# PREVENTION OF CYBER STALKING SAFETY OF TEENAGERS OVER INTERNET AS A MEDIUM- A STUDY

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**Abstract**

**"Prevention is better than cure" not only for health measures, but also for being alert when it comes to safety, offline as well as online. As per the NCRB report (2014, chapter 18) the number of cases reported under cyber crime was 9622 as compared to 5693 in 2013. This indicates a significant 69.0% increase over the previous year.**

**Further, Cyber crime is a category of crime, which seems to be affecting a wide spread of ages including teenagers, which is alarming. Children get exposed to Internet at a young age due to educational requirement, self interest or due to peer/social pressure. How aware are they of Do's and Don'ts of cyberspace? Exploitation of children in cyberspace can create havoc on the victim's mind, and can lead to disastrous consequences as in the case of Amanda Todd, a 15-year-old Canadian girl, whose suicide caused lots of shock waves in the minds of masses.**

**A survey was conducted to assess cyber alertness of the audience. Survey results of a sample group where over 93% were teenagers are being published herewith. It was concluded that though the target audience indicated that their safety on the net being very important to them and over 97% of the segment had sufficient or more knowledge of technology, but a significant number of them were doing things in the cyber space, which are not advisable from the perspective of cyber safety.**

**Keywords:**     Cybersafe, Cyberstalking, Teenagers safety, cyber crime, prevention cyber stalking

## Introduction

Teenagers are besieged with multiple insecurities for various reasons ranging from social/peer pressure, self doubts and hormonal changes and are trying to find an identity for themselves. Girls felt that they were not good enough or did not measure up in some ways be it looks, performance in school and /relationships with friends and family members ( Real Girls, Real Pressure: A National Report on the State of Self-Esteem, Dove , 2008).

It is not just females; teenage boys also worry about their body image, which is a risk factor for elevated depressive symptoms among adolescent boys (Blashill, Aaron J.;

Wilhelm, Sabine (2014)).

These insecurities, impact on their behavior; Teens who were insecure about their social status, try to increase their social status, while others who wanted to be more likeable adopt and exhibit prosocial behavior. (Michelle Wright 2013)

Internet is emerging as one of the platforms that teenagers are adopting to socialize. Internet has become a must for information access for teens (and all ages alike) due to its voracious capability to fetch information sought in a matter of seconds, making it an essential informational/ educational tool that parents find hard to deny92% of teens go online daily while 24%

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of teenagers go online "almost constantly". More than half (56%) of teens, who were surveyed in this report go online several times a day, and 12% reported once-a-day use. Just about 6% of teens reported going online weekly, while just about 2% go online less often. (Pew Research Center, 2015 ), with Facebook being the most popular and frequently used social media platform among teenagers (41%). This was followed by Instagram (20%) and Snapchat (11%).

The challenging aspect is that it also exposes the child to all the information that is available on the World Wide Web, that might not be appropriate for their young minds and also to various social networking sites, where they tend to be-friend strangers, who could actually be masked people with hidden objectives, ranging from money making to seeking sadistic/sexual pleasures. Befriending these people, eventually adds up to the stress on these young minds, lowering their self-esteem and increasing depression (Anderson, Bresnahan, and Musatics (2014)), sometimes leading them to take the extreme step of committing suicide.

The top five teen Internet activities are: using SNS; accessing current event news and information; purchasing items; sharing artwork, photos, videos, and stories; and finding (Pew, 2010).

While it might not be practical to deny access to Internet to students, it will also be improper to give up completely on the state of affairs, as they stand and hope for the best.

Prevention is always better than cure, across all media, offline or online. Since different age groups are likely to have different motivations and behavioural patterns on the internet, it might be more appropriate to study them as separate groups. To come up with preventive measures, it might be worthwhile to study the problem and its root cause in more details, and collect some primary information from the users themselves to start with.

## Prior studies

There was a study conducted by Sameer Hinduja and Justin W. Patchin (2015) on a random sample of students between the ages of 11 and 15 from a middle school in the Midwestern United States. Approximately 43% of the students had experienced cyber bullying during their lifetime. 15% of students confirmed cyber bullying others. More number of Adolescent girls had experienced cyber bullying than boys in their lifetime (40.6% compared to 28.2%). The report also indicated that girls had a higher tendency to post nasty comments, while boys had a greater tendency to post offensive pictures or videos online.

As per another study by Anderson, Bresnahan, and Musatics (2014), Cyber bullying has negative effects on victims, which include lowering self-esteem and increasing depression. It also develops feelings of powerlessness.

Yet another research that analysed multiple studies of Cyber bullying, found that Cyberbullying  is linked to depression in teenagers. (Psych Central News, 2015).

In 2013, many teenagers' suicides were linked to a particular social networking site Ask.fm, after which victimization of young people was scrutinised. The site ask.fm, users can ask each other questions anonymously. This prompted the site to initiate new safety measures. Another social networking site, Twitter, also announced its plans to suspend bullying users and filter out bullying tweets.

Studies of Michele Hamm, a researcher at the University of Alberta reflect that the use of Social media is very common among teenagers, but impact of cyber

bullying on social media sites is largely unknown. In the new review, Hamm and her colleagues stated that, "There were consistent associations between exposure to cyber bullying and increased likelihood of depression" In subsequent studies, it was found that Regular, face-to-face bullying during the teen years may double the risk of depression in adulthood, and effects of bullying can be as bad as or worse than child abuse.

## Method

The methodology applied in the study is a survey of children primarily in their teens and take a closer look at their cyber habits. The methodology was to administer a questionnaire with some multiple choice questions and some questions with numeric rating scale aimed at studying their cyber habits as well as cyber alertness levels.

The study does this at two levels - apart from asking them upfront questions on their alertness on the cyber medium, safety on the internet, and thought process before posting any message online, the survey also takes a closer look at their cyber habits and analyses whether all that they did on the cyber medium in the process of chatting, downloading movies, applications, softwares etc. was in the best interest of their own cyber safety.

## Sample

The study has been conducted in an urban city among population, which has unlimited access to internet. Most of the sample audience is primarily in their teens, with Computers as a study subject. These students invariably need computers to access more information on other subjects. Also, as the study revealed the audience were tech savvy enough to find their way through technology.

The questionnaire was administered online and students as well as teachers were encouraged to take the survey. The survey was undertaken by 91 participants, of which over 93% participants were in the age Group of 12 to 17.

## The Measure

The measure included three categories of questions, which were deliberately interspersed. The first category of questions was aimed at getting their demographic details, checking their access to the internet comfort level with the technology.

The answers were multiple choice options where the participants had to select the option that was closest to the answer on their mind; and numeric rating scale, where participants choose the number on the scale, which they consider best described their answer with a rating of 10 indicating maximum, and a rating of 1 indicating minimum level.

The other category of questions were aimed at studying their cyber alertness level from a theoretical perspective and included questions aimed at assessing their thought process before posting messages online, tendency to be-friend unknown people online, interest in learning best online practices . The answer options were multiple choice questions or numeric rating scale, where the respondents could pick up the numeric rating/option close to the answer on their mind.

The third categories of questions were aimed at taking a closer look at their cyber habits, which reflected their actions from the perspective of cyber safety. There were questions related to the use of latest Operating system, downloading torrents, use of Internet of Things, ad blockers, pirated software and so on. The answer options were multiple

choices, as it provides for ease of categorising and analyzing.

## The Objectives of the survey were as follows:

The objective of the study is to understand the underlying reasons behind cyber stalking / cyber bullying. To be able to completely tackle a problem, we should understand the process as a whole, the victims, their awareness/alertness levels, their behavioural patterns; the offenders, their mindset, objectives, modus operandi and laws and regulations.

This survey intends assessing degree of awareness and alertness among masses about cyber safety measures, (especially teenagers) and also their comfort levels with technology. A similar survey will be done across different age group/ socio demographic sector as well.

The survey intends analysing their cyber habits in terms of the reasons that pull them to internet, and their tendency to do/not do what is in the best interest of their own cyber safety.

The survey also assessed their thought process prior to posting messages online. These questions and answers will give us a fairly good insight into whether the best practices are being followed by teens in their cyber journey for various interests.

## Results and discussion
## Age group of the audience

A wide age group falls victim to Cyber stalking but different age groups have different reasons for visiting Internet. As per NCRB Chapter18 out of 2867 persons, 1583 persons (55.2%); were arrested in cyber crime cases under different sections of IPC were in the age group of 18-30, while out of 2867, 1035 people (36.1%) were in the age group of 30-45 years. 52 of the offenders were juvenile (18%), The age group spread seen in cases registered against SLL (special and local laws) and IT act 2000 was similar.

Same is the case of victims of cyber stalking. There have been cyber stalking teens victims and cases reported in media of their committing suicide as a consequence of it. Different demographic groups are likely to have different reasons and fascinations, and behavioural patterns on the internet, so it is best to study their patterns separately as the underlying reasons for these demographic sections being stalked might be different. So, to start with, a study was conducted focused primarily on teenagers, as now-a-days Computer science being a subject of study for many of them, they are likely to be familiar with IT techniques. On the Internet many of us have a tendency to befriend strangers, who could be their masked foes, or people with not so neat intentions, resulting in their falling victim to cyber stalking. So the survey was aimed at a population with high percentage of teens (over 93%).
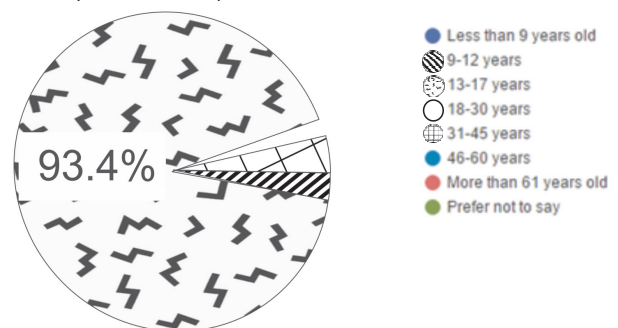


**How important is your privacy and safety on the internet to you?**

According to a report by the University of Michigan C.S. Mott Children's hospital national poll on children's health, of the top 10 health concern for 2015 Internet safety appeared as fourth biggest safety concerns.

Internet has emerged as a new medium, and has made many aspects of our lives easier and efficient - be it official work,

communication, matrimony, social networking or e-learning, but like every other thing, it has its own cons as well. The anonymity and speed at which things move on Internet, makes it all the more prone to crime, a fact that is known to any casual/serious users of the cyber medium. Unlike in any other media like Press/Electronic medium; on Internet, it is so much easier to post any message about anyone, upload or download any piece of information so it becomes all the more important on our part to exercise caution, when interacting/transacting over the internet. Gauging somebody's concern about privacy and safety over the internet can be very subjective open ended answer and the expected answers will be, Yes, I am extremely concerned, highly concerned, concerned, why? not at all concerned, why should I be? and like, which would be hard to analyse. Hence, for the ease of analysis purpose, we decided to use the numeric rating scale, and the respondents were asked to rate them over a scale of 1-10, on how concerned did they feel about their safety over the internet.

When checked on how important is their privacy and safety on the internet to them? 47% rated themselves at 10 on a scale of 10, indicating that they were highly concerned about their safety. 31.9% of the audience gave themselves a rating of 8/9, which is also a very high rating. This rating indicates that they were very concerned about their safety on the internet. Respondents of these two categories put together comprise 78.9%, which indicates that a significantly high percentage of audience consider their safety and privacy on the net very important.

How aware they considered themselves of the risks of careless browsing on a scale of 10?

e-transactions, e-banking, e-learning. What is common across these processes is electronic mode as well as ease and convenience, speed and flexibility; but like everything else, there are cons of this electronic mode too, which is inherent due to anonymity inbuilt in this.

All the information in the world is now literally on your fingertips; available at a few smart clicks of the finger tips. It is true that internet has transformed the world into a global village and has brought speed and efficiency into processes, but careless browsing on the internet carries lots of risk. The profile picture that you create for yourself, the data you submit to register to any website, your uploaded pictures, address, e-mail id, number of dependents etc. is information enough to enable somebody willing to, to cyber stalk you.

If a hacker is able to decode password to your e-mail account, he/she would be able to peep into everything that has been happening in your life (official/personal) depending on whether it is your personal/official e-mail id. The risks of careless e-transactions do not need any explanation, as a single careless transaction, can rob you off your life-earned savings.

Uploading some of your personal pictures, or sharing them with your friends, carries the risk of passing them on to people who might morph it and upload it at sites, with any message that they want. There have been such cases filed, and have created havoc on teens' minds before. It might be a good idea to learn from others' mistakes than from your own.

For analysis purpose, a numeric rating scale was put as an answer option as subjective open ended answers might be difficult to categorise and analyse.

Participants were asked to rate themselves on a scale of 10 on how aware they considered themselves of the risks of careless browsing, with 10 being for extremely careful and 1 being least careful, a significant 16.5% rated themselves at 9 or10., which indicates that they consider themselves to be highly careful of the risks of careless browsing, while 43.1% rated themselves at 7 or 8, which also indicates significant level of alertness, thereby implying that around 60% of them are highly aware of the risks of careless browsing, while the rest of them rated themselves less aware.

About 30% gave themselves a moderate rating of 4-6. Only 9.9% rated themselves at 1,2 or 3 indicating that they were not much aware of the risks of careless browsing on the internet. These two put together comprise around 40%. If 40% of the sample size is not completely aware of the risks of careless browsing, there is a strong need for some intervention.

Also, though about 60% say that they are aware of the risks of careless browsing, it cannot be assumed at this stage, that due to their awareness of the threats that careless browsing holds, they are doing everything right in terms of their cyber safety, which needs to be further checked.
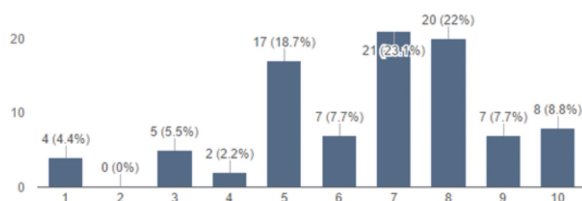


How best did they describe themselves on their tech saviness?

As per the Cambridge English Dictionary, tech-savvy means : knowing a lot about modern technology, especially computers. Off late technology has found its way into multiple aspects of life. Most of the



gadgets around are remote controlled.Being tech-savvy refers to one's ability to find his/her way through technical products, without being lost, confused and with minimal frustration.

The underlying reason for assessing the participants' self assessment on being tech-savvy was that not everybody falls victim to cyber stalking/cyber bullying. There are preventive measures and certain cyber safety measures that should be followed. It can be assumed that cyber stalking happens only to people who are not aware of these cyber safety measures or to those who have minimal knowledge of technology, but browse Internet. When asked how they rated themselves on their being techsavvy, 47.3% claimed that they were tech-savvy and knew their way around technology sufficiently well, while 48.4% claimed that they had sufficient level of experience with technology to carry out daily tasks. Only 2.2% of the survey sample had minimal to no experience with technology, while the rest had sufficient or more knowledge of technology to carry out daily tasks. It might be easy to assume that these tech-savvy participants are doing everything right in terms of cyber-safety, but it needs to be investigated further.

**Do you download Torrents?**

The necessary information needed to download a larger file using BitTorrent protocol are the small Torrent files. The underlying concept behind BitTorrent is sharing computers for using larger downloads.

Most of the Torrent sites check BitTorrents before hosting them for downloads, but it does not imply that all sites are safe. Some sites might be distributing malware deliberately, while others might be doing it , and not be aware of it, While some sites offer legitimate content, some others offer pirated and that decides how legal and safe your downloads are. Also, what you download might be infected, if a BitTorrent client is uploading from an infected file. The question was aimed at checking their tech-savviness and also cyber-safety alertness.

Of the 91 respondents, 29.7% confirmed downloading torrents; 25.3% do so infrequently, and 45.1% do not download torrents. It is important to note that 55% do download Torrents frequently or non-frequently.
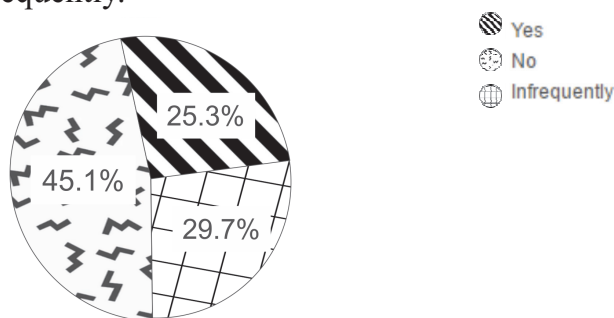


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Do you use pirated versions of softwares and operating systems?

With the software prices soaring, the tendency to use pirated versions of software/operating systems is high, though it comes with lots of security risks. With pirated Software, there is a risk of infecting your PC, It could also slow down your system. There is a likelihood of infecting your system with virus. While working on a system with pirated operating system or pirated software, there is a likelihood of your system disseminating your important/confidential data. The consequences of your confidential data /family pictures/ other pictures going to

an outsider's hand can easily be imagined. There have been cases of people's pictures morphed and uploaded with insane messages on different media, which have later caused havoc on the victim's minds.

For the safety of data and system, it is advisable to use genuine versions of softwares and operating systems, even if it comes at a price.

The participants, when asked if they used pirated versions of softwares and operating system, 14.3% confessed use of pirated versions of software/operating systems. 20.9% said that they did so infrequently. So, both put together, around 35% of the audience use pirated softwares/operating system frequently or infrequently.

There were about 64.8% of participants who denied the use of pirated versions of softwares or operating systems. On an overall 35% use pirated versions of softwares or operating systems, either regularly or infrequently, which is unsafe and not advisable from the aspect of cyber safety. When this information is compared to the information received as an answer to earlier question on how concerned were they about their safety on Internet, around 85.7% considered their safety on the internet very important.
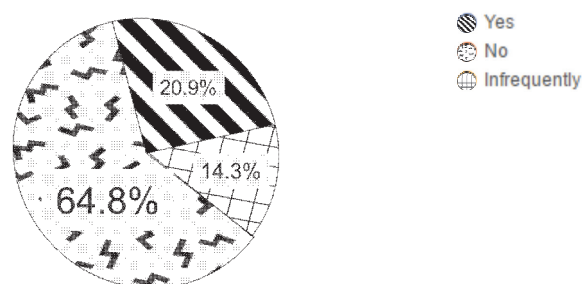


Are you on the latest version of your operating system?

Being on the latest version of operating system improves the reliability of a system and also improves its safety and security, Just like using genuine versions of softwares is in the best interest of cyber safety, using the latest version of operating system is also recommended.

The audience was asked if they were on the latest version of the operating system. The objective was again to check, their alertness, tech-savviness as well as their moves and steps taken to ensure safety in the cyber medium.

64.8% of the participants confirmed being on the latest version of operating system, while 23.1% denied being on the latest version, while 12.1% did not even know, if they were on the latest version of the operating system.

The data obtained in this question is compared to the information received as an answer to earlier question on their tech-saviness (comfort with technology) 95.7% confirmed that they had sufficient or more knowledge of technology to find their way around technology sufficiently well and 78.9%, of participants had indicated their safety and privacy on the net very important. The contradiction between what was said about the concern for cyber security and what is being followed is apparent.
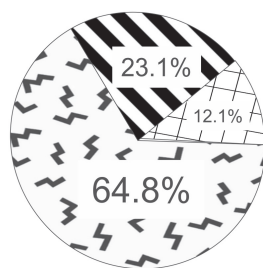
## Do you use adblockers?

An ad blocker is software that prevents advertising content to appear, thereby minimizing the distractions, It rather does more than that, it saves bandwidth as these advertisements consume bandwidth too.

Tom Simonite on March 16, 2016 reported that some security experts stated that apart from the ethical and business questions of whether it's okay to block online ads that support free content, it is something that must be done, to stay safe in the cyber medium. Ad blockers protect you from malware and well, that is not all, they also protect your privacy. Using ad blocker, indicates your concern for protecting yourself in the cyber world. When questioned about use of an adblocker, 33.9% of the participants indicated that they use adblockers, 54.9% do not use adblockers, while 11% enable ads on the websites they trust. 54.9% of the participants not using adblockers is a concern and shows scope rather need for some intervention to increase education on the necessary steps to be taken for cyber safety.
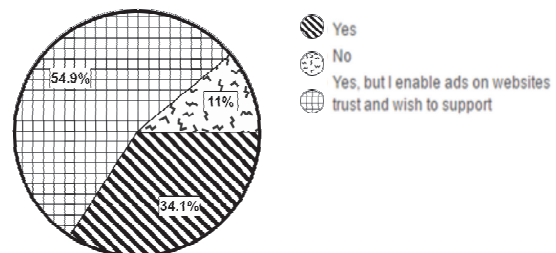


Do you use same password across online universe?

Password is the lock that you use for any cyber gate, be it your system, e-mail id, bank account, your social networking site and every identity that you create for yourself for different purposes. While it is in our own interest that we create a different password for every profile, and that too, preferably a

strong password which should be a combination of alpha numeric characters, and a special character,

Having said that, how easy is it for a human brain already engrossed in numerous processes, chores and challenges to remember multiple alpha numeric special character passwords for which profile/id they were created? And the result is facing the annoying forgot password? Screen and sending request to send password hint to your registered e-mail address and creating a password for you again. An unpleasant, experience that many of us frequently go through. The easy way out that many of us create is to have same password for all our online identities. While, it saves us from the painful experience narrated above, it again is not in the best interest of our cyber safety.

Using the same password across online universe is yet another threat, and it is not advisable to do so. This is because different websites have different levels of security measures embedded in, the safety measures that a banking site would have embedded would be much higher than what an e-mail server site would have and that again is different from what a social networking site will have. Though looking at the rising number of cyber stalking cases, the social networking sites too need to raise the security measures embedded. Hackers acquire certain degree of skills to break through the safety wall of certain websites, probably the not so strong ones and are able to decode the passwords. Using the same password for multiple sites, makes it easier for a hacker to guess the used password, for other sites too. The aftereffects of their being able to decode your id and password can be well imagined. When asked if participants were using the same password across the

online universe, 24.2% said they used the same password across the online universe, 38.5% preferred not to say and only 37.4% did not use the same password for entire online universe. This when compared to the earlier answer, about their concern of cybersafety again reflects a contradiction.
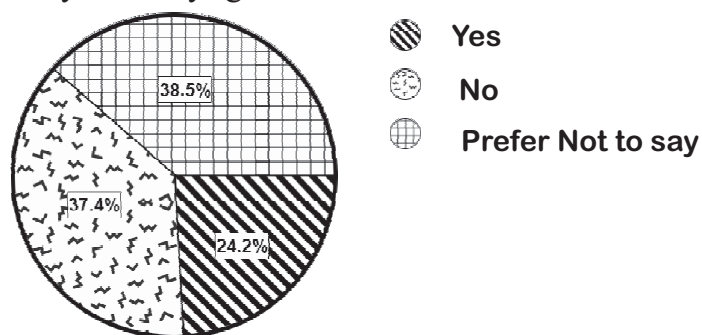


Do you use Internet of things devices at home, such as smart lights, refrigerators etc?

Internet of Things (IoT) can change the way a common man interacts with technology and brings in numerous benefits, but from a cyber security perspective, there could be challenges posed.

When checked on the use of Internet of Things (IoT) devices at home, such as smart lights, refrigerators etc. 33% of the participants affirmed having them at home, while 56% of the participants denied possessing them, and 11% of the participants were not sure of having them at home, and answered in "may be".
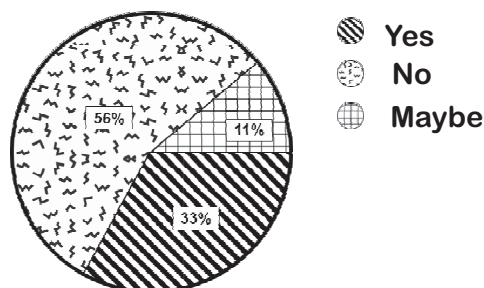


Do you think before posting messages online?

Posting messages online is so much easier than doing it on other medium, which brings in benefits, but also poses challenges, thinking twice before posting any message online, is likely to be helpful. When asked about their alertness on posting something online. 86.8% asserted that did think before posting something online, 9.9% answered in "may be" , while a small 2.3% said they did not think much before posting something online. Both put together comprise 12.2% of the audience, which does not always think much before posting messages.



- Yes
- No
- Maybe

86.8%    9.9%
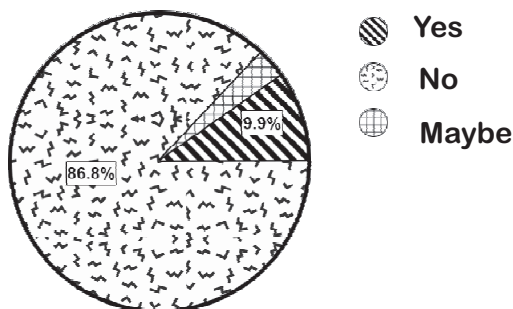
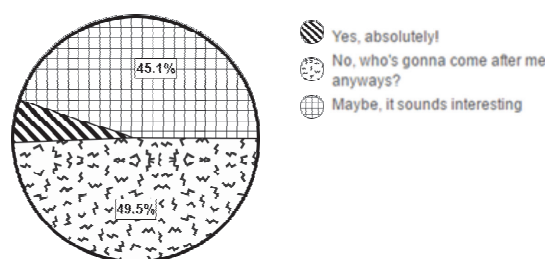Do you make friends online, with people not known in person?

Making friends online, with people we do not know personally, comes with risk as these could be people with hidden objectives against you, could be somebody using fake identity to get your confidential information, and could be somebody genuinely looking for making friends online as well, but they all appear the same in the cyber space. When checked on, if the participants befriended people online,  while 9.9% affirmed they did, 15.4% of the participants answered in "may be", majority of them (74.7%) denied so.



- Yes
- No
- May be

74.7%   15.4%   9.9%
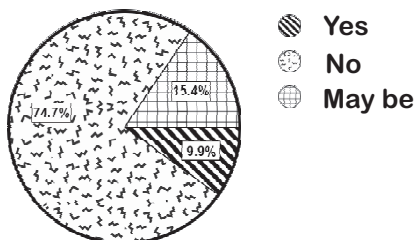
When checked about their ever being affected by malware, identity theft, cyber fraud and being aware of it, 27.5% confirmed being affected, 51.4% said that they were not affected, while 27.5% were not sure and responded in "maybe".

Would you be interested in learning about some basic practices to follow that can protect you from

Cyber threats and help you stay safe online



- Yes, absolutely!
- No, who's gonna come after me anyways?
- Maybe, it sounds interesting

45.1%    49.5%

49.5% were an absolute yes, while to 45.1% it sounded interesting, while 5.5% felt that they were unlikely to be the victim of cyber stalking.

## Conclusion

Advent of Internet and Technology, has brought in speed and efficiency in every aspect of our lives and also comforts that all of us have got addicted to. However, it also brought a medium, which is leading to some not so desirable social changes and consequences such as cyber stalking and cyber bullying.

There have been studies conducted earlier, which have looked at modes of cyber bullying, patterns of cyber bullying and impact of cyber bullying on teenagers.

There is a need to conduct study of the underlying reasons behind cyber stalking. However, the cyber-alertness, of the victims, their desire to prevent themselves from Cyber stalking and behavioural pattern on the Internet, in terms of cyber safety might also

lead to some preventive measures.

A study was done of the teenagers' cyber behaviour, and it was seen that while most of the audience was tech-savvy (95.7%), and considered their safety and privacy on the internet to be extremely important (78.9%) the number of participants who were actually adopting cyber safety measures, and exercising caution in the cyber space, were relatively much smaller. This indicates the need for some educational intervention aimed at educating and reinforcing cyber safety measures at school children.

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