an addiction?. *BMJ*, 12171. doi: 10.1136/bmj.12171
30. Zhai, K., Gao, X., & Wang, G. (2018). The Role of Sleep Quality in the Psychological Well-Being of Final Year Undergraduate Students in China. *International Journal Of Environmental Research And Public Health*, 15(12), 2881. doi: 10.3390/ijerph15122881
31. Zhao, L., & Wu, L. (2022). The Relationship Between Digital Activity and Bedtime, Sleep Duration, and Sleep Quality in Chinese Working Youth. *Nature And Science Of Sleep*, Volume 14, 419-432. doi: 10.2147/nss.s34892.