Internet Addiction and Anxiety amid COVID-19 in India: Role of socioeconomic status and locus of control

Shriya Dixit

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The present study was conducted to understand the relationship between internet addiction and anxiety in the Indian context, amid the ongoing pandemic. The impact of socioeconomic status and locus of control on internet addiction, was also examined. The study was conducted on a sample of 80 females (17-25 years). To measure socioeconomic status, Modified Kuppuswamy Socioeconomic Scale (2018), was used. Young's Internet addiction Scale, Levenson's Locus of Control Scale and Beck's Anxiety Inventory were used to measure internet addiction, locus of control and anxiety, respectively. Independent sample t-test showed no significant difference between internet addiction levels of low and high socioeconomic status females. Correlation analysis did not reveal a significant correlation between internet addiction and anxiety for the two socioeconomic groups, when considered separately. A significant correlation was obtained between internet addiction and anxiety for the overall sample. Linear regression analysis revealed that locus of control and socioeconomic status do not predict internet addiction. These findings highlight the shift in the mindset of people who no longer perceive excessive internet usage as addictive. The findings also reflect the importance of policy changes needed to curb the anxiety associated with excessive internet usage during the ongoing pandemic.

Keywords: internet addiction, socioeconomic status, locus-of-control, anxiety.

Internet addiction may be defined as the psychological phenomenon of showing excessive dependence on the internet irrespective of the kind of activity that one is performing online (Garcia-Priego, et.al., 2020). Referring 'Internet Addiction' as pathological internet use, this term was coined by Goldberg and later, the first case report of pathological internet usage was popularised by Kimberley Young (Bisen and Deshpande, 2020). Internet addiction has not been researched much in middle to low-income countries, including India. A study by Yadav, et.al. (2013) used aspects like time spent online, usage of social media sites, and time spent on online chats to predict that around 11.8% Indian students exhibited Internet addiction. Internet usage is still not considered to be a standard diagnosis by DSM-5. However, this surge in the internet usage in the country has prompted researchers to understand the excessive use of Internet in India, with a special emphasis on youth (Jaiswal, et.al., 2020).

During the ongoing COVID-19 pandemic, nearly 3 billion people all over the world are staying at home so as to abide by the COVID restrictions (Lin, 2020). Due to this, several daily operations have been pushed to the online realm (Siste, et.al., 2021). The resultant isolation has made people more vulnerable to develop internet addiction (Li, et.al., 2021). Several studies (Dong, et.al., 2020; Fernandes, et.al., 2020; Lin, 2020) concluded that the pandemic has resulted in higher prevalence of internet addiction. Addictive usage of internet during the pandemic has also been found to be associated with increased levels of anxiety (Garcia-Priego, 2020) probably due to higher reliance on internet for COVID related health concerns (Khodabakhsh, et.al., 2021). Anxiety may be defined as a persistent feeling of nervousness, fear or worry (Smith, et.al., 2020). Internet addiction and anxiety form an infinity loop, because internet addiction causes anxiety (Choi, et.al., 2015) which affects occupational functioning and interpersonal relationships (Hwang and Yoo,

2012). This resultant anxiety and its associated effects, further increase addictive internet usage (Panicker and Sachdev, 2014). Hence, the cycle continues. Carli, et.al. (2013), also suggested that pathological internet was associated with psychopathology including anxiety. Hence a possible correlation can be speculated between internet addiction and anxiety.

Internet is widely accessible to people these days mainly due to the expansion of mobile telecom networks (Kawoosa, 2020). Existing empirical evidence (Koo, et.al., 2021; Chou, et.al., 2018) suggests that socioeconomic status might be associated with the addictive internet usage. Some studies (Brooks, 2011; Oyeboade, 2017) concluded that addictive internet usage is associated with high socioeconomic status due to easy access to internet facilities, higher qualification (Mazaheri and Najarkolaei, 2014) etc. Contrary to this, existing research (Heo, et.al., 2014; Chou, et.al., 2015; Chou, et.al., 2018) also shows that low socioeconomic status is associated with higher levels of addictive internet usage. The present study further explores the relationship between socioeconomic status and internet addiction.

Attributing life situations to one's own actions may be defined as internal locus of control, and attributing life situations to luck or external factors may be defined as external locus of control (Salik-Sengul, et.al., 2021). Since external locus of control causes individuals to feel lesser in control of their environment, therefore, they are assumed to show higher internet addictive behaviours (Salik-Sengul, et.al., 2021). Existing research evidence (Hou, et.al., 2017; Thakur and Suleria, 2018) supports this assumption. People with an internal locus of control hold themselves accountable for their actions, and are therefore expected to show lower addictive usage of internet (Rotsztein, 2003; Agaj, 2016). On the basis of the available empirical evidence (Ye and Lin, 2015), it can be speculated that a relationship exists between locus of control and problematic internet use.

Research conducted (Panicker and Sachdev, 2014; Saikia, et.al., 2019; Javaeed, et.al., 2019; Jaiswal, et.al., 2020) in the Indian

context suggests a possible association between addictive internet usage and anxiety. However, there is paucity of research to understand the association between internet addiction and anxiety during the COVID-19 pandemic, in the Indian context. Impact of socioeconomic status and locus of control on internet addiction amid the pandemic, has also not been empirically studied in the Indian context. The present study fills this gap in existing literature by showing the association between internet addiction and anxiety amid the ongoing pandemic, in the Indian context. It also examines whether socioeconomic status and locus of control predict internet addiction.

Method

Sample

A total of 100 responses were collected from females in the age range of 17-25. After eliminating the incomplete responses, a sample of 80 females was used in the study. Among these, 40 females belonged to the high socioeconomic status and 40 belonged to the low socioeconomic status.

Procedure

Researchers manually distributed self-reporting questionnaires in the month of February, 2020; to females in the age-range of 17-25, belonging to a university in India. However, the country went into a complete lockdown soon after. Hence, the remaining sample was collected through the online data collection resource Google Forms. The participants were approached through calls, emails and WhatsApp. The participants were provided information regarding the aim and objectives of the research, voluntary participation, their right to withdraw from the study, as well as the maintenance of confidentiality of the responses. After providing their informed consent, the participants answered the items on socio-economic status, internet addiction, locus of control and anxiety. All the manual and digital data was entered on the computer and stored in a password protected file. Before analysis, the collected data was coded to ensure that it did not include any personal or sensitive information.

Measures

Socioeconomic status was measured through Modified Kuppuswamy Socioeconomic Scale, developed by Kuppuswamy (1976). This scale is divided into three parts. The first two parts measure the profession and education of the head of the family, respectively. The third part measures the monthly family income. A composite score of all the three parts is calculated which can range from 3-29. This score sorts individuals into one of the five categories namely- Upper, Upper Middle, Lower Middle, Upper Lower and Lower. The latest updated version of January 2018, was selected for the present study (Saleem, 2018).

To measure internet addiction, Young's Internet Addiction Scale was used. It was developed by Dr. Kimberly Young in the year 1998. It is a 20-item questionnaire based on a 5-point Likert Scale (0- not applicable to 5- always). The scores classify the respondent's internet addiction into 4 categories- Normal Range (scores 0 to 30), Mild (scores 31 to 49), Moderate (scores 50 to 70), and Severe (scores 80 to 100). The scale shows high internal reliability and construct validity (Keser et.al., 2013).

Locus of control was measured by Levenson's Locus of Control Scale. It was developed by Hanna Levenson (1972) and was based on Rotter's Locus of Control Scale. The scale has 24 items which measure Locus of control under three categories- "Internal" (I scale), "Powerful others" (P scale) and "Chance" (C scale). A high score on "Internal" meant that the respondent had an internal locus of control. While, a high score on either "Powerful others" or "Chance" meant that the respondent had a high external locus of control. A good convergent validity was found for the new P and C scales in Levenson's Locus of Control Scale, by the positive correlations obtained between the P and C scales with 'Externality' of Rotter's Locus of Control Scale, and negative correlation with the I scale, in a study on college students (Levenson, 1973).

To measure anxiety, Beck's Anxiety Inventory was used. It was developed by Aron. T. Beck and his colleagues in 1988. This inventory comprises of 21-items based on a Likert-Scale ranging from 0-3. The raw scores range from 0-63. The items vary from feeling of numbness or tingling (neurological symptom) to symptoms like "unable to relax" (subjective symptom). High internal consistency reliability (α = 0.86) and high concurrent validity (r =0.82) with Hamilton Anxiety Rating Scale, were obtained for Beck's Anxiety Inventory (Toledano-Toledano, et.al., 2020).

Statistical Analysis

Shapiro Wilk Statistics (W) showed that the data of internet addiction for Low socioeconomic status (N=40, M= 37.97, SD=1.38, W = 0.98, p = 0.83) and high socioeconomic status (N = 40, M = 40.02, SD = 1.38, W = 0.98, p = 0.78) was normally distributed. The data of anxiety for low socioeconomic status (N = 40, M = 21.07, SD = 1.05, W = 0.94, p = 0.07); and high socioeconomic status females (N = 40, M = 21.3, SD = 1.20, W = 0.96, p = 0.21) was also found to be normally distributed. While the statistics indicated that the data of locus of control for low socioeconomic status females (N = 40, M = 35.42, SD = 5.07, W = 0.96, p = 0.24) was normally distributed; the data of locus of control for high socioeconomic status females (N = 40, M = 40.02, SD = 1.38, W = 0.98, p < 0.05) was not normally distributed. This data was transformed to normal distribution through Templeton's two-step approach. Independent sample t-test was used to assess the difference between the internet addiction levels of low and high socioeconomic status females. The homogeneity of variance was tested and satisfied by Levene's F test (F (78) = 0.01, p = 0.934). Pearson product moment correlation was used to find the correlation between internet addiction and anxiety. Linear Regression was used to study the predicting effect of socio-economic status and locus of control on internet addiction.

Results

Independent sample t-test (t = -0.66, p > 0.05) showed that there was no statistically significant difference between the level of internet addiction among low socioeconomic status females and high socioeconomic status females (Table 1).

Table 1. Difference in Internet Addiction (IA) Levels of Low Socioeconomic Status and High Socioeconomic Status females.

	N	M	SD	t	p
IA of Low socio economic status females	40	37.97	13.88	-0.66	0.511
IA of High socio economic status females	40	40.02	13.85		

Note. IA = Internet Addiction, Levene's F test (F (78) = 0.01, p = 0.934)

Correlation analysis was conducted using IBM SPSS 27. The results showed a weak, positive, and non-significant correlation (r = 0.24, p = 0.06) between internet addiction and anxiety levels of low socioeconomic status females.

Pearson correlation performed for internet addiction and anxiety levels of high socioeconomic status females also obtained a weak, positive, non-significant relationship (r = 0.14, p = 0.19).

Another correlation analysis was performed for the total sample (N=80), which showed (r = 0.18, p < 0.05) a positive and significant relationship between internet addiction and anxiety, irrespective of the socioeconomic status (Table 2).

Table 2. Pearson Product Moment Correlation showing the relationship between internet addiction and anxiety

Variables	Anxiety	Total Anxiety (N = 80)
IA of low socio economic	0.24	
IA of high socio economic	0.14	
Total Internet Addiction (N = 80)		0.18*

Note. *p < .05

Linear regression analysis was conducted using jamovi (Version 1.8.1). Results showed that locus of control is not a significant predictor of internet addiction (β = -0.14, r^2 = 0.02, p = 0.72) among females of high socioeconomic status. Regression analysis between locus of control of low socioeconomic status females, and, internet addiction also showed that (β = -0.22, r^2 = 0.05, p = 0.16) locus of control is not a significant predictor of internet addiction.

Discussion

The present study hypothesized a significant relationship between internet addiction and anxiety among females of low and high socioeconomic status. It was also hypothesized that locus of control would significantly predict internet addiction among low and high socioeconomic status females. As per the results, there is no significant difference in the internet addiction levels among low and high socioeconomic status females. Internet addiction is significantly related to anxiety in the overall sample. However, internet addiction is not found to be associated to anxiety, in low and high socioeconomic status females, when considered as separate groups. Locus of control is not a significant predictor of internet addiction among both low and high socioeconomic status females.

Hyung, M. (2006), suggested that demographic and socioeconomic factors are associated with internet addiction. Considering the impact of high and low socioeconomic status on internet addiction separately, Mazaheri and Najarkolaei (2014), concluded that high socioeconomic status individuals were more addicted to internet addiction; while Arya, et.al, (2018), found low socioeconomic status individuals to show higher internet addictive behaviour. These results contradicted the findings of the present study which interestingly suggested absence of significant difference between the internet addiction levels of the two socioeconomic groups. Rapid technological advancements have offered internet facilities through a wide range of costs and products, thereby making it equally accessible to

individuals of high and low socioeconomic status (Seyrek, et.al., 2017). Data for the present study was collected during the COVID-19 lockdown when there was a surge in digitisation and technological advancements all over the world (De, et.al., 2020). There was an increase in the usage of internet, social-media, online-gaming etc. (Fernandes, 2020), which might have been escape routes for people to cope with the emotionally vulnerable pandemic period (Király et al., 2020). High internet accessibility during COVID (De, et.al., 2020; Fernandes, 2020) at affordable prices (Seyrek, et.al., 2017), might have mitigated the effect of socioeconomic status on addictive internet usage in the present study.

Akin and Iskender (2011), suggested that those who spend excessive amounts of time on internet might experience poor self-esteem and a sense of isolation. They might find real-life face-to-face interactions difficult, which in turn contribute towards their anxiety. Existing empirical evidence (Azher, et. al, 2014; Panicker and Sachdev, 2014; Gedam, et.al., 2017; Saikia, et.al., 2019; Javaeed, et.al., 2019; Jaiswal, et.al., 2020) suggests a possible association between internet addiction and anxiety. However, there was paucity of research to show a relation between internet addiction and anxiety in the Indian context, amid the COVID-19 pandemic. The findings of the present study solve this ambiguity by showing a significant relationship between internet addiction and anxiety, amid the pandemic, in the Indian context.

Factors associated with low socioeconomic status, like lack of proper-sleep and nutrition might contribute to psychological distress (Nagasu, et.al., 2021) which in turn can increase reliance on internet during the stressful pandemic period (Lin, 2020). However, this is contradicted by the findings of the current study due absence of significant difference in the relationship between internet addiction and anxiety of the two socioeconomic groups. Considering the Indian context, these findings are not surprising. In India, several steps were taken by the government to ensure uninterrupted and affordable internet connectivity to all during the pandemic. The Telecom Regulatory Authority of India stated on March 29, 2020, that all Mobile Network Operators must announce new data packages, provide extensions on the validity of pre-paid packs, and extend the limit on free-talk time to support customers belonging to low socioeconomic groups (Bhandari, 2020). Research and development; and, innovation in the telecom and electronics sectors over the past forty years in India, helped in ensuring the availability of affordable telephony and internet facilities to people during the ongoing health-crisis (Jhunjhunwala, 2020). These interventions implemented by the Indian Government during the pandemic might have contributed towards mitigating the effect of socioeconomic status in the relationship between internet addiction and anxiety in the present study.

During the ongoing pandemic, people with an internal locus of control may feel that their actions matter and may be more likely to take precautionary measures than people with external locus of control; who might internalise the fear associated with COVID-19 (Sigurvinsdottir, et.al., 2020). Another study conducted on problematic use of Facebook, during the pandemic, also revealed that people with external locus of control were more likely to show addictive internet usage due to their belief in fate and control of external world (Salik-Sengul, et.al., 2021). Existing empirical evidence (Rotsztein, 2003; Agaj, 2016) shows the possibility of individuals with internal locus of control showing higher internet addictive behaviours. The findings of the present study were intriguing as locus of control was not found to be a predictor of addictive internet usage. Provision of up-to-date information through various internet sources (Tully, 2014), regarding the spread of the novel Coronavirus, highlights the importance of accessibility to internet amid the pandemic (Lee, et.al., 2020). The importance of Information and Communications technology increased during COVID-19, as it kept the economy running, allowed maintenance of connections between social groups and ensured the continuity of work, study and entertainment from home (Király, et.al., 2020). People may no

longer perceive their internet usage negatively (Avant, 2017), since it has become an essential tool during the pandemic (Király, et.al., 2020; Lee, et.al., 2020). This suggests that personality aspects like locus of control need not predict internet addiction (Adeagbo, et.al., 2011), during the present crisis situation, which is in line with the findings of the present study.

Martončik (2019), suggested that locus of control does not significantly mediate the relationship between poverty and self-esteem. Possibly, a relationship might not exist between socioeconomic status and locus of control. Research results (Ng-Knight and Schoon, 2017), also showed that a significant association does not exist between socioeconomic status and locus of control. This is consistent with the current findings as locus of control did not predict internet addiction regardless of the socioeconomic status of the participants.

According to current findings, socioeconomic status and locus of control do not show strong associations with internet addiction amid the ongoing pandemic situation. However, internet addiction is significantly associated with anxiety. These results are intriguing and open doors for research in areas like anxiety produced by COVID-19 related news on internet, or usage of internet as escape routes. These results also contribute towards policy formulations that help employees and students to minimise the amount of time spent online during the current virtual mode of working.

Conclusion, limitations and implications

Existing literature suggested that internet addiction and anxiety form a vicious loop. Empirical evidence showed that people with low socioeconomic status as well as high socioeconomic status showed high levels of internet addiction. This was intriguing for the researchers of the present study who assumed a possible relationship between socioeconomic status and internet addiction. However, the current findings were contrary to this assumption, because socioeconomic status was not found to predict internet addiction. The results further highlighted the interesting change in the mindset

of modern India, where people living in a highly digitised environment no longer perceive their internet usage as addictive. These results consequently negated the impact of personality aspects like locus of control on internet addiction during the ongoing pandemic. The study also showed a significant relationship between internet addiction and anxiety, regardless of the socioeconomic status of individuals or their perceived locus of control. In summary, the findings confirm that internet addiction and anxiety are strongly related, and, due to the rising digitisation and other initiatives by the Indian government, socioeconomic status and locus of control do not predict internet addiction in the Indian context, amid the pandemic.

The study was conducted during the first-wave of the pandemic, when the country was in a lockdown. This posed challenges for the researchers to collect a representative sample. The findings may only be applicable to the Indian context and a female population. Nevertheless, the findings are interesting because they reveal the significant association between internet addiction and anxiety. These findings have important implications as they highlight the exigency of policy changes to curb the negative impacts of excessive internet usage during the pandemic. Though the study was conducted on a student population, however, the findings significantly contribute to not just the educational context but to the broader working population. These findings can drive important changes in on-screen timings of students as well as working schedules of employees. The present study also opens doors for future research that may include a diverse sample in terms of gender, age and occupation. Internet addiction among those who did not switch to online mode of working during the pandemic, may also be explored.

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Shriya Dixit, xxxxxxxxx