Section: Community Medicine

Original Research Article

SOCIAL MEDIA ADDICTION AND ITS ASSOCIATION WITH SLEEP QUALITY AMONG YOUNG ADULTS IN RURAL TAMIL NADU – A CROSS SECTIONAL STUDY

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Received *: 29/03/2026*
Received in revised form *: 22/05/2026*
Accepted *: 06/06/2026*

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DOI: 10.70034/ijmedph.2026.2.728

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (2); 4445-4451

ABSTRACT

Background: Excessive social media use can lead to loneliness, insomnia, anxiety &poor academic performance, where social media addiction had recognized factor that has a negative impact in sleep quality among young adults. The study aimed to determine the prevalence of social media addiction and its association with sleep quality among young adults in rural Tamil Nadu.

Materials and Methods: A study was done among 250 young adults aged 18-21 years, among selected colleges in rural Tamilnadu, using Bergen Social Media Addiction Scale and Pittsburgh Sleep Quality Index. Participants were selected using Probability Proportional to Size (PPS) sampling and analyzed using Jamovi software.

Results: With a mean age of 19 ± 1.03 years. Social media addiction was present in 39.6% of students, problematic usage in 8.4%, and poor sleep quality in 54%. Social media addiction was significantly associated with family type ($p < 0.001$) and socioeconomic status ($p < 0.002$), while sleep quality was associated with religion ($p = 0.047$). On multivariable analysis, social media addiction independently predicted poor sleep quality (AOR = 3.19, 95% CI: 1.76–5.78, $p < 0.001$), whereas increasing age was protective (AOR = 0.719, 95% CI: 0.544–0.950, $p = 0.020$). Social Media Addiction Score also significantly predicted sleep quality on linear regression ($F = 8.258$, $p = 0.004$)

Conclusion: Social media addiction was significantly associated with poor sleep quality among rural adults. These findings highlight the need for awareness on responsible social media use and healthy sleep practices in this population.

Keywords: Social media addiction, Sleep quality, young adults.

INTRODUCTION

Social media addiction has become a major global concern, nearly 56.8% people actively use social media. Current estimates suggest that around 210 million people are affected by this issue, which equates to about 4-5% of social media users.[1] Social media has become an integral part of contemporary life, particularly among college students, where it is widely used to facilitate social interaction, share information, and initiate communication. However, excessive use has raised growing concerns about social media addiction, characterized by a persistent and compulsive urge to engage with social media platforms, leading to adverse effects on social relationships, mental well-being, and academic performance. With a focus on recent trends and associated factors among college students, this introduction examines the prevalence of social media addiction at the global level, within India, and specifically in Tamil Nadu. 18.4% of students worldwide suffer from social media addiction, with Asia having the highest prevalence at 22.8%.[2] Social media addiction is a problematic pattern of social media use with uncontrollable urges and the inability to successfully regulate the use of social media resulting in adverse consequences on relationships, occupation and/or

education.[3] It can also be stated as impulse control disorder in which a person has been exposed to harmful effects of technology which resulted in excessive use of screen time by any means which has led to technology addiction which can be highlighted as a type of behavioral addiction.[4-7] Social media platforms are designed to stimulate the dopamine reward system, using feedback loops - likes, comments, notifications that urges compulsive use, this neurobiological mechanism leads to continuous engagement and addiction-like behaviors.[8-10] Frequent use of social media affects mental health which can decrease academic performance, these problems led to poor support in young people's well-being.[11] The higher addiction levels in smartphone and social media can adversely affect academic performance by reducing the concentration in reading time, group participation in outdoors with friends and relatives, prevent them to get motivated along people and poor concentration.[12-15]

A sleep duration of nearly 7-9 hours is recommended for young adults,16 to restore the body physically and mentally, but inadequate or poor sleep quality which can impair the daily functioning and also increases the risk of academic decline, along with accidents and mainly coping capacity is reduced among students.[17] The factors which affect sleep quality is mostly due to use of electronic gadgets which may add stress while studying. Many studies in worldwide shown that insomnia is nearly prevalent in 10-30% among 20 to 40 years, with some other studies even having the prevalence as high upto nearly 50-60%.18 Poor sleep quality due to excessive use of smartphone which significantly affect academic performance among university students,[17] by impairing cognitive functions such as memory, decision-making, learning capacity and concentration along with risk of negative thoughts.[9,19] The present study aimed to address the existing research gap on the association between social media addiction and sleep quality among college students in rural Tamil Nadu. The study aimed to determine the prevalence of social media addiction among young adults in rural Tamil Nadu and to find association between social media addiction and sleep quality among young adults.

MATERIALS AND METHODS

Study area and Study Population

A cross-sectional study was conducted by in the field practice area of rural health centre of a tertiary care hospital, which included college-going young adults age of 18–21 years at Villupuram district, Tamil Nadu. The colleges were chosen to represent a diverse range of educational backgrounds including paramedical, arts and science, vocational training programs, ensuring heterogeneous sample of students. This study was conducted for a duration of 3 months, from February to April 2025. Considering 17.7% prevalence of social media addiction among college students as per study by Siddharthan A et al,20 the sample size of the current study is calculated to be 244, which was rounded off to 250 was calculated using Open Epi software Version 3.

Sampling procedure

The study adopted Probability Proportional to Size (PPS) sampling technique to ensure that the sample is distributed to all colleges based on the size of the student population in each college. Among the five different colleges in the field practice area of RHTC Thiruvennainallur, the management of each institution was approached for the willingness to participate in the study. The colleges that provided consent were included in the sampling frame. After finalizing the participatory colleges, the sample size was distributed based on total number of students enrolled in each institution to ensure representation from each participating college. Within each college, students were selected using convenience sampling.

Data collection procedure

The data was collected by principal investigator using a semi-structured questionnaire, which had socio-demographic details of the participant, along with Bergen Social Media Addiction Scale and Pittsburgh Sleep Quality Index.

Bergen Social Media Addiction Scale: The prevalence of social media addiction is assessed using Bergen Social Media Addiction Scale (BSMAS) which is an validated instrument for assessing the degree of social media addiction. It comprises six items, which had separate scores on a 5-point Likert scale from 1 (very rarely) to 5 (very often). These items measure the level of obsession with social media, including the time spent or planning to use social media, using social media to escape personal issues, failed attempts to reduce usage, feelings of restlessness or distress when prevented from using it and the adverse impact of excessive use on work or studies. The total scores can vary from 6 to 30, with a higher score signifying a greater degree of Problematic Social Media Use (PSMU), The BSMAS score of 24 has been identified as the optimal cut-off point, according to the gold standards of clinical diagnosis. [7,21]

Pittsburgh Sleep Quality Index (PSQI): The questionnaire has 19 self-reported items belong to one of seven subcategories: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. In scoring the PSQI, seven component scores were derived, each scored 0 (no difficulty) to 3 (severe difficulty). The component scores are summed to produce a global score (range 0 to 21), with higher scores indicating poorer sleep quality. Scores less than 5 were classified as good sleep quality and scores more than or equal to 5, as poor sleep quality.[22]

Data Analysis: Data is entered in MS Excel version 25. Data analysis had been done using Jamovi software 2.3.28.

Descriptive statistics was used to summarize baseline characteristics. Social media addiction and its association with sleep quality is analyzed using chi-square tests. At the end of data collection, health education was given on the importance of mindful social media usage and practical strategies was suggested to promote healthier engagement which is given in annexure.

Ethical Consideration and Permissions

Written informed consent is obtained from all students before participation and their confidentiality are strictly maintained. This study was done after getting approval from the Institutional Ethics Committee no: EC/04/2025.

RESULTS

The majority of college students was male (73.6%), where the mean age is 19 ± 1.03 years belonging to a nuclear family (77.2%), and Hindu (95.2%) by religion. Nearly half of the students (46.4%) were from Class 4 socioeconomic status and a history of smoking and alcohol is present among 2.8% of students. [Table 1]

Table 1: Socio-Demographic Detail of Study Participant (n=250)

Age	**Mean ± SD**
18 – 21 years	19 ± 1.03
Gender	**Frequency (n%)**
Male	184(73.6)
Female	66(26.4)
Type of Family	
Nuclear Family	193(77.2)
Joint Family	57(22.8)
Religion	
Hindu	238(95.2)
Christian	8(3.2)
Muslim	4(1.6)
Marital status	
Yes	16(6.4)
No	234(93.6)
Smoking	
Yes	7(2.8)
No	243(97.2)
Alcohol status	
Yes	7(2.8)
No	243(97.2)
Socio-economic Status (2025)	
Upper Class	22(8.8)
Upper Middle Class	42(16.8)
Middle Class	52(20.8)
Lower Middle Class	116(46.4)
Lower Class	18(7.2)
Family History of chronic disease	
No	199(79.6)
Yes	51(20.4)

In this study social media addiction (SMA) was observed to be in about 39.6% students. [Table 2]

Table 2: Social Media Addiction among college students(n=250)

	Frequency(n%)
Yes	99(39.6)
No	151(60.4)

In Sleep Quality Analysis, subjective sleep quality is fairly good for 42.8% students, 29.2% students had no difficulty in sleep latency, 61.6% students had sleep duration of >7 hours, with habitual sleep efficiency is >85% for 82.4% students and mild sleep disturbances were found in about 65.6% students.

The mean score of Pittsburgh Sleep Quality Index is 5.3 ± 2.97. Majority of students 135(54%) suffered from poor sleep quality while 115(46%) students have good sleep quality. [Table 3]

Table 3: Sleep Quality of college students using PQSI scoring (n=250)

	Frequency(n%)
Good Sleep	115(46)
Poor Sleep	135(54)

Table 4: SMA scoring of study participant(n=250)

	Mean ± SD
BSMAS	17 ± 4.9
B1- You spend a lot of time thinking about social media or planning how to use it?	3.07 ± 1.02
B2- You feel an urge to use social media more and more?	2.82 ± 1.04
B3- You use social media in order to forget about personal problems?	2.66 ± 1.28
B4- You have tried to cut down on the use of social media without success?	3.06 ± 1.25
B5- You become restless or troubled if you are prohibited from using social media?	2.43 ± 1.22
B6- You use social media so much that it has had a negative impact on your job/studies?	2.94 ± 1.38

BSMAS: Bergen Social Media Addiction Scale

Higher scores on BSMAS indicate mild to moderate social media dependency, especially concerning urge to use, difficulty cutting down and negative academic impact (Table 6). Although most students did not use sleep medications, a notable percentage experienced daytime dysfunction, highlighting the broader impact of social media dependency.

Table 5: Socio demographic variable association with SMA and sleep quality using chi square test (n=250)

Variable		Social Media Addiction			Sleep Quality		
		SMA-present (n%)	SMA-absent (n%)	P-Value	Good Sleep (n%)	Poor Sleep (n%)	P-Value
Age	*18 years*	28(11.2)	39(15.6)	0.934	22(8.8)	45(18.0)	0.056
	19 years	31(12.4)	45(18.0)		35(14.0)	41(16.4)	
	20 years	25(10.0)	43(17.2)		37(14.8)	31(12.4)	
	21 years	15(6.0)	24(9.6)		21(8.4)	18(7.2)	
Marital Status	*Married*	6(2.4)	10(4.0)	0.859	10(4.0)	6(2.4)	0.171
	Unmarried	93(37.2)	141(56.4)		105(42.0)	129(51.6)	
Sex	*Male*	73(29.2)	111(44.4)	0.968	81(32.4)	103(41.2)	0.295
	Female	26(10.4)	40(16.0)		34(13.6)	32(12.8)	
Religion	*Hindu*	98(39.2)	140(56.0)	0.070	109(43.6)	129(51.6)	0.047*
	Christian	1(0.4)	7(2.8)		2(0.8)	6(2.4)	
	Muslim	0(0)	4(1.6)		4(1.6)	0(0)	
Family type	*Nuclear*	87(34.8)	106(42.4)	0.001*	85(34.0)	108(43.2)	0.253
	Joint	12(4.8)	45(18.0)		30(12.0)	27(10.8)	
SES (B.G. Prasad Scale)	*Class 1*	15(6.0)	7(2.8)	0.002*	10(4.0)	12(4.8)	0.283
	Class 2	24(9.6)	18(7.2)		25(10.0)	17(6.8)	
	Class 3	17(6.8)	35(14.0)		22(8.8)	30(12.0)	
	Class 4	38(15.2)	78(31.2)		48(19.2)	68(27.2)	
	Class 5	5(2.0)	13(5.2)		10(4.0)	8(3.2)	
Father's Education	*Illiterate*	27(10.8)	42(16.8)	0.228	31(12.4)	38(15.2)	0.233
	Primary	29(11.6)	29(11.6)		29(11.6)	29(11.6)	
	Secondary	40(16.0)	77(30.8)		50(20.0)	67(26.8)	
	Graduate	3(1.2)	3(1.2)		5(2.0)	1(0.4)	
Mother's Education	*Illiterate*	33(13.2)	55(22.0)	0.592	42(16.8)	46(18.4)	0.768
	Primary	30(12.0)	39(15.6)		28(11.2)	41(16.4)	
	Secondary	36(14.4)	55(22.0)		44(17.6)	47(17.6)	
	Graduate	0(0)	2(0.8)		1(0.4)	1(0.4)	
Father's Occupation	*Unemployed*	9(3.6)	17(6.8)	0.778	9(3.6)	17(6.8)	0.235
	Skilled	27(10.8)	44(17.6)		28(11.2)	43(17.2)	
	Unskilled	63(25.2)	90(36.0)		78(31.2)	75(30.0)	
Mother's Occupation	*Unemployed*	38(15.2)	61(24.4)	0.942	48(19.2)	51(20.4)	0.257
	Skilled	15(6.0)	23(9.2)		12(4.8)	26(10.4)	
	Unskilled	46(18.4)	67(26.8)		55(22.0)	58(23.2)	
Smoking	*Yes*	3(1.2)	4(1.6)	0.858	5(2.0)	2(0.8)	0.171
	No	96(58.8)	147(38.4)		110(44.0)	133(53.2)	
Alcohol	*Yes*	3(1.2)	4(1.6)	0.858	5(2.0)	2(0.8)	0.171
	No	96(58.8)	147(38.4)		110(44.0)	133(53.2)	
Family History of Chronic Disease	*Yes*	23(9.2)	28(11.2)	0.368	90(36.0)	109(43.6)	0.628
	No	76(30.4)	123(49.2)		25(10.0)	26(10.4)	

A highly significant association of social media addiction with type of family ($p < 0.001$) and socioeconomic status ($p < 0.002$) was observed using chi-square test. Furthermore, sleep quality was significantly associated with religion ($p < 0.047$). [Table 5]

Table 6: The relationship between social media addiction and sleep quality (n=250)

	Social media addiction absent	Social media addiction present	Chi-square (p-value)	Odds Ratio
Sleep quality good	84	31	<0.001*	2.75 (1.65-4.68)
Sleep quality poor	67	68		

Social media addiction was significantly associated with poor sleep quality among participants. Students with social media addiction had 2.75 times higher odds of experiencing poor sleep quality compared to those without addiction (OR = 2.75; 95% CI: 1.615–4.68; $p < 0.001$). The confidence interval did not include 1, indicating a statistically significant association. This finding was further supported by chi-square analysis ($\chi^2 = 14.2$, $p < 0.001$), demonstrating a strong relationship between social media addiction and sleep outcomes.

Table 7: Multiple Logistic Regression Analysis of Factors Associated with Sleep Quality Among Study Participants

Variable	AOR (Exp(B))	95% CI	p-value
Social Media Addiction (Yes vs No)	3.19	1.76–5.78	<0.001*
Age	0.719	0.544–0.950	0.020*
Father's Education	—	—	0.115
Father's Occupation	—	—	0.338
Type of Family (Nuclear vs Joint)	1.114	0.576–2.155	0.749
Religion	—	—	0.306
Marital Status (Married vs Unmarried)	0.637	0.176–2.310	0.492
Smoking (Yes vs No)	0.253	0.037–1.732	0.161
Alcohol Consumption (Yes vs No)	0.253	0.037–1.732	0.161

A multivariable logistic regression analysis was performed to identify independent predictors of poor sleep quality among the study participants. The overall model was statistically significant (Omnibus $\chi^2 = 44.716$, $p < 0.001$), indicating that the included predictors collectively improved the prediction of sleep quality. The model demonstrated acceptable fit (Hosmer–Lemeshow $\chi^2 = 6.350$, $p = 0.608$) and correctly classified 66.4% of participants. The model explained 16.4% of the variance in sleep quality according to the Cox and Snell R^2 and 21.9% according to the Nagelkerke R^2, with a −2 log likelihood of 300.256.

After adjusting for potential confounding variables, participants with social media addiction had 3.19 times higher odds of experiencing poor sleep quality compared with those without social media addiction (AOR = 3.19; 95% CI: 1.76–5.78; $p < 0.001$). Age was also an independent predictor of poor sleep quality, with increasing age associated with 28.1% lower odds of poor sleep quality (AOR = 0.719; 95% CI: 0.544–0.950; $p = 0.020$). Father's education, father's occupation, type of family, religion, marital status, smoking, and alcohol consumption were not significantly associated with poor sleep quality after adjustment for other covariates (all $p > 0.05$).

Table 8: Simple Linear Regression Analysis of Factors Associated with PSQI Score (N = 250)

Predictor	B	95% CI	SE	Standardized β	t	p-value
Constant	3.405	2.076 to 4.734	0.675	–	5.042	<0.001*
Social Media Addiction Score	0.110	0.035 to 0.185	0.038	0.180	2.874	0.004*

The simple linear regression model was statistically significant ($F = 8.258$, $p = 0.004$), indicating that the Social Media Addiction Score was a significant predictor of sleep quality. The model explained 3.2% of the variance in PSQI scores ($R^2 = 0.032$). The regression coefficient demonstrated that each one-unit increase in the Social Media Addiction Score was associated with a 0.110-unit increase in the PSQI score ($B = 0.110$, standardized $\beta = 0.180$, $p = 0.004$), suggesting that higher levels of social media addiction were significantly associated with poorer sleep quality. Although the association was statistically significant, the low R^2 value indicates that social media addiction accounted for only a small proportion of the variability in sleep quality, implying that other factors may also influence PSQI scores.

DISCUSSION

The prevalence of social media addiction in the present study is 39.6%, which is higher than medical students reported in Tamil Nadu (17.7%), which may be attributed as differences in population type (college-going young adults vs. medical students) and lifestyle variations in rural settings.[20] Similar trends were also reported in studies in Indonesia and Uganda, which has been documented as SMA prevalence rates between 35–45%, particularly relevant among students with prolonged daily screen time and inadequate sleep pattern.[23,24]

This study had a significant relationship between family type and SMA ($p < 0.001$), indicating higher social media addiction among students coming from nuclear families. This could be due to greater autonomy, privacy, and lack of supervision over device usage. Comparable observations were found that reduced parental involvement and increased access to personal devices predisposed youth to problematic social media behaviors.[25,26]

A significant association was also noted between socioeconomic status ($p < 0.002$) and SMA. Students of higher socioeconomic strata showed increase social media use, indicating better access to digital devices and internet connectivity may contribute higher social media engagement, with potential risk of developing dependency.[27]

In this study, 54% of participants experienced poor sleep quality, whereas moderate to severe sleep was observed in nearly 42.4%. These patterns may reflect the potential influence of extended screen exposure and nighttime social media engagement, which have been associated with circadian rhythm disruption through blue-light exposure, delayed melatonin secretion, and heightened emotional stimulation.[28]

Further, students with SMA were 2.75 times more likely to report poor sleep quality compared to their non-addicted counterparts, reinforcing the bidirectional link between sleep deprivation and compulsive online behavior. Similar associations have been documented in studies by suggesting that overuse of social networking platforms results in psychological arousal, delayed sleep onset, and impaired daytime functioning.[29]

Interestingly, religion also showed a mild but statistically significant association with sleep quality ($p = 0.047$), with Christian students reporting relatively poorer sleep. Although limited by small subgroup size, this observation may relate to lifestyle variations and differing cultural or social media engagement patterns.[30]

In the current study, higher mean BSMAS scores (17 ± 4.9) reflected mild to moderate social media dependency, particularly in domains related to "urge to use," "difficulty cutting down," and "negative impact on academics". These behavioral components are characteristic of the components model of addiction proposed and validated for social media addiction.[31]

The findings highlight that even non-clinical levels of SMA can significantly affect sleep health, daytime alertness and academic performance. Therefore, 82.4% students reported that they have not used any sleep medications, yet more than half of students had mild to moderate daytime dysfunction which is 52.8%, suggesting the need for behavioral factors – instead of medical or pharmacological influences which are the major primary contributors of sleep impairment among the population.

Overall, these results can support the linkage of growing evidence in problematic social media use with adverse physiological and psychological outcomes – including fatigue, anxiety, focus, poor academic performance and insomnia.[32]

Strengths and limitations

The strengths are that, very few studies are there to assess social media addiction and sleep quality in rural college students in Tamil Nadu. It provides localized evidence for targeted awareness programs and digital health interventions.

The first limitation is being as a cross-sectional study; causality cannot be inferred between SMA and sleep quality. Secondly, recall bias may be due to self-reported measures and unmeasured confounders (academic stress, caffeine intake, screen time before bed) could be triggering factors that affect sleep quality.[21,22] Lastly convenience sampling limits generalizability of the study findings. So, more studies are recommended future to identify the underlying reasons for social media use, on interventions aimed at reducing excessive social media use and modifying sleep problems, which can be an essential part of comprehensive packages in healthcare.

CONCLUSION

This study showed significant association between social media addiction and poor sleep quality among college students. Young adults with SMA have three times more likely to experience poor sleep compared to non-addicted peers. Digital mindfulness, screen-time regulation and sleep hygiene promotion are essential in mitigating the negative consequences of excessive social media use, therefore behavioral interventions and targeted education.

REFERENCES

1. Data Portal. Digital 2024: Global Overview Report [Internet]. Kepios; Jan2024 [cited 2025 Apr 2]. Available from: https://datareportal.com/reports/digital-2024-global-overview-report
2. Salari, Nader & Zarei, Hosna & Hosseinian-Far, Amin & Rasoulpoor, Shabnam & Shohaimi, Shamarina & Mohammadi, Masoud. (2023). The global prevalence of social media addiction among university students: a systematic review and meta-analysis. Journal of Public Health. 33. 223-236. 10.1007/s10389-023-02012-1.
3. Malak, Malakeh & Shuhaiber, Ahmed & Al-Amer, Rasmieh & Adas, Mohammed & Aburoomi, Reham. (2021). Correlation between Psychological Factors, Academic Performance and Social Media Addiction: Model-based Testing. Behaviour and Information Technology. 41. 10.1080/0144929X.2021.1891460.
4. Cole L. Internet and Technology Addiction—Causes, Signs and Tips to Stop. Mentalup. [accessed on 24 March 2024]. Available online: https://www.mentalup.co/blog/causes-losses-and-prevention-of-technology-addiction.
5. Robinson L., Smith M., Segal J. Smartphone Addiction. [accessed on 24 March 2024]. Available online: https://www.helpguide.org/articles/addictions/smartphone-addiction.html.
6. Andreassen CS, Pallesen S, Griffiths MD. The relationship between addictive use of social media, narcissism and self-esteem: findings from a large national survey. Addict Behav. 2017;64:287–293.
7. Luo T, Qin L, Cheng L, Wang S, et al. Determination the cut-off points for the Bergen social media addiction (BSMAS): Diagnostic contribution of the six criteria of the components model of addiction for social media disorder. Journal of behavioral addictions.2021;10(2):281–90.
8. Bates ME, Pawlak AP, Tonigan JS, Buckman JF. Cognitive impairment influences drinking outcome by altering therapeutic mechanisms of change. Psychol Addict Behav. 2006;20(3):241–253.
9. Ioannidis K, Hook R, Goudriaan AE, Vlies S, et al. Cognitive deficits in problematic internet use: meta-analysis of 40 studies. Br J Psychiatry. 2019 Nov;215(5):639-646.
10. Aydın O, Obuća F, Boz C, Ünal-Aydın P. Associations between executive functions and problematic social networking sites use. J Clin Exp Neuropsychol. 2020 Aug;42(6):634-645.
11. Burhan R, Moradzadeh J. Neurotransmitter dopamine (DA) and its role in the development of social media addiction. Journal of Neurology &Neurophysiology. 2020 Nov 27;11(7):1-2.

12. Rosen L.D, Mark Carrier L, Cheever N.A. Facebook and texting made me do it: Media-induced task-switching while studying. Comput. Hum. Behav. 2013;29:948–958.
13. Chaudhury, Pamela. (2018). A Study on impact of smartphone addiction on academic performance. International Journal of Engineering & Technology. 7. 50. 10.14419/ijet.v7i2.6.10066.
14. Jeong, Hyesun and Yangsook Lee. Smartphone Addiction and Empathy among Nursing Students. 2015. Adv. Sci. Technol. Lett. 2015;88:224–228.
15. Lee, Jeongmin & Cho, Boram & Kim, Youngju & Noh, Jiyea. (2015). Smartphone Addiction in University Students and Its Implication for Learning. 10.1007/978-3-662-44188-6_40.
16. Kuss, D.J., Griffiths, M.D. Internet Gaming Addiction: A Systematic Review of Empirical Research. Int J Ment Health Addiction 10, 278–296 (2012).
17. Topal, Ismail. (2019). The effect of sleep quality on academic performance. Annals of Medical Research. 1. 10.5455/annalsmedres.2019.05.265.
18. Buysse DJ, Angst J, Gamma A, Ajdacic V, Eich D, Rössler W. Prevalence, course, and comorbidity of insomnia and depression in young adults. Sleep. 2008 Apr;31(4):473-80.
19. Wang PY, Chen KL, Yang SY, Lin PH. Relationship of sleep quality, smartphone dependence, and health-related behaviors in female junior college students. PLoS One 2019 Apr 3;14(4):e0214769.
20. Siddharthan A, V Aljin, S Hariharan, VM Anantha Eashwar. Social Media Addiction and its Association with Sleep Quality Among Medical Students in A Medical College In Tamil Nadu, India. Natl J Community Med. 2024 Sep 1;15(09):712-9
21. Bi Siyuan, Yuan Junfeng & Luo Lin. The Social Networking Addiction Scale: Translation and Validation Study among Chinese College Students. International Journal of Mental Health Promotion. 2024. 26. 51-60. 10.32604/ijmhp.2023.041614.
22. Buysse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatry Res. 1989 May;28(2):193-213.
23. Setyowati L, Kurnia AD, Lestari W, Karuncharernpanit S. Association between social media addiction and sleep quality among undergraduate nursing students. Front Nurs. 2023;10(2):233–9.
24. Sserunkuuma J, et al. Problematic use of the internet, smartphones, and social media among medical students and relationship with depression. PLoS One 2023;18(5):e0286424.
25. Alfaya MA, Abdullah NS, Alshahrani NZ, Alqahtani AAA, Algethami MR, Al Qahtani ASY, Aljunaid MA, Alharbi FTG. Prevalence and Determinants of Social Media Addiction among Medical Students in a Selected University in Saudi Arabia: A Cross-Sectional Study. Healthcare (Basel). 2023 May 10;11(10):1370.
26. Wong HY, Mo HY, Potenza MN, Chan MNM, Lau WM, Chui TK, Pakpour AH, Lin CY. Relationships between Severity of Internet Gaming Disorder, Severity of Problematic Social Media Use, Sleep Quality and Psychological Distress. Int J Environ Res Public Health. 2020 Mar 13;17(6):1879.
27. Levenson JC, Shensa A, Sidani JE, Colditz JB, Primack BA. The association between social media use and sleep disturbance among young adults. Prev Med. 2016 Apr;85:36-41.
28. Alsulami A, Bakhsh D, Baik M, Merdad M, Aboalfaraj N. Assessment of Sleep Quality and its Relationship to Social Media Use Among Medical Students. Med Sci Educ. 2018 Nov 15;29(1):157-161.
29. Sümen A, Evgin D. Social Media Addiction in High School Students: A Cross-Sectional Study Examining Its Relationship with Sleep Quality and Psychological Problems. Child Indic Res. 2021;14(6):2265-2283.
30. Eichenberg C, Schneider R, Rumpl H. Social media addiction: associations with attachment style, mental distress, and personality. BMC Psychiatry. 2024;24(1):278.
31. Schou Andreassen C, Billieux J, Griffiths MD, Kuss DJ, Demetrovics Z, Mazzoni E, Pallesen S. The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. Psychol Addict Behav. 2016 Mar;30(2):252-62.
32. Bhargava VR, Velasquez M. Ethics of the attention economy: the problem of social media addiction. Bus Ethics Q. 2021;31(3):321–59.