

Students' Perceived Stress and Internet Addiction during the Lockdown in India

Bhupendra Singh¹, Priti Singh², Upendra Singh³, Purushottam Jangid⁴, Rajiv Gupta⁵

ABSTRACT

Background: Internet use expands from day-to-day necessities to morbid levels. More emphasis is now being given to online services during this current pandemic situation. Internet use is acting as double-edged sword. This study was aimed to know the perceived stress and Internet addiction among the students pursuing professional courses during the lockdown of corona pandemic in India.

Aim: The aim was to assess the perceived stress and Internet addiction during the lockdown among professional students.

Methodology: A cross-sectional study for students perusing professional courses of different streams through an online survey was carried. During the lockdown, a Google form was created for students with proper information about the questionnaire with the request for participating in the research. Survey contained a total of 38 questions. After taking informed consent, sociodemographic proforma, perceived stress scale, and Internet Addiction Test were applied.

Result: A total of 297 students from various professional courses participated in the study. A total of 62.2% of them were reported that their time for Internet use has increased significantly. Maximum (84%) participants reported high level of perceived stress and 62% of them were using Internet up to a moderate level of addiction. Positive correlation was present between perceived stress and Internet addiction.

Conclusion: Lockdown restrictions increased the perceived stress and vulnerability of Internet addiction among the students.

Keywords: Internet addiction, Lockdown, Perceived stress.

Indian Journal of Private Psychiatry (2020): 10.5005/jp-journals-10067-0055

BACKGROUND

The COVID-19 has emerged as a global pandemic. In India, lockdown was announced on March 24, 2020, preceded by a voluntary Janta Curfew that was extended twice and ended on May 3, 2020. During this period, all the movements were restricted by the government except emergency and basic necessities. This lockdown forced everyone to remain inside on the one hand, and on the other hand, due to very less information about the pandemic panic condition was faced by everyone. People started searching for information and COVID-19-related updates from various platforms. As social distancing was known as one of the best strategies for reducing the chances of infection, it increased the need for Internet-based solutions for leisure and entertainment.

In India, the first confirmed case of COVID-19 was reported on January 30, 2020.¹ As a containment initiative, the nation was placed on a total lockdown since the early hours of March 25, 2020.² With the start of phase-1 lockdown, all diagnosed cases of COVID-19 underwent contact tracing and potential contacts, including healthcare workers, were quarantined or isolated.

Internet is a windfall and has undoubtedly helped to bring the world closer. It has been an enormous method for students to communicate and improve their knowledge by transforming the pedagogic landscape. Nevertheless, the excessive and disruptive use of Internet by individuals especially in the last decade has led to the emergence of the concept of Internet addiction.

The restriction of mobility can perform as a psychosocial stressor.³ Due to lingering confinement, difficulties in acquiring essential supplies, prospective financial losses, and access to contradictory and insufficient information on the Internet^{4,5} perceived stress increases. Taylor et al.⁴ evaluated the frequency of and factors associated with psychosocial stress; during the equine influenza epidemic, they observed that 34% of participants

¹Department of Psychiatric Social Work, Institute of Mental Health, UHS, Rohtak, Haryana, India

^{2,4}Department of Psychiatry, Institute of Mental Health, UHS, Rohtak, Haryana, India

³Department of Psychiatric Social Work Centre of Excellence, Dr RML Hospital, New Delhi, India

⁵Institute of Mental Health, UHS, Rohtak, Haryana, India

Corresponding Author: Priti Singh, Department of Psychiatry, Institute of Mental Health, UHS, Rohtak, Haryana, India, Phone: +91 9996665888, e-mail: bpreetirth@yahoo.com

How to cite this article: Singh B, Singh P, Singh U, et al. Students' Perceived Stress and Internet Addiction during the Lockdown in India. *Ind J Priv Psychiatry* 2020;14(1):30–34.

Source of support: Nil

Conflict of interest: None

presented high levels of perceived distress, compared to 12% of the general population. The psychosocial distress was significantly higher for those residing closer to infection outbreaks, workers in the equine sector, and younger and less educated people, 35% of participants scored high for psychological distress, more frequent among women.⁶

The term "Internet addiction" was proposed by Dr. Ivan Goldberg in 1995 for pathological compulsive Internet use.⁷ Griffith considered it a subset of behavior addiction and any behavior that meets the 6 "core components" of addiction, i.e., salience, mood modification, tolerance, withdrawal, conflict, and relapse.⁸ Davis⁹ preferred the term "pathological Internet use" (PIU). Young¹⁰ linked excessive Internet use most closely to pathological gambling, a disorder of impulse control in DSM IV, and adapted the DSM IV criteria

to relate to Internet use in the Internet Addiction Test developed by her. According to her, various types of Internet addiction are cyber-sexual addiction, cyber-relationship addiction, net compulsions, information overload, and computer addiction.¹¹ Caplan¹² tested Davis' cognitive behavioral model of PIU. His findings indicated that social isolation plays a greater role in behavioral symptoms of PIU than does the presence of psychopathology. Hence, Caplan suggested replacing the term "pathological Internet use" with "problematic Internet use."

India's mobile data consumption is just one-tenth of that in the USA and other advanced countries. As a result of affordability and easy access to touch screens mobiles, tablet devices, and Wi-Fi, India is witnessing overuse of Internet, especially among youth and children. According to a study, the addiction problem in India is real and at least 24.6% of adolescents have problematic Internet use or Internet addiction disorder (IAD).¹³ The Indian Council of Medical Research (ICMR) funded a survey of 2,755 people from Bengaluru aged 18 to 65 years and found that 1.3% people were addicted to the Internet, 4.1% to mobile phones, 3.5% to social networking sites, 4% to online shopping, 2% to online pornography, and 1.2% to gambling. Several smaller studies restricted to particular cities Jaipur, Mumbai, and Jabalpur found a mild level of Internet addiction in subjects.¹⁴⁻¹⁶ In previous years, the use of Internet has increased many folds in India, and there are threats that many individuals, especially adolescents, will be affected by Internet addiction. The lockdown has given more opportunity to indulge in Internet use.

The coronavirus (COVID-19) pandemic has a worldwide significant disruption in normal activities.¹⁷ Remain inside, the home mandates and quarantines have increased consumption of digital leisure, predominantly online gaming (e.g., esports viewing and videogame streaming),^{18,19} and social media connectivity. Telecommunications providers from USA reported a 75% increase in online gaming activity corresponding with initial homestay directives.²⁰ Gaming-related Internet traffic was increased to 70% in Italy.²¹ Gaming distributor Steam reported 20 million plus simultaneous active users, its record-breaking in 16-year history, and live-streaming platforms YouTube Gaming and Twitch also reported a 10% enhance in viewership.²² Although this increased online gaming has been perceived as balancing to public health efforts to encourage spatial distancing.^{23,24} Remarkably, the World Health Organization (WHO) has outwardly articulated support for the gaming industry's online social media campaign (#PlayApartTogether) that integrates WHO messaging about coronavirus prevention guidelines in juxtaposition with encouraging online gaming^{25,26} even though recent WHO mental health information (#HealthyAtHome—Mental Health) recommends balanced screen time and gaming.²⁷

In India, the use of Internet is enormous, especially in the young population. Hence, pattern of Internet usage in professional students in the Indian setting and its relationship with their mental and physical health has been studied earlier.¹⁶ There is a dearth^{17,28-30} of research on Internet use among professional students during the pandemic lockdown, and in the best of our knowledge, it is not been investigated in India except Nair et al.,³¹ who studied perceived stress and psychological distress. With this background, we undertook this research to take a close look on Internet addiction in relationship with their mental health of students.

Aim

The study was aimed to know the perceived stress and Internet addiction among the students perusing professional during the lockdown of Corona pandemic in India.

METHODOLOGY

A cross-sectional study for students perusing professional courses in different streams through an online survey was conducted. During the lockdown, a Google form was created for students with proper information about the questionnaire with the request for participating in the research. Survey contained total 38 questions.

Perceived stress scale was developed by Cohen and Williamson³² and is the most widely used psychological instrument for measuring the perception of stress. This scale is designed for use in community samples with at least junior high school education. Its 10-item Likert-type scale that ranges from never (0) to very often (4) responses with four reverse scoring questions.

Internet Addiction Test³³ is a 20-item scale that measures the presence and severity of Internet dependency among adults. This scale measures characteristics and behaviors associated with compulsive use of the Internet that includes compulsivity, escapism, and dependency. Questions also assess problems related to addictive use in personal, occupational, and social functioning. Questions are randomized and each statement is weighted along a Likert-scale continuum that ranges from 0 = less extreme behavior to 5 = most extreme behavior for each item.

Google form was created during the second phase of lockdown and it was circulated through several social media platforms. After the formal announcement of ending the lockdown, the data were archived from a drive on 3rd May and prepared for statistical analysis.

A total of 319 students responded on Web page but 20 were excluded from analysis as 9 were incomplete responders and 11 responders were older than 40 years so it makes their profile questionable (they might be part-time students/parallel profile). A total of 297 complete forms were taken for statistical analysis. A descriptive analysis for sociodemographic profile was done. Chi-squared test was used to compare the level of perceived stress and Internet addiction between subgroups of the study. Pearson's correlation analysis was done for assessing the relationship between the dependent variables.

RESULTS

Table 1 shows that mean age of the participants was 22.75. About 62.5% of the participants are male and 90% of them are unmarried. Students pursuing PhD or M.Phil in clinical setups were included for the study; most of them are regular scholars. Maximum participants are MBBS students and the second highest group is from MSW. A total of 39% of the students are away from their home residing in hostel or PG, and highest (37.5%) of the participants are residing in their joint families. A total of 62% participants reported significant increased in the Internet use during the lockdown period, whereas 15.2% of the participants are not sure about the increased or static use of Internet.

Table 2 explains that the mean score for perceived stress in overall population was 30.07 that falls in pathological category. Similarly, Internet addiction scale also indicates pathological use

Table 1: Sociodemographic profile of the participants

Variable		Frequency (n = 297)	Percentage
Age	Mean (SD)	22.75 (3.41)	
Sex	Male	185	62.5
	Female	110	37.2
	Prefer not to say	1	0.3
Course pursuing	M.Phil/PhD	32	10.8
	MD/MS	24	8.1
	MBBS	96	32.4
	Bachelor of Physiotherapy	55	18.6
	MSW	89	30.1
	Marital status	Unmarried	269
	Married	27	9.1
Current living setup	Hostel/PG	105	35.5
	Joint family	111	37.5
	Nuclear family	72	24.3
	With friends	4	1.4
	Alone	4	1.4
Time of Internet use during lockdown	Increased	184	62.2
	Maybe increased	45	15.2
	Similar as before	67	22.6

Table 2: Score of perceived stress and Internet addiction scale

Variable	Perceived stress (mean + SD)	Internet addiction (mean + SD)
Participants score	30.07 + 5.80	56.33 + 13.84
Comparison between male and female		
Male	28.58 + 6.74	55.52 + 12.54
Female	32.50 + 2.06	57.74 + 15.81
t score	6.045	1.329
df	293	293
p-value	0.000	0.185

of Internet among the participants. In a comparative analysis, perceived stress is significantly ($t = 6.045$) high in females (32.50) than in males (28.58) but no significant difference was found in the area Internet addiction.

Table 3 reveals that 84.51% of the students were reported high level of perceived stress where all the MD/MS students reported high-level stress. A 8.41% of the participants reported moderate level of perceived stress and 6.73% of them reported low level of stress. Table 3 also shows a significant ($X^2 = 46.58$) higher level of perceived stress in all the group of students.

Table 4 shows that the maximum 62.28% of participants use Internet moderate level of addiction followed by 27.27% in a mild category. However, 5.72% of the participants reported up to

Table 3: Level of perceived stress among professional students

Variables						Chi-square
	M.Phil/PhD	MD/MS	MBBS	BPT	MSW	
Stress						
Low	04	0	11	2	3	46.584* (df = 8)
Moderate	08	0	11	2	4	
High	20	24	74	51	82	

* $p > 0.01$

Table 4: Internet addiction among professional students

Variables						Chi-square
	M.Phil/PhD	MD/MS	MBBS	BPT	MSW	
Normal	0	0	0	2	11	
Mild	18	12	11	16	24	65.192* (df = 12)
Moderate	14	12	74	31	54	
Severe	00	0	11	6	0	

* $p > 0.01$

Table 5: Relationship between perceived stress, Internet addiction, and pattern of use

Variable	Pattern of use	Internet addiction	Perceived stress
Pattern of use	1	0.581**	0.360**
Internet addiction		1	0.171**
Perceived stress			1

**Correlation is significant at 0.01 level

severe levels of Internet use and only 4.37% were using in a normal category.

Table 5 explains the correlation between the pattern of use Internet addiction and perceived stress. Table 5 shows a highly significant positive correlation that explains if the score of one increases, the rest two will be increased or vice versa.

CONCLUSION

Rise of new-generation smartphone and easy availability of Internet increase the risk of "Internet addiction" as a pandemic health problem in young adults.⁸ Considering the heavy Internet use among the students, which was significantly increased in lockdown, it is important to analyze the Internet use among the students perusing professional courses.

Research studies suggested that the Internet addiction is associated with loneliness, lower self-esteem, poor academic performance, high level of stress, anxiety, depression, and other mental health problems in students.^{9,34-36} The prevalence of Internet addiction in previous research varies from 0.7 to 18.6% among the college students. Most of the studies reported

college students as the group are highly susceptible to Internet addiction.^{9,34,35} The present study was carried at the time of lockdown and health pandemic announcement that increases vulnerability of Internet addiction among professional students.

Our findings showed that perceived stress was very high as 84.51% of the students fall in a high level of stress whereas only 6.73% of them were at low stress level. Findings of the current study are contrary to previous research where 15% of the participants scored for high perceived stress associated with COVID-19.³⁷ Another study by Qiu et al.⁶ reported that 35% suffered from high psychological distress during the last week of the current COVID-19 epidemic.

Our findings reported that perceived stress was high in the female students in comparison with male students. Other studies noticed that high psychosocial stress was more common among female and young people.^{6,31,37,38}

Our findings showed that 5.72% of severe addiction among the professional students. Another³⁰ study on COVID-19 reported only 0.2% of severe addiction. Findings of³⁹ prior study on medical students also reported 5.73 % of Internet addiction in MBBS students. Our findings show that 62.28% of them were having moderate level of addiction³⁰ but another research from Mexico reported only 10.2% addiction in moderate category. Previous research reported 52.2 mild levels of addiction, but in our findings, 27.2% of the participants are having some degrees of addiction. Current findings are entirely different from previous findings due to current pandemic and difference in materials and methods of studies.^{9,34,35}

Addiction is more commonly seen in male than in female, but there was no significant association found between gender and Internet addiction in our study. This finding was consistent with the Indian study among MBBS students.^{39,40} Previous research findings reported unambiguous association between male gender and Internet addiction,^{34,35} although the previous findings were taken from a different socioeconomical background and current research is dedicated to lockdown period of corona virus so the comparison is not much appropriate with two entirely different bio-psycho-social and economical conditions. The previous findings may have population with different motivations and behaviors; for Internet addiction, it may vary for male and female, but the current research is entirely restricted for professional students where the access to modern gadgets and understanding of its utility is at par.

In our research, mobile phone was the most preferred gadget for using Internet; however, previous research³⁹ found that students with Internet addiction were using multiple gadgets for Internet compared to nonaddict.

In the stay at home restriction, participants are not allowed to move outside or involve in any recreational activity, and previous research^{39,40} found that majority of students with Internet addiction did not perform any regular daily exercise and had high level of perceived stress. Similar studies from India and abroad have found that students with Internet addiction showed reduced subjective happiness.^{12,34}

We found strong correlation between stress and Internet addiction that consistent with those studies who reported strong relationship between stress and Internet addiction in normal health conditions.⁴¹ Higher level of Internet addiction and stress in professional students might be due to high expectations about their academic performances and future careers⁴² for a better career outcome with the burden of fee structures posing significant financial problems. It may be due to a completely new environment,

staying close in home/hostel with many restrictions for reaching basic requirements.

A further concern is that if some individuals may develop, increase, or relapse into unhealthy patterns of gaming to relieve pandemic-related stress, self-isolation restrictions may inhibit help-seeking and present barriers for those in treatment. It may also be important to make recommendations about the types of videogames that may better facilitate psychological and physical health, including those that encourage physical activity and social interaction and collaboration.

REFERENCES

- Gupta N, Praharaj I, Bhatnagar T, et al. Severe acute respiratory illness surveillance for coronavirus disease 2019, India, 2020. *Indian J Med Res* 2020 Feb 1;151(2):236–240. DOI: 10.4103/ijmr.IJMR_1035_20.
- Pulla P. Covid-19: India imposes lockdown for 21 days and cases rise. *BMJ* 2020;368:m1251.
- Folkman S, Lazarus RS. *Stress, appraisal, and coping*. New York: Springer Publishing Company; 1983.
- Taylor MR, Agho KE, Stevens GJ, et al. Factors influencing psychological distress during a disease epidemic: data from Australia's first outbreak of equine influenza. *BMC Public Health* 2008 Oct 3;8(1):347. DOI: 10.1186/1471-2458-8-347.
- Reinecke L, Aufenanger S, Beutel ME, et al. Digital stress over the life span: the effects of communication load and internet multitasking on perceived stress and psychological health impairments in a German probability sample. *Media Psychol* 2017 Jan 2;20(1):90–115. DOI: 10.1080/15213269.2015.1121832.
- Qiu J, Shen B, Zhao M, et al. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *Gen Psychiatry* 2020;33(2):e100213. DOI: 10.1136/gpsych-2020-100213.
- Goldberg I. *Internet Addiction* 1996. Available from: <http://web.urz.uniheidelberg.de/Netzdienste/anleitung/wwwtips/8/addict.html> [Last accessed on 2020 Mar 22].
- Mark G. Does internet and computer "addiction" exist? Some case study evidence. *CyberPsychol Behav* 2000;3(2):211–218. DOI: 10.1089/109493100316067.
- Davis RA. A cognitive-behavioral model of pathological Internet use. *Comput Human Behav* 2001 Mar 1;17(2):187–195. DOI: 10.1016/S0747-5632(00)00041-8.
- Young KS. Internet addiction: the emergence of a new clinical disorder. *CyberPsychol Behav* 1998;1(3), 237–244. DOI: 10.1089/cpb.1998.1.237.
- Young KS. Internet addiction: a new clinical phenomenon and its consequences. *Am Behav Sci* 2004 Dec;48(4):402–415. DOI: 10.1177/0002764204270278.
- Caplan SE. Relations among loneliness, social anxiety, and problematic Internet use. *CyberPsychol Behav* 2006 Apr 1;10(2): 234–242. DOI: 10.1089/cpb.2006.9963.
- Shyam HR, Sharma MK, Palanichamy T. Exploration of technology use pattern among teenagers and its relationship with psychological variables. *ASEAN J Psychiatry* 2016;17(2):239–249.
- Sharma A, Sharma R. Internet addiction and psychological well-being among college students: a cross-sectional study from Central India. *J Family Med Prim Care* 2018;7(1):147–151. DOI: 10.4103/jfmpc.jfmpc_189_17.
- Sharma KD, Gupta ID, Gunjan, et al. Internet addiction pattern among high school students of Jaipur city: a descriptive study. *Int Multispecialty J Health (IMJH)* 2016;2(5):25–31.
- Goel D, Subramanyam A, Kamath R. A study on the prevalence of internet addiction and its association with psychopathology in Indian adolescents. *Ind J Psychiatry* 2013;55(2):140–143.
- King DL, Delfabbro PH, Billieux J, et al. Problematic online gaming and the COVID-19 pandemic. *J Behav Addict* 2020 Apr 29;9(2):184–186. DOI: 10.1556/2006.2020.00016.

18. Javed J. eSports and gaming industry thriving as video games provide escape from reality during coronavirus pandemic 2020.
19. Perez M. Video games are being played at record levels as the coronavirus keeps people indoors 2020.
20. Pantling A. Gaming usage up 75 percent amid coronavirus outbreak, Verizon reports 2020.
21. Lepido D, Rolander N. Housebound Italian kids strain network with Fortnite marathon 2020.
22. Stephen B. This is Twitch's moment [internet] 2020.
23. Abel T, McQueen D. The COVID-19 pandemic calls for spatial distancing and social closeness: not for social distancing. *Int J Public Health* 2020 Apr 1;65(3):231. DOI: 10.1007/s00038-020-01366-7.
24. Businesswire. Games industry unites to promote World Health Organization messages against COVID-19; Launch #PlayApartTogether campaign. Retrieved March 31, 2020, from <https://www.businesswire.com/news/home/20200328005018/en/Games-Industry-Unites-Promote-World-Health-Organization>.
25. Ghebreyesus TA. Thank you @RaymondChambers for mobilizing the gaming industry to feature @WHO advice on #COVID19 to their users. We must all #PlayApartTogether to beat the #coronavirus. 9:29am, 29 March 2020, Tweet.
26. Maden A. World Health Organization encourages people to game during coronavirus outbreak. Retrieved March 31, 2020, from <https://www.windowscentral.com/world-health-organization-encourages-people-game-during-coronavirus-outbreak>.
27. World Health Organization. #HealthyAtHome – Mental Health. Retrieved from <https://www.who.int/news-room/campaigns/connecting-the-world-to-combat-coronavirus/healthyathome/healthyathome—mental-health>.
28. Sun Y, Li Y, Bao Y, et al. Brief report: increased addictive internet and substance use behavior during the COVID-19 pandemic in China. *Am J Addict* 2020 Jun 4. DOI: 10.1111/ajad.13066.
29. Li Y, Wang Y, Jiang J, et al. Psychological distress among health professional students during the COVID-19 outbreak. *Psychol Med* 2020 May;11:1–3. DOI: 10.1017/S0033291720001555.
30. Garcia-Priego BA, Triana-Romero A, Pinto-Galvez SM, et al. Anxiety, depression, attitudes, and internet addiction during the initial phase of the 2019 coronavirus disease (COVID-19) epidemic: a cross-sectional study in Mexico. medRxiv 2020 Jan 1. DOI: 10.1101/2020.05.10.20095844.
31. Nair AK, Chellaswamy KS, Kattula D, et al. Perceived stress and psychological (Dis) stress among Indian endodontists during COVID19 pandemic lock down. medRxiv 2020 Jan 1. DOI: 10.1101/2020.05.06.20092601.
32. Cohen S, Kamarck T, Mermelstein R. Perceived stress scale. *Measuring stress: a guide for health and social scientists* 1994;10:1–2. New York: Oxford University Press.
33. Young K. Internet addiction test (IAT). Stoelting; 2016 Dec 1.
34. Cheng C, Li AY. Internet addiction prevalence and quality of (real) life: a meta-analysis of 31 nations across seven world regions. *Cyberpsychol Behav Soc Netw* 2014 Dec;17(12):755–760. DOI: 10.1089/cyber.2014.0317.
35. Cao H, Sun Y, Wan Y, et al. Problematic internet use in Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. *BMC Public Health* 2011;11(1): 802–810. DOI: 10.1186/1471-2458-11-802.
36. Mak KK, Lai CM, Watanabe H, et al. Epidemiology of internet behaviors and addiction among adolescents in six Asian countries. *Cyberpsychol Behav Soc Netw* 2014;17(11):720–728. DOI: 10.1089/cyber.2014.0139.
37. Pedrozo-Pupo JC, Pedrozo-Cortés MJ, Campo-Arias A. Perceived stress associated with COVID-19 epidemic in Colombia: an online survey. *Cad Saúde Pública* 2020 Jun 1;36(5):e00090520. DOI: 10.1590/0102-311x00090520.
38. Limcaoco RS, Mateos EM, Fernandez JM, et al. Anxiety, worry and perceived stress in the world due to the COVID-19 pandemic, March 2020. Preliminary results. medRxiv 2020 Jan 1.
39. Patel VK. Study of Internet use characteristics, perceived stress, and Internet addiction among first-year medical students of Jamnagar, Gujarat, India. *Ind J Priv Psychiatry* 2019;13(2):44–47. DOI: 10.5005/jp-journals-10067-0037.
40. Cardak M. Psychological well-being and Internet addiction among university students. *Turk Online J Educ Technol—TOJET* 2013 Jul;12(3):134–41.
41. Ha J, Ahn H. Multiple mediator effect of metacognition on the relation of perceived stress, anxiety and generalized problematic internet use. *Korean J Couns Psychother* 2013;25:251–273.
42. Datar MC, Shetty JV, Naphade NM. Stress and coping styles in postgraduate medical students: a medical college-based study. *Ind J Social Psychiatry* 2017 Oct 1;33(4):370–374. DOI: 10.4103/ijsp.ijsp_59_16.