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Cross-sectional

An online cross-sectional study to assess the prevalence of Internet Addiction among people staying at their home during Lockdown due to COVID-19

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ABSTRACT

Background: The prevalence of psychological problems may increase in the period of national and international health-related crises such as COVID-19. When the Lockdown is the only way to prevent people from this kind of infectious disease, in that case, direct social activities are banned by the government, and people have to stay at their homes. This may increase the use of the internet for virtual social contact. This may increase the prevalence of Internet Addiction (IA) among people. ***Methods:*** A cross-sectional study was conducted to assess the prevalence of IA among people living in Varanasi district during the Lockdown period due to the COVID-19 in India. A total of 350 respondents fulfilling the inclusion and exclusion criteria were contacted through telephonic call and massage with the help of volunteers living in the selected areas. An online semi-structured questionnaire consisting of a socio-demographic variables and Internet Addiction Test (IAT) was prepared with the help of the Google Forms. The links of the online questionnaire were forwarded to all the respondents to collect the data. ***Results:*** The mean age of the respondents was 27.69±9.62 years and the majority of them belong to age group 18-25 years. The prevalence of IA among the respondents was found respectively 50.29% mild, 18.29% moderate, and 1.71% severe level, while only 29.71% were found as a normal internet user. There was a significant association between IA and age ($p<0.05$), gender ($p<0.05$), marital status ($p<0.01$), and family type ($p<0.05$). ***Conclusion:*** The results of the present study indicate that the prevalence of psychological problems such as Internet Addiction may increase during the national and international crisis such as COVID19.

Keywords: *Corona Virus, Psychiatric disorders, Mental Health, Pandemic Diseases, Internet*

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A vulnerable disease due to corona virus known as COVID-19 was started to spread in all over the world from the Wuhan City, China since December 2019 (Holshue et al., 2020). It was the first time, when there were around 40 cases of pneumonia disease with unidentified etiology reported in the Hunan Seafood market. Then the Chinese authorities started to investigate the etiology of these cases with the collaboration of World Health Organization (WHO), and they found the reason behind it as a new virus and named it Novel Corona Virus (WHO, 2020a). Within some weeks number cases were started being reported in all over the world, then on January 30, 2020 WHO declared it as Public Health Emergency of International concern (WHO, 2020a. 2020b, 2020c). The first case of death due to this virus was reported in China on January 11, 2020 and then in Philippines on February 2, 2020.

WHO announced it as corona virus disease or the COVID-19, and declared it as a pandemic when it spread up to 114 countries (WHO, 2020c). In the absence of proper treatment methods and medicine, it has become a serious matter in all over the world. Many countries have declared lock-down to prevent their citizen from this disease. Indian Government declared in a complete lockdown on w.e.f. March, 24, 2020 in the whole country to prevent every citizen from the COVID-19. In this crisis, people are forced live at their home to avoid direct social contact.

The people working in the offices, school and colleges has been requested by the government to work from home. The students have started studying through online classes, and most of the other works such as social contacts, shopping, banking, trading and entertainment is being done by the internet during this lockdown period. In short, it can be stated that the use of internet has been increased during the lockdown period due to the COVID-19. This may leads to the increase in the prevalence of Internet Addiction (IA) in future. Hence, the present study was conducted to assess the prevalence of IA among people staying at their home during the lockdown period due the COVID-19 in the Varanasi district in Uttar Pradesh.

MATERIALS AND METHODS

A cross-sectional online survey was carried out in Varanasi district, in Uttar Pradesh.

Sample size

We got a study conducted by Sunil and Debata (2018) on the prevalence of IA among students in India with 67% prevalence of IA. But we could not find any study on general population. Students are more vulnerable to use of internet for their academic purpose as well as entertainment, online gaming and social networking. Hence, we took the prevalence of IA 50% among general person and assumed that IA will increase by 20% during home stay due to the lockdown. The level of confidence was taken 95% and the power of study 85% with design effect as 1.5, thus we required 348 study subjects. Then final sample size was taken as 350 respondents.

Inclusion criteria

People living at their home in Varanasi district during the period of Lockdown due to Corona Virus.

1. Age 14 and above.
2. Both male and female.
3. Willing to participate.
4. Using internet and Smartphone.

Exclusion criteria
Having any chronic illness.

Tools
An online survey questionnaire was prepared with the help of Google forms. The questionnaire consists of socio-demographic variables (such as age, gender, marital status, education, occupation, family income, family type, and residence), and Internet Addiction Test developed by Young (1998). It consists of 20 items based on the 6 point Likert scale. The respondents rates these items from 0 (doesn't reply) to 5 (always). The total score is calculated by adding the responses of the respondents. A score 0-19 is taken as normal internet users, respectively 20-49 as mild internet addiction, 50-79 as moderate internet addiction and 80-100 as severe internet addiction.

Procedure
The area of the study was Varanasi district. The cluster sampling method was used for the selection of the respondents. First some randomly selected areas were chosen as clusters then the researchers contacted some volunteers living in this areas, and they were informed about the importance of the study, instruction related to the questionnaire, the inclusion and exclusion criteria. Then respondents were contacted through emails, WhatsApp messages, and telephonic calls by the volunteers of the selected areas and the researchers. All the respondents fulfilling the inclusion and exclusion criteria were selected for the data collection. The link of online survey questionnaire was sent to each selected respondent. Then they were requested to fill the questionnaire.

Statistical analysis
The data received from the respondents through Google form in the Google drive, exported in the MS excel to arrangement and coding. Then the arranged data was exported to the trial version of SPSS 20 for the analysis. The descriptive statistics (such as frequency, percentage, mean and standard deviation) were used to summarize the categorical data. The Chi-square test was applied to assess the association between the socio-demographic variables and Internet addiction. The severity of the Internet addiction was presented through graph (pie chart). Binary logistic regression was used to find odds ratio at 95% confidence interval.

RESULT

Table No. 1 Socio-demographic Characteristics of the Respondents

Variables	Frequency	%
Age (in years)		
14-25	195	55.7
26-35	102	29.7
36-55	42	12.0
56-80	11	3.1
Mean & SD	**27.69±9.62**	
Gender		
Male	229	65.4
Female	121	34.6
Marital Status		
Unmarried	254	72.6
Married	96	27.6
Education		
High School	32	9.1

Variables	Frequency	%
Intermediate	39	11.1
Graduation	136	38.9
Post Graduation	143	40.9
Occupation		
Students	192	54.9
Private job	86	24.6
Government job	35	10.0
Other	37	10.6
Family Monthly Income (In RS)		
0-5000	41	11.7
5001-15000	51	14.6
15001-25000	58	16.6
25001-35000	46	13.1
Above 35000	154	44.0
Family Types		
Nuclear	182	52.0
Joint	168	48.0
Residence		
Rural	103	29.4
Urban	247	70.6

Table 1 shows that out of the 350 respondents, more than half belongs to age group 14-25 years and the mean age of them was 27.69±9.62 years. The proportion of male respondents (65.4%) was comparatively high than females (34.6%). The mean age of male respondents was 29.10±10.98 years and the mean age of female respondents was 25.03±5.39 years. The proportion of the unmarried respondents (65.4%) was comparatively higher than married respondents (27.6%). Majority of the respondents were students (approximately 55%) followed by 24.6% of the respondents were doing private jobs, 10% respondents were doing government job and 10.6% of them were either house wives or doing other jobs such as farming, labor, and shop owner. Majority of the respondents belong to high family income groups (44%). The proportion of respondents living in nuclear families (52%) and urban areas (70.6%) was found comparatively high.

Table No. 2 Internet Addiction among the Respondents

Variables	Internet Addiction		Chi-squire Value	df	P Value
	Addicted F (%)	Non Addicted F (%)			
Age (in years)					
14-25	148 (75.9)	47 (24.1)			
26-35	65 (63.7)	37 (36.3)	11.645	3	**0.009***
36-55	27 (64.3)	15 (35.7)			
56-80	4 (36.4)	7 (63.6)			
Gender					
Male	168 (73.4)	61 (26.6)	4.175	1	**0.041***
Female	76 (62.8)	45 (37.2)			
Marital Status					
Unmarried	191 (75.2)	63 (24.8)	13.181	1	**0.000****
Married	53 (55.2)	43 (44.8)			
Education					
High School	22 (68.8)	10 (31.2)			
Intermediate	28 (71.8)	11 (28.3)	4.931	3	0.177
Graduation	103 (75.7)	33 (24.3)			
Post Graduation	91 (63.6)	52 (36.4)			

Variables	Internet Addiction		Chi-squire Value	df	P Value
	Addicted F (%)	Non Addicted F (%)			
Occupation					
Students	143 (74.5)	(25.9)			
Private job	55 (64.0)	31 (36.0)			
Government job	23 (65.7)	12 (34.3)	4.681	3	0.197
Other	23 (62.2)	14 (37.8)			
Family Monthly Income (In RS)					
0-5000	28 (68.3)	13 (31.7)			
5001-15000	37 (72.5)	14 (27.5)	0.819	4	0.936
15001-25000	38 (65.5)	20 (34.5)			
25001-35000	33 (71.7)	13 (28.3)			
Above 35000	108 (70.1)	46 (29.9)			
Family Types					
Nuclear	136 (74.7)	46 (25.3)	4.509	1	**0.034***
Joint	108 (64.3)	60 (35.7)			
Residence					
Rural	69 (67.0)	34 (33.0)	0.513	1	0.474
Urban	175 (70.9)	72 (29.1)			

*Significance difference at *0.05, **0.001*

Table 2 shows that in the assessment of the Internet Addiction (IA), most of the respondents 148 (75.9%) belongs to age group 14-25 years were found internet addiction, respectively 65 (63.7%) in age group 26-35 years, 27 (64.3%) in age group 36-55 years and 4(36.%) in age group 56-80 years. The proportion of IA was found high among male respondents 168 (73.4%) comparatively higher than female respondents 78 (62.8%). IA was found high among unmarried respondent 191 (75.2%) than married respondents 53 (55.2%). Majority of the graduate respondents 103 (75.7%) were found with IA. The proportion of the students 143 (74.5%) with IA was found comparatively higher than other occupations. IA was found comparatively high in high family income groups. The respondents belong to nuclear family 136 (74.7%) and urban areas 175 (70.9%) were found with IA comparatively higher than respondents belongs to joint family and rural areas. There was a significant association found between IA and socio-demographic variables such as age ($p<0.05$), gender ($p<0.05$), marital status ($p<0.01$), and family types ($p<0.05$).

Figure 1 shows that majority of the respondents (50.29%) were found with mild level of IA, followed by 29.71% normal internet users, 18.29% with moderate level of IA and 1.71% with severe level of IA.

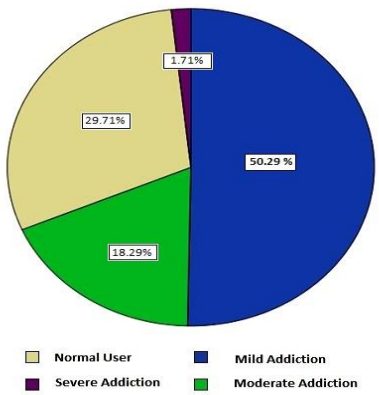

Figure 1: Distribution of Internet Addiction among the respondents

Table 3 shows that the significant variables influencing the internet addiction (IA) are age, gender, marital status, and family type as observed from the observation of the table 2. These variables have been used to find out their risk and confidence interval. The result indicates that the chance of IA among younger and early adulthood respondents have 1.4 times higher risk of IA, but age was not found as significant risk factor to IA. The risk of IA was found 2.09 times higher among male with 95% CI (1.25-3.48) as compared to female respondents. The unmarried respondents were found with 2.142 times higher risk of IA with 95% CI (1.04-4.44) as compared to married respondents. The respondents living in nuclear family have 1.57 times risk of IA with 95% CI (0.97-2.54), but type of family was not found significant risk factor of IA.

Table No. 3 The result of binary logistic regression analysis

Independent Variables	Odds Ratio	95% CI
Age		
14-25	1.40	0.54-3.62
26-35	0.98	0.43-2.22
36-80	1 (Ref)	
Gender		
Male	2.09	1.25-3.48
Female	1 (Ref)	
Marital Status		
Unmarried	2.142	1.04-4.44
Married	1 (Ref)	
Family type		
Nuclear	1.57	0.97-2.54
Joint	1 (Ref)	

DISCUSSION

The present study was conducted to assess the Internet Addiction (IA) among people living in Varanasi district during the period of Lockdown due to COVID-19. An online survey was done with the help of some volunteers living in these clusters. A total of 350 respondents were selected in the present study. The result of the present study indicated that the majority of the respondents using the internet were from the age group 14-25 years. The IA was found comparatively higher among youth (75.9%). And there was a significant association (p=0.09) between the age of the respondents and IA in the present study. The risk of IA was found 7 times higher (odds ratio 1.40, 95% CI 0.54-6.62) among youth as compared to middle adulthood and older adults. The present findings are similar to the previous studies conducted by Jafari et al., (2014) in Iran, Hasan et al., 2020 in Bangladesh, Kwon et al., 2020, and Lee et al. (2016) in South Korea.

The proportion of IA among male internet users was found comparatively higher (73.4%) than female users (62.8%). The gender of the respondent was found significantly associated with IA (p=0.041). And the risk of IA was 3 times higher (odds ratio 2.09, 95% CI 1.25-3.48) among male respondents as compared to females. These findings are correspondence to the previous studies conducted in India and other countries. (Ataee et al., 2014, Kwon et al., 2020, Hasan et al., 2020, Lee et al, 2016, Jafari et al 2014, Goel at al., 2013, Gedam et al., 2016, Arya et al., 2018 and Krishnamurthy and Chetlapallu, 2015). There was a significant association found between the marital status of the respondents and IA in the present study. And the risk of IA was found 4 times higher (odds ratio 2.142, 95% CI 1.04-4.44) among unmarried respondents as compared to married respondents. There were similar

findings were studies conducted by Ataee et al., 2014 and Jafari et al., (2014) in Iran had found similar results.

The proportion of IA was found comparatively higher among the respondents having education up graduation. There was no significant association found between academic qualification and IA in the present study. In contrast to the present findings a study conducted by Jain et al., (2020) in Jaipur Rajasthan, India had reported that IA has a significant association with the educational qualification of the respondents. The result of the present study indicated that most of the respondents were from high family income group, but there was no significant association between the IA and family income of the respondents. These findings are similar to the findings of previous studies conducted in Jhansi, Uttar Pradesh (Arya et al., 2018), and Korea (Kwon et al., 2020).

The proportion of Internet users belong to nuclear families was high and IA was also found among them compared to respondents belong to joint families. There was a significant association found between family type and IA in the present study. The risk of IA was found approximately 3 times higher (odds ratio 1.57 95% CI 0.97-2.54) among respondents belongs to nuclear family, but family type of the respondents was not a significant risk factor of IA. These findings are similar to a previous study (Kwon et al., 2020). The IA was found high among respondents belong to urban areas compared to rural areas. But there was no significant association found between the residence of the respondents and the IA. In contrast to the present findings, a study conducted in Poland had reported that IA has a significant association with residential area (Pawlowska et al., 2015).

The findings of the present study indicated that half of the total respondents were found with a mild level of IA. There were about one-fifth of the respondents were found moderate and severe levels of IA in the present study. These findings are correspondence to the previous studies conducted in Palestine (Alhajjar, 2014), Iran (Ataee et al.,2014) and India (Arya et al., 2018 and Sushma et al., 2018).

LIMITATIONS

There were several limitations of the present study such as; the data was collected through an online survey. Therefore, there is a chance of hiding actual information by the respondents. The information related to the purpose of use of the internet, duration of use, and problem faced during the lockdown etc. were not asked from the respondents.

CONCLUSION

Findings of the present study highlight that the prevalence of Internet Addiction may increase in the presence of stressful situations especially in the nation and international crises such as lockdown due to COVID-19. There was about half of the respondents in the present study were found with a mild level of IA, other hands one-fifth of the respondents were affected with a moderate and severe level of IA. There was a significant association found between IA and socio-demographic variables such as age gender, marital status, occupation, and family type.

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Conflict of Interest

The author declared no conflict of interest.

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