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Study of Internet Addiction Disorder and its association with *Nidra* (sleep quality) in BAMS Students.

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Abstract

Background: The increase in the number of Internet users has increased Internet dependence worldwide. In adolescents, this dependence may interfere with sleep, which is important for the development of psychophysiological capabilities. India is estimated to have 650 million Internet users in the country by 2023, with such explosive numbers internet addiction is emerging to be a major concern within the nation, particularly among youngsters. **Aim:** To study internet addiction disorder and its association with sleep quality in BAMS students. **Methods and Materials:** A cross-sectional pilot study was conducted enrolling a total of 40 participants. Internet addiction and sleep quality were assessed in these participants using Young's Internet Addiction Scale and Pittsburgh Sleep Quality Index, respectively. **Result:** The findings revealed, where 40 subjects were included. Sleep disturbance was detected in approximately 62.5% of the study sample, markedly corelated with IA. Young age, low academic performance, computer presence at the home, internet presence at the home, using the internet for chatting and gaming and the poor sleep quality are strong predictors of internet addiction. **Conclusion:** Adolescents with internet addiction are more vulnerable to suffer from poor sleep quality. The prevalence of IA and its impact on the quality of sleep have been found to be substantial among BAMS students. There is a need for programs to raise awareness towards IA as well as its impact on sleep among BAMS students.

Keywords: Internet Addiction Disorder, Medical Students, Sleep Disturbance, Sleep Quality.

1.Background:

The internet has completely revolutionized the world in the past few decades, with the 21st century witnessing the explosive growth in worldwide internet usage. Better opportunities for education, communication, banking, business, health seeking and social interaction have been provided through the internet.[1] Internet usage has its pros and cons as well. On the one hand, it can be useful and effective. On the contrary, it can be harmful and cause mental health problems.[2] Internet addiction is defined as excessive or uncontrolled obsessions, urges or behaviors regarding utilizing and accessing the internet that might result in a disorder.[3] By 2021, it is predicted there will be over 600 million internet users in India; currently almost 71% of the internet users are men compared with 29% female.[4] Increased use of digital media and the internet mildly affects the people's sleep habits, and with changes in sleep quality, symptom of depression, anxiety and stress are exacerbated.[5] Internet addiction is effective on the quality and quantity of sleep of medical students.[6] Also this addiction is associated with signs of social exclusion and prevalent psychiatric problems such as mood disorder, anxiety, poor impulse control. The prevalence of internet addiction varies around the world, and teenagers and young people are more likely to succumb to it.[7]

Sleep is the optimum method for people to rest. People feel energized and ready for a new day after waking up following a good night's sleep.[8] The impaired quality of sleep is a condition that may disrupt everyday living and induce a slew of issues. Sleep deprivation can have dangerous outcomes such as decreased academic performances elevated accidents, and alleviated coping mechanism.[9] Spending ample time on internet was associated with poor sleep quality and may further lead to an increase psychological distress (i.e. stress, anxiety, depression) among young adults. Additionally, internet addiction resulted in the dysfunction of daily activities, including neglect of household chores and reduced productivity. Therefore, one can tentatively conclude that pathological internet usage can also negatively affect the circadian rhythm and causing insomnia and other sleep disturbances.[10] However, the increasing popularity of smartphones makes the use of a smartphone before sleep has become a habit for students. Moreover, it is found that teenagers who had trouble falling asleep or sustaining sleep were progressively inclined to have an internet addiction, and people who have dependent on the internet had basic circadian rhythm alters.[11]

Many studies have proven the influence of the IA on problematic sleep and insomnia and insomnia was found in 3% heavy internet users.[12] Systematic reviews and meta – analyses have provided a significant understanding the relationship between Internet addiction and sleep quality and disorders. The effect of internet addiction on sleep quality and the correlation between internet use and sleep disorders among college students need more attention. Considering the increase in the use of internet in India, especially among the students, the relationship between internet addiction and sleep disorders and the importance of this issue to minimize the inappropriate use of internet.[13] The present study aim is to assess correlation between internet addiction and *nidra* (quality of sleep) in Ayurveda students.

Aim:

The present study aim is to assess correlation between internet addiction and *Nidra* (quality of sleep) in BAMS students.

Hypothesis:

Null Hypothesis (H0):

There is no association between Internet addiction disorder and *Nidra* (sleep quality) in BAMS students.

Alternative Hypothesis (H1):

There is association between Internet addiction disorder and *Nidra* (sleep quality) in BAMS students.

Objectives:

1. To study systematically concepts of Sleep & Internet addiction from the available sources.
2. To assess quality of sleep among the participants to establish any association present between Internet addiction disorder.

2. Materials and Methods:

2.1. Study Design and Population:

This study was conducted on students studying at Institute of Teaching and Research in Ayurveda. Due to the fact that exposure (Internet addiction) and outcome (sleep disorder) information were taken from the subjects at the same time, the type of study was cross – sectional. We collected samples by using a non - random convenience sampling method.

2.2. Inclusion and Exclusion Criteria:

Inclusion criteria were as follows:

I. Willingness to participate in the study
II. Completing the questionnaires correctly and completely
III. Regular use of the internet at least during the past year.

Exclusion criteria were as follows:

I. Diagnosis of psychiatric disorders
II. Absence during the study period
III. Incomplete questionnaire completion
IV. Lack of interest or informed consent to participated in the study

2.3. Measures:

The data collection tools used in this study were a demographic information questionnaire, Pittsburgh Sleep Quality (PSQI), and Kimberly Young Internet addiction Questionnaire (IAT). The demographic information include age, gender, place of residence, marital status, level of education, and job status of the participants.

2.3.1. Pittsburgh Sleep Quality (PSQI): PSQI is a self – report questionnaire developed by Buysse, which appraises sleep quality through a standardized questionnaire, and can be easily understood and answered, differentiating between “good sleepers” and “poor sleepers”. It assesses sleep quality and quantity over a month time interval. This questionnaire has seven scales examining the subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction. The questions related to each dimension were scored from zero to three: score zero indicated no sleep disturbance, score one showed moderate sleep disturbance, score two was related to severe sleep disturbance, and score three showed very serious sleep disturbance. The total score was measured by summing the scores of seven dimensions (range, 0-21), and a total score higher than five indicated poor sleep quality.[14]

Internet Addiction Test (IAT): The IAT is a 20 - item questionnaire that measures characteristics and behaviors associated with compulsive use of the internet. Each item is weighted along a Likert scale continuum that ranges from 0 = less extreme behavior to 5 = more extreme behavior. Total score that ranges from 0 to 30 points are read as representing a normal level of internet usage, a score range of 31 to 49 indicates presence of a mild level of internet addiction, score 50 to 79 indicates a moderate level, and score 80 to 100 indicates a severe level of internet addiction.[15]

2.4. Statistical Analysis:

The collected data were analyzed using SPSS version 26 software. Qualitative data were presented as frequency and percentage, and quantitative data were presented as mean and standard deviation. Univariate analysis was performed using the chi – square test for the relationship between two or more categorical variables (demographic characteristics and sleep quality and Internet addiction). p value < 0.001 was considered statistically significant.

3. Results:

Out of 40 participants, 30 (75%) were in the age group of 20 – 25 years, followed by 9 (22.5%) were in the ae group of 26 – 30 years and 1 (2.5%) were in the age group of 31 – 35 years. (Table.1)

In this study majority of the participants i.e 80% were having IA in the age group of 20-25 years, followed by 66.66% were having IA in the age group of 26-30 years. (Table.2)

The study reveals that majority of the participants 73.33% were having poor sleep quality in the age group of 20-25 years, followed by 66.66% were having poor sleep quality in the age group 26-30 years. (Table.3)

Out of 40 subjects enrolled in present study, 25% of the participants had normal internet use, 32.5% had a mild IA, 32.5% had a moderate IA and 10% had a severe IA. (Table.4)

Out of 40 participants, 20 (50%) were female and 20 (50%) were male. (Table.5)

Out of 40 participants, 15 female participants i.e (75%) were having IA and 15 male participants i.e (75%) were having IA. (Table.6)

In this study 14 male participants i.e (70%) were having poor quality of sleep and 15 female participants i.e (75%) were having poor quality of sleep. (Table.7)

62.5% of students with internet addiction significantly had a poor quality of sleep. The Chi-square value 10.159 with 1 degree of freedom (p=0.001) there is a Significant (S) association between IAD and *Nidra* (sleep quality). (Table.8)

The mean age among internet addicts was 23.06 ± 2.12, and among normal internet user was 24.4 ± 4.2, and the mean age among poor sleep quality was 21.57 ± 2.52 and among good sleep quality 24.53 ± 4.41 this was statistically significant. (Table.9)

The result of the study reveals that the highest percentage of poor sleep quality was in those who are addicted to the internet (100%), while the lowest percentage observed in the group without addiction (30%), and in the at-risk group poor sleep quality and good sleep quality were (61.53%) and (38.46%) respectively. (figure.1)

- **Demographic data**

Table No. 1- Distribution of participants based on Age group

Age Group (In Years)	No. of Participants	Percentage
20 to 25	30	75%
26 to 30	9	22.5%
31 to 35	1	2.5%
Total	40	100%

Table No. 2- Distribution of participants based on Age of those who have IAD

Age Group (In Years)	No. of Participants	IAD		Percentage	
		Yes	No	Yes	No
20 to 25	30	24	6	80%	20%
26 to 30	9	6	3	66.66%	33.33%
31 to 35	1	0	1	0%	100%
Total	40				

Table No. 3- Distribution of participants based on Age of those who have quality of sleep

Age Group (In Years)	No. of Participants	PSQI		Percentage	
		Good Sleeper	Poor Sleeper	Good Sleeper	Poor Sleeper
20 to 25	30	8	22	26.66%	73.33%
26 to 30	9	3	6	33.33%	66.66%
31 to 35	1	1	0	100%	0%
Total	40				

Table No. 4- Distribution of participants based on Severity of IAD

Severity	No. of Participants	Percentage
Normal	10	25%
Mild	13	32.5%
Moderate	13	32.5%
Severe	4	10%
Total	40	100%

Table No. 5- Distribution of participants based on Gender

Gender	No. of Participants	Percentage
Male	20	50%
Female	20	50%
Total	40	100%

Table No. 6- Distribution of participants based on gender of those who have IAD

Gender	No. of Participants	IAD		Percentage	
		Yes	No	Yes	No
Male	20	15	5	75%	25%
Female	20	15	5	75%	25%
Total	40				

Table No. 7- Distribution of participants based on gender of those who have quality of sleep

Gender	No. of Participants	PSQI		Percentage	
		Good Sleeper	Poor Sleeper	Good Sleeper	Poor Sleeper
Male	20	6	14	30%	70%
Female	20	5	15	25%	75%
Total	40				

Chi-square Analysis

Table No. 8- Correlation between PSQI and IAD Crosstabulation

PSQI	IAD		Total No. of Participants
	No	Yes	
Good Sleepers	7	5	12
Poor Sleepers	3	25	28
Total No. of Participants	10	30	40

Pearson Chi-square value 10.159 with 1 degree of freedom (p=0.001) i.e. Significant (S).

Table No. 9- Demographic characteristics of the students based on their sleep quality and Internet addiction.

Variables		Internet addiction		Sleep quality	
		No IA	With IA	Good	Poor
		10 (25%)	30 (75%)	12 (30%)	28 (70%)
Age (mean ± SD)	23.4 ± 2. 06	24.4 ± 4.2	23.06 ± 2.12	24.53 ± 4.41	21.57 ± 2.52
Gender	Male – 20 (50%)	5 (25%)	15 (75%)	6 (30%)	14 (70%)
	Female – 20 (50%)	5 (25%)	15 (75%)	5 (25%)	15 (75%)

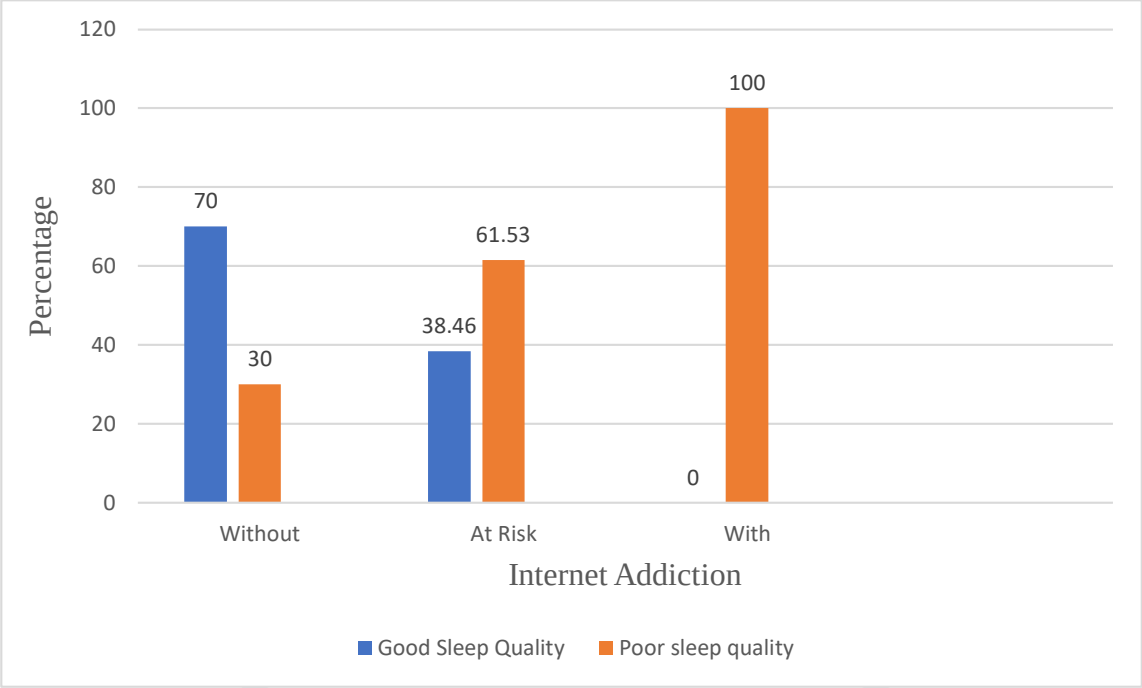

Figure 1: Percentage of students at levels of sleep quality among the three levels of Internet addiction.

4. Discussion:

Adequate sleep is essential for proper body function. With the increasing popularities of smart phones and the increasing use of the internet, especially among the youth, using them before bed time has becoming a habit, which can negatively affect their quality of sleep.[16] This study was carried out in order to detect the prevalence of IA among the medical students and investigate the relationship between sleep quality as well as IA. In this study, the prevalence of IA was 10%, 32.5% and 32.5% for severe as well as moderate and mild addiction, respectively. Our study findings consistent with IA prevalence results revealed by two studies in Menoufia University. The former found that 48.5% of medical students were abnormal users of the internet. In contrast, the second noted that 13.2% of both medical and non – medical students were pathological users of the internet. Where as 39.1% were potential problematic internet users.[17]

Internet addiction is significantly more among younger age than normal internet users. This finding is in agreement with many studies reporting IA was more frequent among young people.[18] That might be due to less exposure to outdoor activities and more use of technology for passing the time.

Regarding gender, Internet addiction was more prevalent among males compared to females, which is consistent with most previous studies. However, in this study did not detect any gender differences regarding IA.[19] This might be due to less number of participants.

In this study, it was found that students with internet addiction significantly had a poor sleep quality. The findings revealed, where 40 subjects were included. Sleep disturbance was detected in approximately 62.5% of the study sample, markedly corelated with IA. In this study, poor quality of sleep was related to high internet use. Highest percentage of poor quality of sleep was witnessed in those addicted to the internet (100%).

A comparison of the scores of sleep quality between participants without Internet addiction and those with different degrees of Internet addiction revealed the mean score of the Global PSQI index was higher in Internet addicts and at-risk participants than in other participants. So, a study stated that Internet addiction significantly affect the sleep quality of the students.

This finding could be due to the mechanism related to the use of electronic devices in bed harming the sleep with cognitive, emotional, or physiological stimulation; it can also be said that exposure to intense light leads

to the suppression of melatonin secretion and sleep delay, which can increase consciousness and sleep disorders.[20]

Limitations:

There are certain limitations to the present research. First, the data was collected in limited research locations. The research could not include all medical students. Furthermore, data collection will give better picture of this. In addition, a cross-sectional investigation was unable to establish a cause - and - effect link.

5. Conclusion:

The results of this research show that Internet addiction is considerably corelated with different aspects of sleep quality in students. Therefore, Alternate hypothesis (H1) is accepted and Null hypothesis (H0) is rejected. Considering the significant role of students in the future as professional, it is highly advised that educational programs and workshops about harms of Internet addiction be provided to students via social media and other platforms. Therefore, according to the result of this study which is a confirmation for the results of similar studies, it is recommended that health service providers should provide the necessary awareness in this field to the public, including student's parents. Also, they should provide the necessary plans to inform people through brochures and booklets.

Recommendations for future studies:

Based on this, it is suggested that future studies that investigate relationship between Internet addiction and sleep quality should be conducted with the participation of people in different age groups. Also, future studies can be expanded by adding large number of populations, different variables to this field and investigating different aspects. In addition to the study should be design to examine the causality between sleep quality and Internet addiction.

Consent:

All the study participants provided written informed consents. The procedure for verbal consent since the study was observational and respect the code of ethics was stated in the Declaration of Helsinki.

Conflicts of Interest:

The authors declare that they have no conflicts of interest.

Author's Contribution:

Vignesh R, Swati Khandale, Abhijit Khanna, AS Baghel assisted in conceptualization and design of the study, data collection, conducted data analysis and drafted the manuscript. All the authors have read and approved the final manuscript.

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References:

1. M. J. Tahir, N. I. Malik, I. Ullah et al., "Internet addiction and sleep quality among medical students during the COVID-19 pandemic: a multinational cross-sectional survey," Plos One, vol. 16, no. 11, Article ID e0259594, 2021.

2. A. Shahbazirad and F. Mirderikvand, The Relationship of Internet Addiction with Depression, Mental Health and Demographic Characteristic in the Students of Kermanshah University of Medical Sciences, Kermanshah, Iran, 2014.
3. M. Shaw and D. W. Black, "Internet addiction: definition, assessment, epidemiology and clinical management," CNS Drugs, vol. 22, no. 5, pp. 353–365, 2008.
4. Statista [Internet]. Internet usage in India - statistics & facts. [cited 2020 May 02]. Available from: https://www.statista.com/topics/2157/internetusage-in-India.
5. N. Cellini, N. Canale, G. Mioni, and S. Costa, "Changes in sleep pattern, sense of time and digital media use during COVID-19 lockdown in Italy," Journal of Sleep Research, vol. 29, no. 4, Article ID e13074, 2020.
6. A. Mohammad beigi, R. Absari, F. Valizadeh et al., "Sleep quality in medical students; the impact of over-use of mobile cell phone and social networks," Journal of Research in Health Sciences, vol. 16, no. 1, pp. 46–50, 2016.
7. L. Liang, D. Zhou, C. Yuan, A. Shao, and Y. Bian, "Gender differences in the relationship between internet addiction and depression: a cross-lagged study in Chinese adolescents," Computers in Human Behaviour, vol. 63, pp. 463–470, 2016.
8. Barion A, Zee PC (2007) A clinical approach to circadian rhythm sleep disorders. Sleep Med 8:566–577.
9. Kuss DJ, Grifths MD (2012) Internet gaming addiction: a systematic review of empirical research. Int J Mental Health Addict 10(2):278–296.
10. Alimoradi Z, Lin C-Y, Brostrom A, Bulow PH, Bajalan Z, Griffiths MD, et al. Internet addiction and sleep problems: A systematic review and meta-analysis. Sleep medicine reviews. 2019; 47:51–61. https://doi. org/10.1016/j.smrv.2019.06.004 PMID: 31336284
11. Zhang MW, Tran BX, Hinh ND, Nguyen HLT, Tho TD, Latkin C, et al. Internet addiction and sleep quality among Vietnamese youths. Asian Journal of Psychiatry. 2017; 28:15–20. https://doi.org/10.1016/j.ajp. 2017.03.025 PMID: 28784371.
12. Gholami A, Jahromi LM, Zarei E, Dehghan A (2013) Application of WHOQOL-BREF in measuring the quality of life in health-care staffs. Int J Prev Med 4(7):809.
13. Z. Alimoradi, C. Y. Lin, A. Brostrom et al., "Internet addiction and sleep problems: a systematic review and meta-analysis," Sleep Medicine Reviews, vol. 47, pp. 51–61, 2019.
14. D. J. Buysse, C. F. Reynolds, T. H. Monk, S. R. Berman, and D. J. Kupfer, "The Pittsburgh sleep quality index: a new instrument for psychiatric practice and research," Psychiatry Research, vol. 28, no. 2, pp. 193–213, 1989.
15. N. Mohammadsalehi, A. Mohammadbeigi, R. Jadidi, Z. Anbari, E. Ghaderi, and M. Akbari, "Psychometric properties of the Persian language version of yang internet addiction questionnaire: an explanatory factor analysis," International Journal of HighRisk Behaviours and Addiction, vol. 4, no. 3, Article ID e21560, 2015.
16. P. H. Lin, Y. C. Lee, K. L. Chen, P. L. Hsieh, S. Y. Yang, and Y. L. Lin, "The relationship between sleep quality and internet addiction among female college students," Frontiers in Neuroscience, vol. 13, p. 599, 2019.
17.. H. Lin, Y. C. Lee, K. L. Chen, P. L. Hsieh, S. Y. Yang, and Y. L. Lin, "The relationship between sleep quality and internet addiction among female college students," Frontiers in Neuroscience, vol. 13, p. 599, 2019.
18. li YH, Mohammed AN, Ali AR (2017) Internet addiction among medical students of Sohag University, Egypt. ISSN 2(92):0013–2446.
19. Lam LT, Peng ZW, Mai JC et al (2009) Factors associated with internet addiction among adolescents. CyberPsychol Behav 12(5):551–555.
20. A. Çelebioglu, A. Aytekin ˘ Ozdemir, S. Kuçuko ¨ glu, and ˘ G. Ayran, "The effect of Internet addiction on sleep quality in adolescents," Journal of Child and Adolescent Psychiatric Nursing, vol. 33, no. 4, pp. 221–228, 2020.