



Study of Cyber Crime Awareness in Relation to Internet Addiction

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ABSTRACT

This study aims to find out the relation between cyber crime awareness and internet addiction. In this study, a sample of 200 college students from Sonapat district was taken through random sampling method. Two tools viz. Cyber Crime Awareness Scale and Internet Addiction Test were used for the collection of data. Analysis was done by using the statistical techniques like mean, t-test and correlation. It was found that there was no significant difference among urban and rural college students on cyber crime awareness and internet addiction. However, significant difference in the cyber crime awareness and internet addiction was observed between boys and girls. Positive relationship between cyber crime awareness and internet addiction was observed. It was found that high internet addiction will produce high cyber crime awareness and *vice-versa*.

Keywords: Cyber crime awareness, Internet addiction and college students

In today's competitive world, technology is growing day by day and we cannot imagine our life without the use of smart phones, laptops, tablets, computers and internet etc. Internet use is increasing in various areas of everyday life (Haythornthwaite & Wellman, 2002; Anderson & Tracey, 2001) like online shopping of cloths and groceries, making online payments of college's fee etc. People use internet to connect with their friends and family, for establishment of business, for making online transactions in banks and so many other services like virtual class room, video calling etc. (Kraut *et al.* 1999). Even students of age 13-year-olds uses their home computer or other devices to chat online with their school friends and for exchanging "instant messages" (Gross *et al.* 2002). However, the connections with the technology have increased and this continuous connectivity of networks have caused increased risks of cyber attacks related to infrastructure and economy (Cashell, Jackson, Jickling, & Webel, 2004), finances, privacy and security of information available on network or computer environment. Cyber attacks not only harm a person's information present on the network but also pose a big threat to the

security of the nation and its financial health (Saul, 2007). India ranked 3rd among the countries affected by cyber security threats according to Symantec ISTR published in 2017 (business standard, 2018). In this year, more than 978 million youngsters in 20 most affected countries experienced cybercrime. Out of total adult population (3.1 million) of 20 countries, online population was 1.8 million (Symantec, 2017). With the vast expansion of technology in computers and internet connectivity has made misuse of internet facility very easy for the cyber criminals. As we know, nowadays computer and internet have become a vital resource of information in education and in everyday work; however, this has led to issues like cyber crime and cyber security.

Cyber crime can be defined as the criminal activities related to computers or network of computers (related to wired or wireless system) (Kshetri, 2010). Cyber criminals require more than basic level understanding of computer operations for committing computer crimes, and then they can make any person cyber crime victim easily (Choi, 2008). Cyber-crime often includes traditional crimes such as child pornography, email spoofing, cyber bullying, on-line fraud like tax refund fraud, and corporate account take over etc. This influences a huge number of potential victims involved in internet activities. An unauthorised access to online connectivity allows a cyber criminal to intrude into the computer systems to make unauthorised changes into the data present there and harm the data. Email spoofing is also a very common cyber security threat in present day. According to Hennie, Lynette and Tjaart (2007) most of the user's email address were trapped for accessing their bank account details and other personal information. Further, most of the respondents are unaware of the cybercrime laws and they even don't know about the procedure of making data safe on internet. Even people related to IT field are not able to keep updated with the information about cyber law and internet security threats (Aniruddhsinh and Kuntal, 2016). Sreehari *et al.* (2018) study showed that among respondents, cybercrime awareness was high in hacking as compared to other types.

Most of the people who are connected through internet are students and among these mostly are college level or university level students (Gross *et al.* 2002). Nowadays, college student mostly communicate via email and social networking sites, such as Twitter, MySpace, and Facebook etc. so they are at risk for identity theft through fraudulent emails, stolen passwords, unsecured systems, and inadequate network practices (Harwood, 2008). Awareness level of the students is low related to secure communication using internet, creating a strong and secure password, in identification of malwares present in computer system, making document safe from unauthorised access (Tekerek & Tekerek, 2013). Usually these students get involved in the cyber crimes due to their curiosity and lack of knowledge. Most of the time students are unaware of their involvement in cyber crimes. Saroj and Vikram (2013) observed significant difference in the awareness level between male and female users using internet services and male users were found to have more awareness about cyber crime laws.

Cyber criminals exploit not only the security of the online environment but also interrupt the connectivity between computer networks. Maintaining security, integrity and confidentiality (Lopez, Roman and Alcaraz, 2009) of the data available on the computer network is the one of the most challenging job today. Not only social networks and bank account details are at risk but educational institutions such as colleges and universities also have risks of losing their precious intellectual assets and their research

data including patents awarded to the professors and students. These days risk of hacking attacks is increasing in the institutions of higher education and this has resulted in necessity of inculcating cyber awareness among our youth generation.

Undergraduate students use social networking sites such as face book for informal learning (Madge *et al.* 2009). Further, Selwyn (2009) also mentioned that student use social networking sites for cultural and informal learning. Sometimes, offensive contents are posted on these social networking sites in place of useful learning material which can even lead to mental harassment in young adults (Benson, Saridakis, & Tennakoon 2015). Generally, young adolescents having privacy concerns learn to hold back from using certain web sites including educational websites that require registration for collecting personal details of the students, this also discourage them from using these websites for educational benefits (Seounmi, 2009). Other than this, use of internet, information and communication technology has made academic dishonesty very easy (Underwood & Szabo, 2003) and also has increased huge acceptance of internet plagiarism among students to achieve academic goals (Scanlon & Neumann, 2002; Howard, 2007). Students are more prone to internet plagiarism as copy-paste operation which is easily available in computer systems (Devoss & Rosati, 2002). Software piracy is also a cyber crime most popular among college students (Solomon & O'Brien, 1990; Sims, Cheng, & Teegan, 1996). Software piracy term means an individual makes and uses copies of the software those are developed by any organisation for their personal use and distribution, without paying fees for this particular software to that organisation (Straub & Collins, 1990; Britz, 2004). Bullying through the use of mobile phones and the internet is known as cyber bullying. College students, through the use of electronic media become victim of cyber bullying (MacDonald and Roberts-Pittman, 2010). Cyber bullying is less frequent than traditional bullying, but most admired type of bullying (Smith *et al.* 2008). Students, who are cyber bullying victims, suffer from serious psychological and emotional problems and it also affect the academic grades of these students (Faryadi, 2011). This happens because end users are the weakest link in a security chain, so, students need to practice security controls properly in order to improve information security on campus. Kim (2013) found that college students understand most of the information security topics suggested by National Institute of Standards and Technology (NIST).

Educational institutions including colleges and universities have responsibility not only to impart technical education related to the use of computers but are also responsible for developing computer ethics and issues related to internet security (Siponen, 2001). Another way to overcome the cyber victimisation is self control and by this one can prevent himself from becoming cyber victim or any other online harassment by a stranger or non-stranger (Ngo & Paternoster, 2011). Firewalls are most favoured system to prevent unauthorised access of data or personal information. (Hayajneh, Mohd, Itradat & Quttoum, 2013). According to Ngo & Paternoster, (2011); Bossler & Holt (2010), individuals having low self-control are more prone to cyber victimization but in computer based cyber crimes where computer is the main target, self control does not work. In such cases, universities should provide easily accessible security training programs for students. Academic institutions must prepare students for their professional field of study, but student awareness of Information Technology (IT) and related to cyber security issues is continuously becoming poor (Livermore, 2006; McQuade, 2007). In order to avoid complexity,

practical suggestions should be provided to encourage student's participation in security training and enhance their cyber security awareness level (Eyong B. Kim, 2013). There is need to teach cyber security topics to prevent one from becoming victims of cyber crime (Ismailova and Muhametjanova, 2016). Although, we cannot make cyber space free from cyber-threats but it may be possible to keep check on these threats. Moreover, it is our duty to train and educate people about cyber-crime, so that, precautions can be taken to prevent it (Arpana and Meenal, 2012). Most of the researches conducted in this area depict that despite knowledge of information technology, the knowledge of cybercrime is quite low among students, they are not aware of many types of computer crime.

These days, youngsters are addicted to the use of internet and they can't imagine their life without its use. Cyber security report published in year 2017 by Cyber Security Ventures showed that there were 3.8 billion internet users which constitute the 51% out of the 7 billion world's total population. After USA and China, India ranked 3rd among the countries of the world in terms of largest number of internet user. Internet addiction is increasing at such a fast rate that number of internet users will increase to 6 billion by 2022 (Cyber Security Ventures, 2016). Internet addiction can be considered as 'pathological/problematic Internet use' which is defined as uncontrolled use of the Internet by an individual (Davis, 2001; Young, 1998). It is also described as an 'impulse control disorder' that resembles to pathological gambling (Malathi & Joseph, 2018). According to Zammit (2018) most of the undergraduate students are vulnerable to problematic use of Internet. Niemz, Griffiths & Banyard (2005) also found that 18.3% of the sample as pathological internet users who use internet in an uncontrollable and excessive manner. Our college students and youngsters said, "*They could not live without the Internet, it is an integral part of their daily life*" (Nimra, 2017). These students use internet about 40–50 hours weekly (Manish and Anwasha, 2018). In comparison to the other segments of the society, college students are more prone to internet addiction and due to different characteristics of late adolescence related to either psychological or physical development (Kandell, 1998).

Internet addicted person spend more time than non addicted students in internet activities such as checking email, playing online games and chatting on social networking sites (Chou and Hsiao, 2000). Further, very few students use internet for research work, e- library, journals, magazines, news papers and other educational activities (Manish and Anwasha, 2018). They are more addicted to check messages and other activities on the internet as they feel; it is primary source of information (Tsai and Lin, 2003). Those who are not capable of making real- life relationships and not having good social skills strongly incline to compulsive use of different social networking sites such as facebook, twitter, whatsapp and telegram etc. (Kim, LaRose & Peng, 2009). Here, people get an online platform to communicate and share information with their friends and relatives. O'Keeffe and Clarke-Pearson (2011) used term "facebook depression" in their study. Teenagers facing "facebook depression" spent most of their time having online on facebook. It will arrest them in social isolation by restricting from meeting new person (Anderson, 2001) physically.

Uncontrolled use of internet also related to low academic performance of the students (Khanum, Sarfraz, & Siddique, 2019). It will lead to some serious problems related to work, psychological health, social, family and academic in one's life (Davis, 2001; Young, 1998). Some serious clinical disorder (Beard

& Wolf, 2001; Davis, 2001; Shapira *et al.* 2003; Young, 1998) like depression, mental disorder, social disorder etc also resulted from internet addiction. These psychological disorders may present all around the world (Nida, 2018). Research conducted by (Cardak, 2013) depicted that high level of internet addiction will lead to lower psychological well being. Internet addicted person feel restless not having sleep due to the long hours use of internet login at night (Nalwa and Anand, 2003). Sometime, adolescents try to avoid unpleasant situation like depression, stress, anxiety, loneliness and emotional disturbance through the use of internet (Yen *et al.* 2008; Tsai and Lin, 2003; Kim, LaRose & Peng, 2009). They will incline toward excessive internet use in order to get relief from these psychological disorders.

Internet addicted feels pleasure by spending time online (Chou and Hsiao, 2000), they get social and moral support through the use of internet (Yen *et al.* 2008) and thinks that without internet their life is boring (Nalwa and Anand, 2003). Excessive use of internet will cause some serious problems such as related to academics, social distinction, low self-esteem (Akin and Iskender, 2011; Kraut *et al.* 1998) and interpersonal problem (Niemz, Griffiths & Banyard, 2005). Young (1998) compares the internet addicts with the alcoholic and drug addicts who face many problems in their family relationships and at work place. These people fear about the sudden plans that come in their life because it will restrict them to use 24 hours internet access. Student who extremely accesses the internet depicts that this will negatively affect their academic performance and also disturb sleeping patterns (Anderson, 2001). Internet addicted person always used to delay work of daily life routine because they spend time having online (Nalwa and Anand, 2003). Online games are the most popular type of internet addiction in present day which leads to the development of different personality traits such as neuroticism, aggression, state anxiety, trait anxiety and depression (Mehroof and Griffiths, 2010). Social anxiety also related to internet addiction which is severing psychiatric behaviour among college students (Ni *et al.* 2009).

Further, internet addiction causes the parent-child relationship disruption as children want privacy to spent time on internet (Chou and Hsiao, 2000). This disrupted relationship may cause children's involvement in anti-social behaviour. Adolescents having more support from their parents, participate less in anti-social behaviours (Hawkins, Catalano and Miller, 1992; Ahn, 2000). But adolescents having less support and attention of their parents depict psychologically disturbed behaviour and always try to escape from home problems through the excessive use of internet (Davis, 2001).

Students, whose parents have high educational level and high socioeconomic status, may be at very low risk of problematic internet use due to their high self-esteem (Heo *et al.* 2014). Parents should check on their children's frequency of internet access. They should be aware of, what their children doing on internet, whether they are using internet facility for working hard on their studies or involved in chat (Chou & Hsiao, 2000). Further, internet addicted children gradually spent less time with their parents, family and friends in for seeking solitary time to seat in front of computer (Young, 1998). It is responsibility of parents that they should talk to their children for providing them social environment through physical interaction. Individual with reduced public self-awareness is more prone to internet addiction (Niemz, Griffiths & Banyard, 2005). Hence, there is need to heighten the public self-awareness by growing personality of an individual through physical interaction. Further, there is need to enhance self-esteem of college students to decrease dependency on internet (Kim, 2008). Communication is

more effective for an individual for enhancing self-esteem and self-awareness group (Lee, 2002). Kim (2008) also stressed on the need of group counselling programs for reduction of internet addiction among university students.

All these studies indicate that internet addiction and cyber crime have become very crucial problems which need to be dealt very carefully and understanding of the abnormal behaviour generated through internet addiction in children is very important so that necessary steps can be taken well on time. Hence, looking at the importance of the issues, this study was planned to compare cyber crime awareness and internet addiction on the basis of gender and their area of location, understand the relationship between cybercrime and internet addiction.

METHODOLOGY

Research method should be appropriate to the problem, and after taking this into consideration descriptive survey method was used for the present study. A sample of 200 college students from Sonapat district was selected randomly for the study. All college students of Sonapat (urban as well as rural, male as well as female) constituted the population for the study. The data was collected for the two variables: cyber crime awareness and internet addiction.

Tools of the study

In present study data was collected by administering two tools. These tools are as follow:

- 1. Cyber Crime Awareness Scale (C.C.A.S.)** was developed by Dr. Rajaeskar 36 items statements. This scale has 21 positive and 15 negative statements. It provide five column bearing the headings Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), Strongly Disagree (SD) against the five statements. The scale has construct validity of 1.75 and intrinsic validity of 0.87 making this scale valid. Reliability of the scale was established by using the formula split half reliability using spearman product moment correlation which is 0.76. This shows that scale is highly reliable.
- 2. Internet Addiction Test (I.A.T.)** The Internet Addiction Test (IAT; Young, 1998) is prepared and standardized by. Dr. Kimberly Young. This test is a 20-item scale which measures internet addiction among adolescents and adults. Each statement of the test is measured on likert scale and the maximum score can be 100.

Collection of data

The data was collected from the different colleges/institutions of the Sonapat district of Haryana. The researchers themselves visited the concerned colleges on different dates. They met with the principals for taking permission for data collection. The purpose of the study was explained and rapport was

established with the students of the colleges from where data collection was made. Students were also ensured that their personal information will be kept confidential.

Data Analysis and Interpretation

Before calculating the relationship of cyber crime awareness with internet addiction of college students, variations on the basis of gender and demography were studied. Table 1 compares urban and rural college students on the basis of cyber crime awareness and gender. The cyber crime awareness score for urban college students ($M = 124.49$, $SD = 466.49$) are almost equal to that of rural college students ($M = 124.15$, $SD = 389$). Calculated t-value is 0.455 which is less than critical value at the 0.05 level of significance. So, the null hypotheses stating “There is no significant difference in the level of cyber crime awareness among college students on the basis of area of location” is retained.

Table 1: Comparison of cyber crime awareness among rural & urban college students and on the basis of gender (n=200)

Group	Mean	Variance	t-value	Level of significance	Remarks
Urban	124.49	466.49	0.455	0.05	Non-Significant
Rural	124.15	389			
Boys	137.74	337.75	12.25	0.05	Significant
Girls	110.89	153.24			

In Table 1, comparison of boys and girls college students’ cyber crime awareness scores have been presented. Boys college students ($M = 137.74$, $SD = 337.75$) have scores higher than that of girls college students ($M = 110.89$, $SD = 153.24$). The calculated t-value is 12.25 which is greater than critical value at the 0.05 level of significance. So the null hypotheses stating, “There is no significant difference in the cyber crime awareness level of college students on the basis of gender” is not accepted.

Table 2 compare urban and rural college students on the basis of internet addiction and gender. Urban college students ($M=60.48$, $SD=213.81$) scores are slightly higher than that of rural college students ($M=59.11$, $SD=139.51$). However, calculated t-value is 0.99 which is less than critical value at the 0.05 level of significance. So the null hypotheses “There is no significant difference in the internet addiction scores among college students on the basis of their area of location” is retained.

Table 2: Comparison of internet addiction among rural & urban college students and on the basis of gender (n=200)

Group	Mean	Variance	t-value	Level of significance	Remarks
Urban	60.48	213.81	0.99	0.05	Non-Significant
Rural	59.11	139.51			
Boys	67.34	97.34	8.4	0.05	Significant
Girls	52.67	143.86			

Table 2 compares boys and girls college students on the basis of internet addiction. Boys college students internet addiction scores ($M = 67.34$, $SD = 97.34$) are higher than that of girls college students ($M = 52.67$, $SD = 143.86$). Calculated t-value is 8.4 is higher than critical value at the 0.05 level of significance. So the null hypotheses “There is no significant difference between internet addiction among boys and girls college students” is not accepted.

The coefficient of correlation between cyber crime awareness and internet addiction came out to be 0.23 which is significant at the 0.05 level of significance. This shows that internet addicted people were having more cyber crime awareness, possibly due to the reason that they spend more time on internet. It depicts that null hypotheses “There is no significant relationship between cyber crime awareness in internet addiction among college student” is rejected. It means that cybercrime awareness and internet addiction of college students related to each other in positive way.

DISCUSSION AND CONCLUSION

The overuse of internet among students has become very critical problem in India as well as across world. Like any other addiction in the world, internet addiction has significantly influenced our lives on various parameters. Results have shown that boys and girls differ significantly both in internet addiction and cyber crime awareness. Boys spend more time on internet and have shown more internet addiction. Similarly, they have also shown more cyber crime awareness than girls. However, no significant difference was observed in the internet addiction and cyber crime awareness when comparison was made on the basis of location of students, means rural and urban student do not differ from each other in internet addiction and cyber crime awareness. Most of the college students have shown internet addiction signs; this can be a serious problem which needs immediate attention from both parents and teachers. Further, positive and significant relationship was established between internet addiction and cyber crime awareness. This means, those who spend more time on internet have more cyber crime awareness, however from the value of coefficient of determination (.052), it is clear that internet addiction only determines only 5% of cyber crime awareness. So, it is not an influential factor of improving cyber crime awareness.

Various studies have indicated that cyber crime awareness and internet addiction among college students is a matter of concern not only for parents and teachers but also for the government. Further, this study has helped in understanding level of internet addiction and cyber crime awareness among college students, so that the related problems can be solved well on time. The results are also useful for the universities, colleges and government for making laws and policies to reduce and prevent cyber-crimes among adults. As, youth of the nation is the most powerful among other generation of the country, so, it is our responsibility to direct them for better living. Internet addicted youth waste most of their energy in unlawful activities that are related to cyber-space. Cyber crime can be decreased or prevented with joint efforts of individual and government.

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