



**A Cross sectional study to assess the usage of internet and its impact on health and academic performances among higher secondary school students in selected school of Shillong, Meghalaya.**

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**Abstract**

**Background:** The Internet is a global network that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries a vast range of information resources and services, such as the interlinked hypertext documents and applications of the World Wide Web, electronic mail, telephony, and file sharing. Internet when used adequately can be beneficial in a number of ways to the individuals but at the same time if it's not used carefully it can affect the physical, mental and social domains of health.

**Methodology:** A Non- experimental cross sectional study was conducted in BSF Senior secondary school, Umpling, Shillong, Meghalaya from 10<sup>th</sup> – 22<sup>nd</sup> April,

2023. A semi-structured questionnaire was used to collect data from participants. Analysis was done using Descriptive and inferential statistics (chi- square).

**Results:** The study revealed that out of **184** participants, majority of the participants in age group are below 19 years (**67.93%**) and majority of the participants in gender are male (50.54%) . **101(54.90%)** are from science stream. **79(42.94%)** participants feels the need to use internet often. Mental health **114(61.95%)** being the most affected health domain. All the participants use internet for academic purpose. There is no association between usage of internet and selected socio-demographic variables

**Conclusion:** Our findings were majority of the participants were male and below of 19 years of age. Majority of the participants uses internet often everyday

mostly during evening time. YouTube was the most common site of internet usage. Majority of the participants have opted mental health as the most affected domain after usage of internet. Out of 184 participants, 177 participants agreed that they used internet for their academic purposes. There was no association between the usage of internet and age or gender.

**Keywords:** Internet, Impact, Health, Academic performance

### **Introduction**

**Background of the Study:** The Internet is a global system of interconnected networks that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. Most traditional communication media, including telephone, radio, television, paper mail, and newspapers, are reshaped, redefined, or even bypassed by the Internet, giving birth to new services such as email, Internet telephone, Internet television, online music, digital newspapers, and video streaming websites. Newspaper, book, and other print publishing have adapted to website technology or have been reshaped into blogging, web feeds, and online news aggregators. [1] Many of us cannot imagine our lives without the internet. But the technology is still young; only 60% of the World's population was online in 2020. The internet provides an almost endless list of services. [2]

The internet has some positive aspects but there are also negative aspects to the information highway. There is now concern from educators and psychologist about the impact of internet on the physical, cognitive and social development of children.[3]

Internet when used adequately can be beneficial in a number of ways to the individuals but at the same time if

it's not used carefully it can affect the physical, mental and social domains of health.

### **Need of the Study**

In today's technology driven times, more and more youngsters are engaged to the internet. Using the Internet for health purposes was associated with increased depression. The increase may be due to increased rumination, unnecessary alarm, or over-attention to health problems. Additionally, those with unmeasured problems or those more prone to health anxiety may self-select online health resources. Internet use time affects the health status of adolescents by changing their life time allocation. [4]

Media platforms like Instagram and Face book have become ingrained in the lives of countless individuals. With adolescents and young adults, particularly young women, being the primary users of such platforms, it is an important question whether social media has an impact oneself-concept, self-esteem, body image, and body dissatisfaction.[5]

### **Objective of the Study**

#### **Primary objectives**

1. To estimate the frequency of internet usage among higher secondary school students
2. To assess the impact of internet usage on the health of higher secondary school students.
3. To assess the influences of internet usage on academic performance of higher secondary school students.

#### **Secondary objective**

To find out the association between usage of internet and selected socio demographic variables.

### **Methodology**

**Research design:** Cross sectional study design was adopted to assess the impact of internet on health and

academic performances of higher secondary school students in selected schools of Shillong, Meghalaya.

**Setting:** The study was conducted in BSF School Umpling, Shillong, Meghalaya.

**Ethical Consideration;** To conduct the research study, permission was obtained from the Principal of the BSF Senior Secondary school, Umpling, Shillong, Meghalaya. Ethical clearance was obtained from the NEIGRIHMS Scientific Advisory Committee (NSAC) and the Institutional Ethical Committee (IEC) NEIGRIHMS. The purpose of the study was explained and permission was taken from the Principal of the BSF Senior Secondary School, Umpling, Shillong. Consent form was obtained from participants. The participants had the right to withdraw from the study at any point of time during the study

**Population-** In the pilot study the population comprised of 30 class 12<sup>th</sup> students of Laitumkhrah Presbyterian School. In the final study population comprised of 184 class 12<sup>th</sup> students of BSF Senior Secondary school.

**Sampling design-** The sampling size calculation adopted was attempted to total census enumeration.

Total enumeration technique.

**Sample size-** 184 participants

**Criteria for Sample Selection-**

**Inclusion Criteria:** The study includes all the students who were willing to participate and whose parents gave their consent.

**Exclusion Criteria:** The study excludes students who were absent or who were not willing to participate in the study.

**Development of Data Tool:** The following steps were adopted prior to the development of the tool:

- An extensive review of literature from books, research journals, online resources, books related to the research subjects.

- Suggestions from experts.

- Personal experience of the investigators, discussion with the colleagues.

### **Content Validity**

The validation of data collection tool for consent was done by the experts of different specialty.

General Medicine, Ophthalmology, ENT, Orthopedic, Psychiatry, Community Medicine.

Faculty of College of Nursing ,NEIGRIHMS.

The experts were requested to judge the items for clarity, relevance, appropriateness and meaningfulness for the purpose of study.

### **Pilot Study**

A pilot study was conducted from 20<sup>th</sup> – 25<sup>th</sup> of Feb 2023 at the Laitumkhrah Presbyterian Higher Secondary School, Shillong, Meghalaya. The purpose of the pilot study was to test the feasibility of the study and the validity and effectiveness of research tool. The number of subjects taken for pilot study was 30. The data was collected as per the validated tools.

Total time taken to complete the questionnaire for one subject was 3-5 minute. It was found to be feasible to conduct the study within the stipulated time.

At the end of our pilot study we found that our tools were feasible to collect reliable data which will enable us to carry out the main study as proposed.

### **Plan for Data Analysis**

A plan for data analysis was developed after expert opinion and feedback was received on how to use descriptive and inferential statistics in the following way

1. To compute frequency and percentage to describe the demographic characteristics.
2. To compute the frequency and percentage of the frequency and purpose of internet usage.
3. To compute the frequency and percentage of the impact of internet usage on health.

4. To compute the frequency and percentage of the influence of internet usage on academic performance.
5. To compute chi square value to describe the association between internet usage and demographic variables.

**Data Collection Procedure**

The research study was conducted from 10<sup>th</sup> – 22<sup>nd</sup> April, 2023 in BSF Senior Secondary School, Shillong, Meghalaya. Prior permission from the Principal of BSF School was obtained.

Prior to the data collection a written informed consent was taken from the subjects after explaining to them about the purpose of the study and the assurance of the confidentiality and anonymity of the result. The data was collected using the validated tool taking atleast 4-5 minute for each participant.

**Analysis, Interpretation and Discussion**

**Section- I**

Findings related to the socio demographic data of the participants.

Table 1: Frequency and percentage distribution of participants according to demographic variables n = 184

Demographic characteristics	F	%
Age( in years )		
Below 19	125	67.93
Above 19	59	32.07
Gender		
Male	93	50.54
Female	91	49.46

Stream		
Science	101	54.90
Commerce	49	26.63
Arts	34	18.47

The above table shows that majority of the participants in age group are below 19 years, **125 (67.93%)** and majority of the participants in gender are male **93(50.54%)**, **101(54.90%)** are from science stream.

**Section - II**

Assessment of frequency and purpose of internet usage

Table 2: Frequency and percentage distribution of frequency of internet usage. n-184

Variables	f	%
Feels the need to use internet everyday		
Often	79	42.94
Frequently	75	40.76
Sometimes	30	16.40
Length of internet usage in years		
More than 5	98	53.27
3 to 5	40	21.73
1 to 3	37	20.10
Less than 1	9	4.90
Hours of internet usage		
1 to 3	72	39.13
3 to 5	53	28.80
More than 5	48	26.09
Less than 1	11	5.98

Table 2: This table presents the frequency and percentage distribution of frequency of internet usage in which 79(42.94%) participants feels the need to use the internet often.

Further 98(53.27%) of the participants have been using the internet for more than 5 years .72(39.13%) of participants use the internet for 1-3 hours.

Table 3: Frequency and percentage distribution of purpose of internet usage. n=184

Variables	f	%
Purpose of using internet		
For education	64	34.79
For communication	56	30.44
For recreation	51	27.71
For work	13	7.06

Table 3: This table shows that 64(34.79%) of participants use internet for educational purposes.

Fig.1: A pie chart showing the time students use internet the most. n = 184

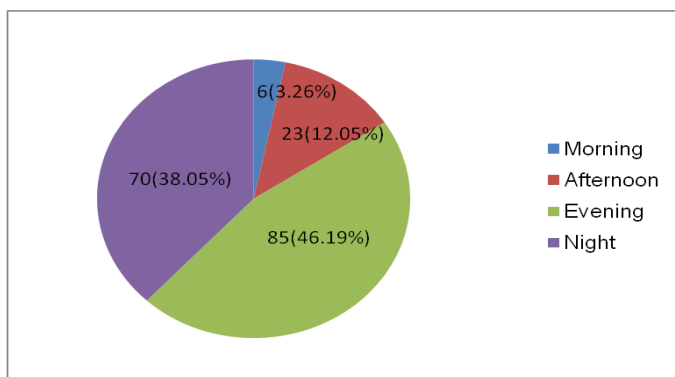


Fig.1: This figure represents the time students use the internet the data reveals that 85(46.19%) students use the internet mostly in the evening.

Fig.2: A bar diagram showing the duration of internet usage of the participants at night. n=184

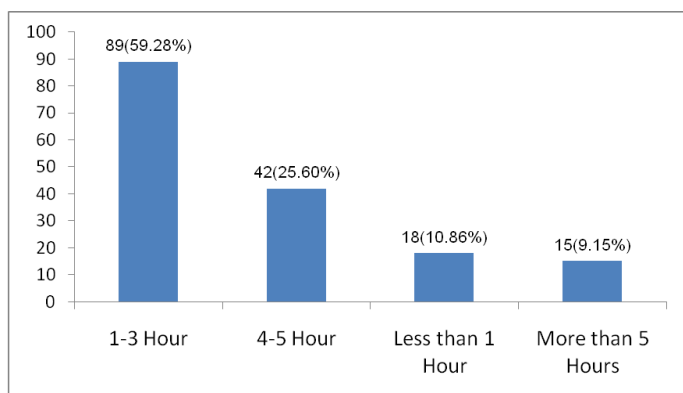


Fig. 2: The above figure shows that out of 184 participants 89(59.28%) uses the internet for 1-3 hours at night.

Table 4: Frequency and percentage distribution of common site of internet usage

Variables	f	%
Common site of internet usage		
YouTube	91	49.46
WhatsApp	33	17.93
Instagram	32	17.40
Others	28	15.21

Table 4: This table shows that out of 184 participants, 91 (49.46%) use YouTube as the common site of internet usage.

Fig. 3: A pie diagram showing different online platforms preferred by participants. n= 28

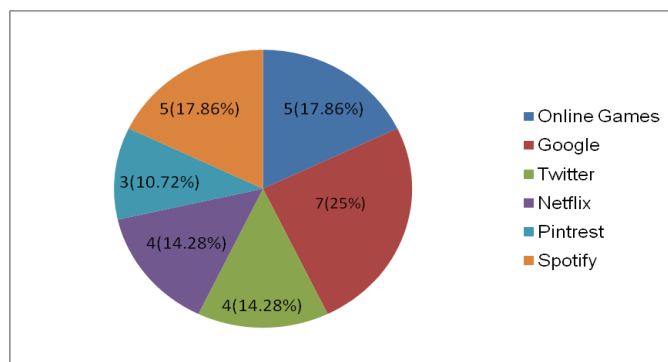


Fig. 3: This figure shows that for 28 participants, the mostly preferred social media platform is Google which is 7(25%).

### Section – III

#### Assessment of impact of internet usage on health

Fig. 4: A bar diagram showing the frequency and percentage distribution on health domain.

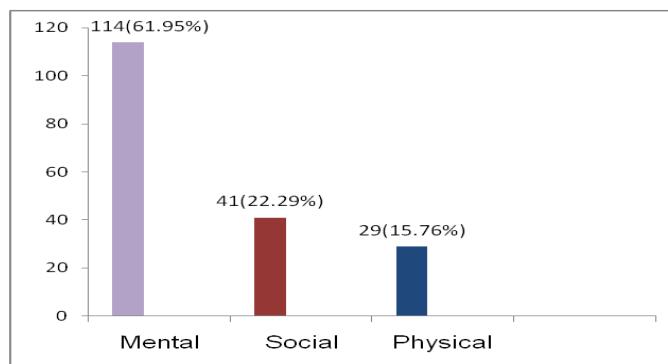


Fig. 4: The above figure shows the frequency and percentage of assessment of impact of internet usage on 3

domains of health i.e. mental, social and physical health, where mental health 114(61.95%) being the most affected health domain.

Table 5: Frequency and percentage distribution of physical domain of health. n=184

Variables	F	%
<b>Eye problem due to internet usage</b>		
No	96	52.18
Yes	88	47.82
Blurry vision	42	22.82
Pain	27	14.67
Redness	15	8.15
Puffiness	4	2.17
<b>Joint pain after usage of internet</b>		
No	119	64.67
Yes	65	35.33
Neck	35	19.02
Back	15	8.15
Finger joint	12	6.52
Wrist	3	1.63

Table 5: This table shows that out of 184 participants, 96(52.18%) has no eye problem after internet usage. And remaining 88 (47.82%) who have eye problems opted blurry vision i.e. 42(22.82%) 119(64.67%) has no joint pain after usage off internet usage. And remaining 65(35.33%) who have joint pain opted neck pain i.e. 35(19.02%).

Table 6: Frequency and percentage distribution of physical domain of health. n=184

Variables	f	%
<b>Ear problem after using earphones</b>		
No	131	71.19
Yes	53	28.81
Ringing sound	33	17.93
Blockage	16	8.69
Discharge	4	2.18
<b>Disturbed sleeping pattern at night</b>		
No	113	61.41
Yes	71	38.58

Table 6: The above table shows that out of 184 participants, 131(71.19%) has no ear problem. And remaining 53 (28.81%) who have ear problem opted ringing sound i.e. 33(17.93%).

113(61.41%) has no disturbed sleeping pattern at night.

Fig. 5(a): A bar diagrams below shows the frequency and percentage distribution on mental health domain. n=184

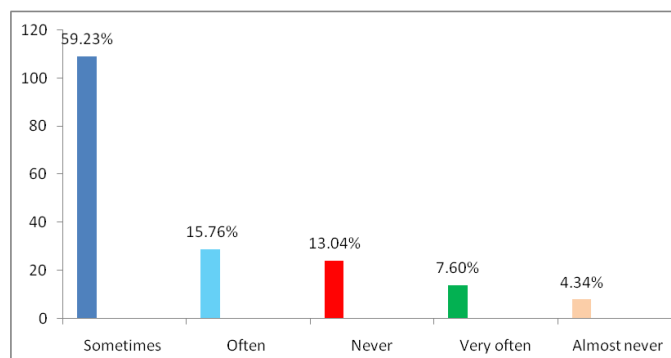


Fig. 5(a): The above figure shows that for increased self confidence after usage of internet, 109(59.23%) choose this option sometimes.

Fig. 5(b): A bar diagrams below shows the frequency and percentage distribution on mental health domain. n=184

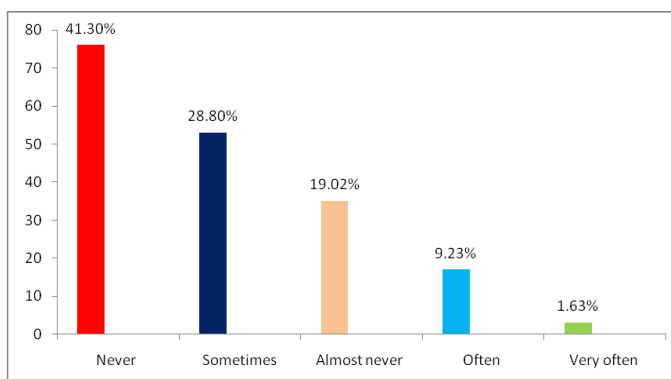


Fig. 5(b): The above figure shows that for feeling depressed after usage of internet 76(41.30%) participants choose the option never.

Fig. 5(c): A bar diagrams below shows the frequency and percentage distribution on mental health domain. n=184



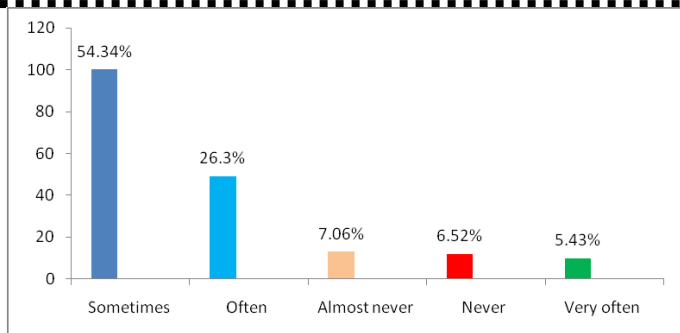


Fig. 5(c): The above figure shows that for feeling motivated after usage of internet, 100 (54.34%) participants choose the option sometimes.

Fig. 5(d): A bar diagrams below shows the frequency and percentage distribution on mental health domain. n=184

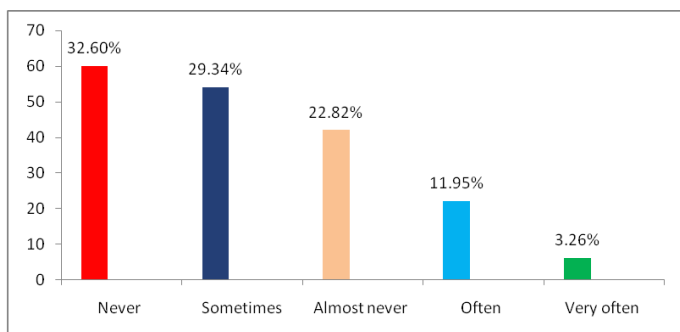


Fig. 5(d): The above figure shows that for feeling anxious after usage of internet, 60(32.30%) participants choose the option never.

Fig. 5(e): A bar diagrams below shows the frequency and percentage distribution on mental health domain. n=184

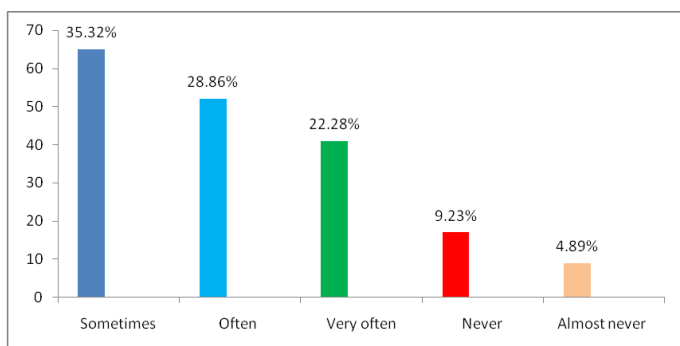


Fig. 5(e): The above figure shows that for overcoming bad moods after usage of internet, 65(35.32%) participants choose the option sometimes.

Fig. 6(a): A Bar diagram below shows the frequency and percentage distribution on social health domain. n=184

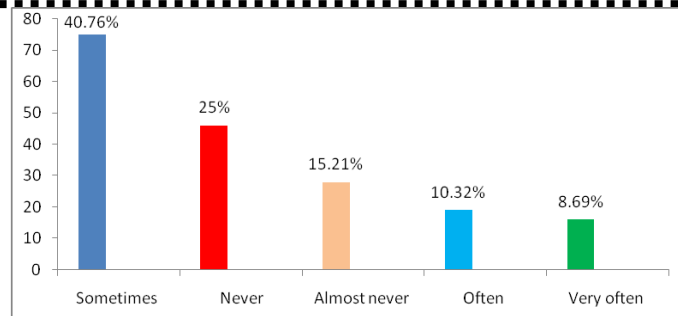


Fig. 6(a): The above figure shows that 75(40.76%) felt annoyed when interrupted while using internet sometimes.

Fig. 6(b): A Bar diagrams below shows the frequency and percentage distribution on social health domain. n=184

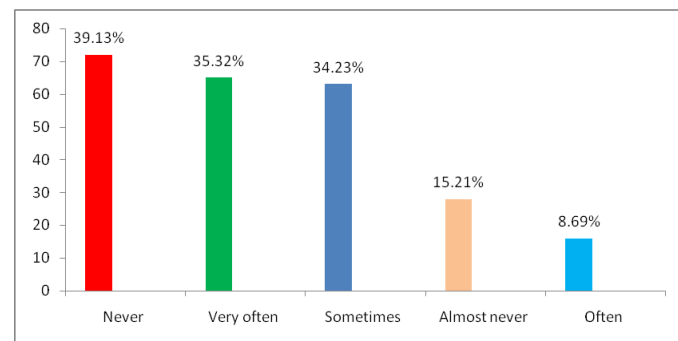


Fig. 6(b): The above figure shows that 72(39.13%) opted never for making less interactions with family members/relatives

Fig. 6(c): A Bar diagrams below shows the frequency and percentage distribution on social health domain. n=184

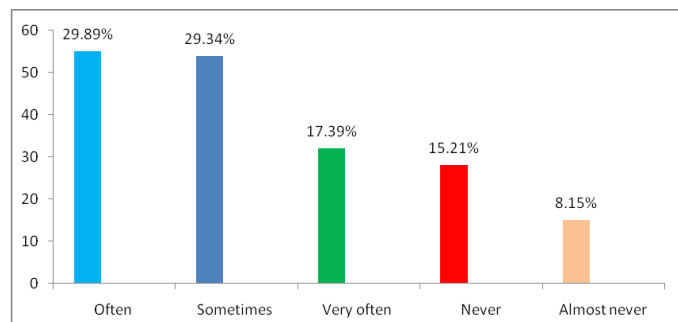


Fig. 6(c): The above figure shows that 55(29.89%) opted often for making new friends online.

Fig. 6(d): A Bar diagrams below shows the frequency and percentage distribution on social health domain. n=184

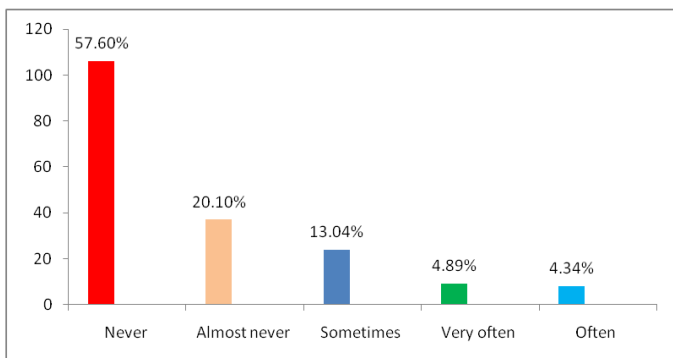


Fig. 6(d): The above figure shows that 106(57.60%) opted never for losing close relationships.

Fig. 6(e): A Bar diagrams below shows the frequency and percentage distribution on social health domain. n=184

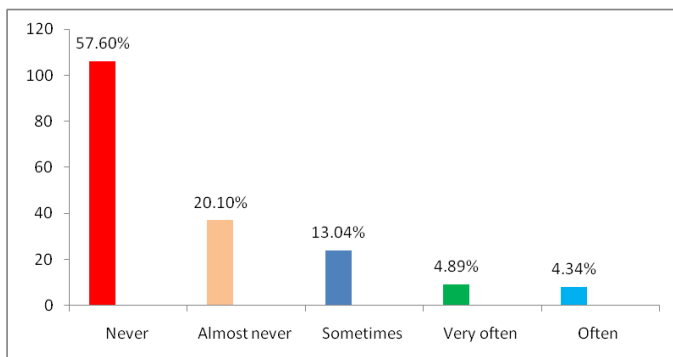


Fig. 6(e): The above figure shows that 94(51.63%) opted never for keeping them using phone instead of going out with others

**Section -IV**

Assessment of impact of internet usage on academic performance

Table 7: Frequency and percentage distribution of influence of internet usage on academic performance. n 184.

Item	F	%
Internet usage for academic purpose		
Yes	184	100

Table 7: This table shows that out of 184 participants 184(100%) use the internet for their academic performances.

Fig. 7: A pie diagram showing internet usage by participants for different educational purposes. n 184.

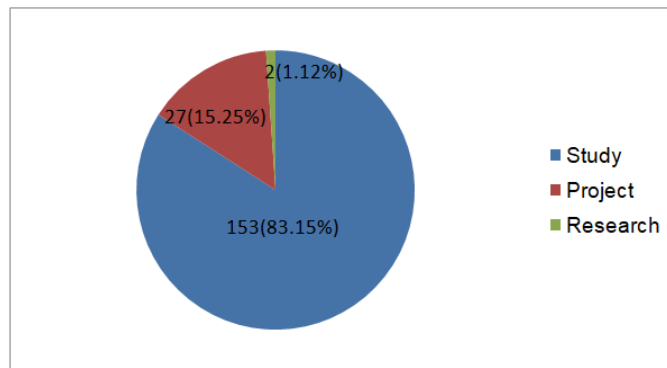


Fig.7: This figure shows that for184 participants, the mostly used educational purpose with the help of internet is for studying purpose which is 153(83.15%).

Table 8: Frequency and percentage distribution of influence of usage of internet on academic performance. n= 184

Variables	f	%
Internet has helped in improving grades		
Yes	162	88.04
No	22	11.96
Internet helped in taking notes		
Yes	177	96.20
No	7	3.80
Internet helped in downloading some references related to studies		
Yes	173	94.10
No	11	5.90
Internet has helped in completing assignments		
Yes	164	89.10
No	20	10.90
Internet has helped in preparing for exams		
Yes	174	94.57
No	10	5.43
Usage of internet has reduced study hours		
Yes	114	61.95
No	70	38.05

Table 8: The above table shows that out of 184 participants, 177(96.19%) indicated agreed that they use internet for academic purpose. 162(88.04%) indicated agreed on improvement of marks after usage of internet.



177(96.20%) indicated agreed on taking notes from internet.

173(94.10%) indicated agreed on taking help from internet to download references.

164(89.10%) indicated agreed on taking help from internet in completing assignments.

174(94.57%) indicated agreed on taking help from internet for preparing for exams.

114(61.95%) indicated agreed that internet usage does not reduce their study hours.

Table 10: Frequency and percentage distribution of influence of usage of internet on academic performance n=184

Items	f	%
Skipped classes to use internet		
No	162	88.05
Yes	22	11.95
Concentration affected during class hours after using internet till early morning		
No	140	76.09
Yes	44	23.91

Table 10: The above table shows that out of 184 participants,

162(88.05%) indicated agreed that they do not skip classes to use internet.

140(76.09%) indicated agreed that internet does not affect their concentration during class hours after using internet till early morning.

**Section -V**

The association between the age of respondents in years and the usage of internet, where the calculated value was found to be 0.119 which is lesser than the tabulated value 5.99 at a degree of freedom of 2 with  $p < 0.05$  level of significance. Hence there is no association between age of respondents and usage of internet.

The association between the gender respondents and usage of internet, where the calculated value was found to be 1.348 , which is lesser than tabulated value 5.99 at a degree of freedom of 2 with  $p < 0.05$  level of significance. Hence there is no association between gender respondents and usage of internet

**Discussion**

In the present study, it was found that among 184 participants, 114(61.95%) opted for mental health as the most affected domain followed by social health 41(22.29%) and 29(15.76%) physical health. Similarly, In a study conducted by Rini Ravendranet.al, in 2021 among 171 participants on internet usage among the medical students in Kerala, India, headache was the most common problem reported 102(44%) followed by sleep disturbance 40(17.6%) back pain14(6.1%) and anxiety, stress visual difficulty 29(15%) students.

**Conclusion**

Our findings were majority of the participants were male and below of 19 years of age. Majority of the participants uses internet often everyday mostly during evening time. YouTube was the most common site of internet usage. Majority of the participants have opted mental health as the most affected domain after usage of internet. Out of 184 participants ,177 participants agreed that they used internet for their academic purposes. There was no association between the usage of internet and age or gender.

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