



## **INTERNET ACTIVITIES, INTERNET ADDICTION AND ITS RELATIONSHIP WITH DEPRESSION: AN EMPIRICAL STUDY**

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### **ABSTRACT**

*In India, the internet penetration is around 31% with younger population being the major stakeholder. This penetration can be due to increasing addiction towards internet. Internet addiction is characterized by excessive or poorly controlled preoccupations, urges or behaviors regarding computer or phone use and internet access that lead to impairment or distress. Direct association can be found with problems like depression, stress, self-esteem and social isolation. This study has attempted to examine the relationship between internet addiction and depression. Furthermore, it has also tried to explore the links between internet activities and depression. A cross-sectional design of study was employed. The study population comprised population between the age group of 18-35 years. A sample size of 300 respondents was selected by means of convenience sampling from Delhi- NCR. To tap measures of internet activities, internet addiction and depression, scales developed by Weiser (IAS), Young (IAT) and Beck (BDI) were used. To assess the relationship between the studied variables, SPSS was used and statistical analysis was done. Using this study; we aim at contributing to the dearth of Indian literature available in this research area. Thereby the results of this study can be utilized in the development of future plans and interventional measures against the internet addiction epidemic.*

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**Keywords:** Depression, Gen-Y, Internet activities, Internet addiction, Delhi -NCR.

## **1. Introduction**

Depression is a common psychological disorder affecting people across the world. WHO claims that 350 million people of all ages, from all walks of life suffer from depression. At its worst, depression can lead to suicide, now the second leading cause of death in 15-29-year-old. Depression can be prevented and treated and its better understanding will help in reducing the stigma associated with the condition.

According to American Psychiatric Association, depression (major depressive disorder) is a common and serious medical illness that negatively affects how you feel, the way you think and how you act. Depression causes feelings of sadness and/or a loss of interest in activities once enjoyed. It can lead to a variety of emotional and physical problems and can decrease a person's ability to function at work and at home.

Approximately 7-10% of India's population suffers from minor depressive disorders. According to National Mental Health Survey (NMHS 2015-16) one in twenty people over age of 18 suffers at least once from depression and untreated depression increases chance of risky behaviors.

Globally, internet use is increasing with young population being the major stakeholder. An online article reveals that there is an increase of 25% in size of internet every 3 months. Internet World Stats found that about 50.1% of internet users live in Asia and India ranks 2 (Rank 1 – China) in number of Internet users around the Globe (March 2017) [1,2,3]. India has internet penetration of about 34.4% with 462,124,989 internet users as of March 2017 in India [1].

Anyone from any walk of life can become addicted to the information, interaction and gaming experiences that internet offers. People can become addicted to internet after 6-12 months of internet use and 8% become addicted within first three months of being online [4].

Internet addiction is described as an impulse control disorder, which does not involve use of an intoxicating drug and is very similar to pathological gambling [5]. Another definition by NET ADDICTION says that internet addiction is any online-related, compulsive behavior which interferes with normal living and causes severe stress on family, friends, loved ones, and one's

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work environment [6]. Among all generation, Y generation or more popularly called Net generation has maximum cases of internet addiction. Internet addiction is regarded as a disorder of concern because the neural abnormalities and cognitive dysfunctions associated with internet addiction mimic those related to substance and behavior addiction.

More than 420 million users worldwide are addicted to internet which is equivalent to approximately 6% of world's population. Middle East has 10.9% people addicted to Internet followed by North America with 8% and Asia 7.1% [7].

The idea that problematic computer use meets criteria for an addiction was first proposed by Kimberly Young in her 1998 paper and since that time Internet Addiction Disorder has been extensively studied [8]. A Meta-synthesis of quantitative research concluded that for development of concept of internet addiction, it requires more systematic empirical and theory-based academic research [9].

Not only as independent entities, depression and internet addiction are a threat to society but many researchers have found that there exists a correlation between the two. A person suffering from depression can be prone to internet addiction and vice-a-versa can also be true.

Psychologists from Leeds University found what they said was striking evidence that some avid net users develop compulsive internet habits in which they replace real life social interactions with online chat rooms and social networking sites. This type of addictive surfing can have serious impact on mental health. Result of a study among university student found that there is significant correlation between internet addiction and psychological symptoms like obsessive-compulsive, interpersonal sensitivity, depression, anxiety, paranoid ideation and psychoticism [10].

Different scientific research studies confirm that increasing levels of depression are strongly associated with Internet addiction as well. Internet addiction related positively with depression ( $r=.67, p<.01$ ), anxiety ( $r=.63, p<.01$ ) and stress ( $r=.63, p<.01$ ) [11].

An article published online by WebMD (2010) found that younger people were more likely to be addicted to the internet than middle aged users, with average age of addicted participants being

18 years [12]. The odds of reporting an internet harassment experience in the previous years were more than three times higher (OR: 3.38, CI: 1.78, 6.45) for youth who reported major depressive symptomatology [13].

Yet another study conducted in Iran on university students showed that 40.7% of the students had internet addiction and a significant correlation emerged between depression, self-esteem and internet addiction [14].

## **2. Objectives**

- To examine the relationship between internet addiction and depression
- To assess the links between internet activities and depression

## **3. Methodology**

### **Study Design**

Cross-sectional study

### **Study Location and population**

The study was orchestrated in Delhi and NCR. Delhi is the national capital and covers an area of 573 sq miles. Haryana borders the city on three sides and Uttar Pradesh to the east. The study was conducted among the major stakeholders of internet situated in Delhi and National Capital Region. Some of the reasons for selecting Delhi and NCR are-

- It is the second highest populous city in the country after Mumbai.
- The residence of the authors is Delhi and therefore Delhi and adjoining areas would be accessible and easy to monitor.
- Gurugram is a hub for MNCs thereby giving access to respondents in the required age group as discussed below in inclusion criteria.

### **Inclusion Criteria**

Respondents of age between 18 years to 35 years

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## **Exclusion Criteria**

Population less than 18 years and above 35 years would not be part of the study. Only the residents of Delhi and NCR were interviewed for the undertaken study.

## **Sample Size and Sampling**

A sample size of 300 respondents (both male and female) was interviewed. Those individuals were made to fill the questionnaire who willingly wanted to be a part of the study. Identity of all the respondents was confidential and is not revealed anywhere neither will be revealed in the future.

## **Instrument**

In the study, three variables were accessed; Depression, Internet Addiction and Internet Activities; using three standard tools.

Depression in the respondents was checked using Beck Depression Inventory (BDI) developed by Dr. Aaron T. Beck [15]. Internet Addiction and Internet Activities were checked using Internet Addiction Test (IAT) by Dr. Kimberly Young [16] and Internet Attitudes Survey (IAS) by Dr. Weiser [17], respectively.

## **Beck Depression Inventory**

BDI scale was created by Aaron T. Beck and is a 21-question multiple choice self report kind of inventory. It is one of the most widely used psychometric tests for measuring the severity of depression. Before the development of BDI, depression was viewed from a psychodynamic perspective whereas today it is being known to be rooted in the patient's own thoughts. There are three versions of BDI – the original BDI (published in 1961) and later revised in 1978 as the BDI-1A and the BDI-II (published in 1996). This inventory is composed of items relating to symptoms of depression such as hopelessness and irritability, cognitions such as guilty or feeling of being punished, as well as physical symptoms such as fatigue, weight loss, and loss of interest in sex. The standard cut-off scores are:

- 1-10: Normal ups and down
- 11-16: Mild mood disturbance
- 17-20: Borderline clinical depression
- 21-30: Moderate depression
- 31-40: Severe depression
- over 40: Extreme depression

### **Internet Addiction Test**

A growing concern about excessive internet use has been seen. IAT was the first validated instrument for the assessment of internet and computer addiction. A study by Kimberly Young found that the IAT is a reliable measure, covering the most important elements characteristics of pathological internet use. This addiction test has 20 items pertaining to time spent on internet, whether or not daily life work is affected due to internet usage, effect on peer relations due to internet, and others. Each question in the scale provides respondent with 5 choices and there after the scoring can be done according to below given cut-off scores:

- 20 – 49 points: Average on-line user
- 50 – 79 points: Experience occasional or frequent problems
- 80 – 100 points: Significant problems

### **Internet Attitudes Survey**

This scale was developed by Weiser to know for what purposes internet is being used by the respondents. The survey had a total of 19 items based on which two groups of people were made. One group was known to use internet for acquiring information relating for their respective interests and the other group of people used internet facility for social networking and interacting with other people and acquaintances.

## **Data Analysis**

Statistical Package for Social Sciences (SPSS) version 22.0 was used for entering the data as well as for carrying out the data analysis, which would largely be descriptive, frequency and correlation oriented.

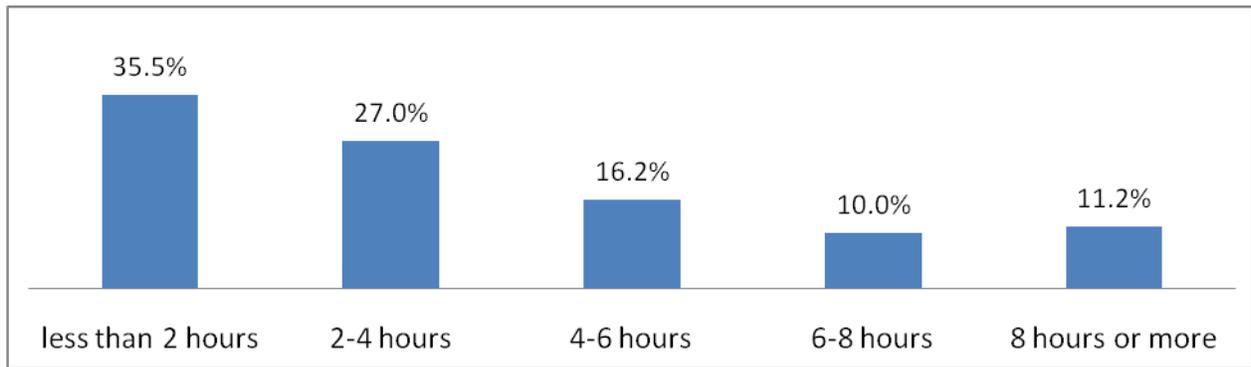
### **4. Result**

Following the trend of studies in the capacity of mental health, a sample size of 300 was taken, out of which 284 were valid responses. Out to this sample size 57.7% respondents were female and males were 42.3% of the total sample. Most of the subjects, 61.7%, belonged to the age group 23-28years and the mean age of the study subjects was 23.5years.

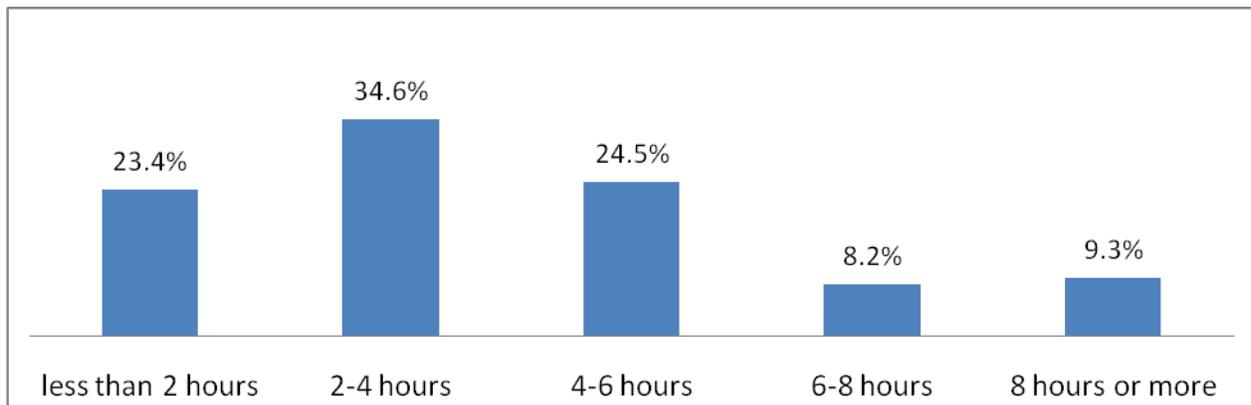
61.6% of the respondents were students in contrast to 38.4% sample being working. Out of this 61.6% student population majority were graduates (54%) followed by post graduate students (28.6%) and school going children (11.6%).

The results of Young IAT revealed that 24% of the study subjects frequently stayed online longer than they intended to in contrast to 14.4% respondents who always stayed online longer than they intended. It is seen that rarely (39.5%) the performance of subjects has been affected due to the hours spent on internet whereas only 8.1% reported a frequent effect on their performance. 11% sample often react aggressively (snap/yell) when someone bothers them during the times they are online. Majority of respondents (36.7%) told that such a behavior occurs rarely. 15.7% subjects occasionally prefer internet over going out with others and 9.8% respondents have reported to have a feeling of depression when they were offline. These subjects said, they often feel nervous and moody when offline. 48.2% respondents i.e. a little less than 50% respondents scored 31-49 followed by the score range of 0-30 (26.4%).

When asked about the time spent on internet for both personal and professional uses 101 respondents out of 284 i.e. 35.5% subjects used internet for less than 2hours for professional purposes (refer graph 1) while people using internet more than 4hours for their personal use were 58% (refer graph 2). Approximately, only, 10% respondents use internet for more than 8hours, be it personal use or professional.



Graph-1 Hours spent on internet for professional purpose

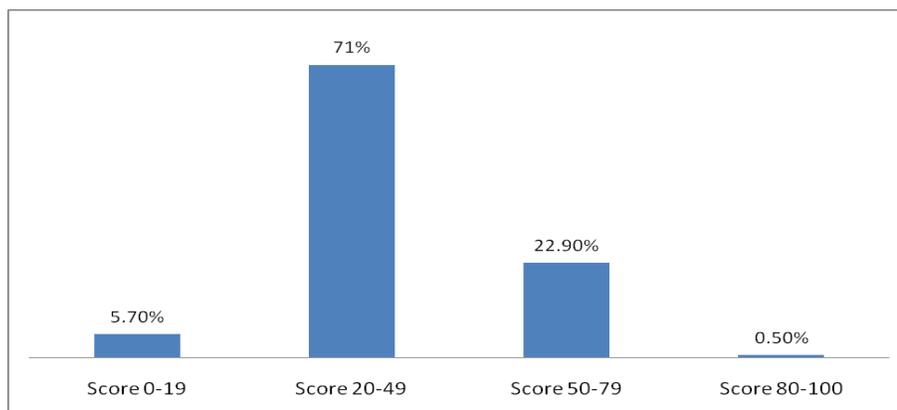


Graph-2 Hours spent on internet for personal purpose

The descriptive analysis on the data (refer table 1, graph 3) indicates that most of the respondents in our sample were average users of internet (mean= 40.42). The Internet Addiction Test (IAT) by Dr. Kimberly Young classifies users who score between ‘20-49 points’ as average on-line users who surf the Web a bit too long at times, but have control over their usage.

**Table: 1 Descriptive Statistics (Internet Addiction-IA)**

	N	Min.	Max.	Mean	Std. Dev.
Score- IA	284	.00	100.00	40.42	15.373

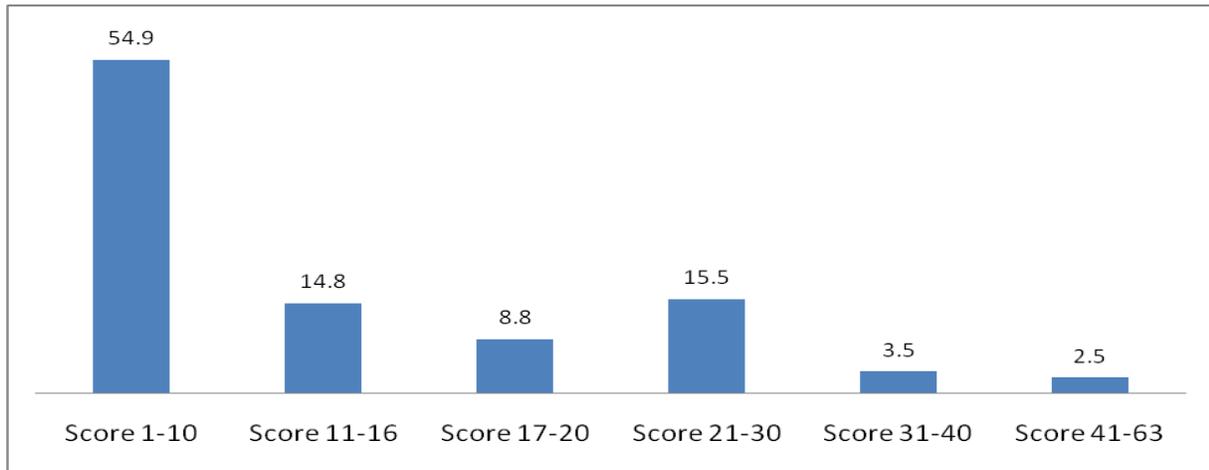


Graph-3 Result of Internet Addiction Test

To find a relationship between internet addiction and depression, depression score of the study population was determined using BDI. Calculation of the score was done using SPSS and it revealed a result opposite to the expectation. 55% respondents had a score between 0-10 which according to interpretation of BDI considered normal. A significant population (15.5%) was seen to be suffering from moderate depression as they scored 21-30. Only 2.5% population scored above 40 meaning were suffering from a severe depression. The mean depression score of the population came out to be 12.08 which lie in the range of score 11-16 and according to BDI such respondents are classified as one having mild mood disturbances. (Refer table-2 graph 4)

**Table 2: Descriptive Statistics (Depression-BDI)**

	N	Min.	Max.	Mean	Std. Dev.
Score- BDI	281	.00	63.00	12.08	10.402



Graph-4Result of Beck Depression Inventory

To assess the relationship between Internet addiction and Depression, Karl-Pearson Correlation was used (refer table-3). Internet addiction and Depression were significantly correlated ( $p$  less than 0.05) with an  $r=.389$ . Both the variables were found to be positively related with moderate strength.

**Table: 3 Correlations between Internet Addiction and Depression**

		Score- IA	Score- BDI
Score- IA	Pearson Correlation	1	.389*
	Sig. (2-tailed)		.000
Score- BDI	Pearson Correlation	.389*	1
	Sig. (2-tailed)	.000	

\*. Correlation is significant at the 0.05 level

The data was further explored to see if the Internet addiction and depression is related with the duration using internet (since when the respondents started using Internet). 175 out of 284 respondents (61.5%) were seen to be exposed to internet for years between 6-10years.The

correlation analysis indicates that Internet addiction and the duration were positively related (refer table 4), however, the strength of relationship was too small ( $r=.069$ ). The correlation was also found to be insignificant ( $p=.277$ ). Surprisingly, a significant negative correlation was found between depression and duration ( $r=-.129$ ,  $p=0.040$ ). In this case also, the strength of relationship was found to be very weak (refer table 5).

**Table 4: Correlations between Internet Addiction and Duration using Internet**

		Score- IA	Duration using Internet
Score- IA	Pearson Correlation	1	.069
	Sig. (2-tailed)		.277
Duration using Internet	Pearson Correlation	.069	1
	Sig. (2-tailed)	.277	

**Table 5: Correlations between Depression and Duration using Internet**

		Score- BDI	Duration using Internet
Score- BDI	Pearson Correlation	1	-.129*
	Sig. (2-tailed)		.040
Duration using Internet	Pearson Correlation	-.129*	1
	Sig. (2-tailed)	.040	

\*. Correlation is significant at the 0.05 level

Based on Weiser (2001) internet usage scale, the respondents were classified into two types, first, who predominantly used internet for the purpose of shopping and entertainment and second, who used internet for the purpose of education and information.

Out of 284 respondents, 229 of them predominantly used internet for the purpose of education and information, whereas, 55 respondents predominantly used internet for the purpose of shopping and internet.

To assess if there was any difference between internet addiction (IA) level among these two distinct categories of respondents, their internet addiction scores were compared (refer table-6). The respondents using internet predominantly for shopping and entertainment were found to have higher internet addiction score (mean=56.49) as compared to those who used internet predominantly for education and information purpose (mean=36.57). According to Internet Addiction Test (IAT) by Dr. Kimberly Young a score between 20-49 points is indicative of users who surf the Web a bit too long at times, but have control over their usage and a score between 50-79 points is indicative of users who experience occasional or frequent problems because of the Internet.

<b>Categories</b>	<b>N</b>	<b>MeanScore (IA)</b>	<b>Std. Dev.</b>
<b>Education &amp; Information</b>	229	36.57	12.060
<b>Shopping &amp; Entertainment</b>	55	56.49	17.281

To test the significance of the difference, independent sample t-test was used (refer table 7). There was a significant difference in the IA scores for Education & Information category (M=36.57, SD=12.060) and Shopping & Entertainment category (M=56.49, SD=17.281) conditions;  $t(282) = -10.033$ ,  $p = .000$ .

<b>T</b>	<b>df</b>	<b>Sig. (2-tailed)</b>	<b>Mean Difference</b>
-10.033	282	.000	-19.91

Similarly, to assess if there was any difference between depression level among these two distinct categories of respondents, their depression scores were compared (refer table-8). The respondents using internet predominantly for shopping and entertainment were found to have higher depression levels (mean score=16.86) as compared to those who used internet predominantly for education and information purpose (mean score=10.96).

<b>Categories</b>	<b>N</b>	<b>MeanScore</b>	<b>Std. Dev.</b>
<b>Education &amp; Information</b>	228	10.96	9.352
<b>Shopping &amp; Entertainment</b>	53	16.86	13.116

According to Beck's Depression Inventory categorization, the respondents using internet predominantly for shopping and entertainment were found to be on the borderline of clinical depression whereas those who used internet predominantly for education and information purpose have mild mood disturbances. The difference was also found to be significant with conditions;  $t(279) = -3.807$ ,  $p = 0.000$  (refer table 9).

<b>T</b>	<b>Df</b>	<b>Sig. (2-tailed)</b>	<b>Mean Difference</b>
-3.807	279	.000	-5.89

## 5. Conclusion

In recent times, WHO held a conference on the theme of “Depression in India – Let’s Talk” with the aim of reducing stigma against depression and thereby other mental disorders [18]. If we talk in terms of DALY, a staggering increase of 67% has been observed in the burden of depression

between 1990 and 2013. A lot of researchers have worked and contributed in the field of depression.

In the undertaken study, it was attempted to find (if existing) relationship of depression with a yet another famous variable termed, in urban times, internet addiction. No individual of 20<sup>th</sup> century is untouched from this invisible monster, Internet.

The study revealed that 48.20% respondents were average users of internet. In contrast to a study conducted in Iran by Bahrainian *et al* (2014) which says 40.7% people are internet addicts [14], our study reveals that 25.4% of sample respondents faced occasional or severe problems with respect to their internet usage and hence can be considered in the category of internet addict population. 15.5% of the sample population was reported to suffer from minor depression which is almost consistent with the stats released by WHO which say that 7-10% of Indians have minor depression. A difference of 5% from the reported range of depression could be because of negligence of interviewees while filling in the questionnaire or more rightly is because of their present mood while filling in the questions.

Correlation studies between depression and internet addiction gave results consistent to many pre-existing studies in the same capacity [19, 20, 21]. It is revealed that depression and internet addiction are correlated significantly with positive and moderate strength. ( $p < 0.05$  and  $r = 0.389$ ). A different dimension of correlation of depression and internet addiction came into view from this study. It is found that respondents using internet from more years has less depression score in comparison to the respondent using internet from less years. Taking an example, a person using internet from 8years is less depressive in comparison to the one using internet from 5years.

Other than internet addiction, correlation study was employed between depression and activities for which an individual uses internet. The results told that someone using internet for shopping and entertainment is more prone to depression than someone using internet for education and information.

## References

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1. Internet World Stats (2017), “Internet users in Asia”, available at: 12/7/2017. <http://www.internetworldstats.com/stats3.htm> (accessed 12 July 2017).
2. Internet World Stats (2017), “Internet users in the World by Regions”, available at: <http://www.internetworldstats.com/stats.htm> (accessed 12 July 2017).
3. Internet World Stats (2017), “Top 20 Countries in Internet users”, available at: <http://www.internetworldstats.com/top20.htm> (accessed 12 July 2017).
4. Brandon[GAILLE] (2017), “33 Interesting Internet Addictions Statistics”, available at: <http://brandongaille.com/32-interesting-internet-addiction-statistics/> (accessed 15 July 2017).
5. Illinois Institute for Addiction Recovery (n.d), “What is Internet addiction?”, available at: <http://www.addictionrecov.org/Addictions/index.aspx?AID=43> (accessed 10 July 2017).
6. NET ADDICTION (n.d), “FAQs”, available at: <http://netaddiction.com/faqs/> (accessed 10 July 2017).
7. Cheng C. and Li A. Y. (2014), “Internet Addiction Prevalence and Quality of (Real) Life: A Meta-Analysis of 31 Nations Across Seven World Regions”, *Cyberpsychology, Behavior, and Social Networking*, 17(12), 755-760.
8. Cash H., Rae C. D., Steel A. H. and Winkler A. (2012), “Internet addiction a brief summary of Research and Practice”, *Current Psychiatric Reviews*, 8(4), 292-298.
9. Byun S., *et al* (2009), “Internet Addiction: Metasynthesis of 1996-2006 Quantitative Research”, *Cyber Psychology and Behavior*, 12(2), 203-207.
10. Adalier A. and Balkan E.(2012), “The Relationship between Internet addiction and Psychological Symptoms”,*International Journal of Global Education*, 1(2), 42-49.
11. Akin A. and Iskender M. (2011), “Internet addiction and depression, Anxiety and Stress”, *International Online Journal of Educational Sciences*, 3(1), 138-148.

12. Hendrick B. (2010), "Internet addiction spins web of depression", WebMD, 4 Feb available at: <http://www.webmd.com/depression/news/20100204/internet-addiction-linked-to-depression#1>(accessed 15 July 2017).
13. Ybarra M. L. (2004), "Linkages between Depressive Symptomatology and Internet Harassment among Young Regular Internet Users", *Cyber Psychology and Behavior*, 7(2), 247-257.
14. Bahrainian S.A., Alizadeh K. H., Raeisoon M. R., Gorji O. H., Khazaei A.(2014), "Relationship of Internet Addiction with self-esteem and depression in university students",*Journal of Preventive Medicine and Hygiene*, 55(3), 86-89.
15. Beck A.T., Steer R.A., and Brown, G.K. (1996),*Manual for the Beck Depression Inventory-II*, San Antonio, TX: Psychological Corporation.
16. Young K.S.(1998), "Internet addiction: The Emergence of a New Clinical Disorder",*Cyber Psychology and Behavior*, 1(3), 237-244.
17. Weiser E.B.(2001), "The Function of Internet Use and Their Social and Psychological Consequences"*Cyber Psychology and Behavior*, 4(6), 723-743.
18. WHO (2017), "Depression: Let's Talk" says WHO, as Depression tops list of causes of ill health, available at: <http://www.who.int/mediacentre/news/releases/2017/world-health-day/en/> (accessed 10 July 2017).
19. Orsal O., Orsal O., Unsal A., Ozalp S. S.(2013), "Evaluation of Internet Addiction and Depression among university students",*Procedia- Social and Behavioral Sciences*, 445-454.
20. Tang J., Yu Y., Du Y., Ma Y., Zhang D., Wang J(2014), "Prevalence of internet addiction and its association with stressful life events and psychological symptoms among adolescent internet users"*Addictive Behaviors*, 39(3), 744-7.
21. Young K.S and Rodgers R.C.(1998), "The Relationship between Depression and Internet addiction"*Cyber psychology and Behavior*, 1(1), 25-28.

22. WHO(2017), “Depression”, available at:<http://www.who.int/mediacentre/factsheets/fs369/en/> (accessed 10 July 2017).
23. WHO (n.d), “World Health Day 2017- Depression: Let’s Talk”, available at: [http://www.searo.who.int/entity/world\\_health\\_day/2017/en/](http://www.searo.who.int/entity/world_health_day/2017/en/) (accessed 10 July 2017).
24. BBC News (2014), “Many young People addicted to the net, Survey suggests”, 15 October 2014, Date of access: 12/7/2017.
25. Kosoff, M.(2014), “Study:420 million People Around The World are Addicted To The Internet” Business Insider India, 20 December.