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Assessment of the Internet Addiction Disorder and its Association with Anxiety and Depression in Young Indian Adults: A Cross Sectional Study

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Abstract

The phenomenon of involuntary engagement with internet devices, accompanied by a sense of emptiness in their absence, characterizes internet addiction disorder. A comprehensive meta-analysis spanning 80 studies worldwide from 1996 to 2012, involving 89,281 participants across 31 countries, revealed a 6% prevalence of this disorder among young individuals globally. A separate study funded by the Indian Council of Medical Research (ICMR) investigated 2,755 participants aged 18-65 in India, finding a prevalence rate of 1.3% for internet addiction. Notably, this disorder has not yet been recognized as Internet Addiction Disorder (IAD) in the Diagnostic and Statistical Manual of Mental Disorders (DSM). Numerous studies have examined the prevalence of internet addiction in the Indian population. This current study aimed to assess the prevalence, impact, and available treatment options for internet addiction among Indian adults. Utilizing a cross-sectional, close-ended online survey questionnaire distributed among the general public and experts, a total of 303 responses were collected. The findings revealed that 33.3% of Indian adults were addicted to the internet, with varying degrees of severity: severely (1.7%), moderately (10.2%), and mildly (20.8%) addicted. Notably, most severely addicted individuals (80%) fell within the 26-35 years age range. Male participants exhibited a higher prevalence of internet addiction compared to females (57.1% vs. 42.9%), with males also displaying a greater propensity for addiction (71.9% vs. 28.1%). Further analysis indicated that 11.2% of addicted individuals experienced symptoms of anxiety and/or depression, with males affected at a rate 50% higher than females.

Keywords: *Anxiety, Compulsive Disorder, Depression, Internet Addiction Disorder (IAD), Mental Health Issues.*

Introduction

With advancement in technology, especially the internet in the last 15-20 years [1] dependency of people on internet even for their daily chores has increased a lot. Slowly the world would be in grip of several online platforms like WhatsApp, Facebook, Orkut (obsoleted) and similar others where people devote approximately 6 hours per day in the US (Pew Research). Internet use can be differentiated as 'healthy' and 'pathological' use [2]. The term 'Internet Addiction Disorder' was first coined by Dr. Ivan Goldberg (1995), satirically which later was researched upon by Dr. Kimberly Young (1996) followed by a research article on pathological use of the internet leading to 'internet addiction' in 1998. Across the USA and EU region, prevalence rates of this addiction varied between 1.5-8.2% [3], few other reports following IAT suggested this range from 6-18.5% [4]. The addiction defining criteria majorly depends upon the time invested on the internet [5, 6] while other indistinctive criteria defined are individual/behavioral problems [7].

The prevalence rates in adolescent populations varies between 0.8% -26.7% [6, 8-

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11]. Similar variation was observed in adult samples where prevalence rates ranged from 1.2% -22.8% [11-17] from studies done is several countries outside India. The difference could be seen in the genders where males were comparatively addicted and more prone to the internet addiction than females [18-20]. The meta-analysis of empirical reports from studies done on 89,281 samples from 1996-2012 showed 6% of internet addiction globally [95% CI; 5.1-6.9] [21].

In Indian context, studies have shown the prevalence of internet addiction to be 1.3% in the general population [22] though the number of studies done have been quite less compared to other western and eastern countries and adolescent population has always been the focus.

Reasons for dissimilarity between the prevalence rates could be attributed more to different assessment tools than the age group but also the variety of the population studied (internet users than the general population). The major associated outcomes highlighted in almost all addicted individuals have been anxiety, depression, and sleep problems [23-25]. These symptoms were sometimes accompanied by other dependent or comorbid conditions like muscle pain, obesity, cardiovascular problems etc. [26-30].

Other limitations to identify the prevalence of internet addiction in Indian population would be to cover the wide range of population across all regions including the rural part and illiterate population.

A few new scoring tools have also been prepared and are being used across the globe apart from IAT. Chen Internet Addiction Scale (CIAS), original and revised (CIAS-R) has been the second most preferred tool [31]. Similar assessment tools for Indian population knowing the social strata would have been the better approach to avoid manipulation of the responses.

As this problem has been realized and supported by recognition and inclusion of internet gaming disorder in the DSM V, several therapy areas have also been devised and executed to satisfaction in most of the cases. Several studies have suggested using different therapies for certain groups of affected individuals. Serotonin-reuptake inhibitors (SSRIs) have been one of the leading treatment methods to help circumvent the anxiety and depression caused due to internet addiction [32, 33], physical exercise & sport therapy has also gained some significance lately either individually [34] or in combination [35]. But the most preferred treatment by clinicians is psychotherapy including Motivational Interviewing, Multilevel counselling, community engagement therapy etc. [36-40].

Methods

Survey research has always been a preferred method to gather information not available from other sources [41- 43]. Two kinds of questionnaires were used for this survey. The first set of survey consists of internationally validated questionnaires, Internet Addiction Test (Young, 1999) to assess the prevalence of addiction to the internet in the population and the second was the brief Patient Health Questionnaire-4 (PHQ-4) to assess the anxiety and depression in the addiction population. Though the study was an anonymous survey but to ensure the ethics and integrity of the research, ethical committee approval was also sought. The concept was translated into the protocol after discussion with a psychiatrist, multiple researchers, friends, and my research guide.

This was a cross sectional, close ended, self-administered questionnaires, sent to the public (Indian ≥18years) to gather data on their experience with the internet and associated mental issues. The data collection was done using Google Forms. The link to the questionnaire was shared with the general public using various platforms like LinkedIn, WhatsApp, Emails, Words of Mouth though

friends and family. All participants were given an option to consent voluntarily to complete the questionnaires and data was gathered anonymously. The data collected from general public was analyzed to establish the prevalence of the internet addiction in Indian adult and its relationship with mental health issues i.e., anxiety and/or depression.

Summary of the Study Design

Data was gathered from interested 303 India participants (≥18 years) who voluntary consented to provide requested information regarding their involvement with the internet and experiences, if any, regarding the influence of this on their mental, physical, and emotional health.

Inclusion criteria for participants were,

1. They must be >= 18 years in age. There wasn't any upper cap on the age group as the intention was to cover the adult population across all age groups.
2. They should be literate and can use internet and related devices.
3. They can be from all genders. Participants can choose not to declare their age too.
4. They should be able to read and understand the voluntary consent form.
5. They should have either a smart phone or computer to complete the form online.

Exclusion Criteria

1. Illiterate participants
2. Age < 18 years
3. Participants with no internet access
4. Participants who don't want to consent for this study.

Recruitment Methods

1. Word of mouth/ verbal advertising.
2. Networking (friends, family, relatives, colleagues).
3. Mail pals (phone and mail contacts).
4. Social Network (WhatsApp, messaging, LinkedIn).

Study Duration

The survey started in early November 2022 and lasted until June 2023.

Ethical Consideration

Though ethical approval was not required due to non-interventional nature of the study; however, EC approval was sought to assure the volunteers that their information shall not be divulged and shared with anyone and used only for the data analysis of this study.

Sample Size

The sample size was calculated based on the 95% confidence interval (CI) and 5% margin of error and the result obtained was 271 adult volunteers from different states of India who were shared with the survey questionnaire in the form of Google Forms, link provided. By June 2023, 303 responses were obtained. These questionnaires are globally validated and available in public domain and no permission is required to reproduce, translate, display, or distribute for academic purposes.

Formula used: $\frac{\frac{z^2 \times p(1-p)}{e^2}}{1+\left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$.

Where, N = population size; e = Margin of error (percentage in decimal form); z = z-score. The z-score is the number of standard deviations a given proportion is away from the mean. The right z-score considering 95% CI would be 1.96.

Study Design

The questionnaire was started with the Introduction of the study and voluntary consent of the participants followed by 20 questions from the Internet Addiction Test (IAT) tool [Table 1] and 4 questions from the brief Patients Health Questionnaire (PHQ-4) [Table 2].

The Internet Addiction Tool (IAT) [44]s had 20 items or statements based on 5-point Likert scale with score ranging from 0 to 100

where, a score 80 and above qualified the person as severely addicted while a score between 50-79 indicated problematic use of internet i.e., moderately addicted, and any score less than or equal to 49 confirmed the controlled use of the internet. The users were asked to respond to these questions by selecting the most appropriate option from the drop-down. The options were Not Applicable (0), Occasionally (2), Rarely (1), Frequently (3), Often (4) and Always (5).

Table 1. Internet Addiction Tool Questionnaire

S.No.	Questions	S.No.	Questions
1	How often do you find that you stay online longer than you intended?	11	How often do you find yourself anticipating when you will go online again?
2	How often do you neglect household chores to spend more time online?	12	How often do you fear that life without the Internet would be boring, empty, and joyless?
3	How often do you prefer the excitement of the Internet to intimacy with your partner?	13	How often do you snap, yell, or act annoyed if someone bothers you while you are online?
4	How often do you form new relationships with fellow online users?	14	How often do you lose sleep due to being online?
5	How often do others in your life complain to you about the amount of time you spend online?	15	How often do you feel preoccupied with the Internet when off-line, or fantasize about being online?
6	How often do your grades or schoolwork suffer because of the amount of time you spend online?	16	How often do you find yourself saying "just a few more minutes" when online?
7	How often do you check your email before something else that you need to do?	17	How often do you try to cut down the amount of time you spend online and fail?
8	How often does your job performance or productivity suffer because of the Internet?	18	How often do you try to hide how long you've been online?

9	How often do you become defensive or secretive when anyone asks you what you do online?	19	How often do you choose to spend more time online over going out with others?
10	How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	20	How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back online?

The brief Patients Health Questionnaire-4 (PHQ-4) developed and validated by Kroenke, Spitzer, Williams, & Löwe in 2009 [45] where response to first two questions help assess anxiety (GAD-2) and the other two the depression (PHQ-2) levels in an individual. This is based on the 4-point Likert type scale where scores are rated as normal (0-2), mild (3-5), moderate (6-8) and severe (9-12). Total score of ≥3 for the first 2 questions suggests anxiety while a score of ≥3 for the last two questions suggests depression. Total score is determined by adding together the scores of each of the 4 items. The total PHQ–4 score complements the subscale scores as an overall measure of symptom burden, as well as functional impairment and disability. Its first two items are from the 'Generalized Anxiety Disorder–7 scale' (GAD–7) for anxiety level while the last two items are drawn from the 'Patient Health Questionnaire-9' (PHQ-9) to assess the depression level of an individual. This ultra-brief version serves as a good measure of assessment of underlying anxiety and depressive disorder.

Table 2. Brief Patient Health Questionnaire-4

Over the last two weeks, how often have you been bothered by the following problems?	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
Feeling nervous, anxious or on edge	0	1	2	3
Not being able to stop or control worrying	0	1	2	3
Feeling down, depressed, or hopeless	0	1	2	3
Little interest or pleasure in doing things	0	1	2	3
Total	**0**	**4**	**8**	**12**

Data Collection and Analyses

Questionnaire responses were collected via online mode using Google Forms. Data was entered in Microsoft Excel 365 and analyses were done using various excel formulae and presented in the form of tables, graphs, and figures. The data thus obtained was reviewed and moderated a bit to ensure they are placed in the right place and easy for further calculation. With excel it was easy to segregate, describe in length and create multiple small pivot tables/tables or charts to support the content/outcome. Means, percentage and derivative information/data was easily derived using excel. The data was reviewed and explained for every collected information i.e., for every questionnaire, IAT and PHQ-4 separately while establishing the relationships between them.

Results

Demographics

Out of total 303 responses [Figure 1] received, 181 (59.7%) were male, 120 (39.6%) were females and rest 2 (0.7%) didn't reveal their gender.

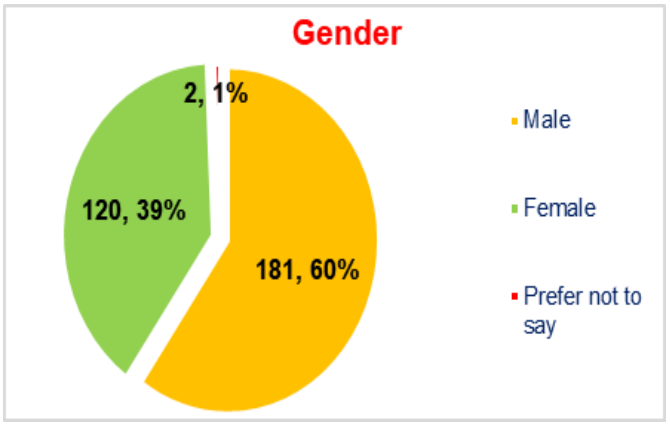

Figure 1. Gender Distribution

These participants were further distributed in various age groups [Figure 2] for easy distinguishment of age groups addicted or more prone to internet addiction. A total of 135 participants were from 18-25 years, 92 belonged to the 26-35 years' age group while 69 were from the age group 36-45 years. 6 and 1 participants were from age groups 46-60 and >60 years, respectively. 2 people who didn't reveal their gender, each belonged to the 26-35 year and 36-45 year' age group.

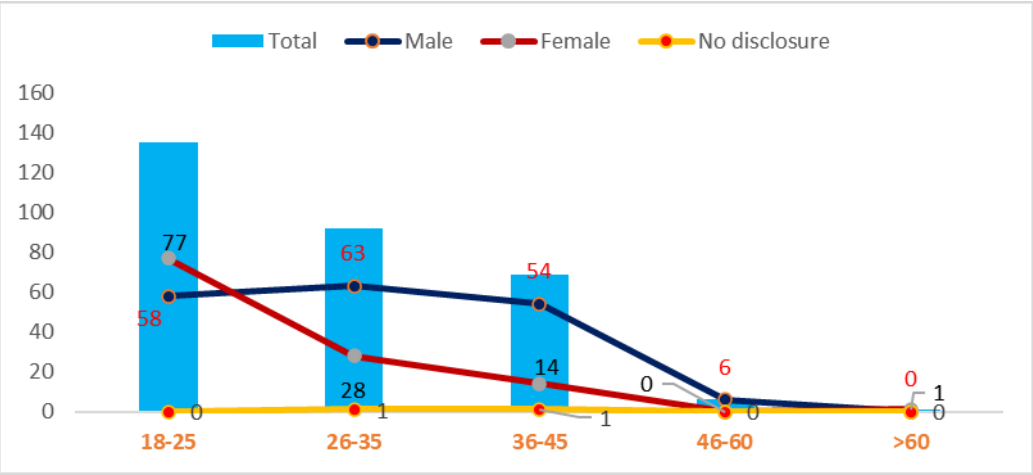

Figure 2. Age Group with Gender Distribution

Since this thesis is all about internet addiction, internet use-age, meaning for how long people are using the internet would be of significance. The average age [Table 3] of using the using the internet was 18 years while the average duration of use of the internet was 10 years. Since the maximum duration of the internet use was 20 years hence, it was distributed in four duration categories with an interval of 5 years i.e., 0-5, 5-10, 10-15 and 16-20 years which was further assessed per the age range as below:

Table 3. Comparison between Age Group and Internet Use-Age

Internet Use-Age			**18-25 years**		**26-35 years**		**36-45 years**		**46-60 years**		**>60 years**	
Year Range	**Total**	**Total %**	**Total**	**Total %**	**Total**	**Total %**	**Total**	**Total %**	**Total**	**Total %**	**Total**	**Total %**
0 - 5	37	12.2%	**32**	**86.5%**	3	8.1%	2	5.4%	0	0.0 %	0	0.0%
6 – 10	**142**	**46.9 %**	**83**	**58.5%**	35	24.6%	21	14.8%	2	1.4 %	1	0.7%
11 - 15	107	35.3%	20	18.7%	**45**	**42.1%**	**39**	**36.4%**	3	2.8 %	0	0.0%
16 - 20	17	5.6%	0	0.0%	9	52.9%	**7**	**41.2%**	1	5.9 %	0	0.0%

With increased age the use of internet decreased and most of the participants were found using the internet between 6-15 years and most of them belonged to 18-25 years and 26-35 years followed by some percentage from 36-45 years. 72.3% of the participants used the internet for both study and work with 11.9% and 15.8% used it for work and study, respectively [Figure 3].

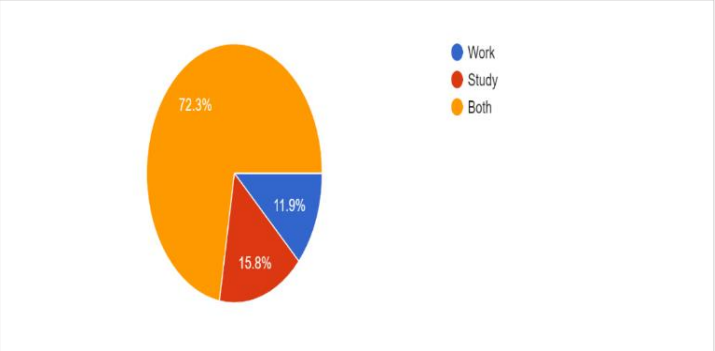

Figure 3. Internet Usage Distribution

The major share of profession was distributed between Student/working students (50.2%) and Private/Corporate employees (40.6%) [Figure 4].

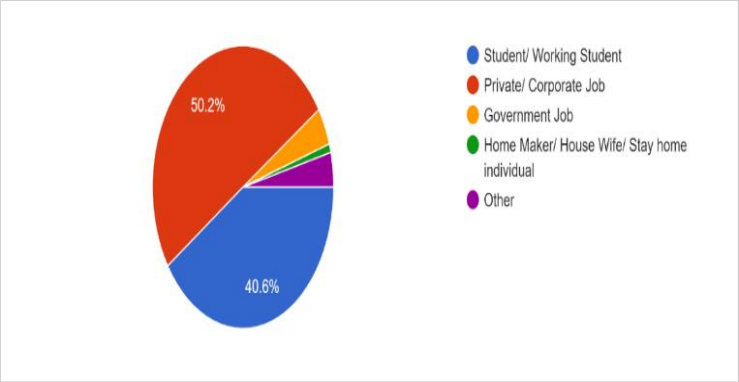

Figure 4. Profession-Wise Distribution

Other demographic parameters assessed were marital status [Figure 5], concomitant consumption history [Figure 6] and any existing health issues which can skew the results.

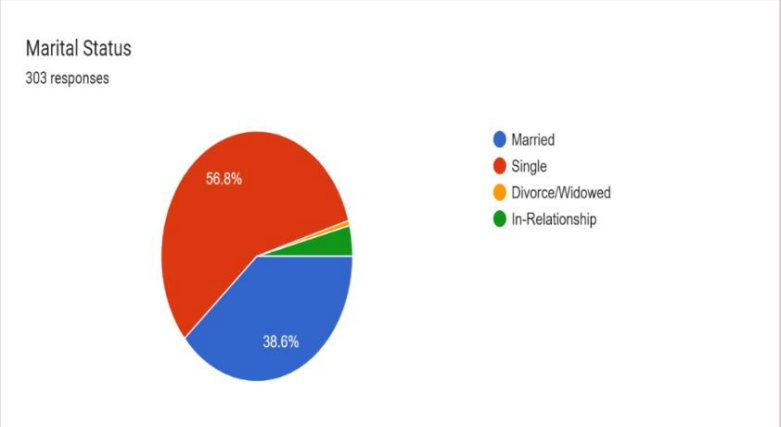

Figure 5. Marital Status Distribution

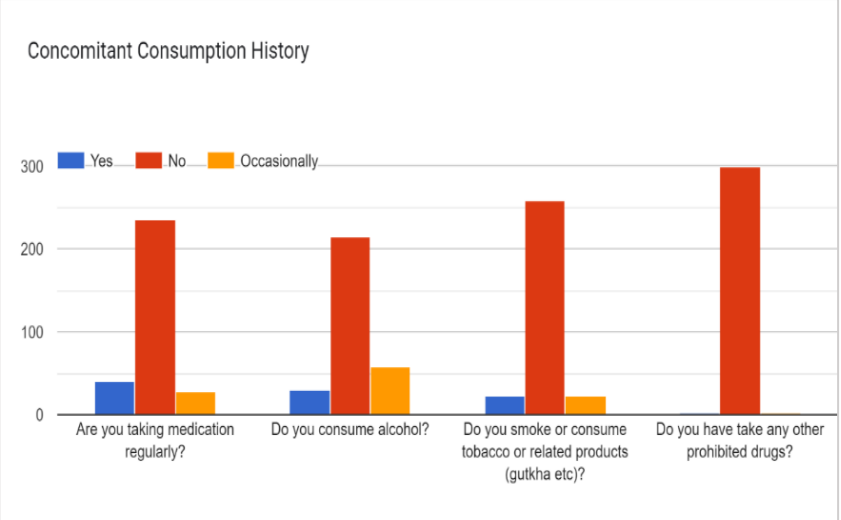

Figure 6. Concomitant Consumption Distribution

Four (4, 1.3%) individuals confirmed psychiatric/Mental issues [**Figure 7**] which were not included in the final analysis of the data. Rest health issues didn't seem to interfere with internet addiction or other way round.

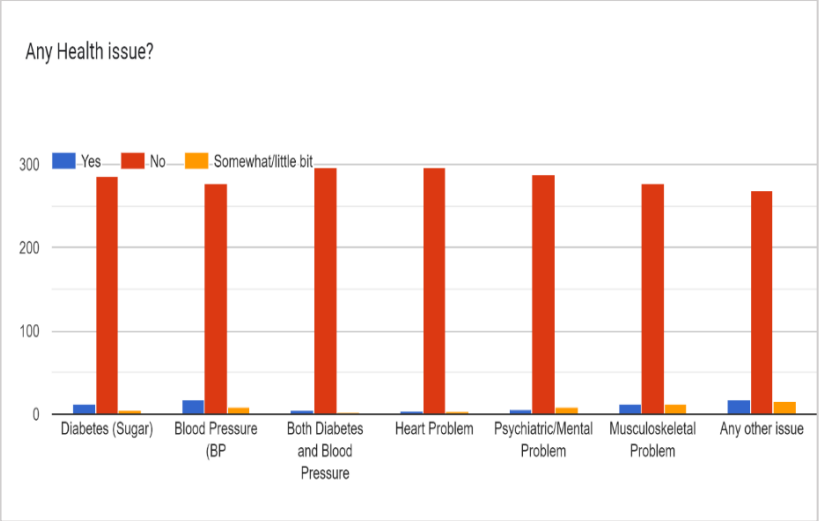

Figure 7. Medical History-Wise Distribution

Prevalence of the Internet Addiction using Internet Addiction Test (IAT)

Out of 303 participants, 103 (34%) were found addicted to the internet. Only three age groups, 18-25, 26-35 and 36-45 years showed some level of addiction. Addiction level was highest in 18-25 years (13.5%) followed by 26-35 years (12.2%) and lastly 36-45 years (8.3%). These age groups were further sub-divided into genders and addiction levels to understand it better. Following table [**Table 4**] provides an overall interpretation of the addiction where internet addiction was found higher in males (67, 65%) than females (35, 34%) which has been observed by several researchers worldwide and details and references have already been provided in the above sections. One person (1%) out of two who didn't reveal their gender was found addicted.

Internet addiction was found higher in males, and they were found more prone to the addiction than females. One exception, though, was observed in the youngest age group where females were higher in number by 1. The percentage* under the age-group in the below table was calculated using 103 as the denominator hence could be different from as stated above.

Table 4. Internet Addiction Status - Overall

IAD-Overall										
Overall			**18-25**			**26-35**			**36-45**		
TOTAL Addicted	103	34.0%	TOTAL Addicted	41	*39.8%	TOTAL Addicted	37	*35.9%	TOTAL Addicted	25	*24.3%
Male	67	65.0%	Male	20	48.8%	Male	29	78.4%	Male	18	72.0%
Female	35	34.0%	Female	21	51.2%	Female	8	21.6%	Female	6	24.0%

Gender Unknown	1	1.0 %	Gender Unknown	0	0.0%	Gender Unknown	0	0.0 %	Gender Unknown	1	4.0%

212 (69.97%) confirmed spending more time (Q1 above) over the internet than required. Approximately 151 (49.53%) study participants would like to review their emails before any other thing. 44% -45% participants presented the symptoms of overuse of the internet for example, intentionally overseeing their work, neglecting, or ignoring their household chores over internet, and feeling lonely, joyless, and bored. No participants over 60 years were found addicted, hence removed from the analysis.

These 103 (34%) addicted participants were further broken down to understand the severity level of internet addiction into Mild (64, 21.1%) [Table 7, Figure 10], Moderate (32, 10.6%) [Table 6, Figure 9] and Severe (7, 2.3%) [Table 5, Figure 8].

Table 5. Internet Addiction Status – SEVERE

IAD-Severe										
Overall (of 103)			**18-25**			**26-35**			**36-45**		
TOTAL Addicted	7	6.8%	TOTAL Addicted	1	14.3 %	TOTAL Addicted	5	71.4%	TOTAL Addicted	1	14.3 %
Male	4	57.1%	Male	0	0.0%	Male	3	60.0%	Male	1	100.0 %
Female	3	42.9%	Female	1	100. 0%	Female	2	40.0%	Female	0	0.0%
Gender Unknown	0	0.0%	Gender Unknown	0	0.0%	Gender Unknown	0	0.0%	Gender Unknown	0	0.0%

Table 6. Internet Addiction Status - MODERATE

IAD-Moderate										
Overall (of 103)			**18-25**			**26-35**			**36-45**		
TOTAL Addicted	32	31.1%	TOTAL Addicted	16	50.0%	TOTAL Addicted	9	28.1%	TOTAL Addicted	7	21.9%
Male	23	71.9%	Male	9	56.3%	Male	8	88.9%	Male	6	85.7%
Female	9	28.1%	Female	7	43.8%	Female	1	11.1%	Female	1	14.3%
Gender Unknown	0	0.0%	Gender Unknown	0	0.0%	Gender Unknown	0	0.0%	Gender Unknown	0	0.0%

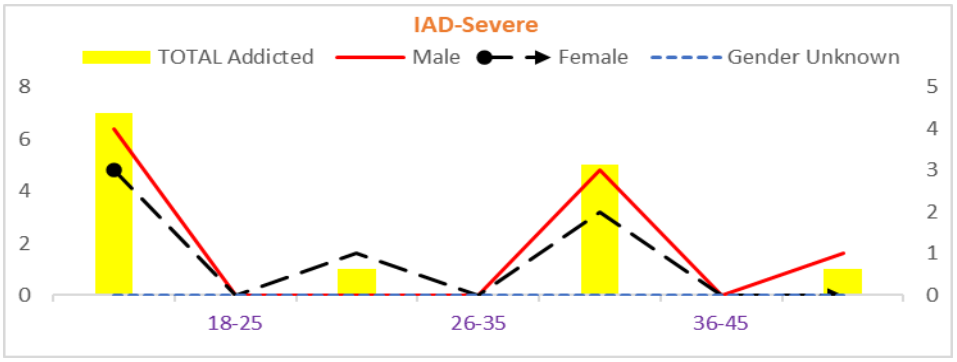

Figure 8. Internet Addiction Status - SEVERE

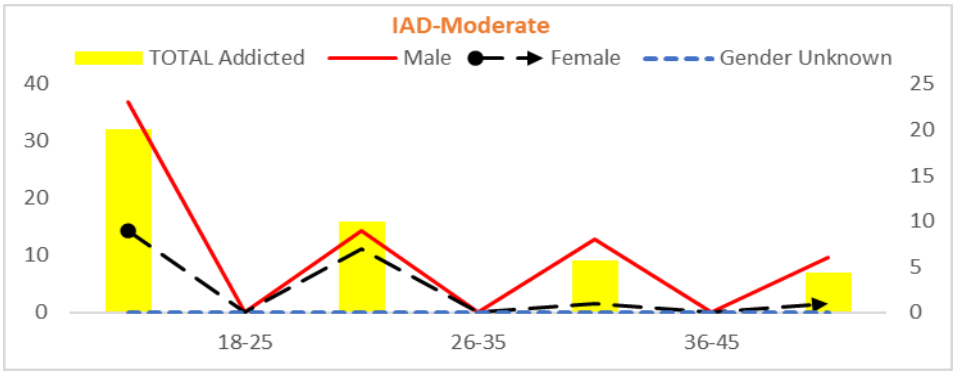

Figure 9. Internet Addiction Status - MODERATE

Table 7. Internet Addiction Status - MILD

IAD-Mild											
Overall (of 103)			**18-25**			**26-35**			**36-45**		
TOTAL Addicted	64	62.1%	TOTAL Addicted	24	37.5%	TOTAL Addicted	23	35.9%	TOTAL Addicted	17	26.6%
Male	40	62.5%	Male	11	45.8%	Male	18	78.3%	Male	11	64.7%
Female	23	35.9%	Female	13	54.2%	Female	5	21.7%	Female	5	29.4%
Gender Unknown	1	1.6%	Gender Unknown	0	0.0%	Gender Unknown	0	0.0%	Gender Unknown	1	5.9%

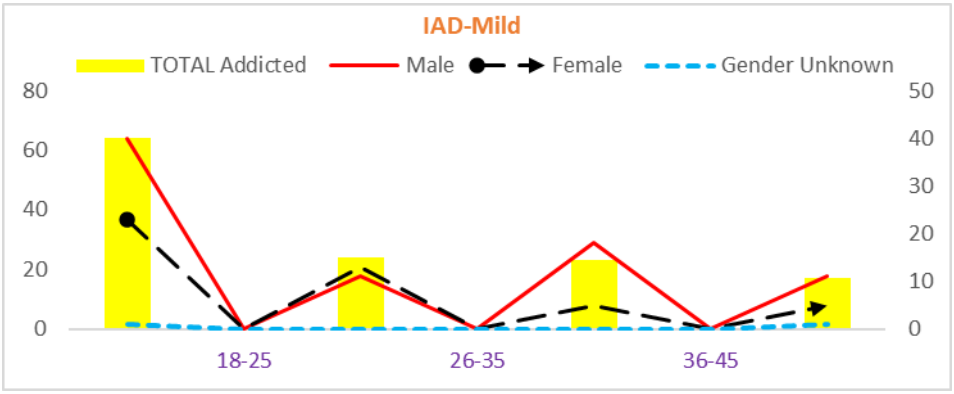

Figure 10. Internet Addiction Status - MILD

All 7 severely addicted individuals were suffering from mental (anxiety and/or depression) problems. People in the age group 26-35 years were mostly severely addicted to the internet (5, 71.4%) followed by 1 in each of 18-25 years and 36-45 years age groups. All these participants showed a tendency to stay online for extended hours than expected. 28 (87.5%) of these moderately addicted participants found overusing the internet outside their normal hours. Again, participants in the age group 18-25 years were higher in number than in the other two groups. None from over 45 years were found moderately addicted, hence, not considered for further analysis. 35 (89.7%) of these severely and moderately addicted individuals were using internet either for work or study or both so there could be chance that the extension of hours be due to the necessity hence, this could be a confounding factor; however, for analyses perspective and by some means these people are either completely addicted or prone to addiction and may require an expert intervention. The metrics support the correlation between internet addiction and overuse of the internet. The rest of the 62.1% of the addicted population (21.1% of total 303) was recorded as mildly addicted. Of these 64 mildly addicted individuals, 24 (37.2%) used internet overtime and these presented symptoms of sleep issues too.

Mental problems using brief Patient Health Questionnaire (PHQ-4)

Out of 303, 131 (43.2%) participants scored to qualify for PHQ-4 i.e., presented symptoms of some kind of anxiety and depression where, total number of males (70, 23.1%) were higher than females (61, 20.1%). Of 131 [Figure 11], 81 (26.73%) had Mild PHQ-4 (≥3-<6 score), 34 (11.22%) presented Moderate symptoms with a score between 6 and 8 (both inclusive) while 16 (5.28%) had PHQ-4 score between 9 and 12 (both inclusive) and termed as severely affected. Interestingly, females (10, 62.50%) were higher than males (6, 37.50%) under 'severe' category while in 'moderate' category the male-female ratio was 0.78 i.e., 15 (44.12%) were males and 19 (55.88%) were females. It was observed that the individuals in the age group of 18-25 (66, 21.8%) presented mental problems comparatively more than other two groups, 26-35 (46, 15.2%) and 36-45 (19, 6.3%) years. No participants in age >45 years presented any such symptoms hence, not being assessed [Table 8].

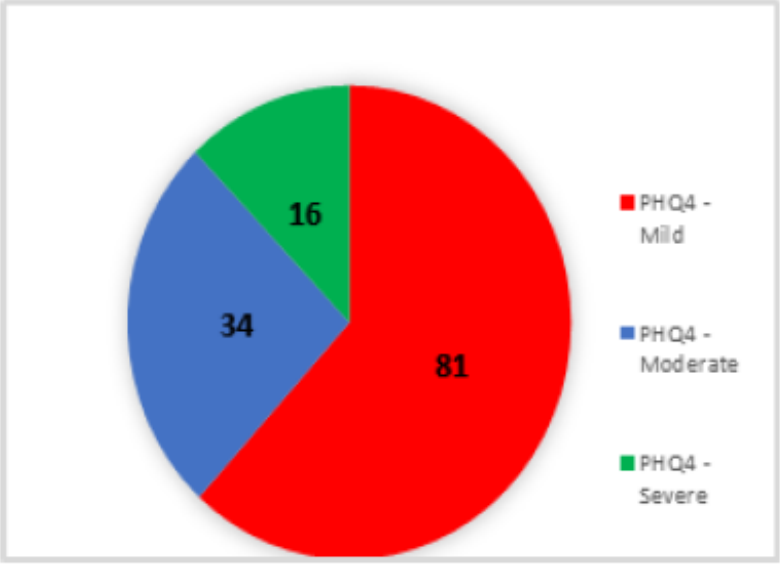

Figure 11. PHQ-4 Distribution

Table 8. PHQ-4 - Age & Gender Wise Distribution

Age Group	**18-25**						**26-35**						**36-45**					
Parameter	**Total**		**MALE**		**FEMALE**		**Total**		**Male**		**Female**		**Total**		**Male**		**Female**	
PHQ4 - Mild	13.53%	41	18	43.90%	23	56.10%	9.90%	30	23	76.67%	7	23.33%	3.30%	10	8	80.00%	2	20.00%
PHQ4 - Moderate	5.61%	17	6	35.29%	11	64.71%	3.30%	10	5	50.00%	5	50.00%	2.31%	7	4	57.14%	3	42.86%
PHQ4 - Severe	2.64%	8	1	12.50%	7	87.50%	1.98%	6	3	50.00%	3	50.00%	0.66%	2	2	100.00%	0	0.00%

Out of 131, 74 (56.5%) confirmed having either anxiety (13, 4.29%) or depression (20, 6.60%) or both (41, 13.53%). Overall, more females were found suffering with anxiety (M: F=6:7) and both (M: F=17:24) whereas depression was found more in males (13, 65%) than females (7, 35%). The most suffering group here [Table 9] too was 18-25 years (34, 51.5%) where, females dominated the males in total in the ratio of 12:22 (48% vs 53.7%). Again, number of males was higher than females in participants in the age group of 26-35 (M: F=15:12) and 36-45 (M: F=9:4) years as was in IAT and PHQ-4 analyses. Again, since no observation pertinent to anxiety and depression was observed in people >45 years hence, they are not the part of the analysis.

Table 9. Anxiety and Depression Distribution - Age & Gender Wise

	18-25						**26-35**						**36-45**					
Parameter	**Total**		**MALE**		**FEMALE**		**Total**		**Male**		**Female**		**Total**		**Male**		**Female**	
Anxiety	1.65%	5	1	20.00%	4	80.00%	1.98%	6	3	50.00%	3	50.00%	0.66%	2	2	100.00%	0	0.00%
Depression	2.31%	7	6	85.71%	1	14.29%	3.30%	10	6	60.00%	4	40.00%	0.99%	3	1	33.33%	2	66.67%
Both A and D	7.26%	22	5	22.73%	17	77.27%	3.63%	11	6	54.55%	5	45.45%	2.64%	8	6	75.00%	2	25.00%

Below table [Table 10] illustrates the relationship between the b-PHQ-4 and Anxiety and Depression.

Table 10. Correlation Between PHQ-4 and Anxiety & Depression

	Anxiety		**Both**		**Depression**		**Grand Total**
PHQ 4 Outcome	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	
Mild	5	5			4	10	24

	(20.8%)	(20.8%)			(16.7%)	(41.7%)	
Moderate	2 (5.9%)	1 (2.9%)	14 (41.2%)	11 (32.4%)	3 (8.8%)	3 (8.8%)	34
Severe			**10 (62.5%)**	**6 (37.5%)**			**16**
Grand Total	**7**	**6**	**24**	**17**	**7**	**13**	**74**

Relationship between Internet Addiction and Mental Problems

The following table [Table 11] illustrates unequivocally the relationship between internet addiction and mental problems. This is to note that the participants with medical history of mental problems were excluded from this analysis.

Table 11. Relationship between Internet Addiction and Anxiety/Depression

	Anxiety (A)		**Both (A & D)**			**Depression (D)**	**Grand Total**
IAT Outcome	**Female**	**Male**	**Prefer not to say**	**Female**	**Male**	**Male**	
Mild	1 (6.3%)	2 (12.5%)	1 (6.3%)	4 (25%)	3 (18.8%)	5 (31.3%)	16
Moderate	1 (7.1%)	2 (14.3%)		2 (14.3%)	6 (42.9%)	3 (21.4%)	14
Severe				3 (75%)	1 (25%)		4
Grand Total	**2**	**4**	**1**	**9**	**10**	**8**	**34**

57.14% of the seven severely addicted individuals had both anxiety and depression. In the age group of 18-25 years, only female participants had both anxiety and depression, and were severely addicted to the internet too. Overall, number of males were higher in all addicted and affected age groups i.e., 18-25, 26-35 and 36-45 years. The following table [Table 12] where, A=Anxiety and D=Depression, is a group of small tables illustrating the age and gender wise distribution of the population.

Table 12. Relationship b/w Internet Addiction and Anxiety and disorder-Age wise Distribution

18-25 Years							**26-35 Years**								**36-45 Years**				
Gender	**Female**	**Male**			**Total**		**Female**			**Male**			**Total**		**Female**		**Male**		**Total**
IAT Outcome	**Both**	**A**	**Both**	**D**			**A**	**Both**	**D**	**A**	**Both**	**D**			**Both**	**D**	**A**	**Both**	

Mild	4		1	2	7		1		1	2		1	5		2	1	1		4
Moderate	1	1	3	1	6		1	1			1	2	5				1	2	3
Severe	2				2			1			1		2						
Grand Total	**7**	**1**	**4**	**3**	**15**		**2**	**2**	**1**	**2**	**2**	**3**	**12**		**2**	**1**	**2**	**2**	**7**

Discussion

Overall, 32.7% of Indian adults were found to be internet addicted. The average number of years these individuals were using the internet was 15.5 years. More people addicted to the internet belonged to the age group of 26-35 (43, 14.2%) followed by 18-25 years where 31 (10.2%) participants were found addicted. However, 71.4% of severely addicted participants belonged to the 26-35 years age group. Males were highly addicted (57.1% vs 42.9%) and were highly prone (71.9% vs 28.1%) to the internet addiction too, compared to female participants. Per literature review, the range of internet addiction in Indian adult population was 1.3% [22] while globally it was 6% [21]. Result from this data is also around the stated Indian percentage i.e., 1.7% severely addicted individual though the above figures don't state the severity mapping of the internet addiction. Other studies done in few sates in India did provide some high-level range of mild and moderately (internet) addicted population i.e., mildly addicted population ranged from 24% to 35% while approximately 7-24% of the Indian population were found moderately addicted to the internet [23, 24, 46]. The data gathered for this thesis also supports this range where 20.8% of the participants were mildly addicted to the internet whereas 10.2% were confirmed addicted to the internet moderately.

Of 103 internet addicted individuals, 38 (36.8% and 12.5% of 303) confirmed affected with anxiety and/or depression. Removing the 4 with medical history of mental problems, 34 (11.2%) individuals are both addicted to the internet and presented the symptoms of anxiety and/or depression as well. 64.7% of these were males (22), 50% more than the females (11). One individual didn't reveal the gender. This being a very small number, not included in the calculation, did not affect the outcome. 75% of total severely addicted participants were females (3) and they had both anxiety and depression. Two of these girls belonged to the age group of 26-35 years while one to 18-25 years. Similarly, 1 male with severe internet addiction had both anxiety and depression and was of 28 years. So, in 'severely' addicted category, 26-35 years and females were dominant. While in both moderately and mildly addicted categories, males (78.6% in moderate and 62.5% in mild) were higher in number than females and with people in the age group of 18-25 (6/14 in moderate and 8/16 in mild) years dominating over other groups. Surprisingly, the 36-45 years age group had the second largest number of participants (6) in the mildly addicted category.

It was established that the mental problem is directly proportional to the internet addiction i.e., 80% of the severely addicted individuals had anxiety and/or depression followed by 45.2% of moderately addicted participants presented symptoms of mental problems. This proves the prevalence of anxiety and/or depression in people with internet addiction [28, 29, 32, 47, 48]. Males have been highly prone to both addiction and mental problems.

Almost all these participants were devoid of any other illness or addicted to any prohibited drugs or narcotics. 17% were students (all single) while others were either working or both working and studying. 42.8% of non-

student participants were married and were in private jobs which could be a confounding factor as these people may use the internet for more duration than expected because of work too. Overall, these factors don't seem to affect or contribute to internet addiction and/or mental problems, however, this can't be totally ruled out.

Next Steps

Large scale epidemiological research is needed with robust criteria to rule out confounding factors. This should include people from all ages, background, economic and social strata. The data gathering via interviews, face to face interactions and where necessary remotely should be done. The collected must be reviewed and cleaned to make it close to perfect before final analyses and conclusion. There's a need to have studies conducted at smaller levels like schools, regions, talukas, or states at a regular interval like every two or three years and this data should be shared with an autonomous facility to perform statistical analysis and share the outcome followed by required measures to curb or alleviate the consequences of internet addiction.

The research should be focussed on all possible pathological manifestations caused by internet addiction. Clinicians, psychologists, psychiatrists, or mental counsellors should be encouraged to participate in large number. Data collection from such experts is significant as this could pave the way for next course of treatment/therapy varying based on multiple categories.

Conclusion

Internet Addiction is REAL, and its prevalence has been proved by the metrics provided. Adult males are highly prone to this addiction and associated mental problems. The data suggests that the young and middle-aged Indian adults are at higher risk to the internet addiction and anxiety and/or depression. More (non-productive or not required) time devoted to the internet is directly proportional to the internet addiction which in turn commensurate with the Anxiety and Depression. Such signs and symptoms should be diagnosed early and appropriate advice from mental experts is encouraged. Knowing internet addiction is a silent but psychopathological; seminars, public discussions, educational forums should be established to help the younger generation and younger practitioners too to help the society.

Conflict of Interest

There is not conflict of interest.

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