

Relationship between Internet dependency and mental health of adolescents: The psychology of internet use

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Conflict of interest

We declare that we have no significant competing professional, financial or personal interests that might have influenced the performance or presentation of the work described in this manuscript.

Author's contributions

Both the author's contributed equally to the theoretical development and writing of the manuscript.

First author: First author contributed in the planning of the whole study and analyses, interpretation of the data and manuscript writing.

Second author: Second author contributed in theoretical development, review of literature and data collection.

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Abstract- The use of internet is very common and has become an interesting behavioral addiction type among young people is assumed to have an influence on psychological well-being. This study was carried out to examine the relationship between different dimension of mental health and internet dependency. Present study has a significant contribution in the planning and implementation of preventive psychological counseling services and sustains the psychological well-being of adolescents. 200 adolescents studying in various colleges of Raebareli and Lucknow completed the Young's Internet addiction test and mental health questionnaire (MH38). The correlation and regression analyses were employed for the analysis and interpretation of data. The results of correlation analysis showed that internet addiction was significantly negatively related to the negative dimensions of mental health (anxiety, depression and LBEC) and negatively related to positive dimensions of mental health. Further the results of hierarchical regression analyses indicated that internet dependency was significantly positively predicted anxiety, depression and LBEC and significantly negatively predicted general positive affect. In conclusion, adolescents with high Internet use will have high level of anxiety, depression, less emotional and behavioural control and low positive affect. Implication, limitations and some areas of future research related to mental health and internet dependency were also discussed.

Index Terms- internet dependency, mental health, anxiety, depression, positive affect.

I. INTRODUCTION

The development of Internet came through many stages and presently this system is widely used all over the world and most of the people could not imagine their life without it. It becomes an integral part of our lives (Nalwa & Anand, 2003). It has many advantages like as easy communication, easy accessibility to information (Kaplan & Haenlein, 2010), low cost and minimal location constraints, due to these qualities there is an increment in the number of users of the internet (Panicker & Sachdev, 2014; Czincz & Hechanova, 2009).

Well-being is one of the most important goals which individuals strive for. The general well-being of adolescents has been the topic of considerable debate in recent years. Although the concept of well-being is important in all stages of life, it is most important in young adults, because, this stage is a critical phase of transition where the individual changes physically and psychologically from a child to an adult. It is a built-in, necessary transition period for ego development. Cognitive, emotional and attitudinal changes which are characteristic of adolescence often take place during this period. Adolescence is the most vulnerable age for development, when the child once entering in this stage requires intensive readjustment to school, social and family life. While many adolescents experience anxiety, unpleasant or strange feelings Therefore, it is necessary to focus on the psychological well-being of university students.

The Internet is widely used by adolescents and young adults, in daily life in various countries. Among the Internet-using population, the fastest growing group is ranging from 13-34 and 91% of this age group will be online. Substantial part of this growth has been seen in the adolescents in particular. Individuals with an Internet dependency experience excessive uncontrolled internet use and spend a great deal of time online, in spite of negative outcomes in their lives. Also, Internet dependency negatively affects psychological well-being (Winther, 2014). Moreover, people can become addicted to the Internet if they become increasingly dependent on the Internet and they seek to be online to escape real life issues or a dysphoric mood. The result of frequent Internet use, particularly among adolescents, has become a highly controversial issue. Still, there remains a paucity of research on the subject, including the use and their consequences. Due to the rapid growth of the internet dependency, this issue should be must recognize by both professionals and researchers particularly with respect to the college students.

Therefore by taking into account these issues of internet use the present investigation mainly focused on the comprehensive examination of the relationship between internet dependency and positive and negative mental health.

Internet dependency is any online-related, compulsive behaviour which interferes with normal living and causes severe stress on family, friends, loved ones, and one's work environment (Young, 1998). Internet addicts make the Internet a priority more important than family, friends and work (Sarao & Sharma, 2017).

Most research studies have suggested that internet plays an integral part of daily life for people of today, particularly in the age of adolescence (Young, 1999; Thorsteinsson & Davey, 2014; Wallace, 2014; Tzavela, Karakitsou, et.al., 2017). Many research scholars identifies one of the worst affect of internet addiction is anxiety, (Nima & Nazanin, 2012), depression (Morgan & Cotton, 2003), loneliness, depressive mood (Kraut, Patterson & Lundermark, 1998), and compulsiveness (Griffiths & Pontes, 2014).

Exaggerate and inappropriate use of internet creates many problems for young people. Internet addiction has changed the human behaviour pattern and affects their relationship in all way. Several studies (Ko et al, 2008; Yen et al, 2008), have reported that depression is much prevalence among internet users than normal person, while Namazee et al (2005) have reported no relationship between Internet use and depressive symptoms. On a sample of Turkish students Akini and Iskender, (2011) have reported that depression and anxiety are significant predicted the Internet addiction.

Finally it has been found Internet addiction is just like an impulse control disorder. In the Diagnostic and Statistical Manual for Mental Disorders (DSM), internet dependency has been conceptualized as an addictive behaviours like as substance abuse or pathological gambling. Therefore internet dependency is frequently considered as a "behavioural addiction" or an "impulse control disorder," as it shares most features (e.g., craving, tolerance, loss of control, relapse, and withdrawal) with other addictive disorders.

H1: Internet dependency would be positively related to anxiety, depression and loss of behavioural and emotional control among adolescents.

Only a few studies have examined the relationship between internet dependency and positive mental health (Koc, 2017). Positive mental health is a combination of feeling good and functioning effectively (Huppert, Baylis & Keverne, 2005). There are several aspects of positive mental health one of them is life satisfaction. Regarding the relationship between internet addiction and life satisfaction in a study Koc (2017) has found that high-level internet addiction is positively related low-level life satisfaction and positive emotions, and high-level negative feelings among the students. This finding is also supported by other research findings (Baruch, 2004; Cardaks, 2013; Engelberg & Sjoberg, 2009; Morahan- Martin & Schumacher, 2000; Shahnaz and Karim, 2014).

Concerning the relationship between internet addiction and emotional ties, studies have reported that excessive internet use is highly related to the interpersonal relationship problems (Li & Chung, 2006; Shuhail & Bergees, 2006). A rapid increase has been reported in the relationships between excessive Internet usage and interpersonal problem. Li and Chung (2006) stated that it is very important to know how Internet users formed their relationship with their friends through online or normal social life. According to them it is also necessary to check whether the people are missing their social engagement, whether they more comfortable with online friend and reduce the contact with the people in reality or not.

H2: Internet dependency would be negatively relate to positive affect, emotional ties and life satisfaction among adolescents.

II. METHOD

Participants

The sample consists of 200 students from different institutions and colleges in Raebareli (U.P) and Lucknow. The sample further divided into male and female. The age of participants ranged from 13 to 17 years. The current study specifically assessed adolescents and, therefore, the purposive sampling method was used to choose a sample. Data were obtained on the basis of response by means of structured questionnaires.

Measures

Internet Addiction Test (IAT)

The Internet Addiction Test (IAT) was developed by Young in 1998. The Internet Addiction Test (IAT) is a 20-item scale, rated on a six-point likert-scale, where 0= 'does not apply' and 5='always'. The internet addiction scale was found to have good reliability ($\alpha = 0.90$, Keser et al, 2013).

Mental health inventory 38

To assess the well-being of participants, Mental Health Inventory (MHI- 38), was used which was developed by Veit and Ware (1983). It consists of 38 items that measure different aspect of psychological well-being including the following: anxiety, depression, loss of behavioural/emotional control, general positive effect, emotional ties, and life satisfaction. It is a 6 point Likert style scale, with responses ranging from 1(high) to 6(low). Cronbach’s alpha rating of this scale is 0.93.

Personal data sheet

Demographic variables included: age, gender, class, stream, area and overall health.

Procedure

All the measures along with the personal data sheet were administrated to the participants and they were asked to read the instructions carefully given in the questionnaire. Every participant was explained about the nature and purpose of the study. Participants were also assured about the confidentiality of the data. Participants were allowed to take their own time to complete questionnaire. There was no time limit to complete the questionnaires.

All the scoring of the obtained data was done according to their manual. The data was analyzed using the SPSS. Firstly, the correlation coefficients were computed to examine the pattern of relationship between predictor and criterion variables. Finally, Hierarchical regression analyses were performed to test the hypotheses.

III. RESULTS

Present investigation examined the relationship between internet dependency and mental health. This chapter will point out the detailed statistical analysis of the research data. The data were analyzed using the statistical program for social science.

Results of correlation between Internet dependency and outcome variables

Table 1 recorded the relationship between health, internet dependency, anxiety, depression, LBEC, GPA, ET, LS, Psychological Distress, psychological well-being and global mental health. Findings of the table 1 indicated that the internet dependency was significantly positively correlated with anxiety ($r = .277, p < 0.01$), depression ($r = .316, p < 0.01$), LBEC ($r = .289, p < 0.01$) and Psychological Distress ($r = 0.337, p < 0.001$). Result further indicated that internet dependency was significantly negatively correlated with GPE ($r = -.265, p < 0.01$), psychological wellbeing ($r = -.194, p < 0.01$) and global mental health ($r = -0.322, p < 0.01$). Results finally indicated that internet dependency was not found to be significantly correlated with ET and LS.

TABLE 1
Correlation between internet dependency and outcome variables

	Internet dependency	Anxiety	Depression	LBEC	GPE	ET	LS
Internet dependency							
Anxiety	.277**						
Depression	.316**	.426**					
LBEC	.289**	.471**	.474**				
GPE	-.265**	-.273**	-.227**	-.364**			
ET	-.057	.081	-.063	-1.48*	.286**		
LS	-.079	-.111	-.152*	-.231**	.291**	.110	

* $p < 0.05$ ** $p < 0.01$

Results of hierarchical regression analysis predicting anxiety, depression and LBEC from internet dependency

We have predicted significant positive relationship between internet dependency and anxiety, depression, LBEC. Findings of the regression analyses regarding the relationship between internet dependency and these variables are reported in the table 2.

Findings of the table 2 revealed that the overall model predicting of anxiety was significant ($F_{7, 192} = 15.34, P < 0.001$) and explained 8.8 % of variance (internet dependency added 7.3 % above the control variables, $p < 0.001$). Similarly, the overall model predicting of depression was significant ($F_{7, 192} = 19.46, P < 0.001$) and explained 12.5 % of variance (Internet dependency added 8.9 % above the control variables, $p < 0.001$). Finally, the model predicting LBEC was also significant ($F_{7, 192} = 17.65, p < 0.001$) and explained 13.1 % of variance (internet dependency added 8.0 % above the control variables, $p < 0.001$).

As can be seen in the Table 2, results indicated that, that individuals who experienced high level of internet dependency reported higher level of anxiety ($\beta = 0.281, p < 0.001$) depression ($\beta = 0.310, p < 0.001$) and LBEC ($\beta = 0.294, p < 0.001$). Overall the results indicated that internet dependency has strong predictive power in regards to anxiety, depression and LBEC.

TABLE 2: Results of hierarchical regression analysis predicting anxiety, depression and LBEC from internet dependency

Predictor variables	Criterion variables					
	Anxiety		Depression		LBEC	
Control variables	Step1	Step2	Step1	Step2	Step1	Step2
Age	.042	.013	.001	-.032	.025	-.006
Gender	.003	.026	.095	.131*	-.015	.009
Class	-.092	-.094	.037	.036	-.156	-.157*
Stream	-.095	-.064	-.076	-.042	.028	.059
Area	-.029	-.010	-.090	-.069	-.134*	-.114
Health	.004	.046	-.108	-.062	-.103	-.059
Independent Variable						
Internet Dependency		.281***		.310***		.294***
R ²	.016	.088	.036	.125	.052	.131
Adjusted R	-.015	.055	.006	.093	.022	.100
R Change	.016	.73	.036	.089	.052	.080
F Change	.512	15.34***	1.215	19.46***	1.75	17.65***

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ df step1=6, 193, df step2=7,192

Results of hierarchical regression analysis predicting General positive effect, Emotional Ties and Life satisfaction from internet dependency

Findings of the regression analyses regarding the relationship between internet dependency and positive effect, emotional ties and life satisfaction are reported in the table 3. Consistent with this prediction, findings of table 3 indicated the overall model predicting of GPE was significant ($F_{7, 192} = 12.96, P < 0.001$) and explained 8.5% of variance (internet dependency added 6.2 % above the control variables, $p < 0.001$). It can be clear from the Results of Table 4 indicated that, individuals who experienced high level of internet dependency reported low level of GPE ($\beta = -0.259, p < 0.001$). Findings further indicated that internet dependency was not found to be significantly predicted emotional ties and life satisfaction.

TABLE 3: Result of hierarchical regression analysis predicting GPE, ET and LS from internet dependency

Predictor variables	Criterion variables					
	GPE		ET		LS	
Control variables	Step1	Step2	Step1	Step2	Step1	Step2
Age	-.047	-.020	.107	.114	-.053	-.046

Gender	-.002	-.024	-.063	-.069	.059	.054
Class	-.053	-.051	-.110	-.109	-.032	-.031
Stream	.106	.078	-.010	-.018	.110	.104
Area	-.034	-.052	.030	.025	-.075	-.080
Health	-.003	-.042	.063	.053	-.058	-.067
Independent Variable						
Internet Dependency		-.259***		-.068		-.063
R ²	.023	.085	.018	.022	.031	.034
Adjusted R	-.007	.051	-.013	-.013	.001	.000
R Change	.023	.062	.018	.004	.031	.004
F Change	.760	12.96***	.588	.842	1.024	.721

*p<0.05 **p<0.01 ***p<0.001 df step1=6,193, df step2=7,192

IV. DISCUSSION

It was hypothesized in the present study that internet dependency would be positively related to anxiety, depression and LBEC and negatively related to positive effect, emotional ties and life satisfaction.

The finding of the study shows that there is a significant positive correlation between anxiety, depression and LBEC with Internet addiction. It can be said that Internet itself has no harm but addiction of internet caused many psychological issues such as shyness, loneliness, anxiety, depression, and interpersonal relations. This finding is consistent with that of earlier studies of the same area (Alavi et al, 2010; Ko et al, 2007; Ha et al, 2007; Barak & King, 2000; Jafari & Fathizade, 2012).

In determining the relationship between anxiety and Internet addiction, we can stated that the high anxiety and stress may have existed before the Internet use, that is, the anxious individuals may use Internet as an escaping way. Similarly, anxiety and stress may occur due to addiction to the Internet, that is, when the individual becomes addicted to the Internet, s/he becomes restless, worried and anxious, and uses Internet to reduce her/his anxiety and stress (Mirzaeian et al, 2011).

In explaining the relationship between depression and Internet addiction it can be said that depression may therefore acts as a trauma that predisposes individuals to develop Internet addiction. Some people use the Internet to reduce their depression so that the Internet may provide an alternative to the joyless life. Similarly, depression may occur due to addiction to the Internet, that is, the individuals who become addicted to the Internet experience the negative consequences resulting from it such as depression; therefore, according to the present study, we cannot give any idea about the precise reason of the relationship between Internet addiction and depression and this issue requires further study (Petrie & Gunn, 1998, Widyanto, & Griffi, 2005).

Finally regarding the relationship between internet dependency and LBEC the finding of hierarchical regression analyses supports our hypothesis. The consequences of focusing more on the quality of the virtual world have various impacts on the spirits and the temperament of the people. Therefore, overusing internet causes physical laziness and developing hypoergasia, and reduces having relationship with others in the real world and as a result causes social isolation In other words, the use of Internet as a means for escaping from the problems, reducing the frustration feeling, anxiety and depression or spending a lot of time in the Internet to find virtual friends to reach imaginary affairs that are not possible in the real world by some of individuals addicted to the Internet is a factor for dependence to the Internet (Brenner, 1997; Kubey et al. 2001; Scherer, 1997; Shuhail & Bergees, 2006).

Hence, hypothesis 1 of the present study was completely supported.

Only a few studies have conducted on the relationship between internet dependency and positive aspects of mental health i.e. on positive effect, emotional ties and life satisfaction. Therefore by taking into consideration this existing gap of literature we predicted that internet dependency would be negatively related to the positive effect, emotional ties and life satisfaction. Consistent with this prediction significant negative correlations were found between internet dependency and positive affect while internet dependency was not found to be significant with emotional ties and life satisfaction.

On the basis of this finding it can be said that feelings play an important role on the thoughts and behaviors of the individual (Arslan, 2017). Therefore, it can be said that feeling is a concept which is related to internet addiction. In a study Koc (2017) have reported that students with high-level internet addiction have low-level life satisfaction and positive emotions, and high-level negative feelings. Further, results of this study showed that as individuals with higher levels of subjective well-being have lower levels of Internet addiction compared to those who have lower. Consistent with the findings of this research, studies have shown that people with internet addiction have negative feelings and people with positive feelings are less connected to the internet (Baş, Soysal and Aysan, 2016; Derin, 2013).

V. CONCLUSION

On the basis of findings of present study we concluded that individual with high level of Internet dependency have high level of anxiety, depression, and have loss of behavioural and emotional control and psychological distress. Further it has been found that higher level of Internet dependency is negatively related to general positive effect, psychological wellbeing, mental health, stream and health.

Findings of the study indicate that internet addict students have greater mental health problems than the students who are not internet addicts. So the findings of the study may have counseling implications for the students who are internet addicts. Certain intervention programmes can be made for the youths in order to help them control the excessive usage of internet and increase their mental health status.

In the present investigation self-reported questionnaires were used for data collection. Future studies should includes individual interviews along with filling up of the questionnaires would significantly contribute towards improving future research studies conducted in the field of internet research. This would aid in gathering more information regarding participant's internet use, state of mind while online, and the experiences of the user after his/her time online.

Another research study should discuss more about Internet dependency in children. Also, a good topic for research would be the effect of specific personality traits that may make the person more vulnerable to Internet addiction.

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