**ORIGINAL ARTICLE:**

**ASSOCIATION OF SOCIAL MEDIA ADDICTION WITH ACADEMIC PROCRASTINATION, PERFORMANCE AND INSOMNIA AMONG MEDICAL STUDENTS**

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**ABSTRACT**

**OBJECTIVE**

Social Networking Site Addiction (SNSA) has been overwhelmingly increasing in the past few years, with obvious adverse effects on its users. This addiction has created a strong tendency in academic students to procrastinate, lose sleep and also has affected their academic performance.
To find out the association of social media addiction with academic procrastination, performance, and insomnia.

**STUDY DESIGN**

Cross-sectional study

**PLACE AND DURATION OF STUDY**

The study was conducted at the Department of Psychiatry, Jinnah Postgraduate Medical Centre (JPMC) from 12th July, 2021 till 24th December, 2021.

**METHODS**

This study was open to undergraduate students, and those who had recently commenced their internship at JPMC. Any student who was absent from their assigned ward or did not provide consent was excluded from the study. Data was collected using a questionnaire that consisted of three pre-formed scales for social media addiction, academic procrastination, and insomnia. In addition, demographic information such as age, gender, and year of study was also gathered.

**RESULTS**

Our study involved 231 participants and found that higher levels of procrastination, especially in males, were significantly correlated with decreased sleep quality (p<0.0001). We used the Chi-Square test and Independent Samples t-test to determine this relationship. However, we did not find a significant correlation between SNSA and the academic performance of medical students.

**CONCLUSION**

This study underlines that medical students with high levels of social media addiction may have an increased risk for negative outcomes of academic procrastination and insomnia.

**KEYWORDS**

Social Media Addiction, Academic Procrastination, Academic Performance, Sleep, Medical Students.

**INTRODUCTION**

Social media is an interactive and user-friendly platform, allowing users to create and exchange content and also use internet-based applications1 As of January 2021, there are over 4.66 billion people using the internet globally and over 4.20 billion users are on social media.2 While it is a useful information source, it has its negative effects, including anxiety, depression, and addiction.3 Social Networking Site Addiction (SNSA) is excessive social media use with adverse effects on users. It involves spending more than 2 hours a day on social networking sites (SNS) or desiring SNS access every 12 minutes, causing task distraction and reduced concentration.4 Undergraduates, especially college and freshmen students, are greatly impacted by social media, which disrupts their routines and hinders the development of self-discipline.5 Digital entertainment lures youth to procrastinate, causing stress and sleep disturbances in an unsupervised environment..6

Procrastination is defined as ‘the behavior of postponing a task repeatedly, which in turn leads to subjective discomfort.’ According to one researcher, it is significantly due to failure in self-regulation or control. Academic Procrastination [AP] is defined as ‘the lack of performance of studies’. So, an individual would irrationally postpone their tasks despite knowing the adverse consequences.5 Faced by the majority of university students, AP impairs learning capabilities and encourages negative emotions including academic failure, personality developmental issues, and mental problems. Findings of a study conducted amongst 140 first-year MBBS students of Shandong University for a period of 4 weeks suggest that procrastination induces perceived stress reaction with increasing academic tasks.7 SNSA has been known to be one of the major causes of academic procrastination among undergraduate students.8

Social Networking Sites Addiction also contributes to insomnia, which is defined as a substantial amount of stress or impaired daytime routine causing an inability to sleep for longer hours or being unable to sleep even when the opportunity to sleep is present.9 According to psychologists and sociologists, it is more prominent in medical students who are under academic stress and often get sleep deprived.3 Moreover, it has been noted that symptoms of addiction correlate with decreased sleep. This is because social media is taken as more of a communication tool rather than attaining knowledge for educational purposes.10

SNSA detrimentally affects the academic progress and performance of individuals as well. One study showed that academic schedule procrastination and overuse of the internet led to academic failure in many students, discouraging them to improve.3

Hence, it is crucial to scrutinize the association of SNSA with academic procrastination, insomnia, and academic performance of undergraduate medical students.

As mentioned above, research conducted so far has been on exploring the reasons behind social media addiction, students procrastinating on their academic tasks, and low academic performance. However, this cross-sectional survey will target the effect of social media addiction on a student's academic performance along with any insomnia-related problems and assess the relation of social media addiction with procrastination. The results will help universities to find out the cause of the low academic performance of their students and can be used to devise a strategy to cope with the problem of academic procrastination

**METHODS**

We conducted a six-month cross-sectional study at the Department of Psychiatry, Jinnah Postgraduate Medical Center (JPMC) from July 12, 2021, to December 24, 2021. A non-probability convenience sampling technique was used to select the participants, and the sample size was determined using the OPENEPI software. The expected frequency of academic performance affected by Social Networking Site Addiction was set at 61.2%, with a Confidence Interval of 95% and Margin of Error of 5%, resulting in a sample size of at least 187 participants.10

All undergraduate medical students and those in their House job years who attended JPMC were eligible to participate in the study. Students who were absent from their assigned ward or did not provide consent were excluded from the study. We acquired ethical approval from IRB JPMC prior to data acquisition (reference no. F2-81/2021-GENL/175/JPMC).

Participants completed the anonymous questionnaire using their smartphones, which took approximately five minutes to complete. They were informed about the study's purpose at the start of the survey and provided their consent before proceeding. The sociodemographic factors taken in this survey included age, gender, University, year of education, last GPA, and last grade. Three scales were used, determining the correlation between each of them.

Social media addiction was measured by Bergen social media addiction scale, having a set of 6 different questions. The scale used contains six items reflecting core addiction elements. Each item is answered on a 5-point Likert scale ranging from very rarely (1) to very often (5); thus, yielding a composite score from 6 to 30, concerning experiences during the past year (e.g., “How often during the last year have you tried to cut down on the use of social media without success?”). A one-factor solution has been found for the BFAS. The BFAS has been translated into several languages and has shown acceptable psychometric properties across studies. The adaptation (BSMAS) involves replacing the word Facebook with social media only, and social media being defined as “Facebook, Twitter, Instagram, and the like” in the instructions to participants.8

The academic procrastination of participants was assessed by Academic Procrastination Scale–Short version, with the agreement on a 5-point Likert scale, from 1 = disagree to 5 = agree. Scale scores ranged from 5 to 25 points, with higher scores indicating a greater tendency to AP. The APS-SV has good psychometric properties and internal consistency, Cronbach’s a=0.890.8

The insomnia of the participants was calculated by the additive scores on the whole scale using the Insomnia Severity Index scale. The total score from the seven questions was then assessed on the following criteria: 0-7= not clinically significant insomnia, 8-14= subthreshold insomnia,15-21=Clinical insomnia (moderate severity), 22-28=Clinical insomnia.11

 All the data were analysed using statistical packages for social science (SPSS Version 23.0). The Association of Social Networking Site Addiction with academic procrastination, performance, and insomnia was made via the Chi-square test. Student Independent T-test was then applied to compare the effect of social networking site addiction on academic procrastination, academic performance, and insomnia. Data was significant when the p-value was considered to be <0.05.

**RESULTS**

A total of 231 participants were enrolled in the study, out of which 31 were eliminated due to incomplete submission of questionnaire. The mean age ± SD of study participants was 20.67 ± 1.94 years, with the study showing a female predominance. The prevailing 39% of third-year medical students were majorly from DUHS and JSMU universities. Demographics are mentioned in Table I.

**Table 1**

**Characteristics of Study participants**

|  |  |  |
| --- | --- | --- |
| Characteristics |  | N (%) |
| Gender | Female | 153 (76.1%) |
| Male | 48 (23.9%) |
| University | DUHS | 65(32.5%) |
| JSMU | 65(32.5%) |
| Others | 55(27.5%) |
| UMDC | 15(7.5%) |
| Year of Education | 1st year | 11(5.5%) |
| 2nd year | 71(35.5%) |
| 3rd year | 78(39%) |
| 4th year | 37(18.5%) |
| 5th year | 3(1.5%) |
| Academic Achievement  | High | 117(58.5%) |
| Average | 70(35%) |
| Low | 13(6.5%) |
| Age (mean ± SD) | 20.67 ± 1.95 |

In this study, SNSA’s correlation with 4 variables was determined as observed in medical students. The following results were obtained, separately.

This research yields a statistically significant and positive correlation between social media addiction and insomnia (p<0.0001) i.e., as the severity of social media addiction increased, the intensity of insomnia also increased. In addition, out of 34 people having severe social media addiction 22 had clinically significant insomnia with moderate or extreme severity, while 23 out of 29 people with no social media addiction had either subthreshold or clinically insignificant insomnia as shown in Table 2.

**Table 2**

**Comparison of Social media addiction with the severity of insomnia**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Social Media Addiction | P-value |
|  |  | None | Mild | Moderate | Severe |
| Insomnia Severity | Clinically Insignificant Insomnia | 7(24.10%) | 29(46.00%) | 16(21.60%) | 2(5.90%) | <0.0001 |
| Subthreshold insomnia | 16(55.20%) | 22(34.90%) | 28(37.80%) | 10(29.40%) |
| Clinical insomnia (moderate severity) | 5(17.20%) | 11(17.50%) | 25(33.80%) | 15(44.10%) |
| Clinical insomnia (severe) | 1(3.40%) | 1(1.60%) | 5(6.80%) | 7(20.60%) |
| Total |  | 29(100%) | 63(100%) | 74(100%) | 34(100%) |  |

Moreover, the correlation of SNSA with academic procrastination shows a positive, significant correlation (p<0.0001) with 16 individuals suffering from severe academic procrastination with severe SNSA. However, academic procrastination of mild to severe levels is prevalent in 23 out of 29 participants having no SNS Addiction, as seen in Table 3.

**Table 3**

**Comparison of social media addiction with academic procrastination**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Social Media Addiction | P-value |
|  |  | None | Mild | Moderate | Severe |
| Academic procrastination score | None | 6(20.70%) | 22(34.90%) | 4(5.40%) | 1(2.90%) | <0.0001 |
| Mild | 13(44.80%) | 18(28.60%) | 16(21.60%) | 4(11.80%) |
| Moderate | 8(27.60%) | 17(27.00%) | 24(32.40%) | 13(38.20%) |
| Severe | 2(6.90%) | 6(9.50%) | 30(40.50%) | 16(47.10%) |
| Total |  | 29(100%) | 63(100%) | 74(100%) | 34(100%) |  |

On comparing the varying degrees of social media addiction with academic performance, the results came out to be insignificant (p>0.05). It was found that social media addiction plays little to no role in affecting one’s academic achievements. As shown in table IV, students with mild to severe addiction to social media make up a good percentage of the top scorers.

**Table 4**

**Comparison of social media addiction with Academic achievement**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Social Media Addiction | P-value |
|  |  | None | Mild | Moderate | Severe |
| Academic Achievement | Low | 0(0%) | 3(4.80%) | 8(10.80%) | 2(5.90%) | >0.05 |
| Average | 8(27.60%) | 18(28.60%) | 29(39.20%) | 15(44.10%) |
| High | 21(72.40%) | 42(66.70%) | 37(50.00%) | 17(50.00%) |
| Total |  | 29(100%) | 63(100%) | 74(100%) | 34(100%) |  |

Lastly, as seen in table V, the standard deviation is overlapping, but an Independent Samples t-test shows that the difference is significant. Hence, SNSA was found to be more significant in male medical students than in females.

**Table 5**

**Comparison of social media addiction based on study population (t-test)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Gender | N | Mean± SD | t-test (2-tailed) |
| Total BSMA Score | Male | 48 | 20.56± 5.72 | <0.005 |
|  | Female | 152 | 18.59± 5.59 |  |

**DISCUSSION**

This study provides insight into the correlation of social media addiction with academic performance, procrastination, and insomnia. The average score of social media addiction was 19.0 ±5.6, with at least 50% of the participants having moderate or severe addiction. This was higher than that reported in a previous study, i.e. 12.79±5.4, conducted on similar ethnic group.12 This excessive use among medical students is a cause of concern and is detrimental to health and sleep quality.

According to the results, there was an increased tendency to develop insomnia among people with social media addiction. This signifies the role of mobile phone use, especially social media, in disrupting the normal sleep cycle. Increased frequency of social media usage has been reported to cause sleep disturbances and symptoms of depression. The results of a study conducted by Thomée S et al., were consistent with our outcome-stating that men with high mobile phone use were 1.7 times more likely to have sleep disturbances as compared to men with medium and low mobile phone use (PR=1.7, 95% CI 1.40-2.19).13Moreover, a Turkish study on 1956 students showed a positive correlation between daily sleep and internet addiction.14 Another study concluded that more than half of students having Facebook dependence reported sleep disturbance.15 The pathological use of the internet gives rise to emotional dependence, lack of control and other negative impacts on social, labour and educational background. Therefore, insomnia and social media addiction are related in a more diverse manner involving anxiety and depression as well.16

Furthermore, the study’s second objective was correlating academic procrastination with SNSA, which proved to be positively significant. This result is similar to previous studies.[5, 6, 17]Considering our study population of undergraduate medical [MBBS] students, the results show that they aren't an exclusion to such behaviour. According to another study, age could be a reason for this, regardless of the pursuing fields of young adults.8 Internet use has significantly increased amongst the older generation. This research claimed that it might be due to this increased usage which has caused people to give their actual responsibilities a lower priority.17 With social media being a distraction and also an emotional and mental outlet, procrastination amongst students, especially those with less self-control, was bound to happen (Internet addiction and procrastination were significantly and negatively correlated with core self-evaluations and self-control respectively, p< .001).[22]

Another study stated that Chinese medical students procrastinate on social media [or the internet] because of their stressful household environment, especially their parenting style regarding male students (p<0.001).7 As seen in Table 5 SNSA has significantly more male medical students than female students, which is in alignment with the significant (p=0.01) male Internet Addiction value.17 It could be attributed to the fact that males are more outgoing, especially in Pakistani culture while females are more dedicated and skilled in time management.17 This is in negation of the study, in which more female students(56.3% of females classified as heavy users) were found to be subjected to procrastination and time-wasting than male students.16

Our study also analysed the correlation between SNSA and academic performance. Interestingly, the results we obtained were insignificant, despite there being a plethora of evidence that supports our initial hypothesis that .18-20 Because this data was collected during the height of the COVID-19 pandemic, it is likely that students may have altered their study habits to accommodate for the online shift of university education, focusing more on project assignments as is stated.21 Additionally, because of the lockdowns, the stress that medical students usually undergo must have exacerbated. They probably increased social media use to cope with the stress and procrastinate, but when the time came to perform, they managed to divert their focus and energies onto their studies.22 All in all, this study further demands that we look into the procrastination pattern of medical students and analyse other factors at play that can cancel out the negative effects on performance due to procrastination.

**Limitations**

In this study, we examined the effects of SNSA on medical students in Pakistan. However, our sample size was limited to two medical schools in one city, so the findings may not represent all Pakistani medical students. We also didn't compare data with non-medical students. Additionally, we didn't explore factors contributing to SNSA, such as peer pressure or the urge to stay updated. Despite these limitations, our findings have practical implications for understanding the damaging effects of SNSA on academic schedules. Further research is needed to identify effective strategies to reduce social media addiction among medical students.

**CONCLUSION**

Social media addiction among medical students was associated with poor sleep quality and academic procrastination. Our study highlights the factors that lead to poor academic performance i.e., social media addiction, insomnia, and academic procrastination. In this era of social media, medical students are facing more distractions than before, which have a negative impact on their exams and the quality of sleep.

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**UNDERTAKING FORM**

|  |  |  |  |  |
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| **2** | Javeria Kamran | Dow University of Health Sciences | 1. Part of data collection, literature review, methodology, introduction, results and discussion
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3. Future directions of the study
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| **3** | Asma Ashraf | Dow University of Health Sciences | 1. Part of literature review, methodology, introduction, results and discussion
2. Limitations part of discussion.
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| **5** | Dr Kiran Abbas | Aga Khan University Hospital | Guided throughout the study along with developing study design and methodology |  |
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