A Cross Sectional Study On Knowledge Of Cyber Security Among Urban And Semi Urban College Goers Of East Midnapore District

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Abstract: Internet is now a part of our daily life. People are becoming more and more tech savvy. Not only personal use but also different service and production industries are also becoming more and more internet dependent. Everyone is now connected with everybody; in this regard security issue came up. Poor awareness on security associated with internet can cause social, psychological, economical damage to anybody. Researchers have shown that college goers are more susceptible to be victimized by it. This study has conducted to see the existing level of knowledge on cyber security among rural and semi urban college goers of East Midnapore district. Independent sample t test has conducted by during cross sectional study on 121 number of college goers of East Midnapore district. A self constructed 18 itemed close ended questionnaire was formulated and distributed to interested college goers of East Midnapore district. The result shows that the knowledge of cyber security among students is 77.2% which is satisfactory; also the study shows that the awareness is significantly related with the area they are residing as the P value in that case is less than .001.

Key Word: cyber security, East Midnapore, Internet, awareness, college goers.

1 INTRODUCTION

Internet has huge impact on our society; researchers have shown that most of the college students are getting academic facilities through internet (Jones, 2009). People are not thinking about their life without internet but they are ignorant towards protecting their information in the cyber space and as a result the cyber crime is skyrocketing day by day (Peker, 2016). Researchers have found that the frequency of cyber crime is depending upon the level of dependency on the internet (Saxena, 2012). A research shows that Russia and China are gathering information from the agencies of different countries by doing cyber attack (Adams, 2015). In the year 2013, high profile credit cards of millions of customers have been breached by cyber criminals (Newman, 2015). Now they are shifting their target towards hospitals, which causes life risks (Zetter, 2016). Research paper shows that young internet users are more prone to be affected by cyber attack (Garnaeva, 2014). Different programs to aware the people regarding the cyber security have done by many organizations (Vacca, 2012; Franke, 2014). A study shows those who are more using internet are having lack of awareness on the risk of internet. Some researchers are claiming that it is essential to know in case of college goers, whether the problem of cyber security is associated with lack of knowledge or lack of skills (Kim, 2013). The number of internet user and the number of cyber crime is highly correlated with each other (Wechuli, 2014). Apart from that most unfortunate thing is, only 10% of the cyber crimes are reported (Kshetri, 2010).

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India's cyber laws are weak (Jamil, 2011). So campaigning against cyber crime is become necessary (Shikha, 2018). Different studies have conducted to know the existing level of cyber awareness among the students, some of the result shows good awareness level among students like according to a study 70% of the college students are aware of the antivirus and virus attack but 11% of them are not updating the antivirus (Senthilkumar, 2017). Some other researchers have found that the students are not aware of internet and most of them are ignorant about risk associated with it (Lawler, 2011), even though those who aware of the internet but still they are ignorant about taking necessary step (Campbell, 2007). Very few studies have made to know how the level of awareness on cyber security among rural and urban people. Different kind of results can be seen among different researchers in respect of level of cyber awareness among rural urban people. Study shows that the awareness on the cyber security is depending upon the area of residence of the respondents i.e. rural urban (Goel, 2014; Mathias, 2018), but other study shows that the awareness on cyber security is not significantly depending upon the rural and urban people (Sukanya, 2017). Researchers have found that level of awareness is higher in case of urban than rural people (Sunder, 2018), some researchers also concluded that the rural students are more exposed to get effected by cyber threat as they have limited knowledge on the cyber security (Koovakkai, 2010).

2 OBJECTIVE

1. Existing level of awareness on cyber security among the college students of East Midnapore district.
2. Whether the Awareness on cyber security is significantly related with the area the students are living or not.

3 METHODOLOGY

A cross sectional study has conducted among the students of private colleges where engineering and allied subjects are teaching. Total 130 students are incorporated in the research and among them 121 were actually take in to consideration, because as 6 of them gave ambiguous

answer and 3 of them lost interests in the research. All the respondents are aged between 18 years to 23 years. All the respondents are comfortable in English language. Convenient sampling method has followed. After going through several research papers on this field, a self structured 18 itemed close ended questionnaire has designed which has two parts. First part is consisting of general information of the respondents like name, age, gender, and residential status i.e. either rural or urban areas. Second part is containing 18 questions, each having five options- strongly agreed, agreed, undecided, disagreed and strongly disagreed. Each option are given score such as in case of strongly agreed it is 5, 4 for agreed, 3 for undecided, 2 for dissatisfied and 1 for strongly dissatisfied.

Total awareness of cyber security is 18X5 i.e. 90. Apart from that Informed consent was formulated and distributed to all the respondents. Total 15 minutes are allotted for respondents to complete the answering the questionnaire. The interview of process was conducted during the month of November 2019. After getting the hard copy of the questionnaire, the data are put in the MS excel and SPSS software 21 version. Prior to the actual study reliability was measured by using Cronbach's Alpha reliability coefficient. According to Sekaran in the year 2000, if the reliability coefficient is less than .60 then it is poor, .70 is acceptable and .80 or above is good. The output of the coefficient alpha or the Cronbach's alpha in this case is given below

Table 1: *- Coefficient alpha or the Cronbach's alpha*

Cronbach's Alpha	N of Items
.710	18

As the value of Cronbach's alpha is .710 which is greater than .70 so it can be assumed that the data of this survey is reliable.

4 RESULT

Table 2:- *mean score of cyber awareness among respondents*

Respondents	Number of Respondents	Average cyber awareness score
Boys	84	3.89
Girls	37	3.79
Hindu	104	3.82
Muslim	17	3.88
Rural	55	3.57
Urban	66	4.12

The above table is showing the types of 121 respondents along with the cyber awareness score. 84 are boys and 37 are girls; 104 are Hindu and 17 are Muslim; 55 are from rural area and 66 are from urban areas. The table is also showing the mean score based upon their demography. In case of boys the average score of cyber awareness is 3.89, in case of girls the score is 3.79, Hindu is 3.82, in case of Muslim it is 3.88, Rural it is 3.57 and in case of Urban it is 4.12.

Table 3: - *Mean score of each items of questionnaire of urban and rural population*

Items of the questionnaire	Rural	Urban
I regularly change password	3.38	4.27
I do not reuse my previous password	3.29	4.01
I do not use same password for my accounts	3.47	4.13
I do not share my password to anyone	3.61	4.28
I always click no when computer attempts to save my password	3.69	4.18
Not using password which is available in dictionary	3.58	4.30
Not using password which is related to my credentials	3.65	4.31
I make the password as lengthy as possible and strong (minimum eight or more than 8 characters, having special characters, numbers, using all case letters etc).	3.94	4.24
Once I found my password is compromised I always try to recover it	3.45	4.07
My is computer locked with password in case of logoff or shut down	3.74	4.13
If I use modem I make sure it does not automatically accepted incoming calls.	3.54	4.13
I use original antivirus soft ware	3.69	4.16
I check anti-virus software every week or set it for automatic updates.	3.67	4.07
I always check for viruses with a current virus scanner before implementing or using any software from any source.	3.56	3.75
I remove personal, confidential or sensitive data before letting the PC to be repaired or replaced.	3.41	3.92
I do not install free software from a un trusted source.	3.43	4.13
I only trust those extensions which are: .bat, .cmd, .exe, .pif, .scr, or .zip through content filtering Software.	3.45	3.96
I reinstall OS when I found my PC is infected and reached to a particular extent like slowing down.	3.47	3.96

- The table shows that the habit of safety by using password is better in case of urban population than that of rural population. The different habits of using password and the score of each items are showing urban population have score better than rural population. Such as regularity of changing the password in case of urban 4.27 and rural 3.38, in case of not reusing the old password, urban is 4.01 and rural is 3.29; in case of not using same password in different account, urban is 4.13 and rural is 3.47; in case of not sharing password to anybody, urban is 4.28 and rural is 3.61; in case of not saving password, urban is 4.18 and rural is 3.69; in case of not using password which is in the dictionary, urban is 4.30 and rural is 3.58; in case of not using password which contains any information or credentials of the user, urban is 4.31 and rural is 3.65; in case of using strong password, urban is 4.24 and rural is 3.94; and in case of recovering password when it is compromised , urban is 4.07 and rural is 3.45, and in lastly in case of setting password in case of logoff or shut down the rural population have score better than urban, in case of urban the score is 4.13 and rural is 3.74.

- In case of urban students the score on the habit of accepting automatic calls if they use modem is 4.31 whereas in case of rural it is 3.54.

- In case of use of antivirus, the urban students have scored better marks than the rural students. In case of habit of use of original antivirus the urban

students have scored 4.16 and in case of rural it is 3.69; in case of habit of updating the antivirus the urban students have scored 4.07 and in case of rural students the score is 3.67; in case of habit of checking the virus by virus scanner before using any software the urban students scored 3.75 and in case of rural students they have scored 3.56.

- In case of habit of removing the personal, confidential and sensitive data before letting the PC repaired or replaced, the urban students have scored 3.92 and the rural students they have score 3.41.
- In case of habit of not installing the software from un trusted and free software the urban students have scored 4.13 and in case of rural students the score is 3.43.
- In case of habit of trusting the safe extension through content filtering software the urban students the score is 3.96 and in case of rural the score is 3.45.
- In case of habit of reinstalling the OS when the PC is slowing down the urban students have scored 3.96 and in case of rural students the score is 3.47.

Table 4: - *The group statistics*

Descriptive Statistics associated with knowledge score on Cyber awareness among Students						
		N	*Mean*	*Std. Deviation*	*Skewness*	*Kurtosis*
Knowledge Score	*Rural*	*55*	*3.5667*	*.13112*	*.050*	*-.214*
	Urban	*66*	*4.1162*	*.18662*	*-.349*	*-.896*

The rural group (N=55) was associated with a Knowledge score on cyber security M=3.5667 (SD=.13112). By comparison urban group (N=66) was associated with a numerically higher Knowledge score on cyber security M=4.1162 (SD=.18662). To see whether rural and urban population were associated with statistically significantly different mean knowledge score on cyber security an independent t test was performed.

Table 5:- *Independent sample t test*

Independent samples Statistics						
	Levene's Test for Equality of Variances	*t-test for Equality of Means*				
		F	*Sig*	*T*	*Df*	*Sig- (2 tailed)*
Practice Score	*Equal variances assumed*	*3.035*	*0.085*	*-18.376*	*119*	*<.001*
	Equal variances not assumed			*-18.956*	*115.874*	*<.001*

The independent sample t test (Table 3) is showing that the knowledge on cyber security score is significantly related with area the people are living as the P value is lesser than .001. As can be seen in table 2 the rural and the urban distribution were sufficiently for the purpose of conducting a t test (i.e. skew <2 and Kurtosis i.e. <9; Schmider,Ziegler,Danay, Beyer, & Buhner, 2010). Additionally the assumption of homogeneity of variance was tested and satisfied via Levene's F (119) = 3.035, P = 0.085. The independent sample t test was associated with a statistically significant effect, t (119) = -18.376, P = <.001. Thus the urban populations were associated with a statistically significantly higher knowledge score on cyber security than rural people.

5 DISCUSSION

The knowledge score of cyber security among the students of east Midnapore district is 3.86 out of 5, which is about 77.2%. This is satisfactory. It proves that the students of both urban and the rural areas of east Midnapore is satisfactory and they together scored 77.2%. These findings are opposing many researchers view which are showing that the awareness on cyber security is not satisfactory among students (Abbas, 2019; Schwartz, 2017; Mathias, 2018). On the other hand, this finding of the study is also supported by many researchers who have shown similar kinds of result (Teer, 2007). The study revealed that the habit of using password which is containing 10 items have scored 3.91, out of 5 which is about 78.2%. The habit of safe password use is satisfactory among the students of east Midnapore district. The finding is opposing many researchers' findings as they are claiming that the awareness of password is not satisfactory among students (Bain, 2012; Jones, 2012), but the findings are supported by many researchers as they are claiming knowledge on password among students is satisfactory (Abbas, 2019; Aytes, 2004). The Students of east Midnapore district is also showing that they have good knowledge and practice of antivirus. The practice of antivirus is having 3 items the mean score of three items is 3.83, which is about 76.6%. The result of the study is supported by many researches as they are claiming similar kinds of results (Muniandy, 2017; Senthilkumar, 2017). The study also opposing some researchers as they are claiming that the students do not have knowledge on antivirus (Sarathchandra, 2016). This study has shown the knowledge level on cyber security among rural and urban students of east Midnapore district of West Bengal is statistically and significantly different from each other as the P value in this case is less than .001. So it proves that though both rural and urban population are using internet, but the rural college goers are more exposed to internet risk. These kinds of disparities are not desired by any areas and it needs an extensive awareness program on internet in the rural areas. The result is supported by some researchers as they have found significant differences existed among the rural college students and urban college students in respect of knowledge of cyber security. (Urmila, 2014), but some researchers also found no statistical and significant differences existed among rural and urban population in respect of knowledge of cyber security (Sukanya, 2017), but nearly all of them are supporting that the rural people are lacking of the knowledge of cyber security than that of urban people.

6 CONCLUSION

Most of the college goers of the east Midnapore district are satisfactorily aware of the risk associated with the internet. The study shows that the students of east Midnapore district are much aware of regarding password, antivirus, privacy and other kinds of safe practice of internet, but the study shows there are huge disparities of knowledge level of internet security among the rural and urban populations. So it requires extensive awareness program specially targeting the rural students. The study is concerning on the existing knowledge level of internet security but the study does not concerned on the practice of safe internet. Many researchers have found that though the respondents have clear knowledge on cyber security but when it comes to practice of safe internet, disparities can be seen. So there may be existence of disparities among knowledge level and the practice level of safe internet in case of students of east Midnapore district, but this paper does not cover that part.

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