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INTERNET ADDICTION AND PSYCHOLOGICAL DISTRESS AMONG UNIVERSITY STUDENTS: ASSOCIATIONS WITH ANXIETY, DEPRESSION, STRESS, AND SELF-ESTEEM

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ABSTRACT

Internet Addiction Disorder (IAD) is becoming an increasing concern for university students, often affecting their emotional and psychological well-being. This study investigates the correlation between IAD and key mental health indicators such as depression, anxiety, stress, and self-esteem among 120 university students. This study uses validated psychological tools such as Internet Addiction Test, DASS-21, and the Rosenberg Self-Esteem Scale. The finding shows significant correlations: IAD is strongly associated with higher levels of depression (r=0.58) and anxiety (r = 0.48), a weak correlation with stress (r=0.22), and a weak negative correlation with self-esteem (r=-0.28). Inferential statistics support these relationships, with p-values < 0.05 across all mental health variables, indicating statistical significance. Positive t-values for depression (7.75), anxiety (5.99), stress (2.45), and daily internet use (5.24) further emphasize the strength of these associations. Skewness and interquartile range (IQR) analysis suggest that a notable portion of students experience high levels of both IAD and psychological distress. This research contributes to a deeper understanding of digital behaviour and its psychological

consequences, highlighting the urgent need for mental health support strategies tailored to the realities of student life.

Keywords: *Internet Addiction Disorder (IAD), depression, anxiety, stress, self-esteem, mental health.*

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1. INTRODUCTION

In the digital age, internet use is one of the essential parts of everyday life. From communication to business, education to entertainment, the internet plays a crucial role in modern society. The use of the internet is also useful for students, specifically university students who use the internet for academic tasks, social interactions, personal use, entertainment, etc. Moderate use of the internet is helpful for students but uncontrolled usage of the internet can lead to internet addiction disorder and mental health issues. Internet Addiction Disorder (IAD) is a behavioural addiction of excessive use of the internet that leads to psychological and physiological dependencies (Jin & Jiang, 2025). Internet addiction disorder both affect mental health and physical health such as IAD increases dopamine release day by day which is a neurobiological vulnerability and from a mental health perspective IAD it has a higher chance of depression, and anxiety (Cash et al., 2012). Internet addiction can be in different forms such as excessive use of social media, gaming, and other activities, etc. that can be shown problem in personal, social, and professional life and common symptoms include loss of control over internet use, withdrawal mentality, and sometimes physical shows symptoms such as visual

problem (Fromson, 2024). According to a survey in 2022, observed that 4.62 billion people use only social media and spend an average of 2 hours and 27 minutes daily in the world wide (Branka, 2023). This large number of people is mostly school, college, or university students. Due to IAD, it can interrupt students' academic performances, social interactions, and overall quality of life.

Internet addiction is connected with several mental health illnesses such as depression, stress, anxiety, and sometimes low self-esteem. Younes et al. (2016) studies found that internet addiction among university medical students was significantly associated with higher levels of insomnia, stress, anxiety, depression, and lower self-esteem. Depression is a common mental health condition that causes loss of interest in activities, hopelessness, and sadness, and sometimes it negatively affects daily life (Cleveland Clinic, 2023). Depression can be several types such as major depressive disorder, seasonal depression, etc. (Cleveland Clinic, 2023). Anyone can be affected by depression from child to adult but if people are affected by Alzheimer's or Parkinson's types disease they have a chance to be affected in depression (Cleveland Clinic, 2023). Anxiety and stress are also connected with IAD. According to the World Health Organization (2023), people who are affected by anxiety disorder face excessive fear or worry that interferes with their daily life. University students can face stress due to the academics or family related pressure. Self-esteem refers to a person's value and belief in them (Kille & Wood, 2012). Overall, IAD and its correlated mental health conditions negatively impact student's lives with both short-term and long-term effects.

Excessive internet use among university students is a growing concern that can become Internet Addiction Disorder (IAD) and is associated with serious mental health illnesses. Though using the internet helps students with academic and social benefits, uncontrolled use of the internet negatively impacts their academic and personal life. IAD also influences mental health illnesses such as depression, stress, anxiety, and low self-esteem. But the most concerning part is most of the students are unaware of IAD even though university management has a lack of awareness about IAD. This lack of awareness can worsen over time, and students may attempt withdrawal behaviours, drop out, or even attempt suicide. Therefore, understanding the impact of IAD and its correlation with other mental health issues among university students is necessary.

The primary objective of this research is to examine the relationship between Internet Addiction Disorder (IAD) and mental health issues, namely depression, anxiety, stress, and self-esteem among university students. To achieve this primary objective, the study pursues the following specific objectives:

a. To determine the prevalence of Internet Addiction Disorder (IAD) among university students.

b. To assess the levels of depression, anxiety, stress, and self-esteem among university students.

c. To examine the relationship between Internet Addiction Disorder (IAD) and mental health issues, specifically depression, anxiety, and stress.

d. To investigate the association between Internet Addiction Disorder (IAD) and self-esteem among university students.

This study explores complex and growing mental health concerns in the digital age. Internet Addiction Disorder (IAD) is one of the most concerning mental health issues nowadays, and its impact is prevalent among university students. Primarily, internet usage is beneficial such as academic, learning, knowledge gathering, and research purposes, etc. But sometimes, students cannot control their usage and spend lots of time on social media, gaming, and other perspectives. Uncontrolled usage of the internet can lead to Internet Addiction Disorder (IAD). IAD also correlated with some mental health issues like depression, stress, and anxiety.

This research, firstly, explored the prevalence of IAD among university students and its correlation with depression, anxiety, stress, and self-esteem. Identification of IAD and its correlation can enhance the understanding of how internet dependencies influence personal, academic, and overall psychological well-being. For this reason, it is essential to diagnose mental health disorders among university students to identify their mental health conditions and behavioral patterns. This study can be helpful for university administration to raise awareness about IAD, diagnose mental health issues, and make a mental health support system for students. Overall, this study is helpful for students to understand their mental health condition, how IAD can negatively impact their life, and how they overcome these mental health conditions.

2. REVIEW OF LITERATURE

There are several recent studies that focus on Internet Addiction Disorder (IAD) and mental health issues such as depression, anxiety, stress, etc., and their impact on cognitive and social behaviour. This literature review is divided into several subsections such as IAD and mental health issues, IAD and self-esteem for IAD, and mental health issues.

2.1 Internet Addiction Disorder and Mental Health Issues

Tan et al. (2025) explored mental health issues related to compassion fatigue and internet addiction among nurses in China. They analysed 516 data from 7 hospitals and identified the correlation between fatigue and internet addiction. They also analysed anxiety and inhibitory control, which helped establish a mediating relationship. Their findings address that identifying emotional stress and improving self-regulation could help reduce the risk of internet addiction. Wang et al. (2022) explored how internet addiction is related to risky health behaviours in both adolescents and young adults. Their study involved 61823 participants and found due to internet addiction positive risk behaviors such as drinking and smoking increased. They also found that this risk behavior increases the suicidal risk. Li et al. (2021) explored cross-sectional study during the COVID-19 time and found that adolescents who are already a psychiatric patient their chance to be affected in internet addiction is 31.2%. In this study they used internet addiction and a 9-item Patient Health Questionnaire. Masi et al. (2020) explored internet addiction among youth who were affected by mental health issues and found that 38.6% showed signs of internet addiction. Ali et al. (2021) explored that women

with eating disorders and higher BMI are at increased risk of internet addiction. Bai et al. (2022) explored the relationship between internet addiction and quality of life and participants in 1657 patients who were already affected by Major Depressive Disorder. They found that MDD and internet addiction negatively impact quality of life.

Servidio et al. (2021) explored how fear related to COVID-19 along with depression, stress, and anxiety impacts internet addiction among Italian students. They used the DASS-21 and internet addiction-based questionnaire and found a correlation between internet addiction and anxiety. Perez-Oyola et al. (2023) explored internet addiction, anxiety, and depression in high school students during COVID-19 pandemic. They found correlation between internet addiction and anxiety and not found significant correlation between internet addiction and depression. Sayed et al. (2022) explored internet addiction among 808 pharmacy students in Egypt and tried to identify the relationship with depression, anxiety, and stress. They found a prevalence rate of 38.5% but did not find any correlation between internet addiction and academic performance. Diotaiuti et al. (2022) explored internet addiction from 481 university students' data using hierarchical regression analysis. Their findings showed that impulsivity, relational codependency, gender, and age significantly predicted internet addiction. Joseph et al. (2021) conducted a meta-analysis using data from 50 studies in India and they found that 20% to 40% of college students may have internet addiction. Acharya et al. (2023) explored internet addiction factors among 344 undergraduate students in Nepal. They found that 29.9% of students were affected by internet addiction and they identified

key factors influenced were lack of relationship with parents, loneliness, and lack of control of parents. They suggest that increased awareness among students, parents, and educators can reduce the risk of internet addiction.

2.2 Internet Addiction Disorder and Self-Esteem

Zhu et al. (2025) studied 10158 adolescents in China to explore the relationship between self-esteem, social anxiety, and internet addiction. They found that self-esteem was significantly related to internet addiction and social anxiety played a mediating role. They found a 27.8% effect on self-esteem and internet addiction and they suggest that reducing internet addiction needs psychological support. Zhihao et al. (2024) explored how the influence of physical activities and self-esteem on internet addiction among college students. They found that higher physical activity levels were correlated with higher self-esteem and lower internet addiction. They suggest that promoting physical activities can help to reduce internet addiction among college students. Dai et al. (2024) investigated internet addiction from 4th to 8th-grade students in China based on individual and school-level factors. They found that low self-esteem and parental phubbing increased the risk of internet addiction. Overall, their studies focused on the importance of personal, family, and school-related factors to effectively reduce adolescent internet addiction. Tian et al. (2021) study focuses on 1047 school students in China. They tried to identify relationships among shyness, self-esteem, depression, loneliness, and internet addiction. They found that internet addiction negatively impacts self-esteem and positively impacts depression.

2.3 Cognitive Behavioral Therapy (CBT) for Mental Health Issues

Kunikata et al. (2016) explored group CBT techniques to overcome self-esteem. They found that the group CBT technique helps people by improving self-esteem and psychiatric symptoms. Moloud et al. (2022) explored group CBT techniques to help people who are affected by major depression. In this study, 64 patients were already affected by major depression and in the treatment process some people got regular treatment and others group CBT sessions. They found that group CBT techniques help to overcome their mental health issues. Martinsen et al. (2021) explored anxiety, and depression levels and measured self-esteem and quality of life among school children. After that, they used 10 weeks of CBT and found that therapy improved children's mental health conditions.

2.4 Identified Gaps in Literature

There are several research gaps that arise from the literature review. Most studies focused on IAD or mental health illness independently, only a few studies explore combined issues such as IAD with self-esteem or IAD with depression, stress, or anxiety. But there is not a combined framework that explores internet addiction, self-esteem, depression, stress, and anxiety.

2.5 Theoretical Framework

This study guided by several psychological theories and validated psychometrics frameworks that explain the mechanism of Internet Addiction Disorder (IAD) with depression, anxiety, stress, and self-esteem among university

students. The framework used theories from empirical tools that are widely accepted in mental health research.

2.5.1 Behavioural Addiction Theory

Internet Addiction Disorder is conceptualized within the framework of behavioral addiction that can be non-substance-based behavior such as internet use, gaming, social media, etc. (Griffiths, 2005). So, based on the behavioral addiction theory, people can be affected by internet addiction such as lack of time management when using the internet, and repetitive habits of checking social media which are related to addiction behavior.

2.5.2 DASS-21 Measurement Framework

The Depression Anxiety Stress Scales-21 (DASS-21) provides a validated psychometric tool to measure the severity of core mental health issues developed by Lovibond, & Lovibond (1995). DASS-21 is the shorter version of the original DASS-42 scale. In this study, the DASS-21 serves as a theoretical identification and compares levels of depression, anxiety, and stress among university students.

2.5.3 Rosenberg's Self-Esteem Theory

This study also explored the self-esteem level which is assessed using the Rosenberg Self-Esteem Scale (RSES). Self-esteem refers to a person's evaluation of themselves. Rosenberg suggested four conditions for low self-esteem such as "instability of self-image, presenting self, vulnerability, feelings of isolation" (Rosenberg, 1965, p. 151). So, this study used Rosenberg's theory and measurement to examine how self-esteem is affected by IAD and its related mental health issues.

2.6 Conceptual Framework

The conceptual framework explores the correlation among Internet Addiction Disorder (IAD), mental health issues (Depression, Anxiety, and Stress), and self-esteem among university students.

Three psychological tests used in the survey questionnaires such as Internet Addiction Test (20 questions), DASS-21 (21 questions), and Rosenberg Self-Esteem (10 questions). In the Internet Addiction Test measured the internet dependencies, variables represent the problematic internet usage (Young, 1998). After that, DASS-21 (Depression, Anxiety, Stress Scale) was used to identify depression, anxiety, and stress levels (Lovibond & Lovibond, 1995). Then, use Rosenberg self-esteem questionnaires to identify individual self-worth and self-perception. Then, we identify the correlation among the three psychological tests.

2.7 Hypothesis

The following hypotheses have been developed to test the assumptions related to the prevalence, impact, and correlation between Internet Addiction Disorder (IAD) and mental health issues among university students.

H1: A considerable proportion of university students experience problematic levels of Internet Addiction Disorder (IAD).

H2: A considerable proportion of university students experience mental health issues such as depression, stress, anxiety, and low self-esteem.

H3: Internet Addiction Disorder (IAD) is positively correlated with depression, anxiety, and stress among university students.

H4: Internet Addiction Disorder (IAD) is negatively correlated with self-esteem among university students.

3. RESEARCH METHODOLOGY

3.1 Research Design

In this research, we used a quantitative, descriptive correlational cross-sectional research design. According to Figure 1, firstly, we take a survey of three psychological tests as Internet Addiction Test, DASS-21, and Rosenberg Self-esteem, and also include some demographical data like gender, age, and approximate number of hours of internet use per day. Secondly, based on the survey test, use data cleaning and scoring each of the tests and categorized as mild, moderated, severe, or extremely severe based on the test. Thirdly, in the statistical analysis, we explore the correlation among each of the tests, and descriptive statistical analysis. In this study, the survey includes 54 questions and participants answer all the questions at a single time point to capture the existing mental health conditions and internet usage behaviours. In the descriptive analysis identify the prevalence and severity of IAD, depression, anxiety, stress, and self-esteem. We explore correlational analysis to observe the strength and direction of the relationships between variables.

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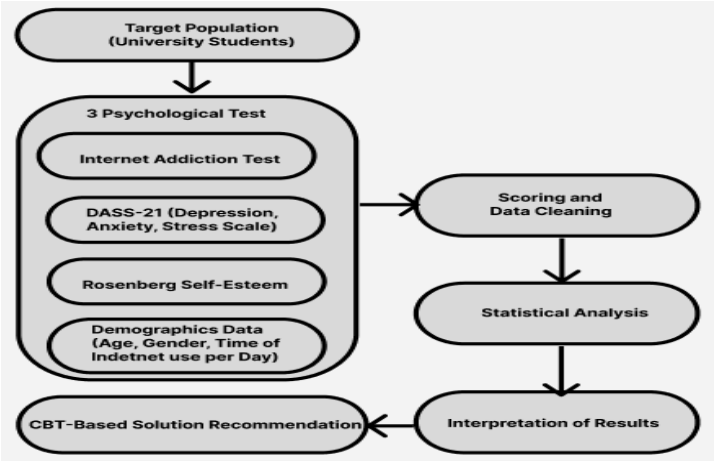

Figure 1. Research Design

3.2 Variables

In this research used both dependent, independent variables, and demographics variables. Internet Addiction Test (IAT) is independent variables measured using 20 questions that identify an individual's internet usage behaviour. The dependent variables of this research are depression, anxiety, and stress from DASS-21, where 21 questions, 7 questions for each depression, stress, and anxiety. Rosenberg Self-Esteem Scale (10 questions) were also dependent variables. We also used 3 demographic variables such as age, gender, and number of hours of internet use per day. These variables also influence the relationships between internet addiction and mental health.

3.3 Sampling Techniques

This research used a non-probability convenience sampling method to select participants. Participants were invited

voluntarily through various social media, student groups, academic forums, direct messaging, email, and directly. A total of 120 students participated in this survey, those who thought they were highly likely to have an internet addiction or depression. The sample includes from various departments and academic levels to ensure diversity.

3.4 Sampling Demography

Participants of this research were mostly undergraduate students and some of them were postgraduate students. The participants were from various departments such as psychology, sociology, computer science, business department, etc. The participants were also from various regions and university students. The total participants of this research were 120 students. The age range was 18-36 and most of the participants were in the 20-25 age range. In this research, male participants were 57.5% and female participants were 42.5%. In this research, we also collect data on the number of hours of internet usage per day. Overall, this demographic data enhances the findings within the university context and allows for comparisons across diverse student groups.

3.5 Inclusion/Exclusion Criteria

To ensure the relevance of this research followed several inclusion and exclusion criteria—

3.5.1 Inclusion Criteria

Participants must be currently enrolled university students (bachelor's or master's program). Participants must be fluent in using the Internet for their daily work perspective. We also

ensure the students are a minimum of 18 years old and participated voluntarily in this survey.

3.5.2 Exclusion Criteria

If the participants were not students and not currently enrolled in any university program were excluded from this study. If participants were less than 18 years old excluded them for ethical consideration. Responses that were incomplete or contained irrelevant information were also excluded from the final analysis.

3.6 Data Collection Process

Data were collected using online self-administered questionnaires from Google Forms and distributed through academic forums, student groups, social media, direct messages, email, face-to-face contact, etc. The dataset questionnaires included three standardized psychological scales, along with demographic questions. The survey questions include 3 psychological tests such as the Internet Addiction Test (20 questions), DASS-21 (Depression, Anxiety, Stress Scale), Rosenberg Self-Esteem (10 questions), and some demographical variables age, gender, number of hours of Internet use per day. A total of 54 questions were included in the survey. All primary responses from the students were stored. To collect primary data from the participants it takes approximately 7 weeks and time needs to fill-up the entire question each of the participants 10-15 minutes.

3.7 Measurement

After the primary data collection process, analyse the data to prepare data for further analysis and measurement. Analyse each of the responses from the primary survey one by one, sum up the scores based on each of the questions and make another dataset. For each of the questions, there were 5 options to select such as Rarely, Every once in a while, Sometimes, Often, and Always. Each of the options had a specific score based on the psychological test like for Internet Addiction Test (IAT) the score was 1 for rarely to 5 for always. Now, based on the user option, choose the summation of the total score for the IAT test, then the summation total score for DASS-21, and the Self-esteem test. After that, categorize each of the individuals based on the score such as for IAT categorize as moderate, problematic, and addicted. If the IAT score 20-49 categorises it as moderate, 50-79 problematic, and 80+ addicted. Similarly, measure the other two psychological tests. For the DASS-21 test, there are three sections such as depression, anxiety, and stress. 7 questions to measure each of the sections. The options of DASS-21 were four from did not apply to me (0) to Applied to me very much (3). After that, for self-esteem measurement there are 10 questions. According to Figure 2, it shows that the maximum value of IAT we found is 96, the minimum value is 22, and the median value is 55. For self-esteem scores span from 15 to 48, with a median of 32 that suggests most students report moderate self-esteem levels. Depression distribution ranges from 0 to 42, with a median of 22, anxiety scores range from 2 to 40, with a median of 14 and stress scores range from 2 to 38, with a median of 18.

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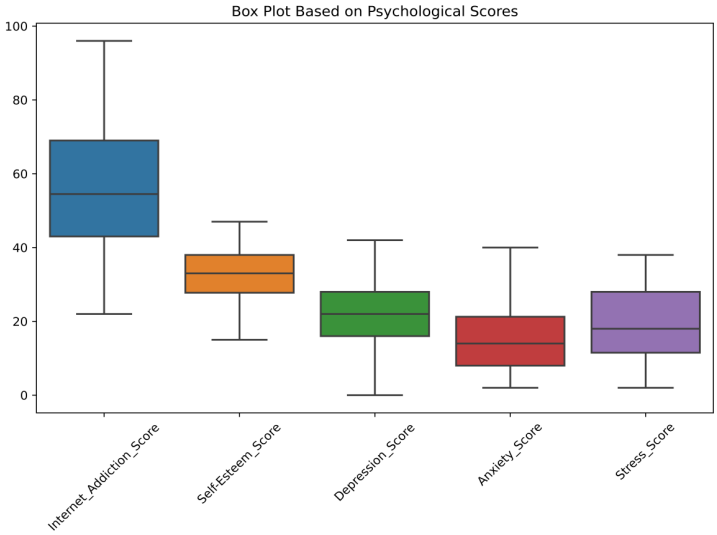

Figure 2. Box Plot Based on Psychological Scores

Table 1. Psychological Test Mean and Standard deviation

Psychological Test	Mean	Standard deviation
Internet Addiction Test (IAT)	56.27	18.04
Self-Esteem	32.35	7.002
DASS-21: Depression	21.81	9.48
DASS-21: Anxiety	14.25	8.21
DASS-21: Stress	19.30	11.19

Source: The author's own work.

Based on table 1, the average IAT score was 56.28 and the standard deviation was 18.05, indicating that most participants fall within the problematic usage category. The mean depression score was 21.82 (SD = 9.48), suggesting a moderate level of depressive symptoms among university students. The

average anxiety score was 14.26 (SD = 8.22), the stress score was 19.30 (SD = 11.19), and the self-esteem score was 32.35 (SD = 7.00).

3.8 Ethical Considerations

This research followed the ethical guidelines to ensure the rights and safety of all participants. The type of this research was survey based. The data collection process was voluntary and did not collect any identity-related data such as name, email, or institute name, etc. Overall, the data collection process was run anonymously. We also ensured that the participants were at least 18 years old. All participants were informed about the research objectives, time required, and number of questions. Participation in this research depends on the participants and they can withdraw at any time and at any stage from this research participation. This study was performed in line with the principles of the Declaration of Helsinki.

3.9 Research Method

This research followed a quantitative, descriptive correlational cross-sectional research design to explore the relationship between internet addiction and various mental health indicators. Here, quantitative method is used because it enables the use of statistical methods such as correlations using the data. Data were collected using three standardized psychometric questionnaires such as the Internet Addiction Test (IAT), the DASS-21, and the Rosenberg Self-Esteem Scale. Each of the three questionnaire sets provides quantifiable scores that are suitable for numerical analysis. Here, I used correlation and machine learning based regression models to

explore the relation among the variables. The cross-sectional design refers to captured data at a single point in time. Data is collected through online self-report questionnaires and all three questionnaire sets at a single point of time. In this research, we also explore how to predict mental health conditions based on observed internet addiction levels. The collected data were analysed using a multi-stage statistical approach that combines descriptive statistics, and inferential statistics to ensure the understanding of the relations among the variables. For analysis purposes used python libraries such as numpy, pandas, matplotlib, seaborn and scipy etc. and the analysis environment was Google Colab.

3.9.1 Data Preparation and Cleaning

From the dataset, we made a dataset as 13 columns and 120 rows. In the datasets columns are internet addiction level, internet addiction scores, depression level, depression scores, anxiety levels, anxiety scores, stress levels, stress scores, self-esteem level, self-esteem scores, gender, age, and approximate hours per day using the internet. After that, we check missing values and duplicate values in the dataset. We found only 1 missing value in the age column and the other column has no missing values and no duplicate values. Then, we checked the outlier among the numerical data types columns and found that only the age column has 3 outliers, and the other column has no outlier.

3.9.2 Descriptive Statistical Analysis

In the descriptive statistical analysis, the Interquartile Range (IQR), variance, skewness, and kurtosis were calculated to

understand the characteristics of the data. In the IQR analysis, we measure the minimum, 25th percentile (Q1), 50th percentile (median), 75th percentile (Q3), and maximum values. To identify IQR, we used the difference between Q3 and Q1. Then, we analyse variance to measure the score vary from the mean. High variance means scores are spread out and low variance means scores are close to the mean. After that, measure skewness which identifies the data balanced or not. If a value close to zero means data is balanced. Kurtosis analysis measures the data sharpness. A negative kurtosis means the data is more flat, and a positive value means the data has more extreme values. This statistical analysis helps to understand the behavior of data.

3.9.3 Inferential Statistical Analysis

In this part, we measure correlation, p-value, t-test analysis. We calculated correlation among numerical variables such as internet addiction score, stress score, depression score, anxiety score, and self-esteem score columns. Correlations values range -1 to +1 where value close to +1 shows strong positive correlation and value close to -1 shows strong negative correlation. We also used p-value to measure whether the results are statistically significant. A p-value less than 0.05 usually means that the result is unlikely to have happened by chance and is considered statistically significant. After that, we measure t-test to compare mean scores among the variables using expected mean.

4. RESULTS

This section presents the findings of this research. These parts are divided into two parts: descriptive statistics, inferential statistics and correlation.

4.1 Descriptive Statistics Analysis

In the descriptive statistical analysis part, we calculate variables such as internet addiction, mental health indicators, and demographic data.

Table 2. Interquartile Range

Column Name	Minimum	Q1	Median	Q3	Maximum
Internet Addiction score	22	43	54.5	69	96
Self-esteem score	15	27.75	33	38	47
Depression score	0	16	22	28	42
Anxiety score	2	8	14	21.25	40
Stress score	2	11.5	18	28	38
Age	18	21	23	24.5	36
Hours per day internet use	2	4	6	8.25	12

Source: The author's own work.

Based on table 2, shows that, Internet Addiction scores ranged from 22 to 96, with a median of 54.5. The first quartile (Q1) was 43, and the third quartile (Q3) was 69. Self-esteem scores, measured using the Rosenberg Self-Esteem Scale, ranged from 15 to 47, with a median of 33, Q1 = 27.75, and Q3 = 38. For mental health indicators based on the DASS-21, depression scores ranged from 0 to 42 with a median of 22, anxiety scores ranged from 2 to 40 with a median of 14, and stress scores ranged from 2 to 38 with a median of 18. In terms of demographic variables, age ranged from 18 to 36 years with a median of 23, while daily internet usage ranged from 2 to 12 hours with a median of 6 hours. The corresponding Q1 and Q3

values for age were 21 and 24.5, and for internet usage were 4 and 8.25, respectively.

Table 3. Descriptive Statistics Analysis

Column_Name	Mean	Variance	Skewness	kurtosis	IQR
Internet Addiction score	56.27	325.78	0.26	-0.67	26
Self-esteem score	32.35	49.04	-0.26	-0.52	10.25
Depression score	21.81	89.88	0.11	-0.61	12
Anxiety score	14.25	67.55	0.45	-0.48	13.25
Stress score	19.30	125.22	0.14	-1.10	16.50
Age	23.12	9.57	1.17	2.55	3.50
Hours per day internet use	6.15	6.92	0.20	-0.79	4.25

Source: The author's own work.

Based on table 3, we also analyse mean, variance, skewness, kurtosis, IQR. The mean Internet Addiction score was 56.27 with a variance of 325.78, a skewness of 0.26, and a kurtosis of -0.67. The self-esteem scores had a mean of 32.35, variance of 49.04, skewness of -0.26, and kurtosis of -0.52. Depression scores showed a mean of 21.81, variance of 89.88, skewness of 0.11, and kurtosis of -0.61. Anxiety scores had a mean of 14.25, variance of 67.55, skewness of 0.45, and kurtosis of -0.48. The stress scores presented a mean of 19.30, variance of 125.22, skewness of 0.14, and kurtosis of -1.10. The interquartile ranges (IQR) across all variables provide insight into the spread of data within the central 50% of the sample.

4.2 Inferential Statistical Analysis

This part shows the results of correlation among all the numerical variables and shows p-value and t-test. Figure 3 shows the correlation among internet addiction, depression, stress, anxiety, and self-esteem columns. Figure 3 presents the correlation matrix illustrating the Pearson correlation coefficients. The correlation between Internet Addiction Score and Depression Score is 0.58, indicating a strong positive relationship. Similarly, Internet Addiction is moderately correlated with Anxiety Score (r = 0.48) and weakly correlated with Stress Score (r = 0.22). A weak negative correlation is observed between Internet Addiction and Self-Esteem Score (r = -0.28). The Depression Score is positively correlated with both Anxiety Score (r = 0.40) and Stress Score (r = 0.47). Lastly, a weak positive correlation is observed between Anxiety Score and Stress Score (r = 0.23).

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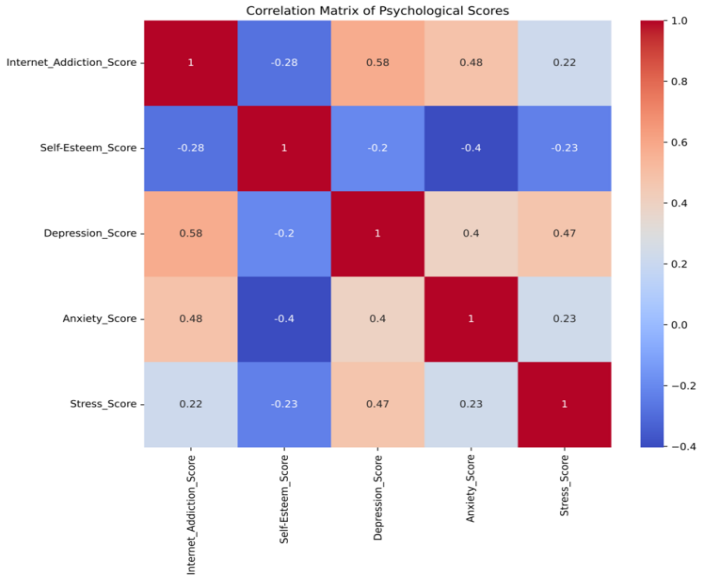

Figure 3. Correlation Matrix

Table 4. P-value and t-test

Variable	p-value	t-test
Depression score	0.000	7.75
Anxiety score	0.000	5.99
Hours per day	0.000	5.24
Stress score	0.016	2.45
Age	0.856	-0.18
Self-Esteem score	0.002	-3.18

Source: The author's own work.

Table 4, represents the p-value and t-test score compared with the internet addiction score column. For p-value, firstly we

calculated Pearson correlation which is shown in figure 3. Here depression, anxiety, and hours per day shows p-value 0.000 which is too small and less than 0.05 that means the p-value between internet addiction score and those variables also significant. Stress and self-esteem p-value is 0.016 and 0.002 both also less than 0.05 that means these two are also statistically significant. But the age column p-value is 0.856 which is greater than 0.05 that's why it is not statistically significant. The t-test values represent the t-statistic calculated where higher values of the t-test statistic indicate stronger evidence against the null hypothesis. Here, depression shows a t-test value of 7.75, which confirms a strong and significant positive relationship with internet addiction. Anxiety and hours per day also show high positive t-test values which are 5.99 and 5.24. Stress has a moderate positive t-test value is 2.45, but self-esteem and age has a negative t-test value (-3.18, and -0.18), indicating an inverse relationship with internet addiction.

5. DISCUSSION

This research found that internet addiction disorder influences mental health conditions such as depression, anxiety, and stress. From the results section Figure 3 correlation matrix, we observe that correlation between internet addiction and depression is (r=0.58) which indicates strong positive correlation and its sign of problematic internet use. Internet addiction and anxiety also show strong positive correlation (r=0.48). Internet addiction and stress shows weak positive correlation (r=0.22). On the other hand, internet addiction and self-esteem shows weak negative correlation (r=-0.28). Also, depression with anxiety (r=0.4) and stress (r=0.47) shows strong positive correlation. Previous studies based on literature review

also show signs of positive correlation among internet addiction, depression, anxiety, and stress. Here, weak negative correlation in self-esteem suggests that if internet addiction increases the self-esteem decreases sign of low self-esteem and if internet addiction decreases sign of high self-esteem. Previous studies also observe this correlation with internet addiction among self-esteem (Zhu et al. 2025). The reason for this correlation may depend on personality but assume that due to internet addiction people spend lots of time on social media and other platforms and these decrease a person's productivity. If internet addictions increase depression and anxiety strongly positively increase but stress weak positively. In the previous studies based on literature review found that internet addiction positively correlates with anxiety (Servidio et al. 2021).

In this research we also analyse both descriptive and inferential statistics parts such as IQR, skewness, p-value and t-test etc. Here, internet addiction score, depression score, anxiety score, stress score shows positive skewness that means participants had particularly high addiction and mental health illness. Also, we found that the p-value is less than 0.05 or 5% between internet addiction and other mental health illnesses that are statistically significant. Depression ($p = 0.000$), Anxiety ($p = 0.000$), Hours per day ($p = 0.000$), Stress ($p = 0.016$), and Self-esteem ($p = 0.002$) are all significantly related to Internet Addiction. Also, we explore t-test, positive t-test refers to the strength and direction of the relationship. Positive t-values for Depression (7.75), Anxiety (5.99), Hours per Day (5.24), and Stress (2.45) suggest a positive relationship if these variables increase, internet addiction also increases. The results clearly

suggest that higher internet use is associated with increased depression, anxiety, stress, and decreased self-esteem.

To solve internet addiction related problems and mental health issues, we can use Cognitive Behavioural therapy (CBT). CBT helps individuals understand, identify, and change negative patterns of thinking and behaviour. Based on literature review we observe that Kim et al. (2018) studies show that group CBT can reduce problematic internet addiction. Also, Kunikata et al. (2016) shows CBT helps to overcome self-esteem related issues. Moloud et al. (2022) shows group CBT techniques efficiency for overcoming depression related problems. Overall, group CBT technique is beneficial for solving internet addiction, self-esteem, depression, anxiety, and stress related mental health issues. In our research perspective, our target population is the university students and we observe that a large number of students face mental health difficulties. So, group CBT techniques will be suitable for them to overcome mental health illness. CBT can introduce internet use logs, habit-reversal training, and time-based goals to help clients become more aware of their mental health patterns. CBT sessions can explore activities such as behavioural activation, and skill-building exercises focused on time management, emotional regulation, and self-esteem enhancement. So, if we follow a group CBT technique session in the university campus, it can solve student's mental health issues.

6. CONCLUSION, IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH RECOMMENDATION

In conclusion, this study found that internet addiction is strongly related to higher levels of depression and anxiety, and also linked to lower self-esteem and increased stress. These results suggest that excessive internet use can have a negative impact on students' mental health. Although the study had some limitations, it clearly shows the importance of monitoring internet use and offering support to those at risk. By promoting mental health education and providing resources like CBT, universities can help students build better habits and maintain both their digital and emotional well-being. These will help students to overcome any mental health illness too.

This study shows that internet addiction is closely linked to mental health challenges like depression, anxiety, stress, and low self-esteem among university students. These findings highlight the need for educational institutions to provide mental health support and raise awareness about healthy internet habits. Universities can consider offering group Cognitive Behavioural Therapy (CBT) sessions to help students manage their online behaviour and improve their mental well-being.

There were several limitations of this research. Firstly, the number of participants was small. We collected data from only 120 university students. A small sample may not fully represent the larger student population and can lead to biased results. Secondly, the survey had 54 questions. Many students mentioned that they felt lost while answering. This lack of attention could have affected the quality of their responses. Thirdly, we used a cross-sectional research design. This means

we collected all data at one point in time and this may affect the accuracy of the results. Fourthly, the study was based on self-reported answers. Students answered questions based on their own understanding and feelings, which can lead to bias or underreporting.

For future research, aim to use a larger sample population of 450–650 participants and apply machine learning algorithms for predictive analysis. Additionally, consider including the ADHD Clinical Outcome Scale and collecting data at four different time points using various psychological scale tests. It is also important to implement group CBT techniques to support participants who exhibit signs of internet addiction and related mental health issues. In addition, future work could include interviews or focus groups to gather more detailed insights into the emotional and behavioural impact of internet use. Exploring the role of other psychological factors like loneliness, sleep patterns, academic results, and family support may also provide a deeper understanding of the issue.

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