THE DARK SIDE OF OVERUSE OF INTERNET: A STUDY OF INDIAN COLLEGE STUDENTS

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ABSTRACT

INTRODUCTION

The extensive use of the internet and its effect on our lives can no longer be overlooked. While the internet is a result of the rapid advancement of science and technology, its impact on students depends on how they use it. The present study identifies Internet usage patterns, nature of use, and Internet Addiction (IA) among India's undergraduate and postgraduate students and its consequences on their lives.

METHODS

This empirical examination uses the Multistage Sampling Method (MSM) and cross-sectional method. The structured questionnaire distributed (N=1,200) to ungraduated college students. We included at least ten institutes of every state in India and thirty participants from each institution in this study.

RESULTS

The study revealed that overuse of the internet is statistically significant with internet addiction concerning gender but not with age and education. Overuse of the internet strongly impacts IA. The study further investigates the relationship with the consequences of overuse of the internet with age, gender and education and found that genders significantly differ with the physical and psychological problem but not with a behavioural and relationship problem; level of education has a significant difference with physical and behavioural problem but not with relationship and psychological problems.

CONCLUSION

Our investigation helps college, university or educational policymakers to frame good mental health policies or create programmes to reduce or constrain the adverse effect of overuse of the internet. The results show a compelling need to reduce the overuse of the internet (OI) by promoting psychological competence.

KEYWORDS

Internet Addiction, Overuse of Internet, Gender, Consequences, India, College and Students.

INTRODUCTION

As technological devices become prolific in our lives, they are increasingly embedded and concealed in ourselves as we gradually integrate with them. Extensive merging of humanity and technology is inevitable and such amalgamation is bound to have implications in all aspects of our lives. Technology has tremendously changed lifestyle within a short period, given that instant access to information was unimaginable just a few decades ago.

The proliferation of technology in our personal and professional lives has also changed how we interact with it to the extent of becoming dependent on it. There are ongoing debates and discussions on classifying behaviour characterized by excessive non-work-related technology, especially those related to the internet. Such excessive use has been recognized as an addiction. Overindulgence in Internet-based activities, i.e., gaming, blogging, surfing, chat rooms, shopping and pornography, is now considered an addiction disorder. The disorder has various names, including Problematic Internet Use, Internet Addiction Disorder (IA), Compulsive Internet Use and Impulse Control Disorder. These disorders are akin to conventional addictions such as pathological gambling, which may not necessarily involve narcotic usage. The stark rise in the figure of nternet users in India from 394 million in 2000 to 6 billion in the 4th quarter of 2020 – the second largest in the world, indicates the country's prevalence for digital addiction disorders. [1] These disorders are associated with depression, lack of concentration, high anxiety, psychomotor agitation, salience, mood modification, obsessive thoughts, and sleeplessness. The World Health Organization has included "gaming disorders" into the International Classification of Diseases, highlighting the growing and severe problem of IA throughout the world.

Prominent researchers of internet addiction suggest that internet addicts exhibit the same symptoms as those with impulsive control disorder and drug or alcohol addicts. [2] IA is believed and has proven to have wide-ranging unpropitious outcomes that impact large domains of lives, ranging across physical, emotional, psychological, occupational and interpersonal. The negative impacts have severely impacted young people who spend excessive time online and neglect their family, professional and social life and most importantly, their interests. [3]

Previous literature compares internet usage with cigarette smoking and individual behaviour. [4] Internet usage becomes so addictive that individuals start neglecting their work which can cause many issues such as family conflict, relationship conflict, boredom and low self-esteem. [5] Whether we codify it within a clinical framework or not, the alarming nature of IA is significant in recognizing the potential negative impact of this problem. Studies have been undertaken on internet addiction and the workplace but there is less study on students' internet usage and academic performance. There is an urgent need to attend to the crisis of IA by academics, health experts, professional institutions, society and government. [6] The current study proposes the framework of how Overuse of Internet (OI) becomes internet addiction and its further association with gender, age and educational level.

RESEARCH BACKGROUND & HYPOTHESIS DEVELOPMENT

There have been many studies on IA, as seen in an extensive review by Mak & Young. [7] A seminal introductory study of addiction with computers emerged as early as 1989 in a book by Shotten, which reported the enchantment of students in the UK by machines, to the exclusion of their other activities. [8] Dr Kimberly Young first introduced the notion of 'IA' in August 1996 at the American Psychological Association [9] but this presented many controversies. It was believed the term could only use in substance addiction and abuse, such as in drug addiction; thus, some studies have referred to the overindulgence in internet activities as for IA. [10] Others have called it terms such an IA Disorder [110], pathological operation of internet [12] depression [13] and pathological internet use. [14] Over time, researchers have propounded the term and concept of IA to simplify the exploitation or adverse Usage of Interenet (UOI) and the uncontrollable use of Internet of Things (IoT). [15] Studies have also recognized various disorders caused by IA, similar to drug or alcohol addiction. [6, 16] On comparing internet addicts to non-addicted users of the internet, the former reported more harmful and adverse consequences significantly as a result of excessive Internet use, such as the compulsive need to go online when offline, along with mixed feelings of guilt and anxiety about the amount of time spent on Internet [17] and hiding the details of time spent on the Internet to their peers. [18]

Earlier studies have identified specific negative consequences of OI, such as time mismanagement, lack of sleep, and missed meals [19], all of which could directly affect on personal and professional fronts. [20] Studies have recognised IA symptoms including psychomotor agitation [21], changes in appetite [22], gloominess or depression, lack of self-control [23], impairment of function [24], inability to make decisions [25], disorganized eating habits [26], and irresistible online surfing despite its detrimental effects on personal welfare. [23] Studies revealed that hefty Internet use for leisure is highly connected with decreased Academic Performance because of synchronous chat rooms. [14] Studies have also highlighted common problems created by extensive Internet use like disrupted marriages and marital issues. [27] Studies hitherto have primarily focused on four factors, viz., personal, social, academic and Internet-related to define and explain the problems related to IA. Despite studies discussing and studying IA's impact, few reports study the entire pathway that includes therapy. Most of the studies focused only on the adverse impact rather than the positive impacts of Internet use. [28]

To the best of our knowledge, few studies have assessed the adverse effect of the internet but there is no clarity how internet usage becomes internet addiction. Recent studies revealed that usage of internet vary with gender. [4] For example, in terms of gender, some studies have shown that men are more addicted to the Internet in developed and high-tech economies. [4; 29] while other researchers have shown no such differences between the genders in the extent of UOI. [30] While many studies have tried to assess and analyse the factor of addiction by measuring the amount of time spent online, such studies are complicated by the fact that students are connected to the Internet or Wi-Fi all the time in modern times and rely strongly on the Internet for academic's purposes, acquiring news and information and for communication and entertainment. Thus, IA is now a multidimensional and

multifaceted concept that must be explored across a broad perspective to understand the issue comprehensively. The following hypotheses were proposed to gain such understanding:

➢ **Ho₁** There is no significant difference in the overuse of internet and Internet Addiction across the (a) gender, (b) age and (c) education.

➢ **Ho₂** Overuse of internet has no significant impact on Internet Addiction among students.

➢ **Ho₃** There is no significant difference with consequences of Overuse of Internet across the (a) gender, (b) age and (c) education.

METHODOLOGY

DATA, DEMOGRAPHIC, PROCEDURE AND INSTRUMENT

This empirical examination has used the Multistage Sampling Method (MSM) [31] and the cross-sectional method; [32]. MSM is viewed as reasonable to minimalise and control for bias, which diminishes the study's expense and time. The current survey examination has 39 items (accumulative) scale, and previous research has suggested that 5-10 response for one item is adequate for the study. [32] So, the current study required (39*10) 390 responses, but we distributed the (N= 1200) structured questionnaire to graduate and postgraduate college students of Delhi and NCR, Haryana, Uttrakhand, Himachal Pradesh and Uttar Pradesh states in India regardless of their level, stream of study. We included at least ten institutes from each state and thirty participants from each institution. Previous studies suggests that structured questionnaire surveys circulated through email or by hand are generally more appropriate for social science fit in sociology research. [33] Seven hundred and nineteen responses were obtained, with a response rate of 47% (online survey) and 79% (personal survey method). The final study sample comprised 626 participants (61% male; 39% female; M = 3.372, SD=0.794, with ninety-three rejected because data was imprecise or nonresponsive. The demographic of respondents can be seen in Table 1. The IA Test, developed by Young [21], was used in this work. The data obtained were organised, tabulated, and analysed systematically using SPSS 25 software.

Demographic Characteristics		Frequency	Percentage
Age	15-20 Years	161	25.7
	20-25 Years	382	61.0
	25-30 years	79	12.6
	More than 30 Years	4	.6
Gender	Male	384	61.3
	Female	242	38.7
Education level	Graduation	249	39.8
	Post Graduations	377	60.2
Nature of Accommodation	With Family	429	68.5
	Hostel with friends/rent	197	31.5
Income Categories	Upper Class	15	2.4
	Upper Middle Class	258	41.2
	Lower Middle Class	353	56.4
Nature of Relationship	Single	466	74.4
	In relationship	122	19.5
	Complicated	38	6.1

RESULTS

1 Pattern and Purpose of using Internet in the class

It is impossible to circumvent technology and the internet in modern times but educating users on the right way to engage with it is essential. Students increasingly use the internet and its various educational applications to obtain information for academic purposes, and pattern results (Table 2) of this investigation show that respondents use the internet for about four hours every day. The internet is a source of extensive knowledge where everything can be accessed quickly and easily and these purposes for using the internet was studied. Reliability (a) was calculated for all measurements and found to be .781, indicating that the construct is reliable enough for further statistical analysis (Table 3). The mean (2.19) and SD (1.025) suggests that students were using the internet more other than for class purposes. The descriptive study (Table 3) followed by the texted or checked mailbox or online status while in class with a mean of 1.964 and SD=1.062. Receiving a sexually suggestive photo or video scored the lowest mean of 1.139 with SD=.474 and followed by online gaming in the class with mean =1.362 and SD=.889.

TABLE 2 INTERNET USES PATTERN

Demographic Characteristics		Frequency	Percentage
Average Hours of Uses	0-2 Hours	105	16.8
	3-4 hours	261	41.7
	5-6 hours	97	15.5
	7-8 hours	72	11.5
	9-10 Hours	44	7.0
	11-12 hours	36	5.8
	13-14 hours	7	1.1
	15-16 hours	4	.6
Practices of Switching of Notification in class	Yes	536	85.6
	No	90	14.4
Can live without internet	Yes	233	37.2
	No	293	46.8
	can't say/ do not know	100	16.0
Can internet be regulated	Yes	288	46.0
	NO	160	25.6
	Can't Say	178	28.4
Uses of Internet in class room	never	280	44.7
	Sometimes	294	47.0
	Most of the times	52	8.3
Visiting pattern of porn site in a week	1-3 time	440	70.3
	4-6 times	146	23.3
	7-9 times	40	6.4
Feeling of Internet Addiction	Not at All	55	8.8
	Not much	163	26.0
	Some what	257	41.1
	Very Much	151	24.1

TABLE 3 DESCRIPTIVE ANALYSIS (CR, MEAN AND STANDARD VALUE OF CONSTRUCTS)

CONSTRUCTS	CR	MEAN	SD
Using Internet	0.781	1.9649	1.06224
Internet Addiction	0.929	2.0815	0.71876
Causes of internet overuse	0.867	2.8315	0.7946
Physical Problems	0.917	2.2764	0.98478
Psychological Problems	0.938	2.18	1.01878
Behavioural Problems	0.907	2.1465	0.91039
Relationship Problems	0.936	1.7688	0.81293

1.1 Causes of Internet overuse

While the UOI in terms of information and entertainment cannot underestimate, its overuse can cause depression, obsession, anxiety, and even isolation, all of which are IA symptoms. A literature survey identified various causes of Internet Overuse (IO), and students were asked to rate on intranet use according to their preferences. Reliability (a) (see table 1) was calculated for all the measurements and found to be .867, indicating that the constructs were reliable enough for further statistical analysis. Sexual exploration was one of the fundamental reasons disclosed by students with mean score 3.426 and SD=1.412, followed by the statement "I want to escape harsh realities of life" with a mean of 3.372 and SD of 1.230. Leisure time or Free time scored the lowest mean of 2.126 and SD=1.054.

1.2 Consequences of overuse of Internet

A series of internet overuse consequenecs were identified from the literare including physical problems, psychological problems, behavioral problems and relationship problems and in our survey, students were asked to rate these consequences on a scale of 1 to 5. Reliability (a) (see Table 3) was calculated for all the constructs and found to be between .907 to .938, indicating that the construct was reliable for further statistical analysis. Descriptive statistics showed that 'Physical problem' had the highest mean (mean = 2.276) followed by 'Psychological Problems' (mean = 2.180), 'Behavioral problem' (mean = 2.146) and 'Relationship problem' (mean = 1.768). the attribute' Sleep disturbance" scored highest with a mean of 2.580 and SD of 1.298 followed by dry eyes/eye strain, with a mean of 2.539 and SD of 1.245, and backaches had a mean value of 2.492 and SD of 1.263.

For the different measurement variables of psychological problems, "feelings of guilt" scored the highest mean of

2.596 and SD=1.362, followed by "Loss of interest" with a mean of 2.427 and SD of 1.289. In regard to behavioral problems, attributes like "Loss of interest in study/work" scored the highest mean of 2.385 and SD=1.239, followed by "Often losing to track of time when online" with mean =2.379 and SD=1.182. Attributes such as "Displaying anger due to time loss" had the lowest mean of 1.852 and SD=1.071. Regarding relationship problems, attributes such as "Decreased time spent with family and friends" had the highest mean of 2.016 with SD=0.991, followed by attributes like "Deceiving others about the amount of time spent on the Internet" with mean =1.971 and SD=1.035. "Thoughts of "getting online", or of sexual behaviour, seep into your mind when you are not online or engaged in sexual behaviour (i.e., work, with family)" scored the lowest mean of 1.499 and SD=0.824.

2 Hypothesis testing

The values calculated experimentally using the one-way ANOVA; Table value of OI and IA (3.85) found is less than the calculated value (F=5.188, p=.023, p>.05) of IA & Internet overuses (F=5.540, p=.019). Hence, (Ho1) was rejected, which shows that male and female students are significantly different concerning OI and IA. [38; 12; 29] However, the analysis has not found enough evidence to say there is a difference between OI and IA with age and educational levels. F value = 2151.630, p>.05 showed (H2) Overuse of the Internet has a significant difference with Internet Addiction. The pooled mean of all measurement variables calculated for assessing IA; regression analysis was carried out and was found to be moderately significant (f=82521.042, P=.000b, t=287.265, p=.000) and contributed 99.2% (R2 = 0.992) to the IA. IA= (B=0.037+.979*), the results revealed that the beta values for Internet overuse were 0. .979 and thus, it had a strong effect on IA; hence it is concluded that Internet overuse is

a prime cause. OI, the f-value was found to be greater than the table value (3.85) in the case of Physical Problems (11.113) and Psychological Problem (14.15) as against to behavioral problem (2.547) and relationship problem (1.807) at 1 degree of freedom and 0.05 level of significance. Therefore, (Ho3) was rejected; the mean values of the physical problem and psychological problem differed significantly between the genders. However, the mean values of behavioral and relationship problems do not differ significantly between men and women. The f value of (Ho3) was more significant than the table value

(3.85) in the case of Physical Problems (5.320), Behavioral Problem (4.065) as against Psychological Problem (3.622) and relationship problem (.999) at 1 degree of freedom and 0.05 level of significance. Therefore, it concludes that the mean of the physical problem and behavioral problem differs significantly across the respondents' level of education but is accepted in psychological problems and relationship problems. Thus, psychological and relationship problems do not differ significantly across respondents' levels of education.

TABLE 3 ONE WAY ANOVA OF MEAN OF INTERNET ADDICTION AND INTERNET OVERUSES ACROSS THE GENDER, AGE AND EDUCATION

GENDER		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
Internet addiction	Between Groups	3.141	1	3.141	5.188	0.023
	Within Groups	377.739	624	0.605		
	Total	380.88	625			
Internet overuse	Between Groups	3.473	1	3.473	5.54	0.019
	Within Groups	391.141	624	0.627		
	Total	394.614	625			
AGE		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
Internet addiction	Between Groups	2.307	3	0.769	1.264	0.286
	Within Groups	378.573	622	0.609		
	Total	380.88	625			
Internet overuse	Between Groups	2.208	3	0.736	1.167	0.322
	Within Groups	392.405	622	0.631		
	Total	394.614	625			
EDUCATION		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
Internet addiction	Between Groups	0.435	1	0.435	0.713	0.399
	Within Groups	380.445	624	0.61		
	Total	380.88	625			
Internet overuse	Between Groups	0.488	1	0.488	0.772	0.38
	Within Groups	394.126	624	0.632		
	Total	394.614	625			

TABLE 4: IMPACT OF INTERNET OVERUSE ON INTERNET ADDICTION: REGRESSION ANALYSIS

MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	Std. Error	Beta		
1	(Constant)	.037	.010		3.722	.000
	Internet overuse	.979	.003	.996	287.265	.000
R= .996ᵃ R² .992 F= 82521.042 P=.002ᵇ Std. Error of the Estimate=0.06768						
a. Dependent Variable: Internetaddiction1						

DISCUSSIONS AND CONCLUSION

Addiction generally refers to compulsive behaviour those results in adverse effects. The amount of time an individual spends on the internet is a critical factor in increasing IA risk. The Study found that IA's sternness levels increase with an OI. [39; 13] Thus, the risk of becoming IA becomes higher as students spend on the Internet increases. This study indicated that OI and IA are more significant among female students than male students. An earlier study also indicated significant differences in Internet overuse and IA between gender categories, age of the students and the students of UG and PG. [36] IA's prevalence is significant with gender, age, and education. [40]

Our study results show that most tertiary level students use the internet for more than 4 hours every day. From the ANOVA results, it can seem that the mean OI differs significantly. The present investigation also highlights the consequences of OI on the internet, such as sleep disturbance, interpersonal relationship issues, eyes strain, backache. [37; 38] Further investigation suggests that OI and IA harm sex life, family life, individual behaviour, loss of interest, lack of concentration, and short temperament. The current examinations also suggest that overuse of the internet has a significant difference in physical and psychological problems faced by each gender. A recent study also suggests that females feel shyer in relation to the internet in comparison to their male counterparts. That could be the reason why males and females face different problems. [4; 5] Male are more expressive, so they express themselves, whereas females are shy (especially in India), which could be a possible gender difference regarding physical and psychological problems. [4;39] This study also reports that IA was associated with students' physical, psychological, behavioural, and relationship issues. [40] The present study revealed that students are unaware when

their usage becomes an addiction. So, institutions and policymakers should come forward to make policies to regularise the usage of the internet. Psychological distress (PD) and addiction to the internet have been positively linked as a predictor of IA. Students need to be tested for PD and IA because there is a significant risk of coexisting and escalating issues. [41; 42]

IMPLICATION, LIMITATION & FUTURE SCOPE
Although the internet is regarded as the most powerful tool of modern times and people use it for various purposes, the user needs to know how it starts to take over life and impede other daily activities. IA in India appears to be a significant emerging mental health disorder among students at all UG and PG levels. Our investigation helps college and university or educational policymakers frame suitable policies or create a Programme to reduce or aware the adverse effect of overuse of the internet. The results of the compelling need to reduce the OI by promoting psychological competence among students. Without clarifying Internet use or abuse outcomes, it is unjustifiable to consider it an issue; the current investigation additionally endeavours this path. These activities would help provide early referrals for diagnosis and care to specialist centers. Thus, raising awareness among students and faculty about IA and its risk factors would be an excellent initial step towards safe Internet use. The study carried out before the Covid pandemic, and Internet usage increased during and after the pandemic due to the online classes. So, future research will explore the relationship between OI, IA and its consequences after the pandemic, which gives more clarity. The cross-sectional technique constrains the casualty, and participants are limited to Delhi NCR College and university, which bound the results the future researcher can work on this and generalize it for a large population. Since the study is limited to quantitative methodology and a single methodology has limitations in relation to when individual behaviour and

perception are involved, future research in this area can have a mixed methods approach so as to present the holistic model of OI, IA and their consequences.

CONFLICT OF INTEREST:

The authors declared no potential conflicts of interest with this article.

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