

ANTECEDENTS OF INTERNET ADDICTION AMONG COLLEGE STUDENTS IN INDIA

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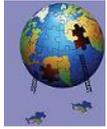
ABSTRACT

The advent of the internet has dramatically changed our life, positively as well as negatively. Internet addiction is one such negative consequence of it. The present study aims at exploring how personality, loneliness, and affect (positive and negative) predict internet addiction among Indian students. Four psychological tools were used to measure the variables taken in the study. Internet addiction was measured by Online Cognition Scale (OCS), Personality was measured by Eysenck's MPI (Short), Loneliness was measured by UCLA Loneliness Scale (UCLA-LS), and affect was measured by PANAS. Cronbach's alpha on the current sample was: OCS (0.88), UCLA-LS (0.79), PANAS (Negative Affect 0.68, Positive Affect 0.77), and MPI (Extraversion 0.33, Neuroticism 0.58). For this purpose data were collected from a sample size of 205 participants, from undergraduate and postgraduate students. They are between the age group of 17 to 25 years, comprising 157 Females and 48 Males. Their mean age is 19.76 years. Multiple correlation indicate a significant correlation (0.34, $p < 0.001$) among all the variables chosen in the study and all the predictors explained significant variance in the internet addiction. Loneliness and Negative Affect emerged as the significant predictors of internet addiction in the current sample.

Keywords: Internet Addiction, Neuroticism, Extraversion, Loneliness, Negative Affect, Positive Affect.

INTRODUCTION

Internet addiction definition as given by Beard (2005) state that, "an individual is addicted when an individual's psychological state, which includes both mental and emotional states, as well as their scholastic, occupational and social interactions, is impaired by the overuse of the medium"(pp. 8-9). Studies on internet addiction have been conducted around the world by various researchers. An extensive survey in India was published by Internet and Mobile Association of India (IAMAI) in 2009. The survey found that, 38% of internet users in India had shown signs of heavy usage of about 8.2 hours per week, most of them were young male college goers. In India internet is use for instant messaging (98%), job searching (51%), banking (32%), stock trading (15%), and matrimonial search (15%) as published in I-Cube (2009). In Europe adolescent of 15 years and older were reported to be most engaged users in terms of time spent and content consumed on the Internet (comScore 2009). But no such data were found in Indian context. However, latest statistics indicate that India has the second highest users of internet in Asia next to China beating Japan which was second then in 2009 (Internet World Stats 2013).



The present research was carried out on college students in New Delhi, India. At this stage of development people explore possibilities and began to form their own identities and independence becomes one of the major goals. According to Lei and Wu (2007) information and communication functions of the internet offer a novel means to achieve these objectives. The content and presentation of the internet sites are designed to suit the youth (Gottlieb–Robles & Larson 2004). However, the uninterrupted access without proper guidance might result in over use of the internet which eventually leads to addiction (Hartney 2012). It might also result because of “huge blocks of unstructured time...the desire to escape college stressors...social intimidation and alienation (feeling lost in the crowd), etc”. (Young 1988., pp. 177-178). Internet addiction like other forms of addiction has many negative consequences for the users, their family and the friends. The present research aimed to explore the possible antecedents of the internet addiction among college students. Three possible antecedents such as personality, affect and social isolation have been identified to explore their possible linkages with the internet addiction. Brief descriptions on each selected variables are given below.

PERSONALITY AND INTERNET ADDICTION

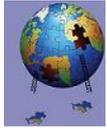
Personality is an important determinant to many psychopathologies such as obsessive-compulsive personality disorder, post-traumatic stress disorder (APA 2000) and one of the important predictors of internet addiction. Young and Rodgers (1998) found that internet addicts tended to be sensitive, vigilant, and private. They showed strong preference for solitary activities, and tend to restrict their social outlets. Individuals with low self-esteem have been found to be inclined toward internet addiction (Young 1996). Studies on the Big Five and Internet addiction have generally concluded that Internet addicts score high on Neuroticism and low on Extraversion (Hamburger and Ben-Artzi 2000). Various personality types shall use the internet in different ways, as reported by Salisbury (2010), extraverted individuals tend to use the Internet more for chatting and social networking, perhaps they carry their need for social interaction with them online (Salisbury 2010). Keeping the tradition alive, the present research also tends to explore how various personality domains influence pathological internet usage in the Indian context. Therefore, the present study aims to explore how personality traits such as Extraversion and Neuroticism predict internet addiction.

H1: Neuroticism would predict internet addiction in significant and positive manner.

H2: Extraversion would predict internet addiction in significant and negative manner.

LONELINESS AND INTERNET ADDICTION

According to available literatures, loneliness is found to be one of the main predictors of internet addiction. The relationship between loneliness and internet addiction has been reported by researchers (Young 1998). Solano and Koester (1989) found that lonely people are susceptible to use more internet because of their being socially inhibited and anxiousness. They are also found to have poor social skills (Vitkus and Horowitz 1987) which may hamper their relationship in the real life, so they find internet as a medium to express their social skills. They have difficulty in making friends, initiating social activity, and participate in groups (Horowitz and de Sales French 1979), less likely to be intimate and self-disclose (Williams and Solano 1983), and have low self-esteem (Burger 1997). They are also sensitive to rejection (Russell et al. 1980). One possible reason is that the online world provides anonymity and there is very high chance to get accepted and one can easily interact with people without much difficulty. The person may also become what they aspire to become without being afraid of it. For some other people internet



provides a medium to go out of the stressful situation, to alleviate negative feelings and stressors that are associated with loneliness (Booth 2000). On the basis of the above review the following hypothesis can be made:

H3: Loneliness would predict internet addiction in positive and significant manner.

POSITIVE AFFECTS/NEGATIVE AFFECTS AND INTERNET ADDICTION

According to Merriam Webster's 11th Collegiate Dictionary, Affect is the conscious subjective aspect of an emotion considered apart from bodily changes. Affect can be either positive or negative in nature. Watson and Clark (1984) defined negative affectivity as a mood-dispositional dimension that reflects pervasive individual differences in negative emotionality and self-concept. Some of the Negative affect are anger, depression, anxiety, etc. Whereas, positive affect are feelings that reflect a level of pleasurable engagement with the environment, such as happiness, joy, excitement, enthusiasm, and contentment (Clark et al. 1989).

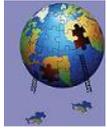
Kraut et al. (1998) found that Internet use was associated with negative subjective wellbeing, further they also found that the greater the time spent online, the greater the feelings of depression and loneliness in first time internet users. Negative wellbeing was shown to have increased with the introduction of internet access to the participants in their study. Internet addiction was found to be related to number of negative emotional factors such as depression, anxiety and stress (Akin and Iskender 2011). Internet addicted individuals were easily affected by feelings, emotionally less stable, imaginative, absorbed in thought, self-sufficient, experimenting and preferred their own decisions (Yang et al. 2005). Internet addicts used the medium to escape from problems or to settle one's unpleasant emotional states like helplessness, anxiety, guilt, or shame etc. (Beard and Wolf 2001). This behavior is easily seen in the young internet users via their personal blogs or in their social networking profiles.

However, the relationship between positive affect and internet use has not been explored much in the literature as very limited studies could be found. These studies were mainly reported in the context of older adults as well as patients. Sum et al. (2007) found that internet use increases the wellbeing of older adults by reducing the isolation and boredom that result from a lack of meaningful friendships. Han et al. (2008) found that women with breast cancer experienced improvements in their sense of wellbeing by participating in an online support group. These online support groups allow people with similar illnesses to come together, thereby "reducing patients' depression, stress, and cancer-related trauma" (p. 1003). Lelkes (2012) believed that internet use is expected to have a positive impact on subjective well-being and on social relations as long as it is not addictive. Hence it may be proposed that many of the participants would experience positive affect while being on line.

On the basis of the above review we can make the following hypothesis:

H4: Negative affect would influence Internet Addiction in a positive manner.

H5: Positive affect would influence Internet Addiction in a positive manner.



METHOD

SAMPLE

The research was conducted on 205 college students in New Delhi, India. They were contacted individually and in groups in their free time. All the participants were informed about the goals of the research. Informed consent was taken from the participants and they have the freedom to withdraw from this research whenever they felt so. They were allowed to consume as much time as they wanted. The age of the participants ranges from 17 to 25 years of age (Mean=19.76 years). The numbers of male participants were 48 and the numbers of female participants were 157. They were selected randomly and questionnaires were distributed by personally contacting them individually and in groups.

MEASURES

Online Cognition Scale

This scale was developed by Davis et al. (2002), there are 36 items in a 7-points likert-type scale (1-Strongly disagree to 7-Strongly agree). This scale has four dimensions of measure namely, Social Comfort (13items), Lonely/Depressed (6items), Impulsive (10items) and Distraction (7items). Reliability of each dimensions are, Social Comfort (0.70), Lonely/Depressed (0.65), Impulsive (0.75) and Distraction (0.66). The overall Cronbach Alpha reliability on this study was found to be 0.88.

Eysenck's Maudsley Personality Inventory (MPI-Short)

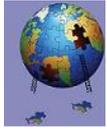
This scale was developed by Eysenck (1959), it measures two traits of personality namely Extraversion and Neuroticism. The scale consist of 48 items (Long form) while there is 12 items in short form, to be responded in 'Yes', '?', and 'No'. In this research the short form was used which consist of 12 items of each personality traits measured by this scale. In this study we obtained Cronbach Alpha reliability in Extraversion (0.33), and Neuroticism (0.54).

UCLA Loneliness Scale (Version 3)

This scale on loneliness was developed by Russell (1996). The scale measures the overall feelings of loneliness in individuals through a self-report Likert-type scale comprised of 20 items. The scale reports range from 20 to 80 where higher scores mean a higher degree of feelings of loneliness. In this study, Cronbach Alpha reliability was found to be 0.79.

Positive and Negative Affect Schedule (PANAS)

The scale was developed by Watson et al. (1988). The scale consists of 20 items with 10 items each for Negative emotion and Positive emotion. In this study we obtained Cronbach Alpha reliability in Negative Affect (0.68) and Positive Affect (0.77).



RESULTS

The data on this sample was analyzed by SPSS software; the findings are given as follow:

Table 1: Descriptive Statistics

	Mean	Std. Deviation	N
Internet Addiction	122.63	32.24	205
Neuroticism	7.98	3.08	205
Extraversion	8.23	2.52	205
Loneliness	44.16	8.49	205
Negative Affect	24.72	6.43	205
Positive Affect	36.08	6.43	205

The above table showed the descriptive statistics for all the constructs used in the study. Internet addiction scale has a Mean of 122.63 and a Standard Deviation (SD) of 32.24. Extraversion has a Mean of 8.23 and SD of 2.52, while Neuroticism has a Mean of 7.98 and SD of 3.08. Loneliness Scale has a Mean of 44.16 and SD of 8.49. Negative Affect has a Mean of 24.72, and SD of 6.43. Positive Affect has a Mean of 36.08 and SD of 6.43.

Table 2: Correlations

	Internet Addiction	Neuroticism	Extraversion	Loneliness	Negative Affect	Positive Affect
Internet Addiction	1.000	.124*	-.154*	.272**	.246**	-.116*
Neuroticism		1.000	-.118*	.134*	.336**	-.111
Extraversion			1.000	-.078	-.254**	.459**
Loneliness				1.000	.259**	-.158*
Negative Affect					1.000	-.284**
Positive Affect						1.000

** p<.05, * p<.01

From the correlation table it is found that, Internet addiction is positively correlated with and Neuroticism (r = 0.124, p<.05), Loneliness (r = 0.272, p<.01), and Negative Affect (r = 0.246, p<.01), , while it is negatively correlated with Extraversion (r = -0.154, p<.05) and Positive Affect (r = -0.116, p<.05). The table also shows that all the variables were significantly correlated with the dependent variable (Internet addiction).

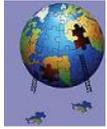


Table 3: Multiple Regression Table

R	R square	Adjusted R square	Std. error of Sig	F	Sig.	f ²
.34	.11	.094	30.68	5.23	.000	.123

Predictors: (Constant), Neuroticism, Extraversion, Loneliness, Negative Affect, Positive Affect.

The above table showed that the value of multiple correlation coefficients (R) with all the predictors simultaneously is 0.34, which indicates a significant correlation among all the variables chosen in the study. The value of R square was found to be 0.11 which indicates that 11% of the variance in the criterion variable (Internet Addiction) could be attributed to the predictors combined, which is also highly significant as indicated by the F-value of 5.23. This indicates that the combination of the predictors significantly predicted Internet addiction. Further an effect size (indicated by f²) of the regression was calculated and the value was found to be 0.123 which is a small effect size. According to Cohen (1992) this small effect size indicates that the predictive relationship had really happened and required a careful study so as to see it.

Beta table presented below shows the relative importance of various predictors in influencing the internet addiction individually.

Table 4: Beta Table

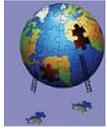
	Standardized Coefficients			Collinearity Statistics		
	Beta	t	Sig.	Tolerance	VIF	
(Constant)		3.45	.001			
Neuroticism	.03	.44	.65	.88	1.13	
Extraversion	-.09	-1.30	.19	.77	1.29	
Loneliness	.22	3.18	.00	.92	1.08	
Negative Affect	.15	2.07	.04	.77	1.24	
Positive Affect	.01	.16	.87	.75	1.32	

Dependent Variable: Internet Addiction

Multicollinearity was assessed among predictors; the tolerance levels were high for all the variables indicating absence of problem with multicollinearity. As pointed out by Tabachnick and Fidell (2001), tolerance value of 0.50 or higher is generally considered acceptable. Beta table showed that Loneliness and Negative Affect emerged as the significant predictors of Internet addiction in the present sample. Loneliness, Negative Affect, Positive Affect, and Neuroticism were influencing internet addiction in positive way, while Extraversion predicted the criterion variable in the negative way.

DISCUSSION

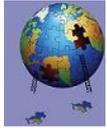
The present study intended to explore the antecedents of internet addiction among college students. Multiple Regression was used to analyze the data, results were presented above in Tables 3-4. The result from Table 3 showed significant correlations (0.34, $p < 0.001$) among all the variables. The predictors were able to influence 11% of the variance in the internet addiction scale. The following are the findings of the hypotheses as hypothesized:



HYPOTHESIS 1: The result showed that there is a positive and significant correlation (0.124, $p < .05$) between neuroticism and internet addiction, however, beta was not found to be significant. It implies that these two constructs would be positively related to each other but neuroticism may not influence the criterion significantly. Individuals who are having a neurotic personality trait would use internet more and tends to be addicted to the medium. Similar finding was also reported by Cao and Su (2007) that, individuals with higher score on neuroticism belongs to the internet addicted group in their study. Study by Dong et al. (2012) also showed similar findings. In their study students addicted to the Internet showed higher Neuroticism/Stability scores, higher Psychoticism/Socialization scores, and lower Lie scores than their normal peers before their addiction. A possible reason is that, neurotic individuals are shy and tend to keep away from social contacts due to their lack of certain social skills. So they would utilize the medium to compensate to their need for such skills which would eventually motivate them also increasing their chances to make friends online (Peter et al. 2005).

HYPOTHESIS 2: From the correlation table we can see a negative and significant correlation (-.154, $p < .05$) between extraversion and internet addiction but like neuroticism beta here was also not significant. It indicates that extraverted individuals use lesser internet and are not susceptible to internet addiction. Similarly, existing studies conducted on the Big Five and internet addiction have generally concluded that internet addicts score high on Neuroticism (the opposite of Stability) and low on Extraversion (Hamburger and Ben-Artzi, 2000). Zamani et al. (2011) found that students who had higher emotional stability, achieved higher scores of extroversion, and were more loyal had less addiction to the Internet. In this current study we had come upon similar finding as well. A possible explanation for extrovert being less susceptible to internet addiction was given by Zamani et al. (2011) that, extrovert students prefer interaction with other individuals in social situations than in the virtual world. Being extrovert and social also means that finding more friends in the real life; therefore they may not need the medium of internet to fulfill these needs.

HYPOTHESIS 3: From the Correlation Table we can see a significant correlation (0.27, $p < .01$) between internet addiction and loneliness. Beta (0.22, $p < .002$) value showed that the loneliness emerged as the significant predictor of internet addiction. It means that individuals who score high on loneliness are more susceptible to internet addiction and used the medium to escape from their loneliness. For them internet is a tool to get in touch with others expanding their network and gain company in virtual world (Davis et al. 2002). Nalwa and Anand (2003) have found similar result in their study. However, there are contradictory results showing that participants may in the long run may become lonelier and cut off (Whang, Lee and Chang 2003). This is surprising perhaps the linkage becomes vicious as people might have started using internet to overcome their loneliness but in fact depended on it so much, they find it difficult to come out of it. Kraut et al. (1998) reported that more time spent on internet would bring negative wellbeing such as loneliness and depression in the users. The similar kind of argument was put forward by Turkle (2011) as she said that we initially try to control technology but in fact we get controlled by technology and remain alone even in the midst of people. This is an interesting lead and need to be explored empirically that too in the Indian cultural context in future.



HYPOTHESIS 4 and 5: From Table 2 we found that negative affect was significantly and positively correlated with internet addiction (0.246, $p < 0.01$). Beta table showed a significant value (0.15, $p < .04$) meaning that negative affect is a significant predictor for the criterion variable, also found by Kraut et al. (1998). This means that individuals who experienced negative emotional state such as sadness, jittery, etc. would use the internet more. Internet addicted individuals are also easily affected by feelings, they are emotionally less stable, imaginative, absorbed in thought, self-sufficient, experimenting and preferred their own decisions (Yang et al. 2005).

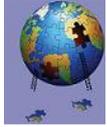
The correlation table also showed that internet addiction is significantly and negatively correlated (-.116, $p < .05$) with positive affect. However beta table did not show significant result thereby the positive affect is not a significant predictor for the criterion variable. This finding is opposite to what we have found in the context of negative affect. The presence of internet addiction would decrease positive emotional experiences. The reason could be the addiction does not encourage an individual to seek the real life and socialize in the surroundings. However our finding is contrary to a previous study by Kiesler et al. (2002) as they found that positive affect increased with more Internet use, in their study beta value was found at 0.14 significant at 0.001 level. The two results indicate the complex nature of the relationship between positive affect and internet addiction; therefore it also implies the presence of some mediating/moderating variable between the two constructs.

CONCLUSION

The present study was intended to explore the antecedents of internet addiction in Indian college students. Results showed that all the variables were significantly correlated with each other. Regression showed that 11% variance in the criterion variable can be explained with the predictors which is a small effect size. Out of the four predictors loneliness (Beta=0.22, $p < .002$) and negative affect (Beta=0.15, $p < .04$) emerged as the significant predictors of internet addiction. Despite supportive previous studies, personality and positive affect could not predict the criterion variable in the present study. Most of the results were in sync with the existing research, however, some new/conflicting results were also found. For example people use internet to overcome their loneliness but become lonelier in the long run. Similarly, there is a need to explore the role of mediating/moderating variables while exploring the relationship between positive affect and internet addiction.

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