INFERRING SOCIAL RELATIONSHIPS: INTERRELATED IMPACT OF PERSONOLOGICAL FACTORS AND CYBER BULLYING

A Thesis

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By

MAJID SADEEQ

11512754

Supervised By

Prof. (Dr.) VIJAY KUAMR

LOVELY PROFESSIONAL UNIVERSITY

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DECLARATION

I declare that the thesis entitled **"Inferring Social Relationships: Interrelated Impact of Personological Factors and Cyber Bullying"** has been prepared by me under the guidance of Prof. (Dr.) Vijay Kumar, School of Education, Lovely Professional University, Phagwara, Punjab. No part of this thesis has formed the basis for the award of any degree or fellowship previously.

Majid Sadeeq
Reg. No.: 11512754
School of Education
Lovely Professional University
Phagwara, Punjab, India.

Dated: _____

CERTIFICATE

I certify that Majid Sadeeq has prepared his thesis entitled "Inferring Social Relationships: Interrelated Impact of Personological Factors and Cyber Bullying" for the award of Ph.D. degree of the Lovely Professional University under my guidance. He has carried out the work at the School of Education, Lovely Professional University, Phagwara, Punjab.

Prof. (Dr.) Vijay Kumar
(Supervisor)
Professor
School of Education
Lovely Profession University Phagwara, Punjab, India

Dated: _____

ABSTRACT

Bullying as a menace has its origin dating back to early 15th century. People of all age group experience coercion from their stronger behalf in one form or the other through the act of bullying in all societies. With the advancement of technology, around mid-20th century a new variant of bullying associated with cyber space was observed and recorded in the literature known as cyber bullying. It is perpetrated by using electronic devices and mostly it is done through social networking sites. Although people of any age group can become victim of this crime but it is mostly prevalent among adolescents. Electronic bullying occurs in many shapes and forms and puts a bad impact on one's social relationships. Mostly four groups of people are involved in this manse like bullies, victims, both bully/victims and uninvolved. Internet usage is quite high among young ones but it is revealed in the previous studies that boys act as bullies and become victims also. But girls are mostly found as victims of online harassment. In the Indian contest the subject of cyber bullying and its associated factors are pristine and untouched in the field of research. The seriousness of the issue however, is grave and under reported due to the lack of awareness, on the subject. The shaky form of cyber laws further adds to the complexities associated with cases of cyber bullying, their reporting and consequent judicial discourse. The present study was initiated to explore the relationship cyber bullying shares with social relationships mediated by personological factors in the academic land scape. Since internet is the element propelling cyber bullying, the students pursuing various disciplines in the universities of Punjab with internet facility were chosen as population of the study. The design was kept as descriptive in nature to meet the objectives of the study depicting the impact cyber bullying has on social relationships of the students mediated by personological factors. In order to gather the data of the variables of the study nine standardized tools were used. Knowledge of cyber bullying was measured by using self-constructed tool of nine items with acceptable reliability. Then, Attitude of cyber bullying was measured by using Cyber Bullying Attitude Measure by Christopher P. Barlett, Kaitlyn Helm Stetter, Douglas A. Gentile (2016). In order to identify bully/victims the scale of 24 items Cyber-Bullying and Victimization Experiences Questionnaire-Greek (CBVEQ-G) by Antoniadou and Kokkinos, 2011

was used. Friendship quality scale by Lei Mee Thien, Nordin Abd Razak, Hazri Jamil (2012) was used to measure peer- peer relationship using the 21 items. Barrett-Lennard Relationship Inventory (1986) was used to measure social relationship among parent-child and teacher-students. The motivation scale was by Fr´ed´eric Guay, Robert J. Vallerand,and C´eline Blanchard (2000) was adopted in order to measure the level of motivation of bully/victims undergraduates. The scale comprises of 16 items. Hsu and Chiu (2003) scale of 9 items was used to measure the level of internet self-efficacy among undergraduates. Ankool Hyde and Sanjyot Dethe (2001) scale of emotional intelligence was used to extract the items of Empathy dimension with 5 items. The tools, adapted and constructed, were validated using the statistical techniques of exploratory factor analysis to find the involved dimensions, followed by verification of the factor structures using confirmatory factor analysis (CFA). SPSS Statistics version 23.0 was used to conduct exploratory factor analysis and SPSS Amos version 23.0 was used to perform confirmatory factor analysis. The instances where Cronbach alpha fell short in estimating the internal consistence reliability of the factors/ dimensions, alternate reliability estimates like Raykov's composite Reliability and Greatest Lower bound reliability (GLB) were reported. FACTOR software was used to obtain greatest lower bound and the website- "https://www.thestatisticalmind.com/composite-reliability/" was the source to obtain composite reliability. The sample size of 1000 was gathered, comprising of students studying in wifi enabled universities located in three regions i.e. Majha, Malwa and Dhoaba and union territory of Chandigarh to base the study in the context of state of Punjab in India. These subjects were selected using Pro Rata, Simple Random Sampling. Post the removal of outliers the final data was 946, out of which 897 subjects have affirmed internet usage. Further on finding subjects using **c**ommon resources for bullying others / victimized by others, the final sample size was 821. On the basis of categorization of subjects into bullies, victims, both bully/ victims and uninvolved, the final subjects were 552. Depending on the data type of the variables involved, appropriate regressions were applied as part of the statistical techniques of the study. The results obtained, disclosed the Motivation, internet self-efficacy, age and empathy of personological factors mediate the relationship cyber bullying has on three chosen form of social relationships i.e., peer to peer, parent to child and teacher

to student. However, gender and internet usage components of personological factors mediate the relationship cyber bullying with peer to peer and parent to child only. On an independent one to one basis cyber bullying as a behavior in both bully and victim undergraduates was found to impact personological factors like gender, age, empathy, motivation, internet self-efficacy and internet usage significantly. When the predictive role of cyber bullying on social relationship like peer-to-peer group, parent-child and student teacher was explored. It was found to be significant, indicating that cyber bullying as crime touches all the three chosen groups social relationships in the study. While exploring the impact of personological factors on social relationships, the study was divided into two parts comprising the impact of categorical components of personological factors on social relationships, and the impact of the continuous components of personological factors on the same variable. While, gender and internet usage formed the categorical personological factors and significantly impacted parent-child relationship in cyber bullying, age, motivation, internet-self efficacy formed the continuous personological factors affecting all the three groups of social relationships involved in cyber bullying. Cyber bullying as topic of research is in its early stages is in India. This situation necessitates availability of sufficient literature on the topic which is possible only through repetition of coward studies in multiple contexts to achieve a state of consistency with respect to empirical result and instance of further research to explore its uncovered aspects. The implications of the findings of this study in academics for the stake holders, students, their parents, their teachers and their peers are discussed with suggestions for improving the state of affairs in cyber bullying for the policy makers are submitted.

Key words: ***Cyber bullying, Greatest lower bound reliability, Internet self-efficacy, Internet usage, Personological factors, social relationships***

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LIST OF ABBREVATIONS AND SYMBOLS

S no	Abbreviation	Details
1	CFA	Confirmatory Factor Analysis
2	EFA	Exploratory Factor Analysis
3	TLI	Tucker Lewis Index
4	IFI	Incremental Fit Index
5	RMR	Root Mean Square Residual
6	RMSEA	Root Mean Square Error of Approximation
7	GFI	Goodness of fit index
8	Df	Degree of Freedom
9	GLB	Greatest Lower Bound Reliability
10	CB	Cyber Bully
11	CV	Cyber Victim
12	HCA	Harmful Cyberbullying Attitudes
13	GCC	General Cyberbullying Characteristics
14	ISE	Internet Self-Efficacy
15	ANOVA	Analysis of Variance
16	σ	Standard Deviation
17	PAPM	Precaution Adoption Process Model
18	MCQ	Multiple Choice Question
19	KCB	Knowledge of cyber-bullying
20	Md	Median
21	Sk	Skewness
22	kurtz	kurtosis
23	w.r.t	With Respect To
24	Exp.	Exponential Beta

CHAPTER I
INTRODUCTION

"We've got to dispel the myth that bullying is just a normal rite of passage that it's some inevitable part of growing up. It's not. We have an obligation to ensure that our schools are safe for all of our kids."

-President Barack Obama

Child is born as a helpless creature. He does not have any enemy or any friend to face with. He is also not aware of the traditions and customs his society follows. But, with the passage of time the immature child becomes mature and tries to solve problems in his life. It is the Education which helps him to adjust with changing situation around him. The physical, social, emotional, and intellectual developments in the child take place only because of the influence of formal and informal agencies of education. Nature has made human being different from other beings and made them capable to learn and gain knowledge. Education grants immense benefits to human beings. It is the education which helps an individual to differentiate between good and evil; it drags a person from darkness, poverty and other social miseries and thus makes him a developed individual who contributes to the development of the society.

Human life consists of two important aspects i.e. biological and social aspect. Plant and animal too have biological aspect, but the sociological aspect is only distinctive characteristics which makes him different from other creations of nature. Thus, using sociological aspect, he receives education which helps him to gather new knowledge, develop new ideas and new ways of life and transmits that knowledge to next generations. His biological existence alone is secured through food, shelter and reproduction. But his cultural and social aspect is glorified through education which represents his supreme position and thus constitutes the noblest work of God. Thus, education plays an important role in shaping the life of human beings and enables them to live a normal life in a group or in a society, without it the individual would be unqualified for group life.

It is possible only through education that a civilized society is being created which transfers morality, spirituality, and cultural heritage, aspiration of the nation from one generation to another for preservation, purification and sublimation of instincts for higher and higher achievements. This clearly certifies that education is a vital human virtue. Without its acquisition, man is a splendid salve, reasoning savage. Education humanizes the humanity. Education means acquisition of knowledge and experience as well as the development of skills, habits and attitudes which help a person to lead a full and worth-while life in this world. It is in fact, a process of training the individual through various experiences of life so as to draw out the best in him. Education is the deliberate and systematic influence exerted by the mature person upon the immature, through instructions, discipline and harmonious development of physical, intellectual, aesthetic, social and spiritual powers of the human being, according to individual and social needs and directed towards the union of the educand with his creator as final end (Reddens). Education is a process of receiving or giving instruction at school, college or university level. It facilitates an individual to learn wealth of knowledge from subject matters or experiences of life.

With every passing day in school while interacting with teachers and peers our children learn valuable lessons and skills. Undoubtedly schools play an important role in the overall development of child's personality but children experiences some of the negative instances such as bullying which has adverse effect on their personality and it remains with them throughout their life.

1.1 Historical Back Ground of The Problem

Bullying is not a new phenomenon in Indian context. It is a long-lasting problem that happens between friends, relatives, classmates, playmates etc. both in the formal and informal setting. It has been observed that in the whole world bullying is a serious topic of discussion among researchers. The word "Bullying" has been traced from 1530s. (Harper, 2008). It is an aggressive act deliberately carried out by more power individual or group of persons with more power against the victim who are weak in order to inflict physical and psychological harm. It is not only limited to physical harassment i.e. beating, kicking, but it can occur verbally also like abusing, calling names, joking, embarrassing (Olweus, 1993). It is also reported by (Olweus and

Limber, 2010) that bullying leads to problems of depression, low self-esteem, poor grades, disturbance of eating and sleeping habits, and moreover sometimes the victim think to commit suicide.

With the onset of 20th century, juvenile courts are established across United States, which leads to the research on aggressive behavior in youths (Eddy, Reid, & Fetrow, 2000). Psychologists are given the responsibility to find out the real causes of aggressiveness of youth. In 1950, the criminal activities of the young adolescents increased across the country and thus psychologists started to investigate more on the concept of bullying (Eddy, 2000). Thus, several studies conducted to find the association between aggression and antisocial behavior (Domitrovich & Welsh 2000; Eddy et al., 2000). Smith (2004) described that the term bullying came into recognition in 1978, after the book "*Aggression in Schools: Bullies and Whipping Boys*", published by *Olweus,* this book leads to the research in the field of bullying. With the passage of time many other studies conducted on bullying behavior its consequences and other studies on prevention and intervention which leads to put forth body of literature on Bullying that makes it different from aggression (Griffin and Gross, 2004).

In Indian context bullying is prevalent in every strata of society. Earlier it was limited to rural areas where the upper caste people bully their low caste class by reminding them that they belong to low castes. But now it is dominant in urban culture. It is called by various names in urban areas. In urban schools' senior students bully their junior ones or new entrants in school there it is denoted as Ragging. Eve teasing is another term used for bullying where males bully females using anti-social terms. Now, with the change in time it is not only limited to educational institutes but, bullying phenomenon has entered into workplaces where people are being bullied on emotional and psychological front (Einarsen, 2000). At present although there are new laws regarding ragging but it has taken more dangerous shape (Jaishankar, 2009). Verbal bullying is commonly found in educational institutions where children with good physique bully their weaker classmates. It is seen in recent past that bullying is taken to such extent that students bully each other in the name of religion, caste, regions etc. The problem of bullying is less understood in India as compared to

western countries. In Indian context bullying incidents are considered as common behavior of students as most of the cases are settled by the teachers and parents while giving some warning to the perpetrators. Bullying is much neglected in India as it is termed as normal behavior of the children.

There are many reasons that leads a child to make fun of others, but it is considered that children while watching shows of fights, violence, jokes on television develops a habit of making mockery of others in real life. Economic condition and home environment also play an important role in making a child perpetrator of doing aggressive acts.

Whitted and Dupper (2005) reported that results of bullying not only effects to bullies and victims but also targets the bystanders also. They usually suffer from insecurity, loss of control emotional imbalance and lower self-esteem. Brinson (2005) concluded that males usually ignore the incidents of bullying initiated by females. Taking advantage of the restrictions imposed by the society on boys, female gender usually bully boys knowing the fact that they will not take revenge. As while growing up boys learn that physically they are stronger than females and that perception helps them not to revert when a female attempts to bully them.

1.2 Recent Trends of Bullying

Bullying incidents are in rise in Indian schools and is gaining the attention of parents, teachers, and health professionals. The bullying incidents are reported in various papers. The times of India (2005) reported that there are many incidents of teasing happening in many elite schools of Kolkata (Banerjee, 2005). It is also reported that 20 to 30 percent school children tend to take part in bullying acting as bully or victims. The study further reveled that girls are more perpetrators of bullying (Sehggal, 2004) (The Tribune).

The Hindu, Jan o4, 2008, reported that a student of class 8th was shot dead by 10th class student in Madhya Pradesh after heated arguments and exchange of words in school premises. In another incident in Bengaluru where two 10th class students shot by a school mate near school. The perpetrator was bullied by the victims and out of frustration he did this act although; he was good at academics (The Hindu, Feb, 03,

2008). Woodman and Kumar (2008) reported that a student of class 12th was shot dead by his classmates after they found that the later eve teased the former's sister.

1.3 Types of Bullying

Though bullying occurs in different forms, some of the mainly occurring types of this menace presently existing in the society are:

1.3.1 Verbal Bullying:

This type of bullying involves usage of words, phrases, or verbal clues that embarrass, harass, or intimidate others. For example, calling names, teasing, passing racial comments, sarcasm, rumours, mean spirited comments, and intimidating words are the various forms of verbal bullying.

1.3.2 Social bullying:

Here, the harm caused exists in the form of intimidating, controlling, or causing harmful actions that are done mainly in groups, for instance, humiliating in front of others, using graffiti about others, putdowns, exclusions and mobbing.

1.3.3 Physical bullying:

Using body parts such as hands and feet to harm, control, or intimidate, through unwanted touch, hitting, spitting, tripping, pushing, and showing aggressiveness make up the forms of physical bullying.

1.3.4 Cyber bullying:

People get cyber bullied through electronic devices and it is usually done on social media. Examples of its modes are posting pictures without permission, sending harmful texts and inappropriate messages about others.

From the above it is concluded that harassment of the weaker section of the population is an age-old problem. It is prevalent among larger section of the society. Bullying occurs in different modes and it may emerge more at different stages of life. The online form of bulling is more prevalent among adolescents. Social media is used as plat form for harassing others online and it emerges as a more powerful tool for cyber bullying.

1.4 Difference between Traditional Bullying and Cyber Bullying

There are some important aspects of cyber bullying that separate it from traditional bullying. For example, in the traditional sense, bullies are found either at workplace or at a school. However, the bullies in the cyber space remain anonymous, making this form of bullying effective in action and dangerous in effect. Conventionally, the targets of bullying in schools are the children who are physically weak, overweight, and unpopular or disabled, where the bullying takes place during the day time. On the contrary, there is no particular time for a victim to suffer bullying in the cyber space. As a result, the children feel heightened sense of victimization. The act of bullying in the cyber space can happen in the forms of uploading of images, sending derogatory messages and interaction that occur in virtual reality which is different from the reality experienced routinely. In traditional bullying, the victim can experience a small period of respite from bullying on going back to home, but in cyber bullying, there is no respite from the stress until the victim get away from the electronic device. Such a heightened sense of powerlessness experienced by the victim under cyber bullying is supported by the work of Dooley et al. (2009). In traditional bullying, a victim can predict when he or she is going to be bullied (e.g. at school or on the playground); whereas in online harassment, the victim is unaware that when and where he or she is being harassed by different means of online bullying, or how (e.g. *cell phone, computer*), which leads to a feeling of heightened powerlessness. Recent studies suggest that cyber bullying is universal and ranks as one of the most common form of harassment among adolescents.

The advancement in the digital world has enabled every individual to connect with others anywhere in the world that was once unimaginable. However, with the benefits of technologies come the repercussions of its misuse. Cyber bullying a hidden phenomenon due to various types of technologies becomes the most difficult task to monitor. In the 21st century school students consider internet and phones as very essence of their daily life. The uncontrollable surfing has increased the rate of bullying among college students. Now-a-days mainly the bullying occurs from cyber space and created a new form of bullying kwon as Cyber bullying. Jaishankar (2009) defined *"cyber bullying is abuse/harassment by teasing or insulting, victim's body*

shape, intellect, family back ground, dress sense, mother tongue, place of origin, attitude, race, caste, class, name calling, using modern electronic devices".

1.5 Cyber bullying

In the recent world of technological advancement bullying through electronic devices such as mobile phones, or the internet has emerged wide and large and collectively labelled as 'cyber bullying'. A universally accepted definition of cyber bullying is "*an intentional, aggressive act carried out, repeatedly by a group or individual, using electronic forms of contact against victim who cannot defend him or herself"*. (My Gov Blog, 2020). The instances of cyber bullying have grown to a large extent due to the increasing penetration of computers and mobile phones among young adolescents. Historically, BillBelsey, a Canadian educational advisor in 2004, coined the term cyber bullying. Bill Belsey (2005), coined the term cyber bullying as "*Cyber bullying involves the use of information and communication technologies such as email, cell phone and pager text messages, instant messaging, defamatory personal web sites, and defamatory online personal polling web sites, to support deliberate, repeated, and hostile behavior by an individual or group, that is intended to harm others*". Online bullying, is a new phenomenon, it is perpetrated through the use of computers, cell phones (Hinduja and Patchin, 2010). In an attempt to provide balance to the inconsistent definitions of cyber bullying, Tokunaga (2010), stated that "*cyber bullying is any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others".*

Now a day's large number of adolescents and teens are using technological enabled devices. The large increase in internet use of 12 to 17-year-old throughout the decade, coupled with the lack of online supervision, has created an opportunity for them to indulge in antisocial activities. (Lenhart, Madden and Hitlin, 2005). Although it is true that student used technological enabled gadgets to complete their educational projects and gain new knowledge but it is found that most of the adolescents are misusing electronic devices to torment their peers. Most of the time cyber bullying occurs between adolescents and may include name calling, online gossips, rumors impersonations, and deliberately stopping someone from taking part in online social

activities (Breeze et al., 2017; Robinson, 2013). The effect of cyber bullying ranges from victims to victims, as some are having immediate decline in academic achievement and also it leads to social isolation or attempting suicide (Buman and Bellmore, 2015; Chang et al., 2016).

Cyber bullying is more harmful than traditional bullying because once the information is shared online there is little hope for escape from harassment, as it attracts large number of audience and once it is posted, it is nearly impossible to retract (Hay, Meldrum, & Mann, 2010). There is less opportunity to escape from harmful effect of electronic bullying as it happens at any time and at all places. Lack of laws regarding internet makes it difficult for the law- enforcement agencies to act against the culprit of cyber bullying (Li, 2006). Youth involved in cyber bullying are having poor social relationships and negative self-esteem (Bowers, Smith, and Binney, 1994). Bullies are reported to have higher level of alcohol consumption and domestic crimes.

In India school children bully not only their peers but they are bullying rival school children's also. Due to lack proper policies and anti- cyber bullying law has made the situation worse. School children are lacking social element and they prefer to sit alone with their electronic device rather than going out and meeting friends and playing in grounds. Not only children, most of the teenagers are using internet as their daily routine other than using it for educational purposes. Juvenile justice act (2005), revealed that "*most cyber bullying cases by adolescents are mocking, annoyance, stalking and even murder as a result of the online friendship"*. Various researches show that the most common venue for cyber bullying includes cell phones, emails, instant messaging, social networking sites. Pew Internet and American Life project, (2012) conducted a survey and reported that 78% adolescents from 12-17 years of age are having cell phones and computer enabled internet at home and they are using electronic devices on daily basis. As per the report of Cyber Bullying Research Center, 50% the young people have experience of cyber bullying and with 10-20% reported that they are being targeted on regular basis. More than 80 percent of the adolescents use cell phone with 25% of them being victim of cyber bullying through cell phones (Hinduja and Patchin, 2008).

One of the common forms of cyber bullying among adolescents is *cyber stalking*. Teen-agers of the same age group are trapped and harassed repeatedly. Unwanted messages are sent to them and are made victim of cyber pornography. In the initial stage the perpetrators are harassing their own friends and colleagues, but with the passage of time they start following unknown women on social networking sites and start to harass them without their knowledge. Cyber bullying is also known as aggression through electronic means and is a type of bullying that can be perpetrated through email, chat room, instant messaging, text messaging pictures or videos posted on the websites. Nonviolent behavior occurred through high tech electronic gadgets and internet. In the western countries it is prevalent right from school students. It is observed that middle school students are using technologies to bully or become victims of cyber bullying. Li (2006) revealed that cyber bullying is mostly prevalent in school students and confirmed that more than half of the students are victims of cyber bullying.

1.5.1 Characteristics of cyber bully/Victims

There are many adolescents who are more prone to be a cyberbully. Cyber bully usually has poor emotional bond with the people around them. The frequency of cyber bullying incidents is found to be higher among adolescents it has been found that due to less access to computers and other electronic gadgets younger children are more in traditional bullying. Sheriff, (2008) found that due to easy access of internet the person who lack confidence can easily bully others. This encourage those students who normally never engage in cyber bullying activities to become cyber bullies.

In terms of gender girls are found to be more victims of cyber bullying than boys. Studies revealed that internet usage of victims is more victims than non-victims. Adolescents who are using internet and social networking sites daily reported of online harassment (Lenhart, 2010). Adolescents with online profile were more likely to be cyber bullied than those without profiles. Half of the adolescents are not aware about the identity of cyberbully (Kowalski and Limber 2007). In the united states 20% random sample of adolescents reported to be cyber bully or victim once in the life time. Schenk, Fremouw and Keelan (2013) found that college students suffers more

psychological distress because of their involvement in cyber bullying incidents, other symptoms like aggressive acts and committing suicides is more prevalent. The study also highlighted that both bully/victims are involved in committing violent behavior and indulge in drug crimes.

1.6 Forms of Cyber Bullying

Cyber bullying can occur in different forms like, sending or posting harsh words or irrelevant information meant to cause harm or defame a person's reputation and relationships with friends, family, and acquaintances. It also involves hacking a person's e-mail account and send messages which can embarrass the individual and negatively affect his or her relationship with others. Fighting online and then sharing offensive and disrespectful messages about other on different sites, blogs also a form of bullying. Another type is threatening other person's and following him/her online. Deliberately excluding someone from an online group is also common among youths and it is a form of cyber bullying as well**.** It also occurs in the form of repeatedly posting or sending offensive, rude, and insulting messages. Sometimes "remarks on the Internet threatening or implying violent behavior, displaying suicidal tendencies is also a type of cyber bullying". "Outing is when a perpetrator of cyber bullying someone's personal chats and photos on social media platform only to damage his or her reputation publicly. Tricking is also a form of cyber-bullying where someone is fooled to reveal his or her secrets or embarrassing information, only to be later shared online.

From the literature point of view research on cyber bullying mostly conducted on school students as the studies of (Patchin, 2006; Wolak et al., 2006; Selkie, 2016; Ang, 2010; Hinduja & Patchin, 2010; Patchin, 2010), however, literature review suggests that there are very few studies of online harassment conducted on college students both in India and western context. The present study will serve as foundation of cyber bullying research and for the literature in India.

1.7 Social Relationships

Every single minute throughout their life people across the world share things and communicate with each other through online medium. In the technologically

globalized world people make new relations while setting at home. Social media connects the world and help them to understand and build strong relation with each other. As it become a vital aspect of daily life, people share their joys, happiness, movements with their online friends globally. At the same time, it appears to be challenging and dangerous for parents and other stake holders to make check of online activities.

Social interaction is an important aspect of human life and it works as an engine to bring crucial changes in society and also plays a vital role in an individual's psychological development. "*Relationship can be defined as the way in which two or more people, groups, countries, etc., talk to, behave towards and deal with each other*". (Merriam Webster, 2021). Victims of online harassment feels socially isolated and unsafe, which in results can lead to emotional instability and loss to physique, low self-esteem, feeling disturbed and also it impacts the academics of the students. Online harassment leads to committing suicide among young ones as, victims mostly not revealing the real scenario to anyone. Face to face bullying and cyber bullying both have a bad impact on an Individuals' emotional and psychological suffering. Symptoms of cyber victims are same as traditional bullying as they also suffer from nervousness, fear, depression and low self-confidence. But some of the targets of cyber bullying also suffer from some inimitable consequences and undesirable feelings. Cyber bullying is such a dangerous phenomenon that it disturbs anyone's' social life. People of all walks of life become the victims of cyber bullying which leads them to feel emotionally, mentally unstable. Lack of proper laws and adherence by law enforced agencies makes people embarrassed as they can't take support from anyone when they are harassed online. Teenagers mostly assume that if they narrate the incident of being harassed online, they might lose their account which is difficult for the youths as they do not want to lose their online popularity. Previous researchers revealed that children who become victim of online harassment tend to have less parental and peer support as compare to their counterparts.

Youngsters who are cyber bullied trust their parents and peer group less while uninvolved group have better parental attachment. It is also observed that victims usually alienate themselves from their social circle including family members while

non-involved participants are strongly connected to social groups. The fear of parents and getting socially alienation from friends most of the adolescents do not reveal that they are repeatedly harassed online as a result the victim mostly suffer from depression, low confidence, losing friends etc. (Kaur and Sandhu, 2015). Fousiani et.al (2016) studied both a direct and an indirect relation between parenting and cyber-bullying. Results also shows that children of psychologically controlled parents experience cyber-bullying, whereas parents who give freedom to their children experience less cyber bulling incidents, as it autonomy enjoys freedom and develops more empathetic attitude which helps them to get less involved in online. Adolescents those who are victims of cyber bullying faces distress which leads an individual often to variety of emotions which can be anger, sadness, anxiety, embarrassment, crying, fear and self-blame that disturbs the wellbeing of students which ultimately disturbs their relation with their teachers either by behaving with them in an aggressive way or by simply excluding themselves from their teachers or peers.

As the cyber bullying surge, the reports of school teachers getting involved in such a cruel practice emerges. School and college Instructors post up harmful messages for their colleagues also, instructors harassed their pupils and in return they also become victim of online harassment. Higher authorities fail to address the issue as the perpetrators are hidden thus makes whole system of teaching and learning answerable to the community.

The online war is spreading rapidly and it will affect all mankind if there are no proper laws are made in order to protect them from online harassment. Several studies revealed that two third 66% of youth in India say they feel safe and accepted on social media than in real life, 72% feel that more likes and comments on the photos posted of themselves on social media make them more famous. In view of the social pressure, 64% reported that they have created fake profiles for themselves and do cyber bullying activities without getting noticed. Moreover, 46% reported that they deliberately send friend request to unknown people so that they get more likes on their posts.

1.8 Personological Factors

In the present study personological factors will be studied in terms of internet usage, empathy, internet self-efficacy, motivation, age, gender, cyber victimization experience. Anderson et al., (2003) defined "*Personological factors are the aspects of an individual's personality, cognitive structures, and emotional tendencies that can affect behavior through interacting with situational risk factors".* Xiao and Wong (2013) conducted an in-depth about online harassment of university students. The result shows that social values, as well as individual factors such as internet self-efficacy, motivations and empathy are strongly predicted by of university students' cyber bullying behavior. This study helps the policy makers, teachers, family members to understand the different factors associated with cyber bullying of university students and their social relationship.

1.8.1 Internet Self Efficacy

Self-efficacy defined as personal viewpoint about organizing and executing certain action required to accomplish certain performances (Bandura, 1986). Hsu and Chiu, 2004; Olivier and Shapiro, 1993 concluded that the person having strong perceived self-efficacy will more likely to carry out any tasks. It has been noticed that individuals having low self-efficacy will likely to shy away from performing tasks rather they took up such activities where they are more confidence of their abilities. Conner and Norman (2005) found that change in certain behaviors like doing regular exercise, quitting smoking; dental hygiene is the result of one's perception of self-efficacy. Previous studies of (Bulach, Fulbright, and Williams, 2003; Natvig, Albrektsen, and Qvarnstrom, 2001) on bullying reported that those students carry out bullying activities which are having higher self-efficacy. Internet self-efficacy refers to one's ability to use internet in order to produce proposed tasks (Tsai and Tsai, 2003). Eastin and Eastin and LaRose (2000) reported that one's internet self-efficacy can be predicted from past and present internet experience. For those who carry out cyber bullying activities need confidence in order to hurt or deliberately embarrass others through electronic devices. Inexperienced users of internet more likely to involve in perpetration of cyber bullying due to less digital exposure. Hence, the students who are confident in carrying out internet activities successfully. In the

present study, internet self-efficacy refers to a person's self-assessment about his or her ability to complete work across internet application (Hsu and Chiu, 2004). Internet self-efficacy is more specific construct as compare to self-efficacy in terms of effectiveness, maintainability, and utilization of internet usage (Eastin and LaRose, 2000). Study of Vandebosch and Van Cleemput, (2009) revealed that persons involved in cyber bullying activities considered themselves as internet expert. Yabarra and Mitchell, (2004), found that only those individuals involve in cyber bullying behavior who are reported to have perceived higher level of internet self-efficacy.

1.8.2. Motivation

Motivation as a concept helps to predict people's way of behaving, carrying out tasks. A motive is what prompts a person to behave in a certain way. Motivation is also one's desire to a particular behavior. Maehr and Meyar, defined "*motivation is a word that is part of the popular culture like other psychological concept*s". As explained by Fontaine, (2007) Motivation is goal driven and in the present study the investigator focuses on power, attention and acceptance as the main source of cyber bullying perpetration (Reiss, 2004). People generally attempts aggressive acts such as cyber bullying, to establish authority and demonstrate coercive power over others to show self-worth. Higgins and Scholer (2008) revealed that children's involvement in harmful activities is not to deliberately hurt someone rather it is for seeking attention of others especially peers (Cunningham et al. 2011 and Francis 2011). Varjas et al. (2010) found that adolescents engage in cyber bullying activities just to seek the social approval i.e. to impress their peer group. in the end it can be concluded that individual having high desire for power, attention and acceptance will be more likely to get involve in online harassment.

1.8.3. Empathy

Empathy is to feel the emotional pain of others while placing oneself on the place of others. Empathy has been defined in different way by considering different emotional statements. Empathy has many different types which include cognitive, emotional, and somatic empathy. Studies found that kids involved in cyber bullying takes it as fun activity and do not consider it as harmful crime. Due to lack of empathy they do not feel the pain of others. Most of the kids reported that they did not feel for

victims after harassing them online. In order to become powerful and popular among peers they reportedly bulling others through electronic means.

1.8.4. Age

Now a day's internet is considered as one of the important necessities for human across the world. Although it is prevalent among all age groups, but it is mostly used by adolescents. Chisholm (2014) found that online harassment initiated by boys first and by the time of their middle school girls get involve in cyber bullying more than boys. While carrying out cyber bullying activities their only intention is to deliberately harass and spread rumours. Cyber bullying occurs through electronic mediums, and its consequences are vast. It affects the victim online and offline also. By getting consistently harassed victim develop a cognitive pattern of bullies which help them to identify the perpetrators of cyber bullying and thus empirical evidence has also been mixed. Cyber bullying behavior among adolescents increased with age (Hinduja and Patchin, 2008; Kowalski and Limber, 2007). Some of the researchers Dehue et al. 2008; Sevcikova and Smahel 2009) found that cyber bullying incidents and age have negative relationship.

1.8.5. Gender

Mesch (2009) found that females are more actively involved in cyber bullying incidents than male counterparts. Previously study of Yabarra, et al. (2006) indicated that male percentage is higher than females in terms of perpetrating cyber bullying. Results of Microsoft study (2012) revealed that in terms of online bullying boys and girls are almost equal with 53% girls and 52% boys are involved in it, but in terms of offline bulling girls are more victimized with 61% than 41% of boys. Regarding the knowledge and awareness of cyber bullying percentage of boys is higher than girls, with 78% boys revealed that they are well aware of cyber bullying and 60% girls are having knowledge of cyber bullying. The study further highlighted that girls are more openly talk about the school online bullying than boys with their teachers and parents. Both the gender equally worried about the dangerous effects of electronic harassment.

1.8.6. Internet usage

A study in 2014 conducted by McAfee's Tweens and teens and Technology on Indian tweens aged 8-12 years of age and teens aged from 13-17 years of age consisting of 711 male and 711 females from different cities of India, like Delhi, Mumbai, Chennai, Bangalore, Hyderabad, Ahmedabad and Pune. The report highlighted an alarming rate of internet usage by adolescents. The study further highlights that 70% of the young population in India uses more than 5 hours of internet in a week. It is also pointed out that 41% use internet on desktop, 36% surfing internet on personal computers and rest 27% are carrying smartphones for internet.

Further the study pointed that 93% of the respondents use Facebook, which is mostly used social networking sites followed by YouTube used by (87%) and WhatsApp (79%). The study also reported that teenagers create their social networking accounts at very young age of 12 years. The teen agers reported that they mostly use Snap chat, Pinterest, Tinder, Tumblr etc.

The study revealed an alarming statistic for school authority that 57% students of age 13- 17 years old use internet at school. Due to easy access to internet and social media usage adolescents sometime intentionally or unintentionally share their personal information. 80% of the respondents being aware of sharing information online may affect them; share their personal details like email, contact details and even residential address on social media. In the recent times people especially youths interact through virtual medium. 53% reported that before mostly they chat with someone, they actually not aware off. It is also revealed that 63% of young agers invite trouble in their life by not turning off their device's location thus strangers can locate them easily. The study also found that only 46% of users make use of privacy settings on their social media accounts in order to protect their shared posts.

Thus, it can be concluded that all the above factors someway or other are influenced by cyber bullying behavior of bully/victim and impacting the social relationships. Higher the internet self- efficacy among adolescents increases the likelihood of higher cyber bullying involvement. In order to complete any task motivation is a guiding force. Adolescents engage in cyber bullying activities

deliberately not only to hurt others but to show their power over others and seek attention from peers. It is said that adolescence is a stage of storm and strife, online harassment is a fun activity for them. Low level of empathy caused by consistent online harassment and thus leads to higher level of cyber bullying perpetration and effecting ones' relationship. Studies revealed that children participated in cyber bullying activities at a very young age, and it increases with age. In terms of gender both male and female equally participate in cyber bullying. At the start boys initiate cyber bullying first and by the increase in age and academic life females are more actively participates in cyber bullying incidents. The main source of online harassment is internet, and in India children start using internet at very young age of twelve (12) and with having less knowledge of handling electronic devices, and hence they become the victim of online harassment.

1.9 Significance of the Study

Adolescent period is the most important period of life. Adolescence is a very delicate phase of life where children have to struggle with various issues of self-identity and self-esteem. As such in this stage of their development it is very obvious for them to have a strong influence on their peer group as well as emphasis on the way they are judged in their peer groups. In the tech-world, the status and popularity of a person is judged by the number of friends he or she has on the SNSs (Michele Ybarra). Adolescents need special care at this span of life. The growing cases of cyber bullying among teen agers increases more problems to the concern of parents and government officials. (Hinduja and Patchin, 2010; Juvonenand Gross, 2008; Steeves and Webster, 2007; Strassberg et al, 2013). With increase in population and in the ownership of smart phones his problem of online menace is quite high. In India, due to lack of proper laws the menace of online bullying is prevalent at higher rate. A study of Ipsos (2014) reported that out of 24 countries, India's account is quite high, as 32% of its population is involved followed by US 15% and UK 11%. McAfee Intel survey reported that in a normal week time about 70 percent of Indian youngsters spend more than 5 hours using internet, out of which 27% kids use smartphones. It is also revealed that most popular sites are "*Facebook, YouTube, WhatsApp, Snapchat, Vine, Pinterest, Tumblr, including Tinder*". The large percentage of online

bully/victim adolescent's committing suicide is really a matter of grave concern for society. An incident reported in Tribune (2016) "*Two Indian-origin sisters based here were arrested on charges of extorting and cyber-bullying a billionaire in Lagos, Nigeria. The sisters, Jyoti and Kiran Matharoo, operated a website called NaijaGistLive and cyber-bullied Nigerian oil tycoon Femi Otedola, who was in Forbes list of the richest billionaires in Africa this year, the National Post reported on Tuesday. The women claimed that they had evidence of him cheating on his wife and threatened to post the evidence on the website, where they allegedly used to publish personal details of famous Nigerian men, the National Post cited local Nigerian news reports. They demanded money from rich men in order not to go public with details of their sexual indiscretions*". This news enabled the researcher to explore the literature about online harassment in India and it was found that here is a dearth of literature and knowledge of this issue among people of all age groups and also paved the way to conduct empirical study.

The unregulated use of social networking sites by adolescents are somehow creating a situation of digital world and the adolescent is less and less interactive physically and verbally with the person around him such as parents, teachers and peers. The bulling influence either as victim or as bully causes a great damage to his relationship with parents, teachers and peers. Also lack of interaction and over usage of internet is putting the adolescents in a stage of awareness and they are taking the cyber bullying experience as a regular phenomenon and are not aware about its concept, overreach and effects. Also, the bullying is influenced by many personological factors and adolescents are engaged in this cyber-bullying behavior due to different factors like internet usage, empathy, internet usage, internet self-efficacy, motivation, age, gender.

Therefore, the present study is designed to explore the knowledge of cyber bullying among under graduate students in terms of different forms like gossip, flaming, exclusion, impersonation, harassment, cyber-staking, outing and trickery, cyber threat, awareness and attitude of cyber bullying of under graduate students. Secondly the, the study explored the knowledge and attitude of cyber bulling with respect to different demographical variables, and participant role. Thirdly the

awareness level of the adolescents was explored through the use of PAPM. The stages are "*Unaware of the issue; Unengaged by the issue; Undecided about acting; Decided not to act; Decided to act; Acting; Stage of Maintenance*". Fourthly, the influence of cyber bullying behavior of bully/victim on their different personological factors like internet usage, empathy, internet self-efficacy, motivation, age, gender. Thus, the present study is intended to find out the influence of CB/CV behavior on different factors. The present investigation also studies how social relationship is being impacted by cyber bullying behavior of bully/victims. Similarly impact of personological factors is also studied on social relationships of students with peers, parents and teachers. Lastly, the mediating role of personological factors is studied between cyber bullying and social relationships of bully/victims' undergraduate students. Thus, this study is planned as "Inferring Social Relationships: Interrelated Impact of Personological Factors and Cyber Bullying".

1.10 Statement of the Problem

The present study is entitled as "**Inferring Social Relationships: Interrelated Impact of Personological Factors and Cyber Bullying**". In the present study the investigator has explored the cyber bullying occurrence, awareness and attitude of under graduate students. Further the students were explored for their different Personological factors i.e. internet usage, empathy, internet self-efficacy, motivation, age, and gender. Also, the impact of cyber bullying behavior has been studied on social relationships of students with peers, parents and teachers through personological factors. Similarly impact of personological factors has been studied on social relationships of students with peers, parents and teachers. Lastly, the mediating role of personological factors has been explored between cyber bullying and social relationships.

1.11 Operational Definitions

1.11.1 CYBER-BULLYING

Cyber-bullying is operationally defined as a type of bullying or harassment that is perpetrated using electronic forms of contacts. "It is an aggressive, intentional act or behaviour that is carried out by a group or an individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or

herself". "*It is annoying, abusing, threatening or harassing of another person through electronic means*". Cyber bullying will be studied in the form of its occurrence as **Gossip, Exclusion, Impersonation, Harassment, Cyber stalking, Flaming,** Outing and Trickery, and **Cyber threats.**

1.11.2 SOCIAL RELATIONSHIPS

In the present study Social Relationship have been operationally defined as quality of relationship between parent and child, teacher and student, victim with peers. Relationship can take different shapes i.e. failed, intimate and intricate. In the present study the investigator has explored how different forms of cyber bullying and personological factors are affecting the relationship of victims/ bully with parents, teachers, and peers

1.11.3 PERSONOLOGICAL FACTORS

In the present study personological factors has been studied in terms of internet usage, empathy, internet self-efficacy and motivation. Internet usage is operationally defined as number of hours spent on internet by the under graduates. Empathy usage is operationally defined as "*the capacity to understand or feel what another person is experiencing from within the other being's frame of reference, i.e., the capacity to place oneself in another's position*". Internet self-efficacy is operationally defined to measure an individual's perception or judgment of his or her ability to accomplish tasks across the Internet application domains. Motivation is operationally defined "*as one's direction to behavior or what causes a person to repeat a behavior and vice versa*".

1.12 Objectives of the Study

Following objectives has been achieved through the present study:

1) To study the extent of cyber-bullying and its forms among undergraduates.
2) To study the knowledge and attitude towards cyber bullying behavior among undergraduates.
3) To study the stage of awareness of cyber bullying behavior among undergraduates.

4) To examine the influence of cyber bullying behaviour of bully/victim undergraduates on their personological factors (gender, age, empathy, motivation, internet self-efficacy, internet usage).
5) To study the impact of cyber-bullying on relationships of bullies/victims with peers, parents and teachers of undergraduates.
6) To study the contribution of personological factors on social relationships of under graduates.
7) To study the mediating role of personological factors (gender, age, empathy, motivation, internet self-efficacy, internet usage) between cyber bullying occurrence and awareness and relationships with peers, parents and teachers among bullies/victims' undergraduates**.**

1.13 Hypotheses of the Study

Based on the objectives, following hypotheses are framed:

1. a) There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t., gender.
   b) There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t. type of institution.
   c) There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t. type of scholar.
   d) There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t. locale.
   e) There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t. stream.
   f) There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t., gender.
   g) There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t. type of institution.
   h) There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t. type of scholar.
   i) There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t. locale.

j) There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t. stream.

2. There is no significant influence of cyber bullying behavior of bully/victim undergraduates on their personological factors (gender, age, empathy, motivation, internet self-efficacy, internet usage).
3. a) There is no significant impact of cyber bullying on social relationships of bullies with peers of undergraduates.
   b) There is no significant impact of cyber bullying on social relationships of bullies with Parents of undergraduates.
   c) There is no significant impact of cyber bullying on social relationships of bullies with Teachers of undergraduates.
   d) There is no significant impact of cyber victimhood on social relationships of victims with peers of undergraduates.
   e) There is no significant impact of cyber victimhood on social relationships of victims with Parents of undergraduates.
   f) There is no significant impact of cyber victimhood on social relationships of victims with Teachers of undergraduates.
4. There is no significant contribution of personological factors on social relationships of undergraduates.
5. There is no significant mediating role of personological factors between cyber bullying and social relationships among bully / victim undergraduates.

1.14 Delimitations

The study is about the cyber bullying behavior among undergraduates. Therefore, in order to maintain the equality of usage facility of internet in different areas, the university campuses are taken as area for collection of data. All the universities wherein, Wi-Fi facility is easily available were considered. Further, the study was delimited to undergraduate students studying in different government and private universities in Punjab.

CHAPTER II

REVIEW OF LITERATURE

2.1 Cyber Bullying

Reviews of different studies conducted on cyber bullying have been presented below. Sullivan (2000) reported that perpetrators of bullying always try to keep their peers under their influence by enforcing their powers. The study also revealed that when a bully harasses someone publicly, the people present at the scene, there are told not to help victim or reveal this incident otherwise they will also be treated as same. Thus, it helps them display coercive power over others.

Smith et al. (2002) reported that most of researchers across the globe agreed to a definition of bullying i.e. it include three aspects: "*(a) the intent to harm, (b) occurrence over time, and (c) a power imbalance between the bully and the bullied".* The emergence of this definition enables the people to distinguish between bullying and other forms of violence. This definition is not applicable for bullying incidents happening at school as studies are not able to identify the relationship of these types of behavior. The study explained that there is a difference between teasing and bullying.

Carey (2003) reports that Olweus made a difference of bullying in terms of direct or indirect way, the study concluded that physical and verbal actions explain direct behaviors while indirect behaviors encompassed social exclusion.

Keith and Martin (2005) reported that Parents perceived the technology as good for day to day information purpose; the study also reported that children consider technology can help them to get socially popular and engaged in different activities.

Brown et al. (2006) explained the online bullying as it exists in the homes of victims and bullies as the phenomenon is hidden. Face to face bullying is transformed into total new form as hided identity allows the perpetrator's secrecy makes a huge difference.

Mehta and Jaiswal (2007) reported that separate law for cyber bullying should be framed so, that victim can register their complaint.

Shariff and Johnny (2007) concluded that adolescent's use of high-speed internet remains unnoticed by the family and school authorities. The study explained certain unique features of online bullying like: "written or verbal, covert and anonymous", "infinite audience and larger power imbalance", "cyber-bullying as sexual harassment" & cyberbullying "perceived as real violence". So, the author agreed to the point that as long as the differences of two types of harassment i.e. face to face and online bullying are recognized the earlier definition is correct. The study deliberated that some new words must be included while defining cyber bullying as "*intent, repetition, use of technology, and perceived harm*". However, the researcher must determine the real difference between two different forms of bullying, as through easily access able internet anyone can become the victim of cyber bullying. "*Cyber-harassment is covert psychological bullying conveyed through the electronic mediums*" Shariff and Gouin (2007).

Ferguson et al. (2007) reported that till date there is no clear definition of cyber bullying as the research is still in initial stage in most of the countries. The study further concludes that lack of clear and systematic definition of online harassment hinders the progress of research on cyber bullying ass this online menace is occurring and spreading rapidly.

Halder and Jaishankar (2007) reported that in India, cyber-crime is a matter of great concern and it is observed that most of population is harassed by different types of cyber bullying and they are not aware of it. Further it is also found that people are not reading policy guidelines and IPS before making an account on social networking sites.

Mehta and Jaiswal (2007) found that cyber bullying is serious problem in India and it occurs in different shapes. Therefore, there should be separate laws for such crimes so that victims can directly register their complaints. These complaints of Cyber bullying need to be resolved as early as possible otherwise cyber bullying will take an ugly shape in coming years.

Hinduja and Patchin (2008) examined that the rapid development has its own positive and negative results on the social change occurring in the society. Many authors hailed that by the use of internet youths can learn new things and get self-confidence on many things. While interacting online teen agers can develop various skills from experts, fellow mates which can help them to enhance their own learning. The cyber space environment often allows them to develop their "self-knowledge and awareness of other perspectives". Further, it also helps the individual who are introvert or shy to develop their social and communication skills. The use of internet "can be a haven for positive discourse where youth can seek a safe, nurturing environment for behaviors that reflect and promote social responsibility and encourage caring and respectful interactions" (Cassidy et al., 2009). It also helps the youths to learn new language and engage with "limitless liberty to interact and role play". According to Keith and Martin (2005), utilization of the internet on a daily basis is high among 91% of young ones aged 12 to 15 years old as well as 99% of all adolescents aged 16 to 18. Mishna et al., 2009 reported that the use of internet helps an individual to grown to various level. It can be used for social support, exploring various destinations, and development of critical ability skills.

Vandebosch and Van Cleemput (2009) disagreed with other others over defining cyber bullying in relation to face to face bullying. They reported that in cyber bullying the terms deliberate and electronic communication is used and it is totally different from old one. Further they argued that it is different in the sense that online bullying is being repeated over the period of time and once something posted online it damages the reputation of victims in front of larger audience.

Jackson et al. (2009) found that mostly boys pretend to be different gender while creating an online account rather than girls. Its is also found that girls usually hide their age as compare to boys on their social accounts. The study further reported that one third of the western population act as a different identity on their social media accounts. Adolescent's perception and usage of internet is quite different as compare to adults.

Glasner (2010) explained that adolescents use electronic devices and internet only online interaction with their peers. Modern electronic devices are smaller in size and are built with various functions and power. Although it changes the perspective of the people but it increases the chance of getting online harassment and created a greater challenge for modern society. It disturbs the safety of the adolescents and hampers their development. Cyber bullying is occurred through various mediums like email bullying, sending defamatory messages, chat rooms etc. children take benefits of the electronic devices and consider it as fun to harass and damage a person's reputation online and its relatively more prevalent now a days (Pendley, 2004). As cyber bullying is described as the "wilful and repeated harm inflicted" with the help of technology on others, it becomes a discussion able and cause of worry for teacher and parents. (Patchin & Hinduja, 2010). Sometimes online harassment is taken as the effect in the social system by growth in the technology. Today's generation is more tech savvy as compared to previous generation and even their parents. So, it is assumed that in the years to come the menace of online bullying will get double fold. It will further add to the worry of societal problems as there are less policies and laws to adhere this crime. The main aim of this thoroughly explained review is to get information and understating the problem of online harassment. It will help to address various like effect of growing technology on human lives, definition of cyber bullying, its occurrence rate, its different types and their ill effects, characteristics of bullies and victims, reason of occurrence of cyber bullying, its impact on society and how it can be stooped, so that future generation can be saved from this online crime.

Batra (2011) reported that the Indian laws are still ill-equipped as it cannot control teen's cyber bullying offence. It is also found that there is a large number of teens who act as cyber bullies and commit offence but are legally presumed as in Indian laws, are not made for minor punishment.

With the increasing number of social media users, the problem of online bullying is increasing day by day and there is no such monitoring agency which keeps check on online harassment activities. As a result of this, it is found that India ranked number three in terms of cyber bullying as 53% of its population is involved in cyber bullying out of 25 countries(Microsoft Corporation, 2012). India is only behind to

China (70%) and Singapore (58%). The study also reported that 50% of the Indian children with access to internet are online harassed. Furthermore, kids carry out these activities just for fun or taking revenge from their peers and seniors in the college they are studying.

Srivastava (2012) concluded that effects of cyber bullying leads to depression, suicide, anxiety, stress. It also leads to social, emotional isolation and maladjustments among adolescents.

A study conducted by Microsoft in 2012 on Indian population found that half of the children who use internet are victims of cyber bullying. 'Global Youth Online Behavior Survey' further reported that in 2012 out of twenty-five countries, India ranked 3rd as 53% of its young population i.e. (children aged between 8-17) reported to be bullied online, only next to China (70%) and Singapore (58%).

Sivakumar (2013)found that the Indian adolescents are online every day for at least an hour or two, and are active in social media platforms like Face book.

Singh and Sonkar (2013) found that a female is more victimized of cyber bullying than a male. Further, large number of adults fall victim to different forms of cyber bullying like gossips, exclusion, name calling. The study concluded that government, parents, stake holders need to plan strategies to stop this menace among youths.

Singhal and Bansal (2013) Cyber bullying mainly occurs through social networking sites. While making an account on social networking sites a user has to provide an identity proof so that fake account holders can be identified. It helps to control cyber bulling occurrence and prevalence.

Kesavamoorthy (2013) conducted study on Protection of Children in Social networking sites revealed that children are soft prey for the cyber bully experts. Social networking site providers need to verify the age for using networking sites. Also, parents need to keep watch of their children while allowing them to use mobile phones. As the offender of cyber bullying is hardly identified, government needs to appoint cyber experts to tackle these issues.

Kowalski and Limber (2013) conducted a research on Psychological, Physical, and Academic Correlates of Cyber bullying and Traditional Bullying and results categorized the participants of both online bullying and old bullying into four groups: cyber victims, cyber bullies, cyber bully/victims, and un involved in cyber bullying. The study further reported that the participants of cyber bully/victim category scores negatively on the scale of psychological health, physical, health, and academic performance. It is also explored that online bullying and face to face bullying are significantly overlapping but this overlap is not so perfect. Moreover, the correlates of various categories of bullying the physical, psychological, and academic are considered as one another.

Tolia (2014) conducted a study titled Cyber bullying: A Socio-Legal Perspective and the findings suggest that social networking act as a catalyst for cyber bullying occurrence. It, further highlights that an adolescent in order to maintain the authority over his or her peer group, gets involved in cyber bullying incidents. This study highlights that our Government should frame laws as to curb this harmful activity from expanding further.

Brahme and Mundhe (2014) In India large number of adolescents, use social networking sites for longer hours in order to post and comment on pictures, status of others. Sometimes it leads to online fights and results in Cyber Bullying. Social networking sites act as a vehicle for cyber bullying. Young adolescents need to be made aware of user-friendly technology so that they may not fall prey to cyber bully.

Traditional bullying was restricted to classrooms and play-ground. But, now a days, due to digitalization, the whole world has become a playground for children to indulge in online harassment. Further, it is found that children due to lack of internet etiquettes, share personal information on social networking sites and thus invite trouble in their life(Gupta and Aparajita, 2014).

Nalini and Sheela (2014) revealed that one can identify cyber bully/ victim through analyzing the data uploaded on social networking sites. There is a need to adopt effective world class features to detect and prevent this offensive crime on social media. Cyber bullying is initiated by technology-oriented devices and it is

prevailing fast among youths through social networking sites. Most of the parents are unaware about the fast usage of social networking sites and thus they fail to educate their child about online safety.

Gopalakrishnan and Sundram (2014) conducted research study on online harassment and social anxiety among secondary schoolchildren and found that students with higher anxiety gets involved in cyber bullying offending and cyber victimization. Further, it is also found that gender has no relation with cyber bully/victim behavior. The study further indicates that females are less cyber bully/victim as compare to males who are more victims of cyber bullying. High level of social anxiety increases internet usage among students which leads them to get involve in online offences such as cyber bully/victim. In India it is found that teenagers spend most of their quality time while using internet on their mobile phones for updating status, posting pictures and other personal information. Due to free access of internet, teenagers get exposed to strangers and thus invite trouble in their life.

Lavanya and Prasad (2014) found that 90% of the children are involved in cyberspace and are continuously active on it and as a result they get online threat from their peers and strangers also. Further it is also found that 80% of the respondents are aware of the cyber bullying, 19% are them are not aware about the term. Out of the sample of 290 only 6% respondents accept that they are involved as cyber bully and the rest 94%denied their involvement. Also, more female respondents than males reported the incident to elders and took their help. One of the expert views is that cyber bullying is common behavior among children. Due to free and easily accessible internet facilities, children do cyber bullying for fun and for excitement. Another expert reported that technology is at its peak in India and every individual who have social networking sites account or email id becomes victim to some sort of cyber bullying. He suggested that youngsters should not disclose their personal information to strangers on social media. Also, they should avoid sending personal photographs to any chat room friend as there are many cases of misuse of information. Cyber bullying is pushing children to commit suicide. Thus, there is a need to educate

teachers, parents, civil society about the ill effect of electronic gadgets and they are to be made aware of such of such situations.

Saha and Srivastava (2014) reported that it is the moral responsibility of parents and teachers to educate young adolescents about internet safety and using of social networking sites in a secure environment. Experts stress that students should avoid strangers while responding to social media and requests as most of profiles are fake and are created to harass people. It is also observed that cybercrimes against women are increasing drastically and some offenders defame women by sending cruel and unwanted messages via chat rooms and cyber stalking etc. It is happening because women do not report these incidents to any authority, and as a result become victim to cybercrimes

McAfee's in 2014 conducted an empirical study on 1422 "*Indian online tweens aged 8-12 years old and teens aged 13-17 years old*". The study found that 50% of the Indian Adolescents are victim of cyber bullying either they are involved or they see others. The reports highlighted that one in three Indian youths have been cyber bullied. The studies further bring forth certain medium through which cyber bullying incidents are occurring.

Wahab et.al (2015) conducted a study on the use of multimedia in increasing perceived knowledge and awareness of cyber-bullying among adolescents and reported that knowledge and perceived awareness among the young ones were increased after they face the effects of multimedia application. The result of the study clearly shows that increase in knowledge and awareness of cyber-bullying among adolescents positively impacted by using multimedia devices.

Venkataraghavan (2015) conducted research on Chennai teens and tweens found that 88% children have their own mobile phones, and they use it for cyber bullying incidents. It is also found that teens and tweens mostly engage in hurtful, abusive messages and it needs to be addressed on a priority basis.

People don't mind while sharing their password with others, resulting in them falling prey to cyber bulling. As per the reports of cyber security firm Norton by

Symantec, more than half of the Indians born between 1980s to 2000s became target of cyber bullying in different forms(Delhi, 2016). It is also found that large percentage of Indians shares their passwords with others. Further finding of the study revealed that 48% of the online population is affected by cyber bullying and majority of them are not aware of what to do when they are confronted with such issues. Most of the Indians opined that it is more likely that their credit card will be stolen online rather than from their pockets(Learning, 2016). As per the finding of the study conducted by telecom company Uninor, on 10,500 school going children across seven Indian states, one third of the Indian population is involved in some kind of cyber bullying such as cyber stalking, impersonation, harassing, hacking. Prime Minister Shiri Narendra Modi while addressing NASSCOM's silver jubilee in March 2015 stressed that cyber security is a major concern and it needs to be addressed.

Sharma; Kishore and Sharma, (2016) found that behavioral disorder caused by internet habits among teens is high. Therefore, children need to be taught some online etiquettes and moral values to save them from any harm. High usage of internet leads to change in behavior as they develop violent and aggressive behavior towards their mates and parents. For instance, in New Delhi, it was found that a fifteen-year-old teen, which used to be calm and cool, suddenly developed aggressive behavior and started beating and abusing his parents because they were not allowing him the access to the internet. In another similar case, picture of two friends sitting on the bed outed on social media sites tagging them as gay. As a result, one person namely Anand Sharma attempted suicide.

Finding of the study on Teens, Tweens by Intel Security revealed that 44% of the population is mingling with unknown persons online. Further one out of four social media users claim that they have been victim and bully. It can be said, that cyber bullying is on high in India and steps needs to be taken at a large scale to stop this menace.

Kaur (2016) concluded that though children consider cyber bullying as humour and joyful activity, it is a serious issue as it causes low self-esteem, depression and sometimes leads to suicide. The study also reported that 52% Indian

children access their social media at school, in which 29% found to make fun of others. The study also put forth the statistical figure of cyber bullying survey 2014, which highlights that the 25% of the teenagers' report of being bullied online via cell phone or internet. 11% teens reported that they share and take photographs of others without their consent and awareness. 33% said that they are receiving online threat from unknown persons. Therefore, it can be said that cyber bullying is on rise in schools among Indian teens and school authority needs to formulate certain policies regarding prevention of cyber bullying further and train staff, children and parents about online safety measures.

John (2016) conducted a study on adolescents and cyber bullying by using precaution adoption model found that 84% of the undergraduate students use Facebook on daily basis, out of which 30% becomes the victim of cyber bullying, very few percentages of adolescents i.e., 12.5% quit using social media and 18%students also inform the parents and school authorities about the issue. The study also found out that in US 75% of the school going children becomes the victim of cyber bullying. In US the current study applies PAPM model to test the awareness of cyber bullying among school going children and undergraduates. The result shows that most of the undergraduate students acknowledge cyber bullying as a problem in their university and are aware of its menace. Half of the young ones reported that they do not think of this problem despite being aware of its ill effects. Adolescents also believe that they develop their optimistic bias of not being involved as victims.

Gupta (2017) tried to study the extent of cyber bullying in Punjab with respect to gender, locality and internet infrastructure availability for usage in cyber bullying and found that female students and urban locality students were found to be significantly involved in cyber bullying. The study further found that there is a significant and negative relationship between cyber bullying and academic achievement in secondary school students.

Peled (2019) examines the influence of cyberbullying on academic, social, and emotional development of undergraduate students. The results shows that 57% of the undergraduate students experience cyber bullying through social media platforms.

The study further revealed that instant messaging was the most common platform used by the students for online bullying. Further, the results indicates that cyber bullying does influence academic, social, and emotional development of undergraduate students.

Jun (2020) studied about cause analysis of cyber bullying in Korean students and reported that the real cause of cyber bullying among undergraduate students is miss interpretation of verbal communication and distrust among peers. Further it was found that for online harassment students mostly use instant messaging as a social media tool.

Le (2020) reported that 24% of the students were victim of one or other form of cyber bullying. Further, the study revealed that instances of cyber bullying vary in terms of different demographical variables like gender, age, region.

A review of the literature resulted in a variety of factors and items being discovered. The sub-factors and items were impersonations *"(13 items), cyberstalking, and harassment (nine items), flaming (four items) and elimination (four items)*". Studies conducted by Del Rey (2015), Shapka and Maghsoudi (2017), and Cetin et al. (2011) found that spreading rumours, humiliating others, creating fake identities, and sharing personal information of others were examples of the sub-factor impersonation. Earlier researches especially conducted by Antoniodou et al. (2016), Lam & Li (2013), and Lee et al. (2015) also confirmed that cyberstalking and harassment were related to activities such as blackmailing, threatening, sending obscene e-mails, and making anonymous calls to scare or frighten others. Meanwhile, Udris (2014) and Coelho et al. (2016) found that examples of flaming-related activities were inviting others to social applications to gossip or having inappropriate chats and insulting others. Finally, Calvete et al. (2010) and Stewart et al. (2014) discovered that elimination-related activities included acts such as intentionally excluding others from online groups or chat rooms and intentionally leaving others out of online groups. To sum up, all of the studies proved the reliability and validity of the sub-factors in being able to reliably and validly measure cyber bullying activities among Malaysian youths. It is interesting to note that the results confirmed

that within a Malaysian context, similar sub-factors namely "*impersonation, cyber stalking and harassment, flaming and elimination*" could also be applied to an older group of Malaysian youths (15 to 40 years old).

2.1.1 Summary of Reviews on Cyber bullying

From the above reviews it can be concluded that Sullivan (2000), Smith et al. (2002) showed that bullying incidents mostly occurs when an individual intentionally tries to keep his peers under his influence. Similarly, Cary (2003) also reported that due to verbal argument bullying incidents takes place. Keith ad Martin 2005), Brown et al. (2006), sheriff and Johnny (2007) reported that parents allow their children to use technology as they perceive technology is good for children's academic growth, but they do not keep the track of their ward's online activities. Cyber bullying as a hidden phenomenon affects their academic and social life. Ferhuson et al. (2007) reported that due to lack of knowledge of online harassment people initially do not realize that they become victim of it. Similarly, Halder and Jaishankar (2007), Mehta and Jaiswal (2007) found that cyber bullying is a serious problem among Indian population and due to lack of laws it is spreading at a very rapid speed. Singh and Sonkar (2013), Singhal and Bansal (2013), Kesavamoorthy (2013), Sivakumar (2013), Tolia (2014) found that cyber bullying occurs in different forms and mostly it is perpetrated through social networking sites. Microsoft Corporation (2012) Singh and Sonkar (2013), Lavanya and Parsad (2014), McAfee (2014) reported that females are more involved as cyber victims and boys act as cyber bullies. The studies found that females do not reveal about online harassment resulting the increase in their victimhood. Shapka and Maghsoudi (2017), Cetin et al. (2011), Del Rey (2015) showed that spreading online gossips is the most prevalent form of cyber bullying. However, studies of Antonio et al. (2016), Lam and Li (2013), Lee et al. (2015) reported that cyber stalking is widely spread online menace among adolescents. Brahme and Mundhe (2014), Gupta and Aparajita (2014), Srivastava (2012) reported that in India adolescents use internet for 5-6 hours per day and most of the time they remain online and in order to get popularity they comment on the posts of unknown people thus exposing themselves. Srivastava (2012), Gopalakrishnan and Sundram (2014), Venkataraghavan 2015) showed that consistent online harassment among

adolescents leads to various depressive symptoms and mental health problems. Nalinia and Sheela (2014), Wahab et al. (2015), Kaur (2016) reported that cyber bullying is increasing due to lack of knowledge and awareness thus it is need of the time to educate parents at homes and instructors at educational institutions regarding this online menace and other cyber etiquettes.

Thus, the above conclusions of different researches conducted across the globe clearly highlighted the concern of online harassment. It is evident that cyber bullying is a serious problem among societies and needs efforts from parent, teachers, students and other stakeholders in order to prevent and stop this menace. As cyber bullying incidents increases it affects all the persons associated with it. There is another variable i.e., Social Relationship which is impacted by cyber bullying among adolescents. Hence, Social relationship of adolescents is reviewed and presented below.

2.2 Social Relationships

Cascardi and O'Leary (1992) reported that women's martial satisfaction and negative attitude leads to domestic violence and which in turn effects the parenting role. Earlier studies also found that women develop mental health and anxiety problems due to their dissatisfaction with their marital status. Jaya and Subhadra (1999) pointed out that most of the children become victims of domestic violence only because of their mothers' negative attitude towards social interaction of their wards.

Cummings, Butler, and Kraut (2002) studied about the quality of online social relationships and reported maintaining online social relationship is more important for people as compared to face-to-face interaction or telephonic conversation. Further the quality of social relationship maintained through online medium considered as much stronger and ever lasting relationship.

Espelage and Swearer (2003) pointed out that during the adolescence period, relationships play a vital role in the development. Among youngsters it become a serious issue. Keeping positive relationship with each other helps them to live a respectable life in the society. It is also observed that adolescents confront various

problems when they take up some anti-social activity. Further it is also reported that if an individual exposed to bullying or cyber bullying from his peer mates, his relationships hamper because of it.

Ybarra and Mitchell (2004) Harassment through internet is considered as a major public issue as the people involved in it reported several social challenges like poor relationship with parents and other members of the society.

Shariff (2005) studied about cyber bullying a new phenomenon in the school obligations and concluded that cyber bullying is most prevalent in the young generation and it is occurring at a rapid speed, thus effecting social environment. The study further examined that school authority needs to secure students' privacy and also public courts should devise certain laws to stop this kind of social violence among adolescents. The study pointed out that all the stake holders, Society, teachers, law makers, and Internet service providers should come at one plat form to reduce cyber bullying occurrence cases.

Ybarra and Mitchell (2007) concluded that adolescents who fail to find social support and skills to cope with stress and inter personal problems take up internet and other activities. It is also highlighted that adolescents who are involved in anti-social behaviour and mis use of internet face peer isolation and social rejection.

Van Riel Gallagher's (2008) concluded that now a day's adolescents shows more violent behavior towards their parents and it makes a serious issue for the community. The study found that girls are more expressive and verbal violence is excessively used by girls as compare to boys.

Riebel and Jager (2009) reported that students in the class form a social structure and in order to show their power over each other classmates become the perpetrator of electronic bullying.

Varjas et al. (2010) examined that adolescents in order to seek social approval and impress their peers engage themselves in perpetration of online harassment.

Price and Dalgleish (2010) conducted a study on impact of cyber bullying and its coping strategies and reported that online bullying adversely effects the relationship of young ones with their family, peers and teachers. Australian adolescents revealed that they experienced incidence of cyber bullying at school stage and mostly it is perpetrated by a group of students against their peers. It is also reported by students that cyber bullying occurs in many forms and mostly the perpetrators involved both as bully and victims. Further the study concluded that there is a great need to encourage the victims to reveal the issue to some of their close ones as cyber bullying impacts the emotional development of the young ones as most of them do not take help from others.

Popovic-Citic et al. (2011) concluded that cyber bullying can only be stopped if there is collective effort from school, law enforcement agencies, and other stake holders. It can be stooped if parents, teachers and students actively respond and report the issue. The study further highlights that cyber bullying must be treated as socially ill phenomenon and an in-depth research must be conducted in order to bring forth more of its ill effects.

Olenik-Shemesh; Heiman and Eden (2012) reported that loneliness is the stronger predictor of online bullying among young ones. As due to lack of proper social support adolescents spend most of their time online and become the target of cyber bullying.

Ang et al. (2012) reported that parents who are aware of their adolescents' online activities and having healthy communicative relationship with them helps in using internet in a right way and also protecting them from problematic use of internet.

Hinduja and Patchin (2013) conducted a study on how cyber bullying influence social relations of school students. The results show that mostly cyber bullying incidence occurs because of the ill behavior of peer's association with their elder ones as they allow them to carry out this crime in the schools. The study also reported that students revealed that their friends carry out cyber bullying only to take

revenge of being victims of this offence. Most of the students do not participate in this crime due to the proper watch of their elders.

Sezer, Sahin and Ahmet (2013) conducted a study on Cyber Bullying Victimization of Elementary School Students and their Reflections on the Victimization and reported that the offenders of cyber bullying mostly hack someone social media account and then start offering friendship to unknown people and also tries to damage the real users image by sending socially unaccepted messages to his or her colleagues. The study also revealed that mostly social media users save themselves from getting harassed by registering complaints to the administrator of the site or by changing the social media accounts name.

Festl and Quandt (2013) concluded that internet is the stronger predictor of cyber bullying. It is also indicated that large number of students are affected by cyber victimization that isolate them from their social relationship.

Elgar et al. (2014) found that good communication among family members helps to protect adolescents from harmfulness of cyber bullying. Parents need to be in touch with their children and should understand their problems and worries and make them feel better when they are upset.

Kowalski et al. (2014) conducted a research on cyber bullying among young people, by including some critical review. The results of the study show that children of parents become victims of cyber bullying who shows strict discipline towards their wards, who play less attention to their needs and aspiration and those parents who do not monitor online activities of their children. The study also found out that parent's support plays avital role in reducing the incidents of cyber bullying.

Shin and Ahn (2015) concluded that adolescents of working parents often leave alone and hence in order to avoid the negative mood and loneliness they try to find companionship on different social networking sites thus exposing themselves to different risks e.g. cyber bullying.

Chang et al. (2015) found that poor parent-children's relationships, less emotional support, lack of monitoring from parents leads to cyber bullying victimization among adolescents.

Kaur and Sandhu (2015) studied about cyber bullying among adolescents: attachment with parents and peers and reported that cyber bullying victims have low parent and peer attachment as compare to victims who have more control of parents. The study also shows that victims of cyber bullying have less trust on their parents and peers. And thise are uninvolded shows more trust on parents and friends. Uninvolved group were less alienated as victim's shows high parental alienation. The study concluded that as in case of bullying here victims of cyber bullying do not reveal their harassment because of fear and social rejection by peer and as a result they develop symptoms of depression, anxiety, and loss of self-esteem, fear and isolation.

Syahruddin (2015) revealed that victims of cyber bullying always need social support and hence poor parental attachment and peer rejection hampers their ability to seek social support. It is also highlighted that parental and peer attachment needs to be assessed regularly so that the victims can be saved from consistence harassment.

Fousiani et.al (2016) conducted a study on role of empathy; autonomy on adolescents cyber bullying behavior and the results revealed that role of parenting plays a direct as well as indirect role in cyber bullying behavior of adolescents. The results show that parents who control psychologically and give autonomy to their children they are less likely to get involved in the online harassment. As adolescents enjoys freedom and develops more empathy towards other individual who becomes victims of cyber bullying.

Larrañaga (2016) studied about relationship between parent-child communication and cyber bullying victimization and reported that lack of communication between family member's leads to higher risk of getting involved in cyber bullying incidents. The findings also suggest that parent's positive communication and open relationship with their children contribute to protect the adolescents from loneliness and cyber bulling victimization.

Elsaesser et al. (2017) examined the role played by parents and their efforts in the stopping of cyber bullying. The results found that parental friendly attitude of monitoring, strengthens the relationship with their children and it also helps in preventing the children to acts bully/victim or both.

Mobin et al. (2017) conducted a study on Canadian students aged 9 to 14 years of age in order to measure their relationship with parents and found that children become victims of cyber bullying because of poor relation with parents.

Betts; Spenser and Gardner (2017) reported that people are suffering from delinquency. The adolescents' who participate in cyber bullying negatively predict the peer relation that in turn leads to positive perception of learning. The amount of stress and disturbance created by internet offenders adversely impacted the young ones.

Cerezo Ramirez and Rubio Hernandez (2017) highlighted the teacher's viewpoint that teachers lack proper intervention training for detecting cyber bullying in the classroom. It is therefore essential to train the teachers so that, they can stop further expansion of electronic bulling among school children.

Vanden Abeele, Van Cleemput, and Vandebosch (2017) concluded that due to peer pressure students take picture and videos of their teacher through mobile phones and then share on social networking sites. The study also revealed that students in order to become among popular among peer group ridicule their teacher and thus hamper their relation with teachers.

Giménez-Gualdo et al. (2018) studied about teachers and students' perception of cyber bullying and reported that students have very less confidence in their teachers' ability to solve problem of cyber bullying. It is also highlighted that teachers need proper training for handling online harassment cases. Further it needs a coordinative effort from both the teacher and students in order to tackle with the menace of cyber harassment.

Umesh et. al. (2018) reported that most prevalent form of cyber bullying among university students is spreading rumours on social networking sites. It is also found in the study that females are more cyber bullied than male counterparts.

Further, there is no support system in the campus regarding cyber bulling grievance as students never report to their teachers if they bullied online.

Kim et al. (2018) reported that large percentage of adolescents are taking part in online bullying is a result of many psychosocial activities among them. The study also highlighted that cyber bullying victimization has negative consequences on Chinese adolescents like depressive symptoms, overall health, misuse of internet and even gambling.

Benbenishty et al. (2019) conducted a cross cultural study on Israeli and Chilean students and the results showed that male respondents from both the countries are higher than females in harassing their teachers online. While the results differ in terms of age, as younger Chilean students are involved in harassment of their teachers more than older students as compare to Isreali students where older student's involvement is more than younger ones in online harassment of their teachers.

Zhu et al. (2019) found that good and healthy relation between parent- child play a protective factor for adolescents from the negative affect of online harassment. The study also highlighted that parental support needs to be taken while implementing policies of cyber bullying in educational institutes. Further awareness program on cyber bulling needs to be arranged for families, teachers and health professionals.

López-Castro and Priegue (2019) found that there is controversy between structural variable and dynamic variables. Family communication and quality of relationship was more consistent variables. However, there is more work to be done on the clarity of some variables like parental upbringing style, parental intervention for prevention and perpetration of cybervictimization.

2.2.1 Summary of Reviews on Social Relationships

From the above studies it can be concluded that Cummings, Butler and Kraut (2002), Espelage and Swearer (2003), Price and Dalgleish (2010) showed that maintaining online relations is considered as more important than face to face relationships, further the studies reported that cyber bullying impacts social relationships of adolescents. Yabrra and Mitchell (2004), Shariff (2005) reported that

online harassment is occurring at a rapid speed and it is considered as a serious social issue in the society as it disturbs the privacy of the families, peer groups. Van Riel Gallagher (2008), Riebel and Jager (2009) showed that youngsters in order, to get social recognition forms some online groups and targets other peers, resulting they become more violent towards their parents if they try to stop them from being online for excessive period of time. Olenik- Shemesh and Eden (2012), Festl and Quandt (2013) reported that internet is the strong predictor of cyber bullying as large number of students and their family's relation is affected by it. Chang et al. (2015), Kaur and Sandhu (2015), Syahruddin (2015), Fousiani et al. (2016), Larranaga (2016) showed that adolescents tend to become victims of online menace. Due to poor parent child communications and lack of social support and fear of social rejection from family adversely affect the social relationships of adolescents as they need someone to help them at the time of adversity. Cerezo Ramirez and Rubio Hernandez (2017), Giménez-Gualdo et al. (2018), Vanden Abeele, Van Cleemput, and Vandebosch (2017), Zhu et al. (2019) reported that teachers at school and parents at home need proper training for prevention of this online menace, as the incidents of students harassing their teacher through different mediums becomes very common. Thus, as suggested by Larrañaga (2016), Elsaesser et al. (2017), Elsaesser et al. (2017) that in order to curb the prevalence of this online menace positive communication and proper vigilance of online activities of adolescents needed by the teachers and parents.

Thus, the above conclusions of different researches conducted across the globe clearly highlighted the concern of adverse effect of online harassment on social relationships, in which certain personological factors also contributes. Hence, personological factors of adolescents are reviewed and presented below.

2.3 Personological Factors

Bandura (1978) concluded that individual's behaviour is affected by both personal factors i.e., cognitive, affective and biological as well as environmental factors i.e., social support from peers and stressful environment.

Helliwell and Putnam (2004) revealed that adolescents who depict higher skills of internet usage have strong relationship with others. Individuals who have

advanced skills in networking are likely to get engaged in cyber bullying. The study observed that mostly the young ones use social networking sites in order to get in touch with their peers and thus strengthen their relationship. A strong relationship was found between intensity of internet usage and cyber bullying behavior.

Lampe, Ellison and Steinfeld (2006) suggested that in order to show higher internet self-efficacy as influenced by cyberbullying behavior of bully/victim's people are using social network sites. The study also found that higher internet self-efficacy is the only resources available to a person through which he performs online crimes and disturbs his or her relationship with others.

Patchin and Hinduja (2006) studied about internet usage of adolescents as factor of getting involved in cyber bullying activities. The study reported that out of 384 young ones 29% were being bullied online, 11% admitted that they bully others by using different online means and 47% reported that they are both bully and victims of online bullying. The research also explored that mostly the adolescents do this crime by self-motivation and takes pleasure out of this and which I turn also effect their relationship with family members, friends and school teachers.

Wolak, Mitchell, and Finkelhor (2007) conducted a survey of 1500 teen agers who use Internet and found that 9% reported that they were harassed online. Further, 57% were become victims of cyber bullying by online interaction with unknown people, and 43% were harassed by known peers.

Ceyhan and Ceyhan (2008) carried out research on 559 Turkish students and the results revealed that motivation, internet usage, empathy and computer self-efficacy were significant predictors by cyber bullying, motivation was found as the most important predictive variable, followed by internet usage predicted problematic online harassment, and internet self-efficacy on the third rank.

Chen and Avi Astor (2009) carried out a survey on 14,022 students regarding harassment of teachers and the results revealed that 30.1% respondents reported that they had harass their teacher through electronic mode once in a year.

Stavrinides et al. (2010) concluded that empathy is most studied factor in relation to cyber and school bullying. The results further highlighted that individual with low empathy engage in more cyber bullying.

Calvete et al. (2010) revealed that cyber bullying occurrence and internet usage are potentially related with less perceived social support of peers. The study also reported that poor social relations act as the main reason of young ones to get involved in online bullying.

Varjas et al. (2010) conducted a research on school student's perception of motivation for online bullying and the results show that high schoolchildren take part in online bullying incidents because of some internally motivated factors e.g. (redirect feelings) rather than externally motivated reasons like (no consequences, non-confrontational, target was different).

Xiao and Wong (2013) studied about social and economic effect of cyber bullying among university students. The result revealed that societal and also personal factors such as "*internet self-efficacy*, *motivations and empathy*, *gender*, *internet usage experience*" plays a mediating role between university students' cyber bullying behavior and their social relationship. The study further pointed out that personal factor predicts cyber bullying behavior of the university students. The finding of the study not only helps us to understand the various factors associated by with cyber bullying occurrence but also direction to parents, teachers and other stake holders to develop new laws in order to curb this offence.

Festl and Quandt (2013) reveal that personal factors like gender and high internet self-efficacy plays a mediating role between cyber bullying and its social relationship. Further, gender of the adolescents clearly contributes cyber bullying and its relation with family and friends. The study also shows that cyber bullies students spend maximum time on the internet as compare to their class mates. Social media is found to be main reason of online aggression among teenagers. The study further shows that behavior shown by online perpetrator is same as in traditional bullying.

Casas, Del-Rey, and Ortega, (2013) concluded that both environmental factors as well as individual factors are contributing in perpetration of cyber bulling among adolescents. Further the environmental factors are influencing more than the individual factors.

Macháčková et al. (2013) found that a general tendency towards anti-social activities by teenagers is the internet skill and motivation that enables them to perform online crimes. Getting harassed repeated upset the victims to carry out cyber bullying offence and it needs to be stopped at the earliest by counseling them about its ill effects.

Fernández, Félix and Ruiz (2014) explored the effect of individual and contextual determinants in the involvement of the phenomenon and the results indicated that adjustment issues and repeatedly online harassment, gender and self-efficacy plays a vital role in the online aggression of both as victims and bullies.

Van Cleemput, Vandebosch and Pabian (2014) conducted a study on individual characteristics and contextual determinants that determine "Helping," "Joining In," and "Doing Nothing" while observing Cyber bullying and the results showed that adolescents who have lower empathy are involved in cyber bullying as perpetrators. Further it is also found that adolescents with higher level of empathy are becoming victim of cyber bullying. The study also highlighted that the bystanders who have been reported to have less empathetic are more likely to become the victim of cyber bullying.

Faucher, Jackson and Cassidy (2014) conducted a research on the sample of 1900 Canadian undergraduates and reported that female students are more easily attacked through the forms of cyber bullying such as "sexting", "morphing", "virtual rape" and "revenge porn".

Wong, Chan, and Cheng (2014) highlighted that low self-efficacy leads the likelihood of bullying others online or becoming the victim of cyber bullying.

Kopecky (2014) studied about Cyber bullying and Risks of online interaction with special focused on university student and revealed that university students are

also exposed to various forms of cyber bullying, among them the most prevalent forms of cyber bullying initiated by the victims of the attacks include mainly various forms of messaging and spreading rumors. Incidents of cyber bullying mostly occurs in the adolescents but in most of the western research school children are mainly involved in this crime.

Connolly and Beaver (2014) pointed out that personal and environmental factors play an important role in prepetition and victimization of both school bullying and cyber bullying.

Navarro, Yubero and Larranaga (2015) examines the relationship between perpetration, victimization and individual factors and the results revealed that there is similarity between three groups of victims. Further the study depicts that the good relationships with peers and adjustments with other social circle are correlated not only in offline environment but in online settings too with social bullying

Mitsopoulou and Giovazolias (2015) reported that some of the personality traits like high openness, low extraversion, high agreeableness, and high conscientiousness lead to decrease in cyber perpetration and victimization.

Cunningham et al. (2015) conducted a study on university students. The sample was 1004 students. The study found out that over 60% of the under graduates are part of online bullying as 49% were initiators, 33% were as sufferers and others are both as bully and victims. 4.7% also reported to be by standers.

Festl, Scharkow and Quandt (2015) examined the role of individual and structural explanation factors and concluded that perpetrators of cyber bullying are using behavior as a tool in order to achieve social goals. Further the study showed that personal and structural explanation factors of cyber bullying are strongly inter connected.

Brewer and Kerslake (2015) investigated the mediating role of self-efficacy, empathy and motivation between cyber bullying and social relationship and reported that low self-esteem leads to increase in perpetration and victimization of cyber bullying. Further the individuals with lower level of empathy engage more in

perpetration of electronic bullying. The study also highlighted that self-esteem, empathy and loneliness predicts the level of cyber bullying perpetration and victimization.

Adeyemi and Muraina (2015) concluded that some of these factors influence the sexting behaviour of adolescents. By and large, self-esteem and social networking utilization among others has a great influence on the adolescents' sexting behavior.

Erreygers et al. (2016) investigates that people with low confidence and full of fear, who are present at the event of online harassment or those who are aware of the issue unlikely to help the victims, as they do not possess, they right amount of skills to perform the act of online bullying.

Allison and Bussey (2017) analyzed the role of individual and moral influence on cyber bullying on 563 7^{th} and 9^{th} grade students and the results show that cyber bullying is initiated by certain individual factors like gender, internet self-efficacy, empathy and they collectively related with social relationship. Mostly in gender the mediating role played by females in carrying out cyber bullying and becoming victims of it. The study further pointed out that social relation is predicted by individual factors.

Savage and Tokunaga (2017) conducted a study on young college students, the results indicated that cyber bullying is perpetrated by verbal actions of the peer group. The study also found that cyber bullying perpetration is highly related with one's level of internet self-efficacy. Those who have lower level of inter self-efficacy engage more in cyber bullying perpetration. Students with higher level of internet skills do not engage in cyber bullying activities. They help others with skills to overcome from this menace and save their peers from getting harassed in the virtual environment.

Balakrishnan and Fernandez (2018) investigates the impact of cyber bullying on "self-esteem & empathy and found that self-confidence has significant relationship with victims' behavioral changes and reporting cyber bullying incident. While those

who have higher level of empathy are less effected by online harassment and they help people to come out of this online offence.

Chu et al. 2018 found that adolescents who have high in empathy are less likely to carry out online crimes. They successfully deal with the pain of online harassment. Higher the empathy towards others helps them not to take revenge thus they balance their experience of victimization and comes out with online safety.

Martinez-Monteagudo et al. (2019) analyzed the role of personal and environment factors with regard to cyber bullying in university students and the results shows that deteriorated family environment increases the chance of becoming victim and perpetrator of cyber bullying while the adorable environment decreases its problem.

Zych, Farrington and Ttofi (2019) highlighted that in every school students of cyber bullying aggressive behavior are present. The study further explored that certain individual factors also helps in reducing cyber bullying incidents like less usage of internet enabled devices, high self-efficacy, higher empathy reduces the perpetration and victimization of cyber bullying. The results are also supported by (Chen et al., 2017; Guo, 2016; Kowalski et al., 2014).

Sorrentino and Farrington (2019) analyzed the effect "*victimization of individual and interpersonal factors, including empathy, moral disengagement, peer and parent support, awareness of online risks and school climate*" and the results showed the higher level of moral disengagement by students leads to victimization of teachers. Further it is also reported that students who possess less knowledge of online harassment victimize their teachers consistently.

2.3.1 Summary of Reviews on Personological Factors

From the above reviews it can be concluded that, Bandura (1978), individual behaviour is impacted by personal as well as environmental factors. Connolly and Beaver (2014), Mitsopoulou and Giovazolias (2015) reported that some personal factors as influenced by cyber bullying incidents plays a role in disturbing social relationships. Lampe, Ellison and Steinfeld (2006), Patchin and Hinduja (2006),

Ceyhan and Ceyhan (2008) reported that internet self-efficacy, internet usage, motivation are the personal factors which are influenced by cyber bullying behavior of bully/victims affect the social relation of adolescents. Xiao and Wong (2013), Festl and Quandt (2013), Casas, Del-Rey, and Ortega, (2013) showed that personological factors like internet usage, empathy, internet self-efficacy and motivation plays the mediating role between occurrence of cyber bullying and social relationships. Faucher, Jackson and Cassidy (2014), Wolak, Mitchell, and Finkelhor (2007), Varjas et al. (2010), Fernández, Félix and Ruiz (2014) reported that gender of the adolescents also plays a role in the occurrence of cyber bullying and thus impacting their relationships, as reported in the studies that males are more involved as cyber bullies and percentage of females are more in the category of victims. Brewer and Kerslake (2015), Erreygers et al. (2016) reported that cyber bullying incidents develops low level of empathy among adolescents towards their dear ones, while those have higher level of empathy they tend to stay away from this online crime. However, the study of Savage and Tokunaga (2017), Zych, Farrington and Ttofi (2019), Chen et al., 2017, Guo, 2016 showed that adolescents' having low internet self-efficacy becomes more often victim online harassment and thus their relationship with peers, parents and teachers is affected badly.

CHAPTER III

METHODOLOGY

This chapter deals with the important aspects of sampling, research tools employed and statistical treatment. The purpose of the present research study is to study the Inferring Social Relationships: Interrelated Impact of Personological Factors and Cyber Bullying, in order to achieve the aim of this study, it was required to select a representative sample of under graduate students and to develop or select necessary tools for collecting the requisite information. The detailed explanation of various aspects pertaining to the methodology of the study is given below.

3.1 RESEARCH METHOD

The study is conducted through descriptive research design. It is most widely used method in educational research involving surveys. The major purpose of this research is to gain insight into a phenomenon happening at present phase of time. The design of the sampling is given below.

3.2 POPULATION

The population for the present study was undergraduate students of Punjab enrolled in different universities and colleges in the academic year of 2017-18. There were 688777 number of undergraduate students enrolled in different colleges and universities, in which males were 345399 (50%) and females were 343378 (49%). In social sciences a parameter is studied to explore its various aspects in local settings initially. Cyber bullying as a phenomenon with its identical aspects in this study were explored in the local setting of Punjab and hence the study conducted in Punjab. The distribution of universities of Punjab is presented below.

3.2.1 List of Government and Private Universities of Punjab State

Table 3.1 List of Central Universities of Punjab

Central Universities of Punjab	
1	Central University Punjab

Table 3.2 List Government Universities

S. No.	Government Universities
1	Baba Farid University of Health & Medical Sciences.
2	Guru Angad Dev Veterinary & Animal Sciences University
3	Guru Nanak Dev University
4	Guru Ravidas Ayurved University
5	Maharaja Ranjit Singh Punjab Technical University
6	Punjab Agriculture University
7	Punjab Technical University
8	Punjabi University Patiala
9	The Rajiv Gandhi National University of Law

Table 3.3 List of Private Universities

S. No.	Private Universities
1	Adesh University
2	Akal University
3	Chandigarh University
4	Chitkara University
5	CT University
6	D.A.V University
7	Desh Bhagat University
8	GNA University
9	Guru Kashi University
10	Khalsa University
11	Lovely Professional University
12	Rayat Bahra University
13	RIMT University
14	Sant Baba Bhag Singh University
15	Sri Guru Granth Sahib World University

3.2.2 SAMPLING DESIGN

Table 3.4: Region wise Sampling Design

S. no.	Regions	Total Universities in Punjab (2018)	10% of Total Universities/ Region wise	Universities visited Region wise
1	Majha	2	0.2= 1	1
2	Doaba	7	0.7= 1	4
3	Malwa	16	1.6= 2	10
4	Total	25	2.5= 4	15

3.3 SAMPLE

The population of the study is under graduate students of Punjab state. A sample is representation of the whole population. The sample of the study was confined to Punjab. Pro rata random Simple random sampling technique was used for the selection of the appropriate sample from government and private universities of Punjab. According to Law of Statistical Regularity, statistics of sample data become parameter of population, only when the sample subjects are chosen through simple random sampling. The significant results obtained for the objectives of this study, imply that the parameters were arrived at from the sample technique id simple random sampling.

3.3.1 SAMPLE SIZE

According to Krejcie and Morgan (1970) criteria, for a population above and beyond 1,00,000, a sample size of 380 is sufficient and the estimation of the population in the present study is 688777 (as per 2018-19 record).

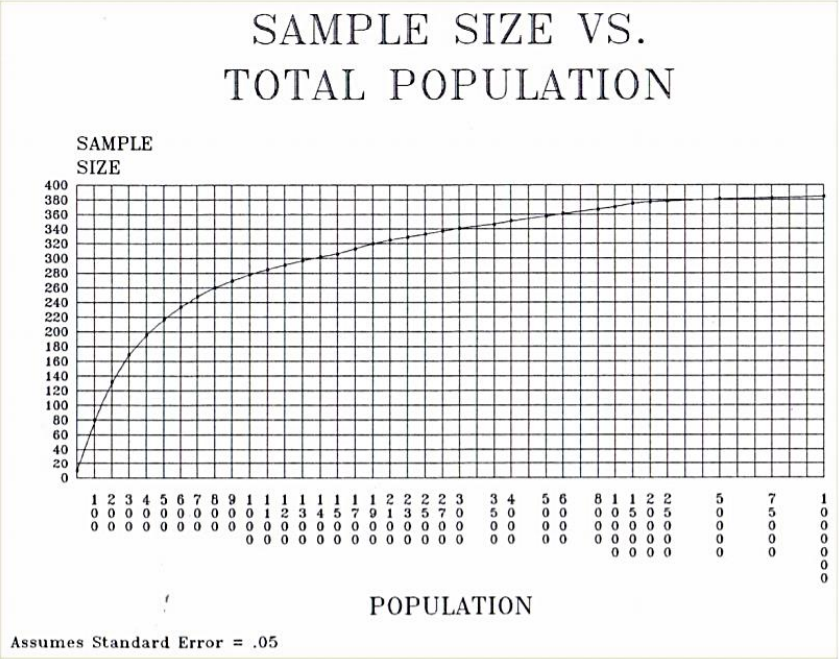


Fig 3.1: Krejcie and Morgan (1970) Sample criteria

- Collected sample Size = 1000
- Sample Size on removing the outliers (unfilled forms) = 946
- Sample Size on removing subjects without internet infrastructure = 897
- Final sample size on finding subjects using **c**ommon resources for bullying others / victimized by others=821.

3.4 TOOL USED

The following tools were selected and used by the investigator in the present study:

3.4.1 Knowledge of Cyber Bullying

The knowledge of cyber bullying questionnaire was a self-constructed instrument and standardized to measure the knowledge of cyber bullying among under graduate students studying in different government and private universities of Punjab. Highly valid and reliable scale development process was carried out for development and validation of the scale. This scale has 13 items related to knowledge of cyber bullying. This scale can be used by researchers, teachers, parents and other stakeholders in order to check the knowledge of individuals regarding cyber bullying. The process of validation is given below.

3.4.1.1 Need for Scale Development

There are very few studies conducted on adaption and development of cyber bullying questionnaire. Studies into development of the cyberbullying scale for undergraduates were carried out by Molluzzo and Lawler (2012). A study on "*Developing Cyber-bullying Knowledge and Awareness Instrument (CBKAi)*" was carried out by Wahab and Yahaya on (2017). Further, Stewart et al. (2014) standardized a cyber-bullying scale for school students. From literature review, it was found that most of the scales were measuring the involvement of participants in cyber bullying. A scale by Erdur-Baker (2010) explains the role of participants as "bullies", "victims", "uninvolved". However, there are other scales like Li (2008) that are meant for measuring the prevention of cyber bullying and one scale developed by Beran and Li (2005) measured the emotional aspect of being online bullied.

From the literature review it has been found that there few studies which were conducted on the development of knowledge of cyberbullying. Only three related studies were validated in western context. There is no scale related to knowledge of cyberbullying in the Indian context. There is dire need to develop a scale on knowledge of cyber bullying for university students.

3.4.1.2 ITEM SCALING, CONSTRUCTION AND DEVELOPMENT

Before starting construction of the items for the scale, it is important to decide the scaling of the items. MCQ method used for the given questionnaire. Therefore, in the scale of knowledge of cyber bullying questionnaire MCQ technique is used to measure students' knowledge of cyber bullying through four options provided to the statement. Each statement is planned on four MCQ options with one right answer and three wrong options.

The next step after deciding the scaling of items was the construction of the items. Before item construction process there is great need of extensive literature review. Review of literature was made on "cyber bullying", "knowledge of cyber bullying", "and perception of cyber bullying". The relevant statements were selected after thorough review. An initial pool of 13 items was prepared after developing conceptual framework.

The initial draft of the scale was shown to the language experts from Department of English of Lovely Professional University and University of Kashmir for assuring the language of the items as simple, clear, short, unambiguous and grammatically correct. Next step was discussing the appropriateness of the statements with experts in the field of Education and Management. So, the draft of the scale was shown to the experts belonging to the discipline of Management and Teacher Education to establish the face and content validity of knowledge of cyber bullying scale.

3.4.1.3 VALIDITY

A test is considered valid when it measures what it is supposed to measure. Both face and content validity of the knowledge of cyber bullying scale was calculated based on the option of the 5 experts. The list of experts is given below.

Table 3.5: LIST OF EXPERTS CONTACTED FOR MEASURING FACE VALIDITY AND CONTENT VALIDITY OF KNOWLEDGE OF CYBERBULLYING

S.No.	Name	Designation
1	Dr. Renu Nanda	Professor, University of Jammu, Jammu
2	Dr. Kulwinder Singh	Professor, Punjabi University, Patiala
3	Dr. Mohammad Yousuf	Professor, Jamia Millia Islamia University
4	Dr. Nasrin	Professor, Aligarh Muslim University
5	Dr. Tajinder Pal Singh	Associate Professor, Punjab University, Chandigarh.

3.4.1.3.1 FACE VALIDITY

In order to measure the face validity of knowledge of cyber bullying scale, the remarks of subject experts were considered. On the basis of their remarks, all the items were retained from the scale. Five Prof from different universities were contacted, based on their opinions face validity and content validity calculated. Two rounds of meeting were conducted and based on their view point the tool was found to be having good face validity.

3.4.1.3.2 CONTENT VALIDITY

In order to determine the content validity, knowledge of cyber bullying scale consisting of 13 items was shown to the expert and their expert viewpoint on the quality of items were taken and measured on four-point rating which is shown in the table below.

Table 3.6: EXPERT VIEWPOINTS ON QUALITY OF ITEMS

Quality of Items	**Not Relevant**	**Somewhat Relevant**	**Quite Relevant**	**Highly Relevant**
Rating	1	2	3	4

Based on the judgement of the experts, content validity index was calculated. The method developed by Lawshe (1975) was applied for measuring content validity. The items having value below 0.8 were rejected. All those items were retained who are found to be having ICVI above 0.8. At this step, item 7 was deleted form the scale because of having poor values. In total 10 items were retained, and Content Validity Index of Knowledge of Cyber bullying was found to be 0.94 which shows the content of Knowledge of cyber bullying scale is highly relevant. Item wise index of the retained items is given below in the table.

Table 3.7: Item Wise Content Validity Index of Knowledge of Cyber Bullying

Item no	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Number Agreement	ICVI
Item No. 1	3	4	4	4	4	5	**1**
Item No. 2	4	3	3	4	3	5	**1**
Item No. 3	4	4	4	4	3	5	**1**
Item No. 4	3	1	3	3	3	4	**0.8**
Item No. 5	3	4	4	4	3	5	**1**
Item No. 6	4	4	4	4	2	4	**0.8**
Item No. 7	1	1	2	3	4	2	**0.4**
Item No. 8	3	2	3	4	4	4	**0.8**
Item No. 9	3	3	4	4	4	5	**1**
Item No. 10	3	4	4	3	3	5	**1**
Item No. 11	3	3	4	4	4	5	**1**

On the basis of the content validity item 7 got deleted, because of low content validity index.

Table 3.8: Content validity

SCVI (Average)	**0.94**
Total agreement	**7**
SCVI/UA	**0.7**

After deletion of item no.7, the total SCVI for the questionnaire knowledge of cyber bullying is found to be 0.94 which is quite good. Total content validity index was found to be 0.94.

3.4.1.4 ITEM ANALYSIS

In order to calculate construct validity of the tool of knowledge of cyber bullying all the 10 items remained were put to item analysis with help of point Bi serial correlation which helps to identify item total correlation. In order to check the validity of the items with respect to the construct for the collected data of total sample the point bi serial were applied and the result are presented below.

Table 3.9: Item Analysis Point Bi Serial Correlation

	Item 1	**Item2**	**Item3**	**Item4**	**Item5**	**Item6**	**Item8**	**Item9**	**Item10**	**Item11**
Pearson Correlation	.518**	.443**	-.021	.411**	.523**	.202**	.139**	.322**	.338**	.435**
Sig. (2-tailed)	.000	.000	.516	.000	.000	.000	.000	.000	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

From the table above it has been found that all the items of the tool are correlating with the concept. Item no 3 got deleted because of the negative item total correlation. Hence the total item of the scale of knowledge of cyber bullying remains 9.

Table 3.10: Item Analysis Point Bi Serial Correlation

	Item 1	Item2	Item4	Item5	Item6	Item8	Item9	Item10	Item11
Pearson Correlation	.518**	.443**	.411**	.523**	.202**	.139**	.322**	.338**	.435**
Sig. (2-tailed)	0	0	0	0	0	0	0	0	0

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

3.4.1.5 RELIABILITY

The reliability of the scale was calculated by using online excel sheet which estimates Kuder Richardson 21 reliability for dichotomous items. The reliability was found to be 0.65.

3.4.2 Cyber Bullying Attitude Measure

In the present study, Cyber bullying Attitude Measure by Christopher P. Barlett, Kaitlyn Helm Stetter, Douglas A. Gentile (2016) was used to measure the cyber bullying attitude of Indian under graduate students. It has two main factors/dimensions labelled as Harmful Cyber bullying Attitudes (HCA) and General Cyber bullying Characteristics (GCC). A brief description of two dimensions of cyber bullying Attitude Measure is as follows.

- **Harmful Cyber bullying Attitudes**: It is used to assess positive attitudes towards harming others online.
- **General Cyber bullying Characteristics:** It is used to assess attitudes towards general cyber bullying characteristics.

Table 3.11: Division of Items of Cyber bullying Attitude Measure

S.No.	Factors	Division of serial wise item No.	Total
1	Harmful Cyber bullying Attitudes	1, 2, 3, 4, 5	5
2	General Cyber bullying Characteristics	6,7,8,9	4
Total			**9**

The scoring of cyber bullying attitude measure was done by giving 1,2,3,4,5 for Strongly-Disagree, Disagree, Neutral, Agree, Strongly-agree respectively. The reliability of the measure was as follows.

Table 3.12: Reliability of Cyber bullying Attitude Scale

S. No.	Dimension	Items	Cronbach Alpha
1	HCA	1,2.3,4,5	0.94
2	GCC	6,7,8,9	0.77

The scale was reported to be processing Concurrent and Predictive Validity.

3.4.2.1 VALIDATION OF THE SCALE

For validation, the data was collected from undergraduate students studying in government and private universities of Punjab. Hence 190 students including both male and female were contacted for data collection. The data was analyzed by using SPSS 23 version and Amos 23 version.

3.4.2.1.1 Result of Confirmatory Factor Analysis of Cyber bullying Attitude Scale

Cyber bullying Attitude Scale was adapted and in order to validate it in Indian context confirmatory factor analysis was performed using IBM SPSS AMOS 23 version. Before conducting confirmatory factor analysis, Kaiser Meyer-Olkin (KMO) and Bartlett's Test of Sphericity was conducted to check the adequacy of the data. For this scale, KMO was 0.828 that indicate data was adequate, and the value of Bartlett's test of Sphericity are χ 2 (36 N= 190) = 507.772, p = 0.000 which is found to be significant. Therefore, the data was adequate for conducting factor analysis.

After checking the adequacy of data CFA was conducted on two-dimensional scale with nine items and the results are discussed below.

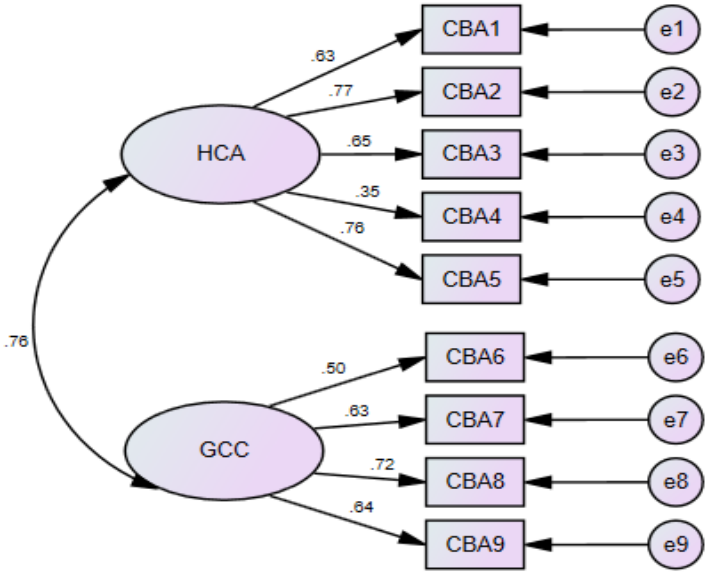


Fig. 3.2: Factor structure of Cyber buying Attitude

Table 3.13: The Fitness Estimates of The Model

Measure	**P value**	**CMIN /DF**	**RMR**	**RMSEA**	**GFI**	**IFI**	**TLI**	**CFI**
Benchmark	>0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90
Result	0.000	2.05	0.06	0.07	0.94	0.94	0.92	0.94

Table 3.14: Standardized Factor Loadings of the Items of Cyber bullying Attitude Scale

Dimensions	**Item No**	**Standardized Factor Loading**
Harmful Cyber bullying Attitudes	1	0.63
	2	0.77
	3	0.65
	4	0.35
	5	0.76
General Cyber bullying Characteristics	6	0.50
	7	0.63
	8	0.72
	9	0.64

The result of CFA in the above table revealed that the factor structure and the estimates depict the model fit as the CMIN/DF= 2.05 and Good-of fit-index, GFI= 0.94, which is showing excellent fit to the data. Further statistics of (RMSEA) = 0.07 which is also acceptable and advocate good model fit (Browne and Cudeck, 1993). (RMR) = 0.06, Incremental Fit Index (IFI) = 0.94, Comparative Fit Index (CFI) = 0.94, Tucker Lewis Index (TLI) = 0.92. Hence, all the values are above the threshold criteria and contributing in confirming the model fit. Therefore, it is clear from the table 3 that standardized factor loading of all the items are in acceptable range. Also, the factor loading of all the items ranges from 0.35 to 0.77. Hence, CFA validated the Cyber bullying Attitude scale.

3.4.2.1.2 RELIABILITY

Reliability of the "Cyber Bullying Attitude Scale" was calculated by using below mentioned method.

3.4.2.1.2.1 CRONBACH'S ALPHA RELIABILITY

In order to determine the reliability of the scale and each dimension, Cronbach Alpha was applied on the sample size of 190 respondents by using IBM SPSS version 23. The internal consistency of the whole scale was 0.824 which was considered as reliable score (Cronbach, 1951). Further the internal consistency of the dimensions was found as 0.75 for HCA and 0.72 for GCC. All the dimensions were found to be reliable. Results are presented in the below mentioned table.

Table 3.15: Reliability of Cyber bullying Attitude Scale

S. No.	Dimension	Item No.	Total Items	Cronbach's Alpha	Composite
1	HCA	5, 2, 3, 1, 4	5	0.75	0.77
2	GCC	6,7,8,9	4	0.72	0.71
Total scale				0.824	0.857

3.4.2.1.2.2 COMPOSITE RELIABILITY

The composite reliability (Raykov, 1997) was obtained from the sample size of 190 respondents. The estimates presented above indicated that the reliability value of HCA and GCC were 0.77 and 0.71 and for total scale 0.857 respectively.

3.4.3 Development, Construct Validation and Measurement Invariance of The Greek Cyber-Bullying/Victimization Experiences Questionnaire

In the present study "*Cyber-Bullying and Victimization Experiences Questionnaire-Greek (CBVEQ-G)*" by Antoniadou and Kokkinos, 2016 was used to measure the cyber bully/victimization among graduate students in India. The study has initial four factors which includes Direct and indirect cyber bullying. But the results of CFA model showed that the study has two factors i.e., cyber bullying (CB) cyber victimization (CV). The brief description of the two factors is as follows.

- **Cyber Bullying**: It is used to measure and identify the cyber bully respondents among graduate students in India.
- **Cyber Victimization**: It is used to identify the victims of cyber bullying incidents among graduate students in India.

Table 3.16: Division of Items of Cyber-Bullying and Victimization Experiences Questionnaire

S. No.	Factors	Division of serial wise item No.	Total
1	Cyber Victimization Scale items	1,2,3,4,5,6,7,8,9,10,11,12	12
2	Cyber Bullying Scale Items	1,2,3,4,5,6,7,8,9,10,11,12	12
Total			24

The scoring of Cyber-Bullying and Victimization Experiences Questionnaire-Greek (CBVEQ-G) was done by giving (1 = Never, 2 =1-2 times, 3 = Some times, 4 = Many times, 5 = Everyday). The reliability of the measure was as follows.

Table 3.17: Reliability of Original Scale

S. No.	Dimensions	Items	Cronbach Alpha
1	CV	1,2,3,4,5,6,7,8,9,10,11,12	0.80
2	CB	1,2,3,4,5,6,7,8,9,10,11,12	0.89

The scale was reported to be processing good internal consistency and convergent validity.

3.4.3.1 VALIDATION OF THE SCALE

For validation, the data was collected from undergraduate students studying in government and private universities of Punjab. Therefore, data of 299 respondents

were collected including both male and females. Analysis of data was done by using SPSS version 23 and Amos 23 version.

3.4.3.1.1 Result of Exploratory Factor Analysis of Cyber bullying Attitude Scale

Cyber bully/victim scale was adapted and validated in Indian context. Before performing Confirmatory factor analysis KMO and Bartlett's test of Sphericity and discriminant were calculated in order to check the data adequacy as part of EFA. The KMO was found to be above the cut of value of 0.6 at 0.947 and the Bartlett's S was sig (P=0.000). During the Initial run of Exploratory Factor Analysis, three dimensions were generated. The eigen values and the variance explained by them are as follows:

Table 3.18: Factor Analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.449	43.539	43.539	10.449	43.539	43.539	6.414	26.727	26.727
2	2.182	9.093	52.631	2.182	9.093	52.631	4.822	20.094	46.820
3	1.051	4.378	57.009	1.051	4.378	57.009	2.445	10.189	57.009
4	.912	3.801	60.810						
5	.793	3.303	64.113						
6	.754	3.143	67.256						
7	.704	2.935	70.191						
8	.648	2.701	72.892						
9	.616	2.566	75.458						
10	.582	2.423	77.881						
11	.528	2.198	80.079						
12	.489	2.039	82.118						
13	.476	1.982	84.100						
14	.458	1.906	86.006						
15	.437	1.820	87.826						
16	.415	1.728	89.553						
17	.393	1.639	91.192						
18	.368	1.535	92.727						
19	.335	1.394	94.121						
20	.327	1.361	95.482						
21	.301	1.255	96.737						
22	.281	1.170	97.906						
23	.264	1.102	99.008						
24	.238	.992	100.000						

Extraction Method: Principal Component Analysis.

A closer look at the factor loadings of the items revealed that the CV item 11 to possess negative factor loading which implies that it measures contract in contrast to the variable of interest.

Table 3.19: Component Matrix[a]

	Component		
	1	2	3
CB10	.715		
CV8	.709		
CB1	.708		
CB5	.703		
CB8	.698	-.339	
CB2	.691		
CB4	.690		
CB7	.688		
CB6	.688	-.350	
CV12	.686		-.320
CB11	.679	-.365	
CB3	.674		
CB12	.663	-.320	
CV9	.661		
CB9	.661		
CV10	.643		
CV4	.641		
CV2	.641	.405	
CV7	.641		
CV6	.619	.324	
CV5	.614	.395	
CV3	.610	.426	
CV11	.588		-.567
CV1	.477	.467	.370

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

On removing item CV11 and re running of EFA two dimensions concurring with the original scale's number of dimensions were obtained with appropriate item distribution. Here the KMO was found to be 0.949 which is greater than the cut of value of 0.6. The Bartlett's Test of Sphericity was found to be sig since the P value is

0.000. The extracted eigen values of the two dimensions and their variance explained at 53.44% were as follows. The sample size was enough.

Table 3.20: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.126	44.027	44.027	10.126	44.027	44.027	6.718	29.209	29.209
2	2.165	9.413	53.440	2.165	9.413	53.440	5.573	24.232	53.440
3	.933	4.054	57.495						
4	.882	3.835	61.330						
5	.774	3.364	64.694						
6	.709	3.083	67.777						
7	.657	2.858	70.635						
8	.648	2.818	73.453						
9	.600	2.610	76.063						
10	.575	2.501	78.564						
11	.523	2.272	80.836						
12	.489	2.127	82.963						
13	.465	2.020	84.983						
14	.457	1.989	86.972						
15	.415	1.805	88.777						
16	.393	1.710	90.487						
17	.379	1.649	92.136						
18	.354	1.540	93.676						
19	.327	1.420	95.097						
20	.306	1.329	96.426						
21	.301	1.307	97.732						
22	.280	1.219	98.952						
23	.241	1.048	100.000						

The distribution of the items onto two factors involving principle Component Analysis extraction method with Varimax rotation is as under.

Table 3.21: Rotated Component Matrix

	Component	
	1	2
CB11	.753	
CB8	.749	
CB6	.748	
CB10	.726	
CB7	.718	
CB12	.712	
CB5	.704	
CB4	.676	
CB3	.672	
CB2	.665	
CB1	.660	.326
CB9	.580	.347
CV2		.728
CV3		.721
CV5		.696
CV8	.339	.694
CV1		.682
CV6		.654
CV4		.644
CV7		.643
CV10		.612
CV9	.353	.597
CV12	.415	.556

3.4.3.1.2 Result of Confirmatory Factory Analysis

Confirmatory factor analysis was conducted by using IBM Amos 23 version, the path diagram along with the factor loadings of the items of Cyber-bully and Cyber victim dimensions are as shown below.

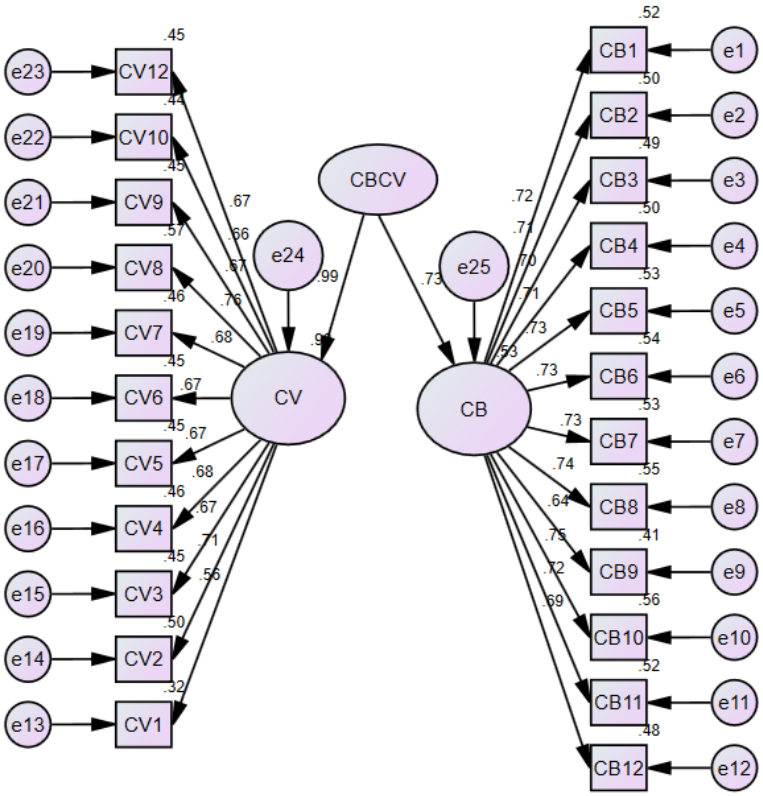


Fig. 3.3: Factor structure of Cyber bully/Victim Scale

Table 3.22: The Fitness Estimates of The Model

Measure	P value	CMIN /DF	RMR	RMSEA	GFI	IFI	TLI	CFI
Benchmark	>0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90
Result	0.000	2.048	0.066	0.059	0.94	0.932	0.924	0.931

Table 3.23 Standardized Factor Loadings of the Items of Cyber-bully/ Victim Scale

Dimensions	Item No	Standardized Factor Loading
Cyber bully	1	0.72
	2	0.71
	3	0.70
	4	0.71
	5	0.73
	6	0.73
	7	0.73
	8	0.74
	9	0.64
	10	0.75
	11	0.72
	12	0.69
Cyber victim	1	0.56
	2	0.71
	3	0.67
	4	0.68
	5	0.67
	6	0.67
	7	0.68
	8	0.76
	9	0.67
	10	0.66
	12	0.66

The P value obtained at 0.000 was less than 0.05 which implies the result is significant and indicates no match between the hypothesized path diagram and the obtained data. However, p value is neglected when the sample size is either very small or big due to its sensitivity. The CMIN/DF value was obtained as 2.048 less than the cut off value of 3. The RMSEA value was 0.059 (less than 0.08), as desired. The Root Mean Square Residual value was found to be 0.06 which is < 0.08. Good-of fit-index, GFI was obtained at 0.94 which shows good fit of the model. The incremental fit index Tucker Lewis index and the Comparative fit index was obtained at 0.932, 0.924 and 0.931 which are values either close or above the desired cut off value of 0.90. Since most of the fitness estimates have desirable magnitude, the goodness of the fit

of the model is satisfactory. Also, the factor loading of all the items ranges from 0.56 to 0.76. Hence, the model has Construct validity.

3.4.3.1.3 RELIABILITY ANALYSIS

Reliability of the Cyber Bully/Victim Scale was calculated by using below mentioned method.

In order to determine the reliability of the scale and each dimension, Cronbach Alpha was applied on the sample size of 299 respondents by using IBM SPSS version 23. The internal consistency of the whole scale was 0.94 which was considered as reliable score (Cronbach, 1951). Further the internal consistency of the dimensions was found as 0.90 for CV and 0.92 for CB. All the dimensions were found to be reliable. Results are presented in the below mentioned table.

Table 3.24: Reliability of Cyberbully/victim Scale

S. No.	Dimensions	Item No.	Total Items	Cronbach's Alpha	Composite
1	CV	1,2,3,4,5,6,7,8,9,10,12	11	0.90	0.90
2	CB	1,2,3,4,5,6,7,8,9,10,11,12	12	0.92	0.92
Total scale				0.94	

3.4.3.1.3.1 COMPOSITE RELIABILITY

The composite reliability (Raykov, 1997) was obtained from the sample size of 299 respondents. The estimates presented above indicated that the composite reliability value of CV and CB were0.900 and0.925 respectively.

3.4.4 Friendship Quality Scale: Conceptualization, Development and Validation

Friendship quality scale by Lei Mee Thien, Nordin Abd Razak, Hazri Jamil (2012) scale was adapted to measure the quality of social relationship between cyber bully/victims with their peers. It has four dimensions i.e. Closeness, Help, Acceptance, and Safety. The four factors are briefly described as under.

- **Closeness:** Closeness is termed as the base of any relationship (Bukowski and Hoza 1989). Researchers defined it as sharing of feelings, emotions, thoughts, and secrets between friends. In the friendship part it can be defined as one's level of attachment.
- **Help:** Help is the emotional and material support provided by peer group. (Berndt 2002). In Bukowski and Hoza's (1989) study Help is considered as providing protection and support when a friend becomes victim of cyber bullying. Aid and protection from peer group is based on willingness and mutual understanding in their relationship. In this study help is considered as assistance provided by peers in the time of online victimization.
- **Acceptance:** Acceptance is termed as how adolescents adjust in new environment and new friends (Parker and Asher 1993). Acceptance is also related to how much peer like and appreciates one another. In this study, Acceptance is considered as how peer accepts their friends when they are harassed by online bullying.
- **Safety:** This study conceptualizes the term Safety as how friends trust their peers and relying on that trust how they come up from online harassment.

Table 3.25: Division of Items of Friendship Quality Scale

S. No.	Factors	Division of serial wise item No.	Total
1	Closeness	37, 38,34,31,35,36.33.32	8
2	Help	27,28,24,25,26,29	6
3	Acceptance	20,19,18,21	4
4	Safety	10,11,12	3
Total			21

The scoring of Friendship Quality Scale was done by giving 1 (high strongly disagree), 2 (strongly disagree), 3 (disagree), 4 (agree), 5(strongly agree) to 6(high strongly agree). The reliability of the measure was as fallows.

Table 3.26: Reliability of Friendship Scale

S. No.	Dimensions	Items	Cronbach Alpha
1	Closeness	37, 38,34,31,35,36,33,32	0.88
2	Help	27,28,24,25,26,29	0.83
3	Acceptance	20,19,18,21	0.84
4	Safety	10,11,12	0.81

The scale was reported to have good construct validity.

3.4.4.1 VALIDATION OF THE SCALE

The sample for validation of Friendship Quality scale was 300 respondents studying in different government and private universities of Punjab consist of both male and female respondents. Data was analyzed by using IBM SPSS 23 version and AMOS 23 version.

3.4.4.1.1 Result of Confirmatory Factor Analysis of Friendship Quality Scale

Validation of the Friendship Quality scale was conducted using confirmatory factor analysis in order to check how well the hypnotized factor structure fits the observed data. Further confirmatory factor analysis was conducted by using IBM AMOS 23 version. Initially Kaiser Mayer Olkin (KMO) and Bartlett test of Sphericity was calculated. The KMO value found to be 0.906 and Bartlett Test of Sphericity was found significant at (P=0.000). Therefore, acceptable values of KMO and Bartlett test of Sphericity confirmed the adequacy of the data to run the factor analysis.

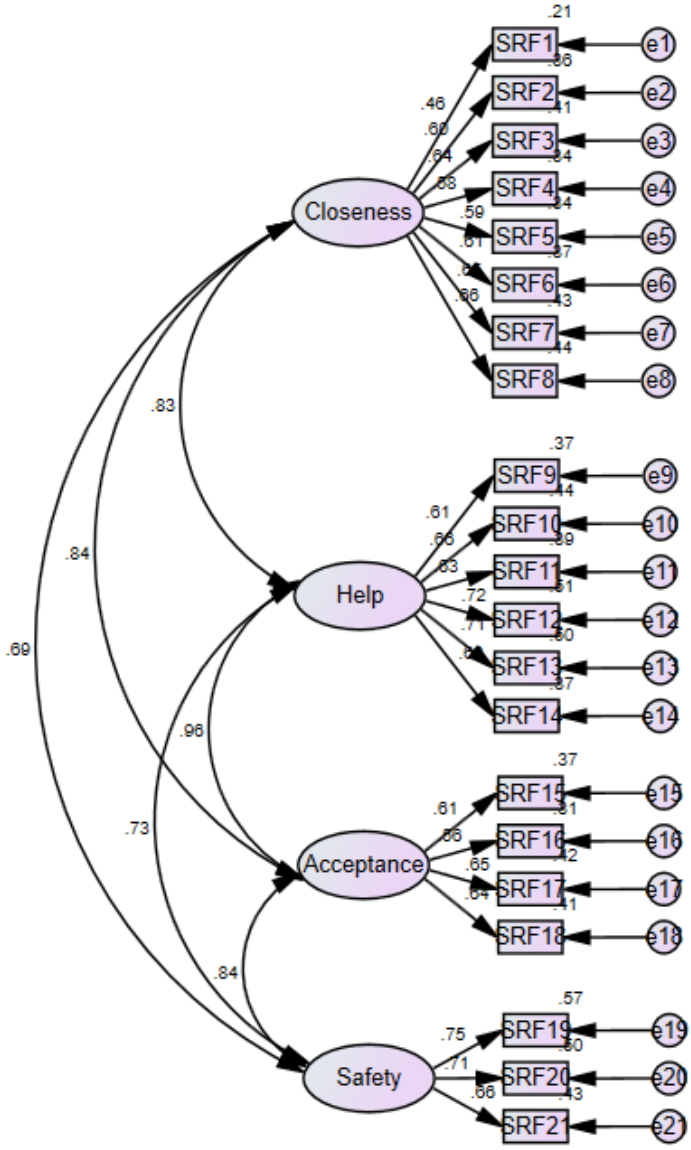


Fig. 3.4: Factor structure of Friendship Scale

Table 3.27: **The Fitness Estimates of The Model**

Measure	**P value**	**CMIN /DF**	**RMR**	**RMSEA**	**GFI**	**IFI**	**TLI**	**CFI**
Benchmark	>0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90
Result	0.000	2.774	0.08	0.057	0.915	0.922	0.910	0.922

Table 3.28: Standardized Factor Loadings of the Items of Friendship Quality Scale

Dimensions	Item No	Standardized Factor Loading
Closeness	37	0.46
	38	0.60
	34	0.64
	31	0.58
	35	0.59
	36	0.61
	33	0.65
	32	0.66
Help	27	0.61
	28	0.66
	24	0.63
	25	0.72
	26	0.71
	29	0.60
Acceptance	20	0.61
	19	0.56
	18	0.65
	21	0.64
Safety	10	0.75
	11	0.71
	12	0.66

Confirmatory factor analysis was conducted by using IBM AMOS 23 version for analyzing the construct. The result in the above table indicated that χ 2/ df = 2.32 and Goodness of fit Index (GFI) = 0.91, which is showing good fit to the data. Along with it, statistics of Root Mean Square Error of Approximation (RMSEA) was found to be 0.05 which is considered as good fit. Similarly, statistics of Bollen 89 Index,

Incremental Fit Index (IFI) = 0.92; Comparative Fit Index (CFI) = 0.91; and Tucker-Lewis Index (TLI) = 0.92. The above estimates of the goodness of fit indices show that the hypothesized model through the path diagram is good fit to the obtained data. Also, the factor loading of all the items ranges from 0.46 to 0.75. Therefore, the CFA validate the four-factor model.

3.4.4.1.2 RELIABILITY ANALYSIS

Reliability of the Friendship Quality Scale was calculated by using below mentioned method.

In order to determine the reliability of the scale and each dimension, Cronbach Alpha was applied on the sample size of 250 respondents by using IBM SPSS version 23. The internal consistency of the whole scale was 0.91 which was considered as reliable score (Cronbach, 1951). Further the internal consistency of the dimensions was found as 0.82 for Closeness; 0.79 for help; 0.73 for Acceptance and 0.78 for Safety respectively. All the dimensions were found to be reliable. Results are presented in the below mentioned table.

Table 3.29: Reliability of Friendship Quality Scale

S. No.	Dimensions	Item No.	Total Items	Cronbach's Alpha	Composite
1	Closeness	37, 38,34,31,35,36.33.32	8	0.82	0.81
2	Help	27,28,24,25,26,29	6	0.79	0.81
3	Acceptance	20,19,18,21	4	0.73	0.70
4	Safety	10,11,12	3	0.78	0.75
			Total scale	0.91	0.93

3.4.4.1.2.1 COMPOSITE RELIABILITY

The composite reliability (Raykov, 1997) was obtained from the sample size of 250 respondents. The estimate presented in the table indicated that the composite reliability value of Closeness Help, Acceptance and Safety were 0.81, 0.70, 0.75 and 0.78 respectively, and of total scale composite reliability is 0.93.

3.4.5 Barrett-Lennard Relationship Inventory

In the present study Barrett-Lennard Relationship Inventory (1986) by Wampler and Powel was used to measure the quality of relationship between Cyber bully/victim with Parents. It has for dimensions labelled as Regard, Empathy, Unconditionality of Reward, Congruence. The brief description of the four factors is as follows.

Table 3.30: Division of Items of Barrett-Lennard Relationship Inventory

S.No.	Dimension	Division of serial wise item No	Total
1	Regard	1, 5, 13,25,37,41,57,61 Positive Items 9, 17,21,29,33, 45,49, 53 Negative Items	16
2	Empathy	2, 10, 18, 30, 34, 42, 54,62 Positive Items 6,14,22,26, 38 46, 50,58 Negative Items	16
3	Unconditionality of Reward	7, 15,23,31,39,47,51,59 Positive Items 3, 11,19,27,35 43, 55,63 Negative Items	16
4	Congruence	4, 12,20,28,36, 44,48,56 Positive Items 8, 16,24, 32,40 52,60,64 Negative Items	16
Total			64

The scoring of Barrett-Lennard Relationship Inventory was as +3: Yes (!), I strongly feel that it is true, +2: Yes, I feel it is true, +1: (Yes) I feel that it is probably true, or more true than untrue, -1: (No) I feel that it is probably untrue, or more untrue than true, -2: No, I feel it is not true, -3: No (!) I strongly feel that it is not true. The reliability of the measure was as fallows.

Table 3.31: Reliability of Original Scale

S. No.	Dimensions	Items	Cronbach Alpha Test Retest
1	Regard	1, 5, 13,25,37,41,57,61 9, 17,21,29,33, 45,49, 53	0.74- 0.91
2	Empathy	2,10, 18, 30, 34, 42, 54,62 6,14,22,26, 38 46, 50,58	0.66- 0.91
3	Unconditionality of Reward	7, 15,23,31,39,47,51,59 3, 11,19,27,35 43, 55,63	0.61- 0.90
4	Congruence	4, 12,20,28,36, 44,48,56 8, 16,24, 32,40 52,60,64	0.76- 0.92

The scale was found to have good construct and Content validity.

3.4.5.1 VALIDATION OF THE SCALE

The Barrett-Lennard Relationship Inventory was adapted in order to measure the relationship between cyber bully/victim with his/her parents. It is evident from the review of literature that there are numerous studies conducted in the western context by using Barrett-Lennard Relationship Inventory, but there was no such study conducted in Indian context. Therefore, the scale has been validated in India which measures the relationship between cyber bully/victim and their parents. This encourages the researcher to validate this scale in the Indian context. The sample for the present study was 1000 respondents from different government and private universities of Punjab. Data was analyzed using IBM SPSS and AMOS version 23 version.

3.4.5.1.1 Result of Confirmatory Factor Analysis of Barrett-Lennard Relationship Inventory Scale

Initially in order to check the sampling adequacy before calculating factor analysis, Kaiser Mayer Olkin (KMO) and Bartlett Test of Sphericity was obtained. The KMO value was found to be 0.920 and the statistics of Bartlett Test of Sphericity was also obtained which is found to be significant at (P=0.000). Hence the KMO and Bartlett Test of Sphericity values confirmed the data adequacy to run the factor analysis. After checking the adequacy of data CFA was conducted on four dimensions of the inventory and the results are discussed below. Confirmatory factor analysis was conducted by using IBM Amos 23 version, the path diagram along with the factor loadings of the items of four dimensions are as shown below.

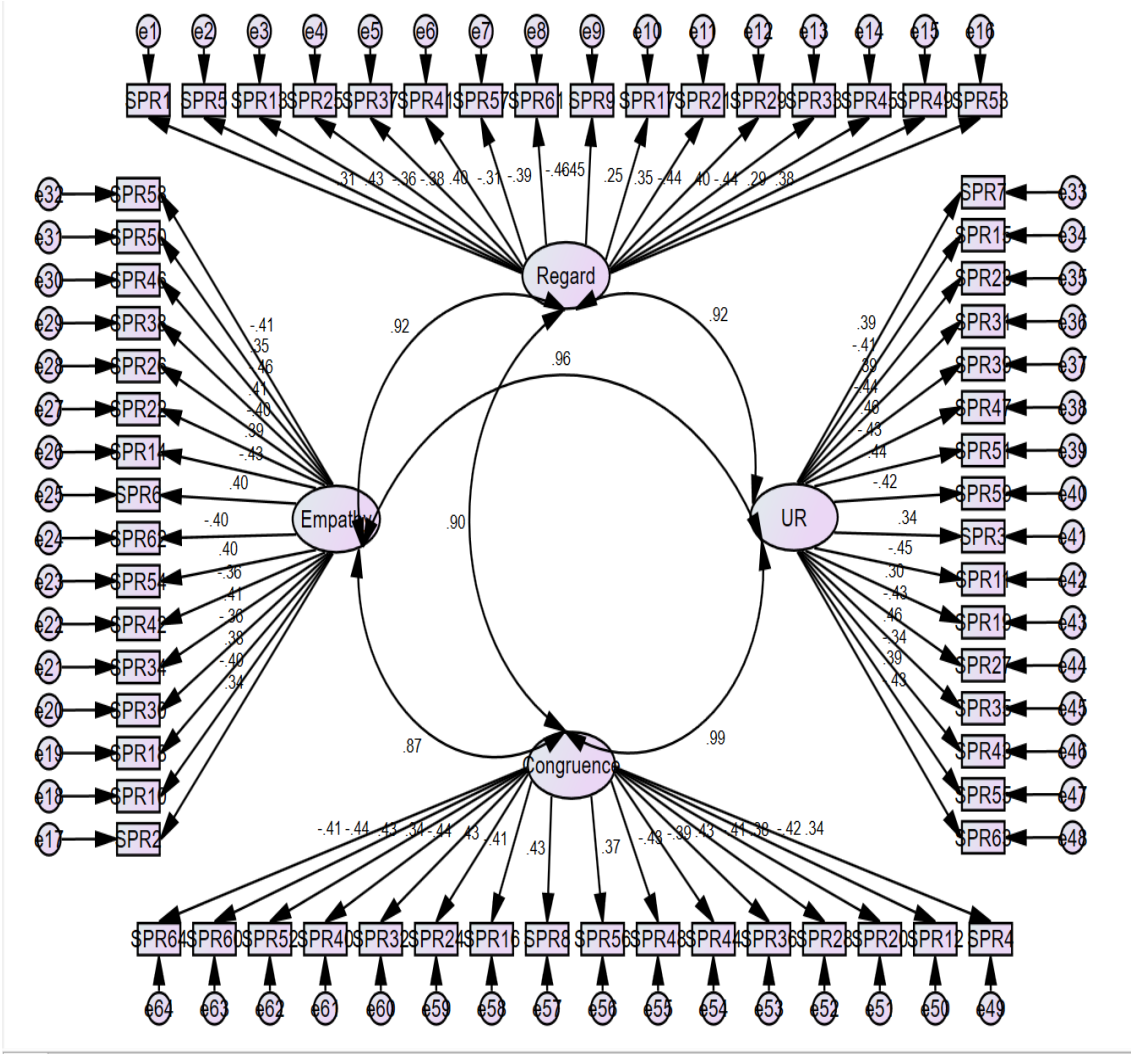


Fig. 3.5: Factor structure of Parent-Children Measure

The initial run of the CFA reveals the results of the four-dimension comprising 64 items. The model reveals the CMIN/DF value was obtained as 2.274, GFI= 0.859, RMSEA= 0.036, RMR= 0.85, IFI= 0.764, TLI= 0.754 and CFI= 0.763 respectively. All these values reveal a bad fit to the model. Hence it was found that most of the factor loading values are less than 0.4. On removing such values, the CFA was re run in order to obtain the goodness of fit measure. The revised model is shown below.

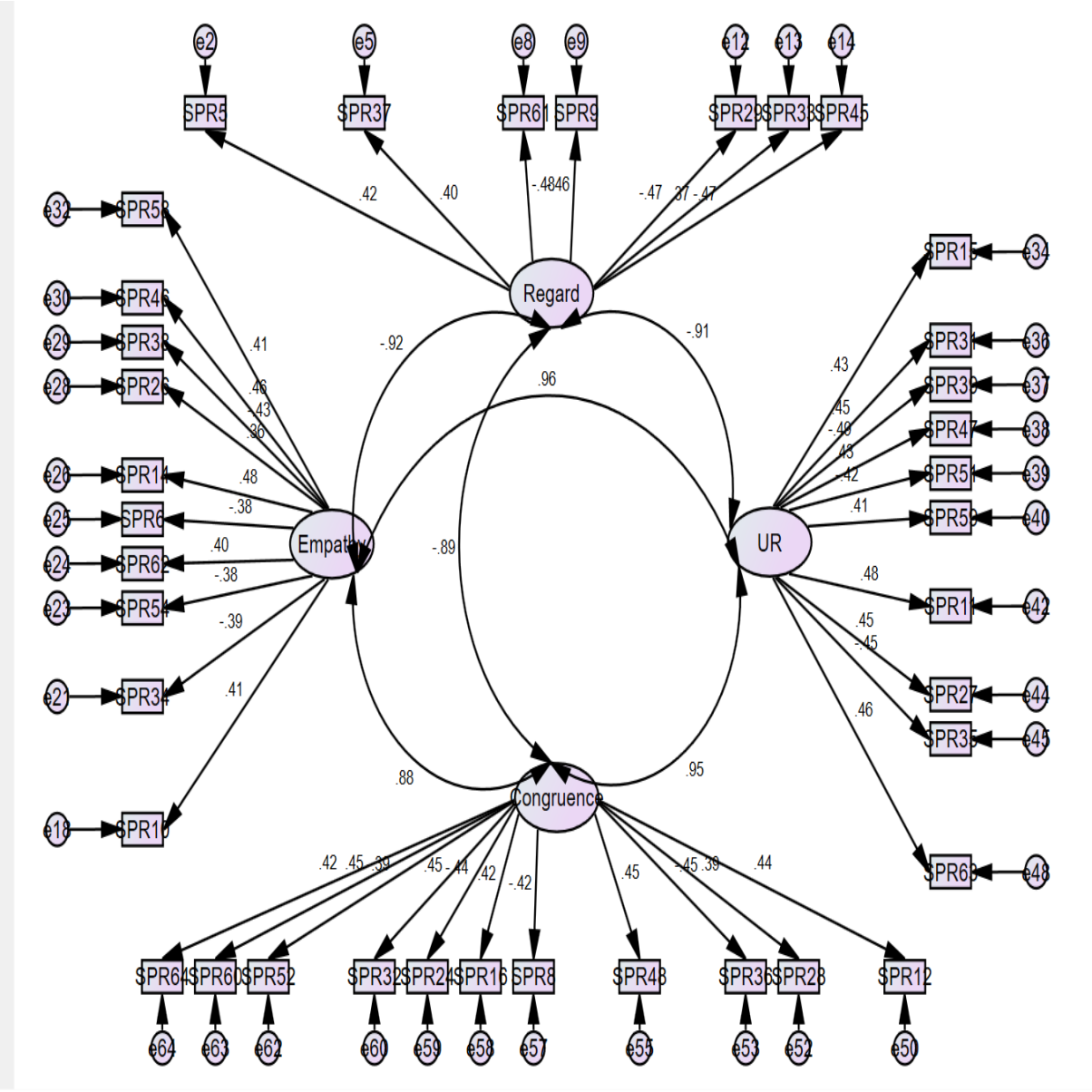


Fig. 3.6: Factor structure of Revised Parent-Children Measure

Table 3.32: The fitness Estimates of the Model

Measure	P value	CMI N/DF	RMR	RMSEA	GFI	IFI	TLI	CFI	BIC	AIC
Benchmark	>0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90	-	-
Result Model 1	0.000	2.274	0.85	0.036	0.859	0.764	0.754	0.763	5350.562	4692.923
Result Model 2	0.000	2.21	0.077	0.03	0. 92	0.89	0.88	0.89	2024.905	1622.469

Table 3.33: Standardized Factor Loadings of the Items of Parent-Child Relationship Scale

Dimensions	Item No	Standardized Factor Loading
Regard	5	0.42
	37	0.40
	61	0.48
	9	0.46
	29	0.47
	33	0.37
	45	0.47
Empathy	10	0.41
	34	0.39
	54	0.38
	62	0.40
	6	0.38
	14	0.48
	26	0.36
	38	0.43
	46	0.46
	58	0.41
Unconditionality of Reward	15	0.43
	31	0.45
	39	0.49
	47	0.43
	51	0.42
	59	0.41
	11	0.48
	27	0.45
	35	0.45
	63	0.46
Congruence	12	0.44
	28	0.39
	36	0.45
	48	0.45
	8	0.42
	16	0.42
	24	0.44
	32	0.45
	52	0.39
	60	0.45
	64	0.42

The BIC and AIC of both the models were estimated and the estimands were found to be lower for model 2 implying that it is a better model (Geiser, 2011).

The P value obtained at 0.000 was less than 0.05 which implies the result is significant and indicates no match between the hypothesized path diagram and the obtained data. However, p value is neglected when the sample size is either very small or big due to its sensitivity. The CMIN/DF value was obtained as 2.213 less than the cut off value of 3. The RMSEA value was 0.035 (less than 0.08), as desired. The Root Mean Square Residual value was found to be 0.077 which is < 0.08. Good-of fit-index, GFI was obtained at 0.924 which shows excellent fit of the model. The incremental fit index, Tucker Lewis index and the Comparative fit index was obtained at 0.89, 0.88 and 0.89 which are values near to the desired cut off value of 0.90. Since most of the fitness estimates have desirable magnitude, the goodness of the fit of the model is good fit. Hence, the CFA validated the Barrett-Lennard Relationship Inventory by Barrett-Lennard, 1986). Therefore, it is proved that the model has Construct validity.

Some of the resultant values were less than .900 as suggested by Chau (1997), Segars and Grovers (1993), Bentler (1990), Hatcher (1994), and Bentler and Bonett (1980); nevertheless, Hair et al. (2010) have explained that if three to four indices in a model pass the minimum requirement, the model can be considered as fit.

3.4.5.1.2 RELIABILITY

Estimation of reliability of the scale was done using the below mentioned methods. In order to determine the internal consistency of the Barrett-Lennard Relationship Inventory greater lower bound reliability was calculated with a sample size of 1000 by using FACTOR software. The results have been reported in the table below.

Table 3.34: Reliability of Parent-Child Relationship Scale

S. No.	Dimensions	Item No.	Total Items	Composite	GLB
1	Regard	5, 37, 61, 9, 29, 33, 45	7	0.625	0.67
2	Empathy	10, 34, 54, 62, 6, 14, 26, 38, 46, 58	10	0.669	0.72
3	Unconditionally of Reward	15, 31, 39, 47, 51, 59, 11, 27, 35, 63	10	0.714	0.76
4	Congruence	12, 28, 36, 48, 8, 16, 24, 32, 52, 60, 64	11	0.713	0.77
Total scale				0.895	0.93

3.4.5.1.2.1 COMPOSITE RELIABILITY

Composite Reliability was calculated by using following formula. The estimates in the above table indicated that the composite reliability of Regard, Empathy, Unconditionality of Reward and Congruence were 0.62, 0.66, 0.71 and 0.71 respectively.

3.4.6 Barrett-Lennard Relationship Inventory

In the present study Barrett-Lennard Relationship Inventory (1986) was used to measure the quality of relationship between Cyber bully/victim with Teachers. It has for dimensions labelled as Regard, Empathy, Unconditionality of Reward, Congruence. The brief description of the four factors is as follows.

Table 3.35: Division of Items of Barrett-Lennard Relationship Inventory

S. No.	Dimension	Division of serial wise item No	Total
1	Regard	1, 5, 13,25,37,41,57,61 Positive Items 9, 17,21,29,33, 45,49, 53 Negative Items	16
2	Empathy	2, 10, 18, 30, 34, 42, 54,62 Positive Items 6,14,22,26, 38 46, 50,58 Negative Items	16
3	Unconditionality of Reward	7, 15,23,31,39,47,51,59 Positive Items 3, 11,19,27,35 43, 55,63 Negative Items	16
4	Congruence	4, 12,20,28,36, 44,48,56 Positive Items 8, 16,24, 32,40 52,60,64 Negative Items	16
Total			64

The scoring of Barrett-Lennard Relationship Inventory was as +3: Yes (!), I strongly feel that it is true, +2: Yes, I feel it is true, +1: (Yes) I feel that it is probably true, or more true than untrue, -1: (No) I feel that it is probably untrue, or more untrue than true, -2: No, I feel it is not true, -3: No (!) I strongly feel that it is not true. The reliability of the measure was as fallows.

Table 3.36: Reliability of Original Scale

S.No.	Dimensions	Items	Cronbach Alpha Test Retest
1	Regard	1, 5, 13,25,37,41,57,61 9, 17,21,29,33, 45,49, 53	0.74- 0.91
2	Empathy	2,10, 18, 30, 34, 42, 54,62 6,14,22,26, 38 46, 50,58	0.66- 0.91
3	Unconditionality of Reward	7, 15,23,31,39,47,51,59 3, 11,19,27,35 43, 55,63	0.61- 0.90
4	Congruence	4, 12,20,28,36, 44,48,56 8, 16,24, 32,40 52,60,64	0.76- 0.92

The scale was found to have good construct and Content validity.

3.4.6.1 VALIDATION OF THE SCALE

The Barrett-Lennard Relationship Inventory was adapted in order to measure the relationship between cyber bully/victim with his/her Teachers. It is evident from the review of literature that there are numerous studies conducted in the western context by using Barrett-Lennard Relationship Inventory, but there was no such study conducted in Indian context. Therefore, n scale has been validated in India which measure the relationship between cyber bully/victim and their Teachers. This encourages the researcher to validate this scale in the Indian context. The sample for the present study was 1000 respondents studying in different government and private universities of Punjab. Data was analyzed using IBM SPSS and AMOS version 23 version.

3.4.6.1.1 Result of Confirmatory Factor Analysis of Barrett-Lennard Relationship Inventory Scale

Initially in order to check the sampling adequacy before calculating factor analysis, Kaiser Mayer Olkin (KMO) and Bartlett Test of Sphericity was obtained. The KMO value was found to be 0.915 and the statistics of Bartlett Test of Sphericity was also obtained which is found to be significant at (P=0.000). Hence the KMO and Bartlett Test of Sphericity values confirmed the data adequacy to run the factor analysis. After checking the adequacy of data CFA was conducted on four dimensions of the inventory and the results are discussed below. Confirmatory factor analysis was conducted by using IBM Amos 23 version, the path diagram along with the factor loadings of the items of four dimensions are as shown below.

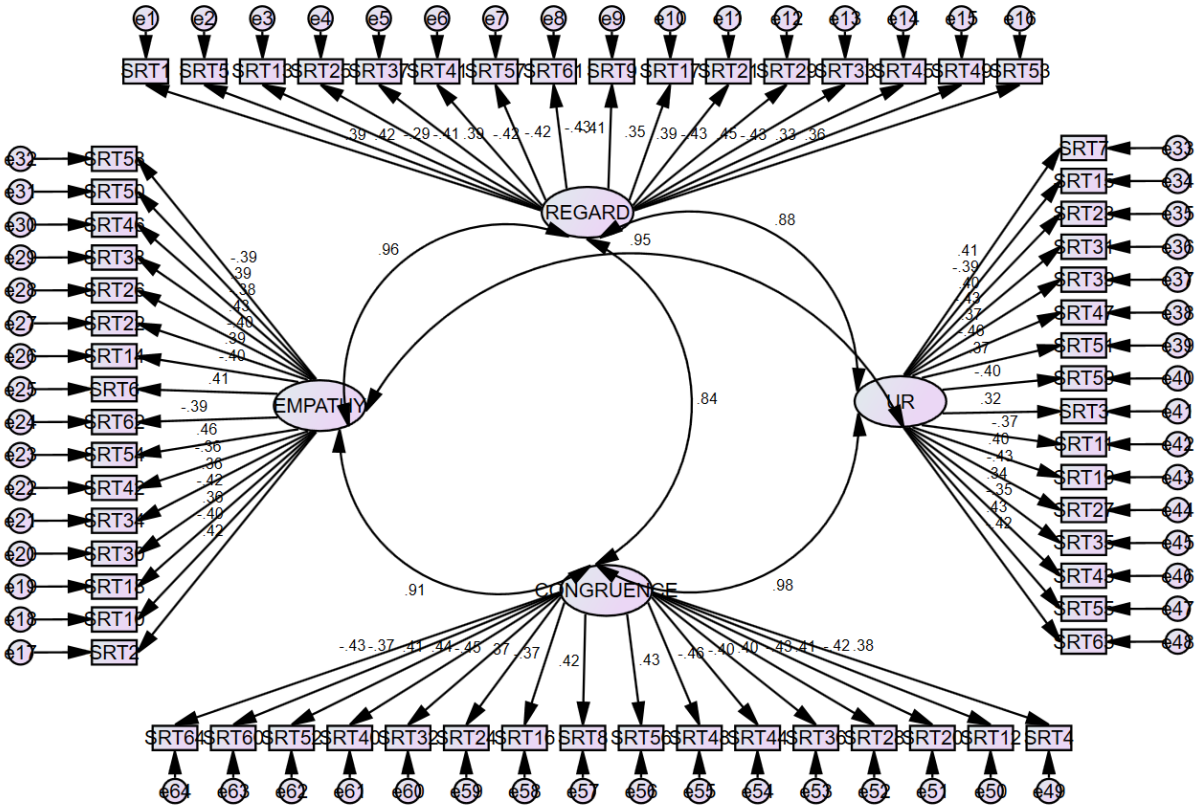


Fig. 3.7: Factor structure of Teacher-Student Measure

The initial run of the CFA reveals the results of the four-dimension comprising 64 items. The model reveals the CMIN/DF value was obtained as 2.334, GFI= 0.863, RMSEA= 0.037, RMR= 0.85, IFI= 0.757, TLI= 0.747 and CFI= 0.756 respectively. All these values reveal a bad fit to the model. Hence it was found that most of the factor loading values are less than 0.4. On removing such values, the CFA was re run in order to obtain the goodness of fit measure. The revised model is shown below.

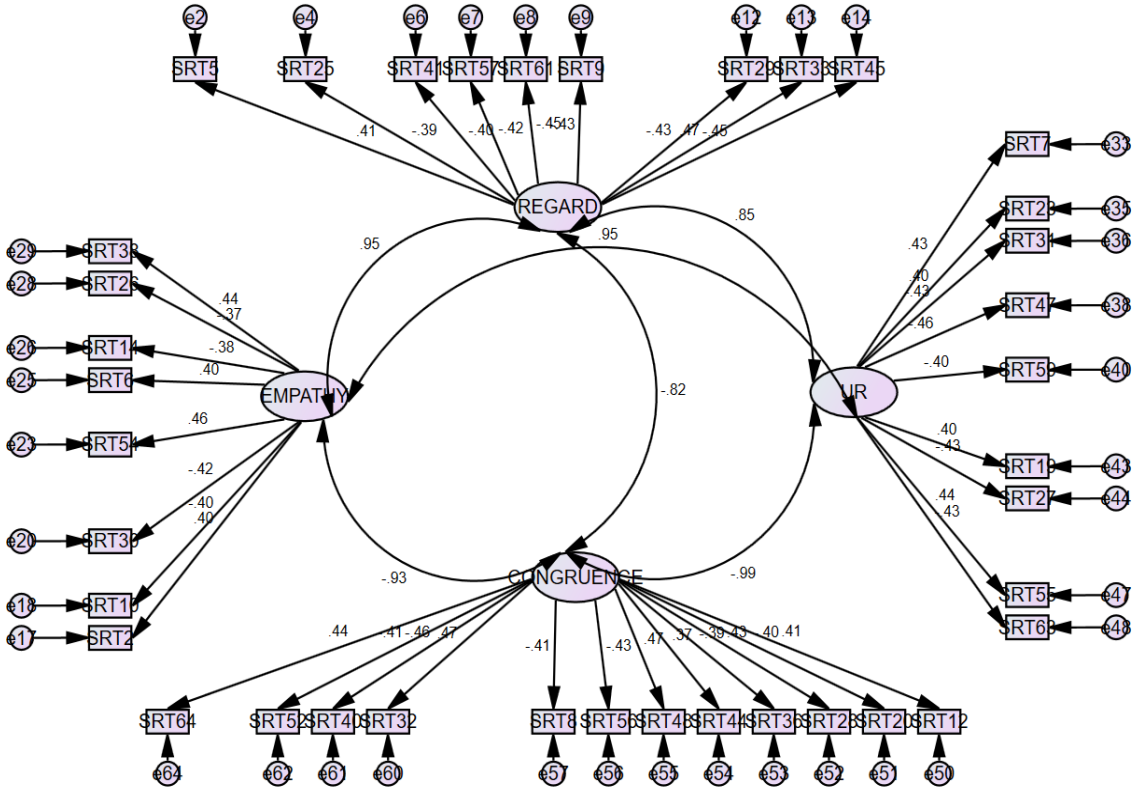


Fig. 3.8: Factor structure of Revised Teacher-Student Measure

Table 3.37: The fitness Estimates of the Model

Measure	P value	CMIN/DF	RMR	RMSEA	GFI	IFI	TLI	CFI	AIC	BIC
Benchmark	>0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90	-	-
Result Model 1	0.000	2.334	0.85	0.037	0.863	0.757	0.747	0.756	4809.342	5466.982
Result Model 2	0.000	2.56	0.086	0.040	0. 911	0.88	0.89	0.90	1856.475	2258.911

Table 3.38 Standardized Factor Loadings of the Items of Teacher-Student Relationship Scale

Dimensions	Item No	Standardized Factor Loading
Regard	5	0.41
	25	0.39
	41	0.40
	57	0.42
	61	0.45
	9	0.43
	29	0.43
	33	0.47
	45	0.45
Empathy	2	0.40
	10	0.40
	30	0.42
	54	0.46
	6	0.40
	14	0.38
	26	0.37
	38	0.44
Unconditionality of Reward	7	0.43
	23	0.40
	31	0.43
	47	0.46
	59	0.40
	19	0.40
	27	0.43
	55	0.44
	63	0.43
Congruence	12	0.41
	20	0.40
	28	0.43
	36	0.39
	44	0.37
	48	0.47
	56	0.43
	8	0.41
	32	0.47
	40	0.46
	52	0.41
	64	0.44

The BIC and AIC of both the models were estimated and the estimands were found to be lower for model 2 implying that it is a better model (Geiser, 2011).

The P value obtained at 0.000 was less than 0.05 which implies the result is significant and indicates no match between the hypothesized path diagram and the obtained data. However, p value is neglected when the sample size is either very small or big due to its sensitivity. The CMIN/DF value was obtained as 2.56 less than the cut off value of 3. The RMSEA value was 0.040 (less than 0.08), as desired. The Root Mean Square Residual value was found to be 0.086 which is > 0.08. Good-of fit-index, GFI was obtained at 0. 911 which shows good fit of the model. The incremental fit index Tucker Lewis index and the Comparative fit index was obtained at 0.88, 0.89 and 0.90 which are values above or equal to the desired cut off value of 0.90. Since most of the fitness estimates have desirable magnitude, the goodness of the fit of the model is moderate. Hence, the CFA validated the Barrett-Lennard Relationship Inventory by **(**Barrett-Lennard, 1986). Therefore, it is proved that the model has Construct validity.

Some of the resultant values were less than .900 as suggested by Chau (1997), Segars and Grovers (1993), Bentler (1990), Hatcher (1994), and Bentler and Bonett (1980); nevertheless, Hair et al. (2010) have explained that if three to four indices in a model pass the minimum requirement, the model can be considered as fit.

3.4.6.1.2 RELIABILITY

Estimation of reliability of the scale was done using the below mentioned methods. In order to determine the internal consistency of the Barrett-Lennard Relationship Inventory greater lower bound reliability was calculated with a sample size of 1000 by using factor software. The results have been reported in the table below

Table 3.39: Reliability of Teacher-Student Relationship Scale

S. No.	Dimensions	Item No.	Total Items	Composite	GLB
1	Regard	5, 25, 41, 57, 61, 9, 29, 33, 45	9	0.66	0.73
2	Empathy	2, 10, 30, 54, 6, 14, 26, 38	8	0.61	0.68
3	Unconditionality of Reward	7, 23, 31, 47, 59, 19,27, 55, 63	9	0.66	0.72
4	Congruence	12, 20, 28, 36, 44, 48, 56, 8, 32, 40, 52, 64	12	0.72	0.79
			Total scale	0.89	0.92

3.4.6.1.2.1 COMPOSITE RELIABILITY

The composite reliability was calculated by using below mentioned formula. The obtained result presented in the above table indicated that the composite reliability of Regard, Empathy, Unconditionality of Reward and Congruence were 0.66, 0.61, 0.66, 0.72 respectively.

3.4.7 The Situational Motivation Scale

The motivation scale was by Fr´ed´eric Guay, Robert J. Vallerand,and C´eline Blanchard (2000) scale was used to measure the motivation to perform cyber bullying activities with their peers. It has four dimensions i.e. intrinsic motivation, identified regulation, External regulation and Amotivation. The four factors are briefly described as under. Intrinsic Motivation, Identified regulation, External regulation, Amotivation. The items comprising these dimensions are presented below. The scoring of the motivation scale was done by giving 1 (*corresponds not all*), 2 (*corresponds a very little*), 3 (*corresponds a little*), 4 (*corresponds moderately*), 5(*corresponds enough*), 6(*corresponds a lot*) and 7 (*corresponds exactly*). The reliability of the measure was as fallows.

Table 3.40: Reliability of Original Scale

S. No.	Dimensions	Items	Cronbach Alpha
1	Intrinsic Motivation	1, 5, 9, 13	0.95
2	Identified regulation	2, 6, 10, 14	0.80
3	External regulation	3,7, 11, 15	0.86
4	Amotivation	4, 8, 12, 16	0.77

3.4.7.1 VALIDATION OF THE SCALE

The sample for the present study was collected from undergraduate students studying in different government and private universities of Punjab. The sample size comprises 250 respondents. Data analysis was done by using IBM SPSS 23 version and AMOS 23 version.

3.4.7.1.1 Result of Confirmatory Factor Analysis of Situational Motivational Scale

Validation of the Situational Motivational scale was conducted using confirmatory factor analysis in order to check how well the hypnotized factor structure fits the observed data. Further confirmatory factor analysis was conducted by using IBM AMOS 23 version. Initially Kaiser Mayer Olkin (KMO) and Bartlett test of sSphericity was calculated. The KMO value found to be 0.912 and Bartlett Test of Sphericity was found significant at (P=0.000). Therefore, acceptable values of KMO and Bartlett test of Sphericity confirmed the adequacy of the data to run the factor analysis. Confirmatory factor analysis was conducted by using IBM Amos 23 version, the path diagram along with the factor loadings of the items of four dimensions are as shown below.

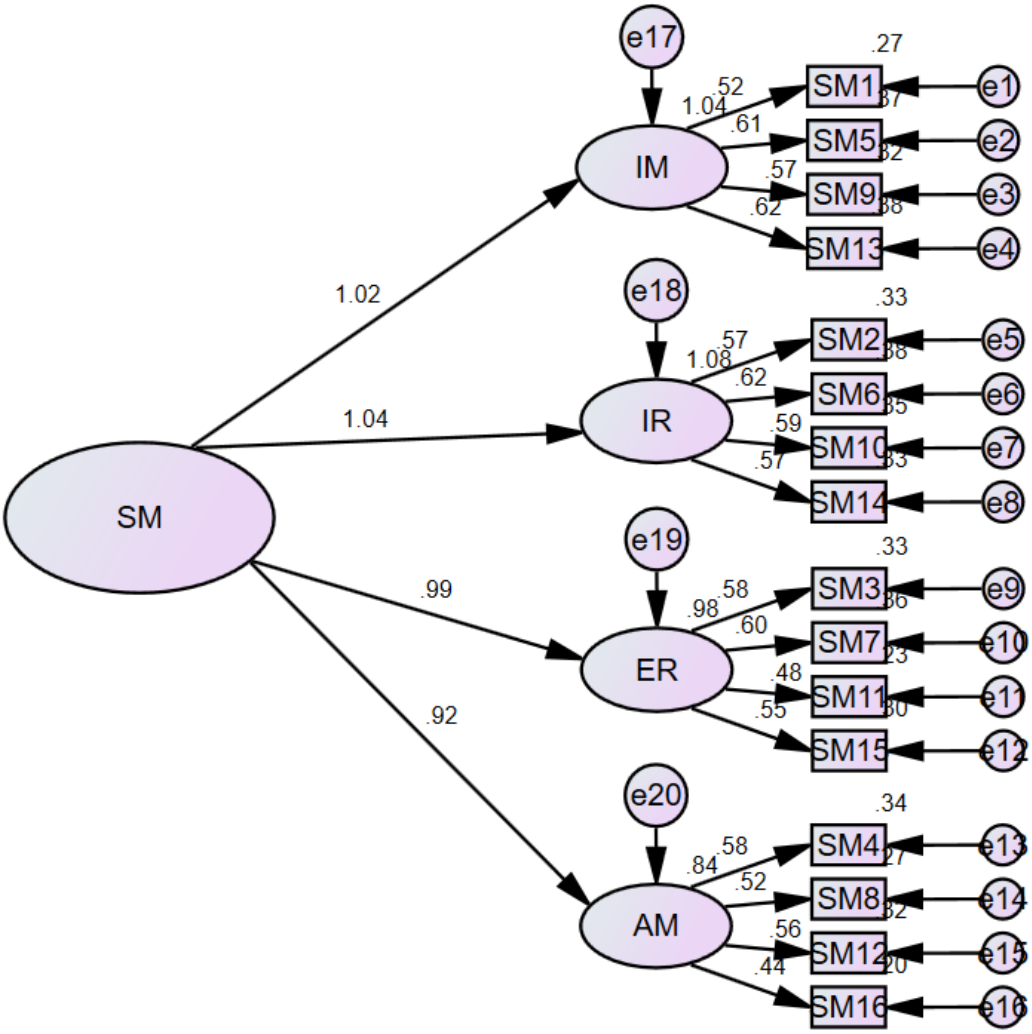


Fig. 3.9: Factor structure of Motivation Measure

The initial run of the CFA reveals the results of the four-dimension comprising 16 items. The model reveals the CMIN/DF value was obtained as 8.530, GFI= 0.892, RMSEA= 0.087, RMR= 0.150, IFI= 0.837, TLI= 0.809 and CFI= 0.836 respectively. All these indices reveal a bad fit to the model. Hence it was found that two items having factor loading less than 0.5. Two items also reflect high modification indices. On removing such values, and after correlating two items, the CFA was re run in order to obtained the goodness of fit measure. The revised model is shown below.

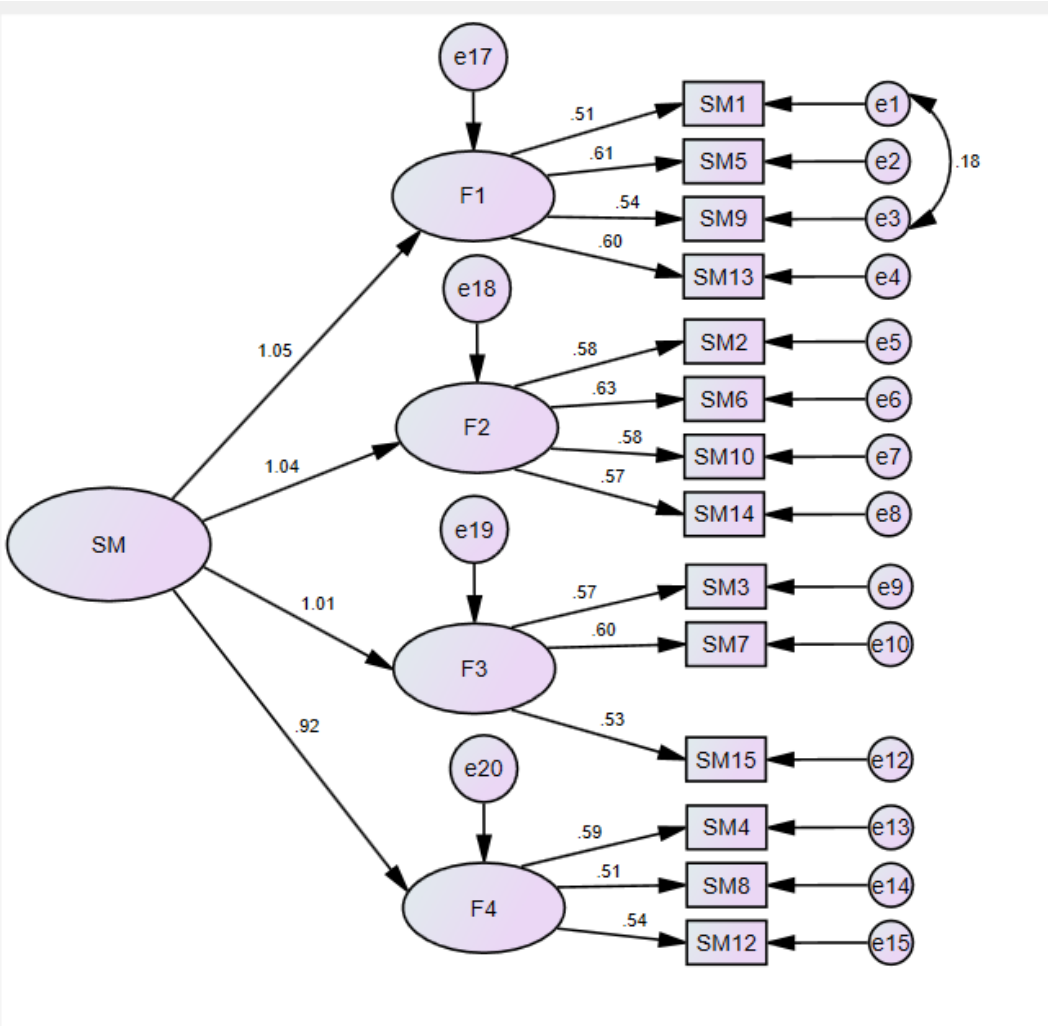


Fig. 3.10: Factor structure of Revised Motivation Measure

Table 3.41: The fitness Estimates of the Model

Measure	P value	CMIN/ DF	RMR	RMSEA	GFI	IFI	TLI	CFI	AIC	BIC
Benchmark	>0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90	-	-
Result Model 1	0.000	4.530	0.150	0.087	0.892	0.837	0.809	0.836	944.593	1106.549
Result Model 2	0.000	2.320	0.08	0.09	0.905	0.853	0.90	0.91	758.986	906.219

Table 3.42: Standardized Factor Loadings of the Items of Situation Motivation Scale

Dimensions	Item No	Standardized Factor Loading
Intrinsic Motivation	1	0.51
	5	0.61
	9	0.54
	13	0.60
Intrinsic Motivation	2	0.58
	6	0.63
	10	0.58
	14	0.57
External regulation	3	0.57
	7	0.60
	15	0.53
Amotivation	4	0.59
	8	0.51
	12	0.54

The BIC and AIC of both the models were estimated and the estimands were found to be lower for model 2 implying that it is a better model (Geiser, 2011).

The P value obtained at 0.000 was less than 0.05 which implies the result is significant and indicates no match between the hypothesized path diagram and the obtained data. However, p value is neglected when the sample size is either very small or big due to its sensitivity. The CMIN/DF value was obtained as 2.32 which is less than the cut off value of .3. The RMSEA value was 0.091 (not less than 0.08), RMSEA value between 0.8 to 1.0 provide mediocre fit (Hooper et.al, 2008) as desired. The Root Mean Square Residual value was found to be 0.08 which is as desised 0.08. Good-of fit-index, GFI was obtained at 0.905 which shows good fit of the model. The incremental fit index, Tucker Lewis index and the Comparative fit index was obtained at 0.853, 0.90 and 0.91 which are values above or equal to the

desired cut off value of 0.90. Since most of the fitness estimates have desirable magnitude, the goodness of the fit of the model is satisfactory. Also, the factor loading of all the items ranges from 0.51 to 0.63. Hence, the CFA validated the situational motivation Scale developed by Fr´ed´eric Guay, Robert J. Vallerand,and C´eline Blanchard (2000). Therefore, it is proved that the model has Construct validity.

Some of the resultant values were less than .900 as suggested by Chau (1997), Segars and Grovers (1993), Bentler (1990), Hatcher (1994), and Bentler and Bonett (1980); nevertheless, Hair et al. (2010) have explained that if three to four indices in a model pass the minimum requirement, the model can be considered as fit.

3.4.7.1.2 RELIABILITY

Estimation of reliability of the Motivation scale was obtained by using the below mentioned methods. In order to determine the internal consistency of the Motivation Scale coefficient Alpha (Cronbach, 1951) was calculated with a sample size of 250 by using IBM SPSS version 23. The results have been reported in the table below.

Table 3.43: Reliability of Situational Motivation Scale

S. No.	Dimensions	Item No.	Total Items	Cronbach's Alpha	Composite
1	Intrinsic Motivation	1, 5, 9, 13	4	0.670	0.652
2	Empathy	2, 6, 10, 14	4	0.682	0.681
3	Unconditionality of Reward	3,7,15	3	0.587	0.586
4	Congruence	4, 8, 12	3	0.542	0.348
Total scale				0.877	0.87

3.4.7.1.2.1 COMPOSITE RELIABILITY

The composite reliability (Raykov, 1997) was obtained from the sample size of 1000 respondents. The estimate obtained in the above table indicated that the composite

reliability value of Help, Acceptance and Safety were 0.65, 0.68, 0.58 and 0.34 respectively.

3.4.8 Internet Self-Efficacy Scale

The Internet Self-Efficacy Scale revised by Hsu and Chiu (2004) was used to measure the General Internet Self Efficacy. The scale was adapted from the Torkzadeh and Van Dyke's instrument. In order to overcome the limitations of the adapted scale, Hsu and Chiu identified nineteen items that reflects the user's online activities. The scoring of Internet Self Efficacy Scale was done by giving strongly disagree (1), disagree (2) Somewhat Disagree (3) Neutral (4) Somewhat Agree (5) Agree (6) Strongly Agree (7) The scale has computed to have composite reliability of 0.97.

3.4.8.1 VALIDATION OF THE SCALE

The internet self-Efficacy scale was revised by Hsu and Chiu (2003) and standardized on the sample of Taiwan university students; therefore, it was required to revalidate the current scale on the sample of Indian university students. Review of the literature suggests that there are very few studies conducted on Internet self-efficacy in Indian context. Hence no scale which measure Internet self-efficacy has been constructed and validated in Indian context. This encourages the researcher to check the adequacy of the scale in the Indian context. The sample for the validation of the Internet self-efficacy was 250 under graduate students studying in different government and private universities of Punjab. Both male and female respondents were considered for data collection. Data was analyzed by using IBM SPSS 23 version and Amos 23 version.

3.4.8.1.1 Result of Confirmatory Factor Analysis of Internet Self-Efficacy Scale

In order to check the data adequacy before performing factor analysis, Kaiser Mayer Olkin (KMO) and Bartlett Test of Sphericity was calculated. The KMO was found to be 0.940 and Bartlett Test of Sphericity was found to be significant at (p=0.000). Hence, the values of KMO and Bartlett Test of Sphericity confirmed the data adequacy to run factor analysis. After checking the adequacy of data CFA was conducted on nineteen items and the results are discussed below.

The initial run of the confirmatory factor analysis produced a poor fit to the data. As the criteria for the present study chosen as the items having factor loading less than 0.65 will be deleted and hence, two items also reflect high modification indices. After deleting 10 items, and correlating item 14 and item 15 CFA was re run in order to obtained goodness of the fit estimates. Also, KMO and Bartlett test of Sphericity was again calculated for 9 items. KMO value was found to be 0.900 and the statistics of Bartlett test of Sphericity was significant at p=0.000. The revised model of CFA is presented below.

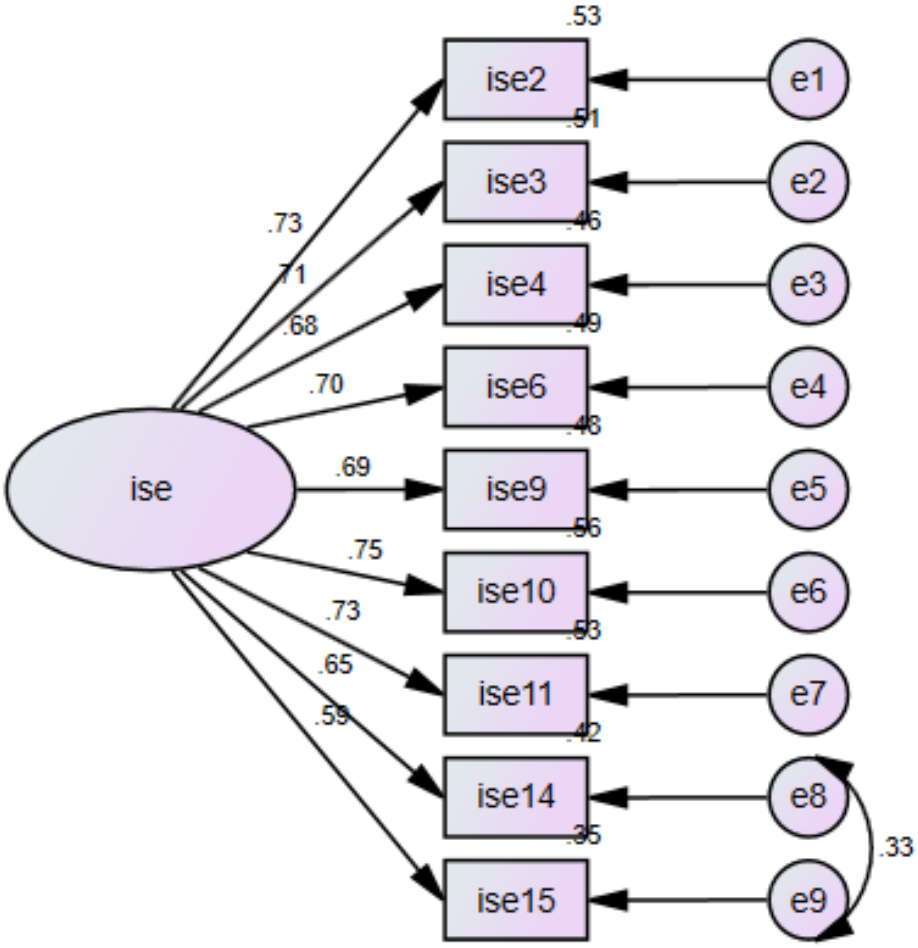


Fig. 3.11: Factor structure of Internet Self-Efficacy Measure

Table 3.44: The Fitness Estimates of the Model

Measure	P value	CMIN /DF	RMR	RMSEA	GFI	IFI	TLI	CFI
Benchmark	>0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90
Result	0.000	2.767	0.129	0.084	0.939	0.954	0.936	0.954

The P value obtained at 0.000 was less than 0.05 which implies the result is significant and indicates no match between the hypothesized path diagram and the obtained data. However, p value is neglected when the sample size is either very small or big due to its sensitivity. The CMIN/DF value was obtained as 2.767 less than the cut off value of 3. The RMSEA value was 0.08 (equal to 0.08), RMSEA value between 0.8 to 1.0 provide mediocre fit (Hooper et.al, 2008) as desired. The Root Mean Square Residual value was found to be 0.12 which is > 0.08. Good-of fit-index, GFI was obtained at 0.939 which shows good of the model. The Incremental fit index, Tucker Lewis index and the Comparative fit index was obtained at 0.954, 0.936 and 0.954 which are values above the desired cut off value of 0.90. Hence, almost all the values are above or equal to the threshold criteria of 0.90 and contributing in confirming the model fit. Also, the factor loading of all the items ranges from 0.59 to 0.75. Hence, the CFA validated internet self-efficacy scale developed by Hsu and Chiu (2003). Therefore, it is proved that the model has Construct validity.

3.4.8.1.2 RELIABILITY

Estimation of reliability of the Internet Self-Efficacy scale was obtained by using the below mentioned methods. In order to determine the internal consistency of the internet self-efficacy scale coefficient Alpha (Cronbach, 1951) was calculated with a sample size of 250 by using IBM SPSS version 23. The results have been reported in the table below.

Table 3.45: Reliability of Internet Self Efficacy Scale

S. No.	Dimensions	Item No.	Total Items	Cronbach's Alpha	Composite
1	Internet Self Efficacy	2, 3, 4, 6, 9, 10, 11, 14,15	9	0.893	0.892

3.4.8.1.2.1 COMPOSITE RELIABILITY

The composite reliability (Raykov, 1997) was obtained from the sample size of 250 respondents. The obtained results presented in the above table indicated that the composite reliability value of Internet Self Efficacy was 0.89.

3.4.9 Empathy, A dimension extracted from the assessing Emotional Intelligence Scale by Ankool Hyde and Sanjyot Dethe (2001).

Emotional Intelligence scale is a 34 item self-report scale 97ocusing on measuring emotional intelligence of the respondents. Respondents rate themselves on the items using five-point Likert scale. The scale comprises of ten factors, the ten dimensions were described as follows: Self-awareness, Empathy, Self-motivation, Self-stability, Managing relations, Integrity, Self-development, Value orientation, Commitment, Altruistic behaviour. The items under these factors are presented below. Self-awareness (items 6, 12, 18, 29), Empathy (items 9, 10, 15, 20, 25), Self-motivation (items 2, 4, 7, 8, 31, 34), Self-stability (items 14, 19, 26,28), Managing relations (items 1, 5, 11,17), Integrity (items 16, 27, 32), Self-development (items 30, 33), Value orientation (items 21,22), Commitment (items 23,24), Altruistic behaviour (items 3, 13). The investigator has used one factor of the scale namely "Empathy". The scoring of Emotional Intelligence Scale was done by giving 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), 5(strongly agree).

Table 3.46: Item wise Distribution of Emotional Intelligence Scale

S. No.	Dimensions	Items	Cronbach Alpha
1	Self-awareness	6, 12, 18, 29	-
2	Empathy	9, 10, 15, 20, 25	-
3	Self-motivation	2, 4, 7, 8, 31, 34	-
4	Self-stability	14, 19, 26,28	-
5	Managing relations	1, 5, 11,17	-
6	Integrity	16, 27, 32	-
7	Self-development	30, 33	-
8	Value orientation	21,22	-
9	Commitment	23,24	-
10	Altruistic behaviour	3, 13	-

3.4.9.1 VALIDATION OF THE SCALE

The subscale "Empathy" was extracted from "Emotional Intelligence Scale (2001). This scale was constructed in India and validation has been done by the Investigator himself. As review of literature revealed that low empathy leads to higher rate of cyberbullying perpetration. Hence, the researcher checked the appropriateness of the scale. The scale was validated by conducting Confirmatory factor analysis and internal consistency of the scale was checked by computing Coefficient Alpha (Cronbach, 1951) and Composite Reliability (Raykov, 1997). The sample for the validation of the sub-scale "Empathy" was 100 undergraduates of government and private universities of Punjab. The sample consists of both male and female respondents. Data was analyzed by using IBMSPSS 23 version and AMOS 23 version.

3.4.9.1.1 Result of Confirmatory Factor Analysis of Empathy Scale

In order to check the data adequacy before performing factor analysis, Kaiser Mayer Olkin (KMO) and Bartlett Test of Sphericity was calculated. The KMO was found to be 0.698 and Bartlett Test of Sphericity was found to be significant at (p=0.000). Hence, the values of KMO and Bartlett Test of Sphericity confirmed the data adequacy to run factor analysis. After checking the adequacy of data CFA was

conducted on five items and the results are discussed below. Confirmatory factor analysis was conducted by using IBM Amos 23 version, the path diagram along with the factor loadings of the items of internet self-efficacy scale are as shown below. Initial run of the CFA produced poor fit to the data. As the value of RMR was above the cut off vale of and further the value of TLI was also found to be less than cut off value of 0.90. Hence it was found that factor loading of item 5 is less.

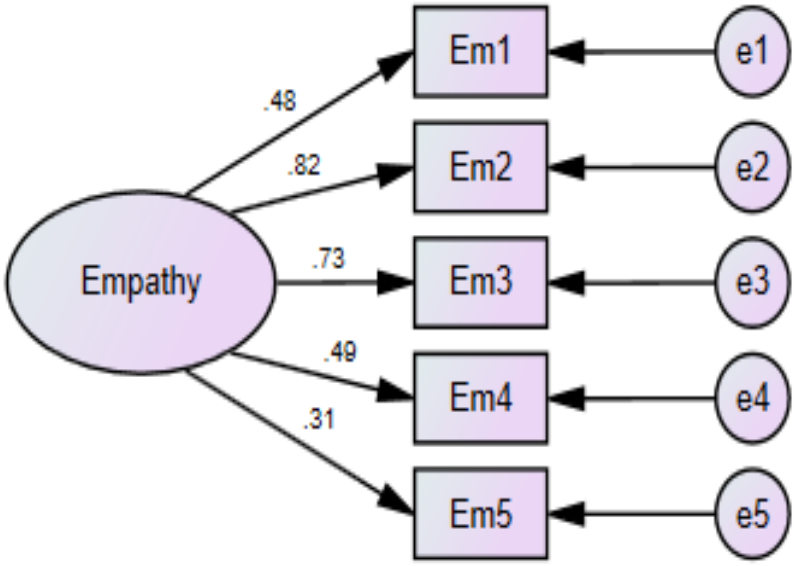


Fig. 3.12: Factor structure of Empathy Measure

On removing the item 5 having factor loading less than 0.4 it was found that the fitness estimates are above or less than the cut off threshold values. The revised construct is presented below.

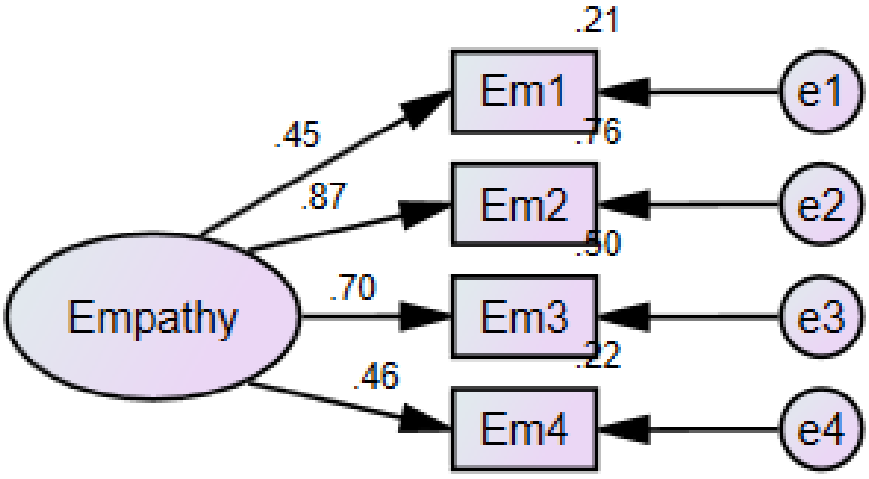


Fig. 3.13: Factor structure of Revised Empathy Measure

Table 3.47: The Fitness Estimates of the Model.

Measure	P value	CMIN/DF	RMR	RMSEA	GFI	IFI	TLI	CFI	AIC	BIC
Benchmark	>0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90	-	-
Result Model 1	0.000	2.040	0.081	0.102	0.960	0.946	0.886	0.943	30.200	56.252
Result Model 2	0.000	1.090	0.051	0.030	0.989	0.998	0.993	0.998	18.179	39.020

Table 3.48: Standardized Factor Loadings of the Items of Empathy Scale

Dimension	Item No	Standardized Factor Loading
Empathy	9	0.45
	10	0.87
	15	0.70
	20	0.46

The BIC and AIC of both the models were estimated and the estimands were found to be lower for model 2 implying that it is a better model (Geiser, 2011).

The P value obtained at 0.000 was less than 0.05 which implies the result is significant and indicate no match between the hypothesized path diagram and the obtained data. However, p value is neglected when the sample size is either very small or big due to its sensitivity. The CMIN/DF value was obtained as 1.090 less than the cut off value of 3. The RMSEA value was 0.030 (less than 0.08), as desired. The Root Mean Square Residual value was found to be 0.051 which is < 0.08. Good-of fit-index, GFI was obtained at 0.989 which shows good fit of the model. The Incremental fit index, Tucker Lewis index and the Comparative fit index was obtained at 0.998, 0.993 and 0.998 which are values above the desired cut off value of 0.93. Hence, all the values are above the threshold criteria of 0.90 and contributing in confirming the model fit. Also, the factor loading of all the items ranges from 0.45 to 0.87. Hence, the CFA validated subscale namely Empathy extracted from Emotional Management Scale developed by Ankool Hyde and Sanjyot Dethe (2001). Therefore, it is proved that the model has Construct validity.

3.4.9.1.2 RELIABILITY

Estimation of reliability of the Empathy scale was obtained by using the below mentioned methods. In order to determine the internal consistency of the subscale Empathy coefficient Alpha (Cronbach, 1951) was calculated with a sample size of 100 by using IBM SPSS version 23. The results have been reported in the table below.

Table 3.49: Reliability of Empathy Scale

S. No.	Dimensions	Item No.	Total Items	Cronbach's Alpha	Composite
1	Empathy	9, 10, 15, 20	4	0.713	0.724

3.4.9.1.2.1 COMPOSITE RELIABILITY

The composite reliability (Raykov, 1997) was obtained from the sample size of 100 respondents. The obtained results present in the above table indicated that the composite reliability value for Empathy was 0.72.

3.4.10 PROCEDURE OF DATA COLLECTION

After the selection of the suitable tools to generate information about the selected variable of the target group, that is undergraduate students of Punjab universities, the next step was the data collection. For this purpose, the permission was sought from the Deans and higher authorities in the selected universities for collection of data on the different tools used in the study. The tools were personally administered by the researcher by visiting in the different universities. The investigator made personal discussion with number of students for establishing rapport. This technique was found to be of immense value in giving clarity to the study. After, the collections of the data, the results were analyzed keeping in view the objectives of the study.

3.4.11 STATISTICAL TECHNIQUES

Keeping in view the different objectives of the study, the obtained data was analyzed using different statistical techniques. After data collection, analysis of the same has been done quantitatively with the help of both descriptive and inferential statistics.

- Descriptive Analysis (Percentage method) was employed to study the extent of cyber bullying and level of awareness among undergraduate students.
- T-test and One-way Anova was employed to study the significant differences of the variables with respect to the categories.
- Simple Linear Regression analysis was employed to study the impact of cyber bullying on social relationships.
- Multiple Linear Regression analysis was employed to study the impact of personological factors on social relationships
- Binominal Logistic regression was employed to study the impact of like gender on social relationships.
- Ordinal regression was employed to study the impact of internet usage on social relationship variables
- Mediation analysis was employed by using PROCESS software.

CHAPTER – IV

RESULTS AND INTERPRETATION

In the previous chapters, theoretical problems of the concept under study, review of related literature, significance if the problem, objectives, hypotheses, tools, sample of the study, research design, procedure and statistical techniques were discussed. The present chapter deals with the analysis and interpretation of results. The study investigates the inferring social relationships: inter related impact of personological factors and cyber bullying. The sample for the present study is undergraduate students studying in different government and private universities of Punjab. In order to achieve the goal, standardized tools were adapted and revalidated in Indian context and used to collect the data.

After collection of data, analysis has been done quantitatively with the help of both descriptive and inferential statistics. The results of the study have been discussed in the light of the objectives.

4.1 DATA SCREENING

Before start of analysis, screening of data was done in order to avoid measurement errors, and to identify the missing data. In total the data was collected from 1000 respondents, out of that 54 forms were found incomplete. Thus, after removal of incomplete forms, the total data of 946 was considered for data analysis. Normality test was performed and the results of NPC was found to be significant and presented below.

4.2 DESCRIPTIVE ANALYSIS ON DEMOGRAPHICAL VARIABLES

In order to understand the sample descriptive statistics was calculated and presented in the below table.

Table 4.1 DESCRIPTIVE STATISTICS OF DEMOGRAPHICAL VARIABLES

Gender		
	Frequency	Percent
Male	455	48.1
Female	491	51.9
Total	946	100.0
Locale		
	Frequency	Percent
Urban	486	51.4
Rural	460	48.6
Total	946	100.0
Type of Institution		
	Frequency	Percent
Government	541	57.2
Private	405	42.8
Total	946	100.0
Type of Scholar		
	Frequency	Percent
Hosteler	371	39.2
Day Scholar	575	60.8
Total	946	100.0
Stream		
	Frequency	Percent
Arts & Humanities	132	14.0
Law	96	10.1
Medical & Pharmacy	177	18.7
Commerce & Management	124	13.1
Physical & Life Sciences	93	9.8
Engineering	269	28.4
Education	55	5.8
Total	946	100.0
Year of Study		
	Frequency	Percent
1styear	371	39.2
2ndyear	405	42.8
3rdyear	159	16.8
4thyear	11	1.2
Total	946	100.0

It is clear from the above in the sample of 946 respondents 445 (48.1%) were male and 491 (51.9%) females. In terms of locale respondents belonging to urban area were 486 (51.4%) and 460 (48.6%) were from rural. Further 541 (57.2%) were from government institutions and 405 (42.8%) belongs to private institutions. Similarly, 337 (39.2%) were hosteller and 575 (60.8%) were day scholar. In Stream wise distributions 132 (14%), 96 (10.1%), 177 (18.7%), 124 (13.1%), 93 (9.8%), 269 (28.4%), 55 (5.8%) were from Arts & Humanities, Law, Medical & Pharmacy, Commerce & Management, Physical & Life Sciences, Engineering, Education respectively. In terms of year of study 371 (39.2%), 405 (42.8%), 159 (16.8%), 11(1.2%) were from 1st, 2nd, 3rd and 4th year respectively.

4.3 NORMALITY OF THE DATA

In order to interpret the result normality of all the scales were checked and the results were presented below.

Table 4.2: Summary of Descriptive Analysis

	N	Mean	Median	σ	Skewness	SE (sk)	Z (sk)	Kurtosis	SE (kurtz)	Z (kurtz)
Knowledge of Cyber bullying Scale	946	3.06	3.00	1.673	0.417	0.08	5.212	-0.101	0.159	-0.63
Attitude of Cyber bullying Scale		21.84	22.00	6.029	0.02	0.08	0.25	-0.162	0.159	-1.01
Cyber Bully/Victim Scale		52.00	57.00	17.20	-0.235	0.08	-2.93	-0.927	0.159	-5.83
Friendship Quality Scale		70.68	70.00	17.00	0.112	0.08	1.4	0.781	0.159	4.91
Parent-Child Relationship Scale		125.8	125.00	11.18	1.083	0.08	13.62	3.215	0.159	20.23
Student Teacher Relationship Scale		128.53	127	9.652	0.917	0.08	11.52	2.317	0.159	14.58
Motivation Scale		45.77	45	13.66	0.513	0.08	6.45	0.395	0.159	2.48
Internet Self-Efficacy Scale		32.48	32	10.73	0.38	0.08	4.77	-0.106	0.159	-0.66
Empathy Scale		12.25	12	3.638	-0.155	0.08	-1.95	-0.531	0.159	-3.23

It is clear from the table that in Knowledge of Cyber bullying scale the mean (M), median (Md), standard deviation (σ), skewness (sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 3.06, 3.00, 1.673, 0.417, 0.080, 5.212, -0.101, 0.159 and -0.630

respectively. Further in Attitude of cyber bullying scale the mean (M), median (Md), standard deviation (σ), skewness (Sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 21.84, 22.00, 6.029, 0.020, 0.080, 0.25, -0.162, 0.159 and -1.010 respectively. In the cyber bully/victim scale the mean (M), median (Md), standard deviation (σ), skewness (Sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 52.00, 57.00, 17.202, -0.235, 0.080, -2.93, -0.927, 0.159, -5.83 respectively. From the Friendship quality scale, the mean (M), median (Md), standard deviation (σ), skewness (Sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 70.68, 70.00, 17.009, 0.112, 0.080, 1.4, 0.781, 0.159, and 4.91 respectively. Further in the in Parent-Child Relationship scale the mean (M), median (Md), standard deviation (σ), skewness (Sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 125.80125.00 11.189 1.083 .080 13.62 3.215 .159 and 20.23 respectively. The table also shows that in Student Teacher Relationship scale the mean (M), median (Md), standard deviation (σ), skewness (Sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 128.53, 127.00, 9.652, 0.917, .080, 11.52, 2.317, 0.159 and 14.58 respectively. Also, from the values Motivation scale the mean (M), median (Md), standard deviation (σ), skewness (Sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 45.77, 45.00, 13.665, 0.513, 0.080, 6.45, 0.395, 0.159 and 2.480 respectively. From Internet Self-Efficacy scale the mean (M), median (Md), standard deviation (σ), skewness (Sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 32.48, 32.00, 10.735, 0.380, 0.080, 4.77, -0.106, 0.159 and -0.660 respectively. The above table also shows that in Empathy scale the mean (M), median (Md), standard deviation (σ), skewness (Sk), standard error of skewness (SE sk), z (skewness), kurtosis (kurt), standard error of kurtosis (SE sk) and z (kurtosis) were found to be 12.25, 12.00, 3.638, -0.155, 0.080, -0.195, -0.531, 0.159 and -3. 23 respectively.

Hence it has been observed that the in most of cases values of z(skewness) 0.25, 2.93, 1.4, 1.95 and z(kurtosis) 0.630, 1.010, 2.480, 0.660, 3.23 are less than 3.29 (p>0.001). The data is normal in most of the cases. Although, it has also been found that in some cases values of z (skewness) 5.212, 13.62, 11.52, 6.45,4.77 and z(kurtosis) 5.83, 4.91, 20.23, 14.58 are greater than 3.29. Further it has been found that the values of standard error are coming very low, it is because of large the large sample size i.e. (946). Filed (2009) reported that in such situation the data is considered as normal.

For the normality of the data in the present values of skewness and kurtosis were considered. Brown (2006) reported that acceptable values of skewness should be from -3 to +3 and kurtosis values should range from -10 to +10. Multivariate Normality was checked using Malanobhis distance and which also did not indicate any problem with data. Thus, the data is considered as Normal.

4.4 DESCRIPTIVE ANALYSIS ON SOCIAL NETWORKING BEHAVIOR (HAVING SMART PHONE, USING INTERNET, USING SOCIAL NETWORKING SITES, HAVING PERSONAL PROFILE ON SOCIAL MEDIA)

In order to interpret the results of social networking behaviour, the questions were asked related to having smart phone, using internet, using social networking sites, having personal profile on social media and descriptive statistics were calculated and presented in the below table.

Table 4.3: Descriptive Statistics of the Variables Related to Use of Internet Having Smart Phone

	Frequency	Percent
Yes	873	92.3
No	73	7.7
Total	946	100.0
Using Internet		
	Frequency	Percent
Yes	897	94.8
No	49	5.2
Total	946	100.0
Using social Networking Sites		
	Frequency	Percent
Yes	814	86.0
No	132	14.0
Total	946	100.0
Personal Profile on Social Media		
	Frequency	Percent
Yes	660	69.8
No	286	30.2
Total	946	100.0

The above table shows that 873 out of 946 respondents which comprises of 92% of the sample are having smart phone and 73 respondents which is 7.7% are not having smart phone. In the same way 94.8% are using internet and 5.2% are not using internet. Similarly, out of 946 respondents 814 i.e. 86% reported that they are using social networking sites and rest 14% are not using social networking sites. Further 69.8% reported that they are having their personal profile on social media and 30.2% reported not to have personal profile on social media.

Table 4.4: Time Spent on Internet per day

	Frequency	Percent
1-2hrs	464	51.7
3-hrs	246	27.4
5-6hrs	97	10.8
More than Six Hours	90	10.0
Total	897	100.0

The above table shows that 464 adolescents i.e. 51.7% are using internet from 1-2 hours, followed by 27% are using up to 3 hours and 10.8%, 10% are using internet between 5 to 6 hours and even more than that.

Table 4.5: How often do you use social networking sites

	Frequency	Percent
Not at all	109	12.2
1 day per week	196	21.9
2 days per week	138	15.4
3 days per week	153	17.1
4 days per week	81	9.0
5 days per week	44	4.9
Daily	176	19.6
Total	897	100.0

The above table depicts that adolescents were asked about how often they use social networking sites. Out of 897 undergraduates, the highest percentage (21.9%) reported that they have been using social networking sites 1 day per week, followed by19.6% who reported that they use social networking on daily basis. Further, the least percentage is of 4.9% who reported that they use it 5 times in a week. The next question was asked like how much adolescents enjoy social networking. The data is analysed by using frequency method.

Table 4.6: How much do you Enjoy Social Networking

	Frequency	Percent
Not at all	109	12.2
1 day per week	135	15.1
2 days per week	142	15.8
3 days per week	147	16.4
4 days per week	90	10.0
5 days per week	55	6.1
I Love it	219	24.4
Total	897	100.0

It is clear from the above table that large percentage of students i.e. 24.4% reported that they love to spend time on social networking and enjoy it to great extent. The least percentage is of those students who reported that they enjoy social networking for 5 days a week.

4.5 Summary of Knowledge and Extent of cyber bullying

Objective 1: To study the extent of cyber-bullying and its forms among undergraduates.

In order to check the knowledge and extent of cyber bullying among under graduates, self-made MCQ based questionnaire was prepared with nine different questions related to knowledge and extent of cyber bullying. The students were provided four options with one right answer. Knowledge and extent of cyber bullying has been further analyzed on the parameter of those students' who provided correct answer. Out of 946 total sample 897 adolescents had affirmed usage of internet either through mobile phone or computer.

4.5.1 Knowledge of cyber bullying

The first item of the questionnaire was related to knowledge of cyber bullying. The data of those who responded correctly was analysed with the help of frequency and percentage in the below table.

Table 4.7: Cyberbullying is:

a) A man and women arguing while Skyping to one another on an issue of their personal interest. b) An Individual speaking to a person face to face that can be offensive or threatening. c) Use of internet and other electronic devices to harm people, in a deliberate, repeated and hostile manner. d) A play date		
	Frequency	Percent
Right Answer	470	52.4
Total	897	100

From the above table it is clear that 470 out of 897 i.e.52.4% undergraduates reported that cyber bullying is use of internet and other electronic devices to harm people, in a deliberate, repeated and hostile manner. Thus, we can say that, more than half of the percentage of students is having knowledge about cyber bullying.

4.5.1.1 Effects of Cyber bullying

The second item was related to the ill effects of cyber bullying on undergraduate students. The data was further analyzed with the help of frequency and percentage and result is shown in the below.

Table 4.8: What are the effects of Cyber bullying?

(a) You feel happy (b)You feel sad and lonely (c)You feel excited (d)It affects you physically		
	Frequency	Percent
Right Answer	382	42.6
Total	897	100

The above results showed that 42.6% reported that they are aware about the effects of cyber bullying i.e., when a person becomes victim of online harassment, he or she feel sad and lonely.

4.5.1.1.2 Removal of someone from an online group

The third item was related to removal of someone in the peer group from a common online platform group. The data was analysed with the help of frequency and percentage and presented in the below table.

Table 4.9: Deliberately removing someone from an online group such as instant messaging, friend sites or other online group activities is an example of?

(a) Impersonation (b) Exclusion (c) Flaming (d) None of the above		
	Frequency	Percent
Right Answer	335	37.3
Total	897	100

The above table shows that 37.3%% under graduate respondents correctly reported that Exclusion is a form of cyber bullying being used for removing someone from an online group.

4.5.1.1.3 Being Followed and repeatedly threatened

The fourth item was related to people who is being followed on social networking platforms and are getting threatening messages. The frequency and percentage were calculated and the result is presented in the below table.

Table 4.10: When a person is repeatedly threatened by being followed or sending intimidating messages is an example of?

(a) Outing (b)Tricking (c) Cyber stalking (d) Gossip		
	Frequency	Percent
Right Answer	365	40.7
Total	897	100

In the above table 40.7% adolescents reported that when an individual is followed by an unknown person on social networking sites and then consistently received messages that are intimidating and full of threats, that is an example of being in the situation of cyber stalking.

4.5.1.1.4 Sharing of other's Secrets and Personal information Online

The fifth item was related to sharing of someone's personal information on social media networking sites. The data was analysed with the help of frequency and percentage. The result is presented in the below table.

Table 4.11: Sharing secrets about someone online including private information, pictures and videos is an example of?

(a) Flaming (b) Cyber threat (c) Outing (d) None of the above		
	Frequency	Percent
Right Answer	189	21.1
Total	897	100

In the table above, very less percentage i.e., 21.1% of students reported correctly about their awareness regarding sharing of someone's secret online. This means that a smaller number of undergraduates were aware of the problem of outing as an online crime.

4.5.1.1.5 Revealing someone's personal information

The sixth item was related to a type of phenomenon in which first someone's personal information was revealed and then shared that information with others online. The data was analyzed by the help of frequency and percentage. The result is tabulated below.

Table 4.12: Revealing someone's personal information and then sharing online is an example of?

(a) Trickery (b) Gossip (c) Harassment (d) Impersonation		
	Frequency	Percent
Right Answer	135	15.1
Total	897	100

The above table depicts that only 15.1% adolescents are aware about trickery as a form of being used for revealing someone's personal information and then sharing of that information on online public plat forms. Further it implies that undergraduate students are still not aware about the trickery as crime on cyber space.

4.5.1.1.6 Exchange of angry and rude comments while fighting on social media sites

The seventh item was constructed in order to measure a type of problem associated with online fights of people where they exchange rude and hurting comments. The data was analyzed with the help of frequency and percentage. The result is tabulated below.

Table 4.13: Online fights where angry and rude comments are exchanged through email, instant messaging or chat rooms are an example of?

(a) Cyber threat (b) Flaming (c) Outing (d) None of the above		
	Frequency	Percent
Right Answer	286	31.9
Total	897	100

In the above table 31.9% students correctly reported that Flaming as method is used in online fights where angry and rude messages were exchanged among students. Although, this method is now days very common especially on social networking

sites. Still less percentages of students are having knowledge of it as being an online crime.

4.5.1.1.7 Hiding one's identity wile sending messages

The eighth item was related to a very common phenomenon i.e. pretending to be someone else while sending messages used by youngsters when they want to harass others for fun purpose or any other mean. The data was analysed and result is presented below.

Table 4.14: Pretending to be someone else when sending or posting mean or false messages online is an example of?

(a) Impersonation (b) Gossip (c) Harassment (d) Trickery		
	Frequency	Percent
Right Answer	233	26
Total	897	100

The above table shows that only, 26% undergraduates are aware about the term impersonation being used for pretending to be unknown while sending false or mean messages online. This means that although this practice is widely used by young ones still, they lack the knowledge and its ill effects.

4.5.1.1.8 Sending of malicious messages to others

The ninth item was related to sending of such messages which are meant to harm people, their reputation. The data was analyzed with the help of frequency and percentage. The results are presented in the below table.

Table 4.15: Repeatedly sending malicious messages to someone online is an example of?

(a) Gossip (b) Outing (c)Harassment (d)Trickery		
	Frequency	Percent
Right Answer	385	42.9
Total	897	100

In the above table 42.9% undergraduate students reported that they are having knowledge of a form of cyber bullying i.e., harassment being used for repeatedly sending such messages which are intended to cause embarrassment to someone.

Thus, it can be concluded that more than half of the percentage of undergraduates have knowledge of cyber bullying and its ill effects. Further 37.3%, 40%, 42% respectively reported to have the knowledge of various forms of cyber bullying like exclusion, cyber staking, outing and their occurrence. The results also revealed that undergraduates are having less knowledge of Trickery, Flaming and Impersonation as forms of cyber bullying being used for online harassment. The above results regarding the prevalence of cyber bullying in terms of percentages are similar to previous finding Gupta (2017) which is one of preliminary studies on cyber bullying in Indian context.

4.6 Usage of Resources in bullying/ Victimization

Two check list type questions were asked to know about the usage of common resources for bullying/victimization or both.

Table 4.16: Usage of Resources in Cyber bullying

S. no.	Description	Yes	No	Total	Percentage
a	Usage of Internet	897	49	946	94.8
b	Usage of Common Resources for Bullying others/ Victimizing by others	821	76	897	91.5
c	Usage of common resources for bullying others	782	39	821	95.2
d	Usage of common resources for victimizing by others	808	13	821	98.4

From the data it is found that out of 897 adolescents 821 (91.5%) reported that they had an involvement in cyber bullying incidents either as bully or as victim or both. Similarly, 782 i.e. (95.2%) adolescents reported that they had used online resources

for bullying others. Further, 808 i.e. (98.4%) adolescents reported that others had used online resources for victimizing us.

4.6.1 Number of Resources (Instant messaging, Text messages, Chat rooms, Email, Picture messages) used for online bullying.

Further in order to understand the type of resource preferences used for bullying others by the undergraduates. The data was analyzed and presented below.

Table 4.17: Resources used by adolescents for online bullying of others.

Resources	Frequency	Percent
1	584	74.7
2	135	17.3
3	42	5.4
4	11	1.4
5	10	1.3
Total	782	100

The above table 4.17 depicts that 584 i.e., 74.7% adolescents used one type of resource for bullying online. 135 of them reported that they used two type of resources, 42 were found using three different resources of media. Similarly, 11 students reported that they used four types of resources and at last 10 adolescents were found to be using five different types of media for online harassment of others.

4.6.1.1 Frequency of preferred resources used in bullying of others

Table 4.18: The different resources used by adolescents for bullying someone

Resources	Frequency	Total	Percentage
Instant messaging	174	782	22.2
Text messages	256	782	32.8
Chat rooms	212	782	27.1
Email	276	782	35.3
Picture messages	156	782	19.9

In the above table it is clear that 174 i.e., 22.2% adolescents reported that they used instant messaging as a medium for bullying someone online. Also, text message as a media used by 256 (32.8%) of the respondents for online harassment. Chat rooms used by 212 which is 27.1% adolescents for electronic bullying of other respondents. Similarly, 276 i.e., 35.3% of adolescents reported that they had used text message as a media for online bullying of someone. At last, picture message used by 156 (19.9%) used picture message for online bullying of someone. Thus, it can be concluded that Email is used by highest percentage of adolescents i.e. (35.3%) for electronic bullying of others.

4.6.1.1.2 Number of Resources used (Instant messaging, Text messages, Chat rooms, Email, Picture messages) used for online victimization.

Further in order to understand the type of resource preferences used for victimization by the undergraduates. The data was analyzed and presented below.

Table 4.19: Resources Used for Victimization of Adolescents.

KCB Victim Frequency		
Media used	**Frequency**	**Percent**
1	595	73.7
2	135	16.8
3	40	4.9
4	23	2.8
5	15	1.8
Total	808	100

The above table 4.19 depicts that 595 i.e., 73.7% adolescents used one type of resource for victimization. 135 of them reported that they used two type of resources, 40 were found using three different resources of media. Similarly, 23 reported that they used four types of resources and at last 15 adolescents were found to be using five different types of resources for online harassment of others.

4.6.1.1.3 Frequency of Preferred Resources Used in Victimization of Others

Table 4.20: The different resources through which adolescents becomes victim

Resources	Frequency	Total	Percentage
Instant messaging	165	808	20.4
Text messages	333	808	41.3
Chat rooms	219	808	27.1
Email	216	808	26.8
Picture messages	219	808	27.1

In the above table it is clear that 165 i.e., 20.4% undergraduates reported that instant messaging as a medium, used by others for victimization. Also, text message as a media used by 333 (41.3%) of the respondents for victimization. Chat rooms used by 219 which is 27.1% adolescents for of other respondents. Similarly, 216 i.e. 26.8% of adolescents reported that they had used text message as a media for online bullying of someone. At last, picture message used by 219 (27.1%) used picture message for online bullying of someone. Thus, it can be concluded that text message (41.3%) is the most preferred way of victimization.

4.7 Summary of Knowledge and Attitude Towards Cyber Bullying Behaviour Among Undergraduates.

Objective 2: To study the knowledge and attitude towards cyber bullying behavior among Undergraduates

For the categorization of the sample subjects as cyber bullies, cyber victims, both bully/victim and uninvolved was to be determined for which the CBCV scale was used. As per the instruction in the scale, the total score of CBCV should cross a critical value for the categorization of a subject to take place. On the basis of percentile 40 and percentile 60 low and high bullying/ victimization scores were calculated. Scores Less than p 40 were considered as Low and scores more than p 60 were considered as High. The values of p60 and p40 for CV scale were found to be 28 and 25. Similarly, the values of p60 and p40 for CB scale were found to be 32 and 26 respectively. 345 subjects did not score high or low enough to be categorized into either being bully, victim, both and uninvolved, thus, removed from the total sample. The result of the analysis is presented below.

Table 4.21: Percentile Score for Categorization of Bully/Victims

	High	Low
Cyber Victimization	28 and more	25 and less
Cyber Bullying	32 and more	26 and less

Table 4.22: Participant Role Classification

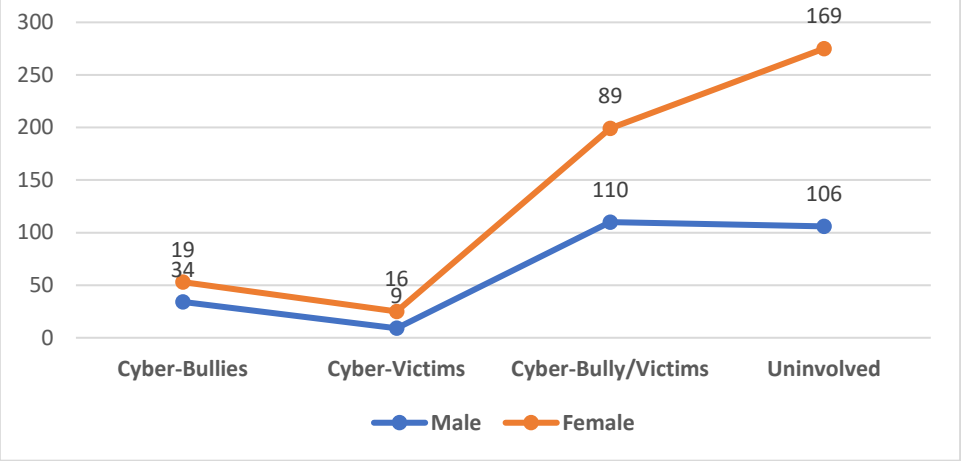
CV/CB	N
Cyber Bullies	53
Cyber Victims	25
Bully/ Victims	199
Uninvolved	275
Total	552

The remaining 552 out of the total sample of 897, were classified as bully, victim, both and uninvolved for their participant role. In the above table, 53 adolescents were found as cyber bullies, 25 were found as cyber victims. Similarly,199 adolescents were found to be both bully and victims, and 275 reported that they had no involvement in any of the actions. The knowledge and attitude of the adolescent was studied towards cyber bullying behavior. In order to understand their role as bully and as victim victim, both and uninvolved. The participant role with respect to different demographical variables is checked and presented in the below tables.

Table 4.23: Participant Role Classification with Respect to Gender

Gender	Cyber-Bullies	Cyber-Victims	Cyber-Bully/Victims	Uninvolved	Total
Male	34	9	110	106	259
Female	19	16	89	169	293
Total	53	25	199	275	552

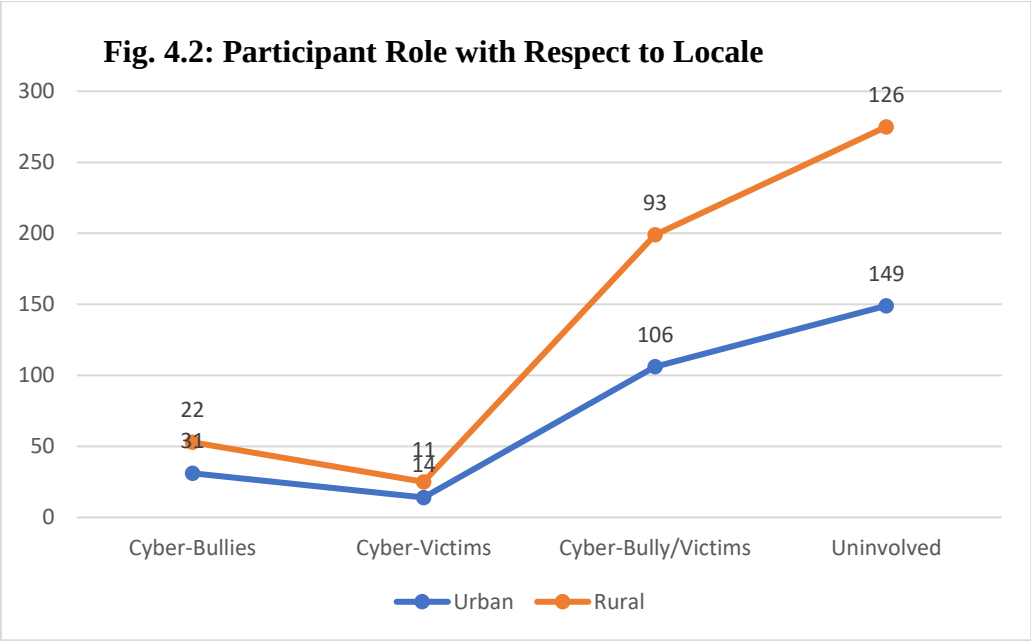
Fig 4.1: Participant Role with Respect to Gender



The above table shows the role of gender in cyber bullying activities. Out of 259 male adolescents, 34 males were found to be cyber bullies, 9 were cyber victims, and110 were found as both bully and victims and 106 male adolescents reported that they had no involvement in any of the cyber bullying activities. Similarly, from 293 female adolescents, 19 females were found as cyber bullies, 16 were cyber victims, and 89 were found as both bully/ victims however, 169 females reported that they had no involvement in any of the cyber bullying activities. Hence it is observed that maximum percentage of female adolescents was found uninvolved in cyber bullying incidents.

Table 4.24: Participant Role Classification with Respect to Locale

Locale	Cyber-Bullies	Cyber-Victims	Cyber-Bully/Victims	Uninvolved	Total
Urban	31	14	106	149	300
Rural	22	11	93	126	252
Total	53	25	199	275	552

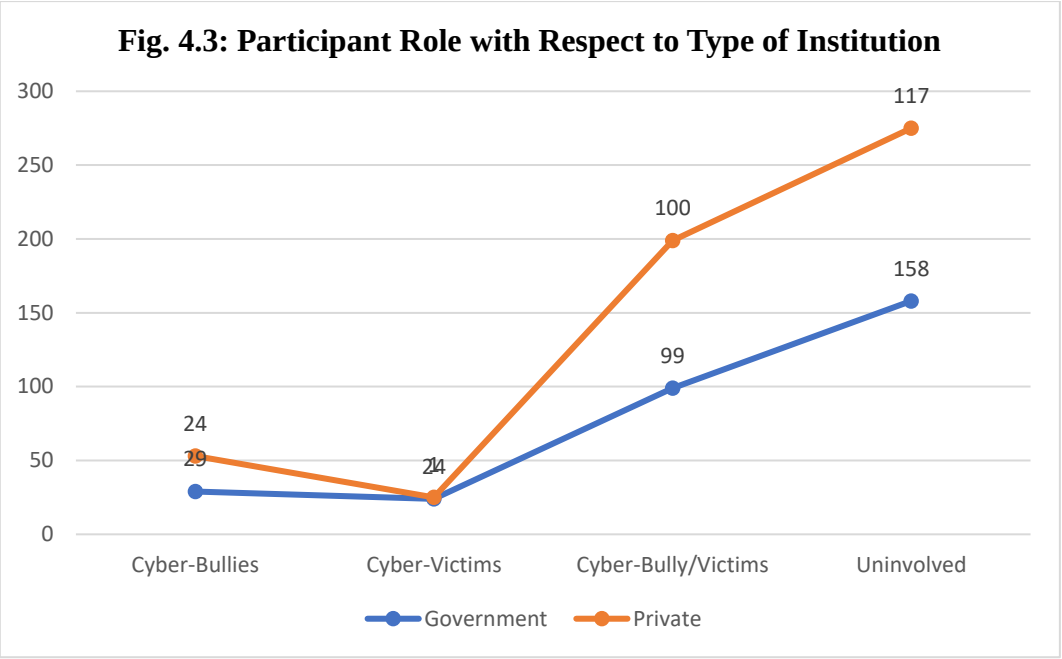


The above table depicts that out of 300 urban adolescents, 31 were found to be cyber bullies, 14 were found as cyber victims and 106 adolescents were found to be in both the categories of cyber bully/ victims. However, 149 urban adolescents were found to uninvolved in cyber bullying activities. In the same way, out of 252 rural adolescents, 22 were found as cyber bullies, 11 were found to be cyber victims, and 93 were found to be involved in both cyber bully/victims' categories. However, 126 rural adolescents reported that they had no involvement in electronic bullying. Hence, from the above graph it is observed that maximum percentage of rural adolescents were found to be uninvolved, followed by cyber victims in which both rural and urban adolescents were found the least cyber victims.

Table 4.25: Participant Role Classification with Respect to Type of Institution

Type of Institution	Cyber-Bullies	Cyber-Victims	Cyber-Bully/Victims	Uninvolved	Total
Government	29	24	99	158	310
Private	24	1	100	117	242
Total	53	25	199	275	552

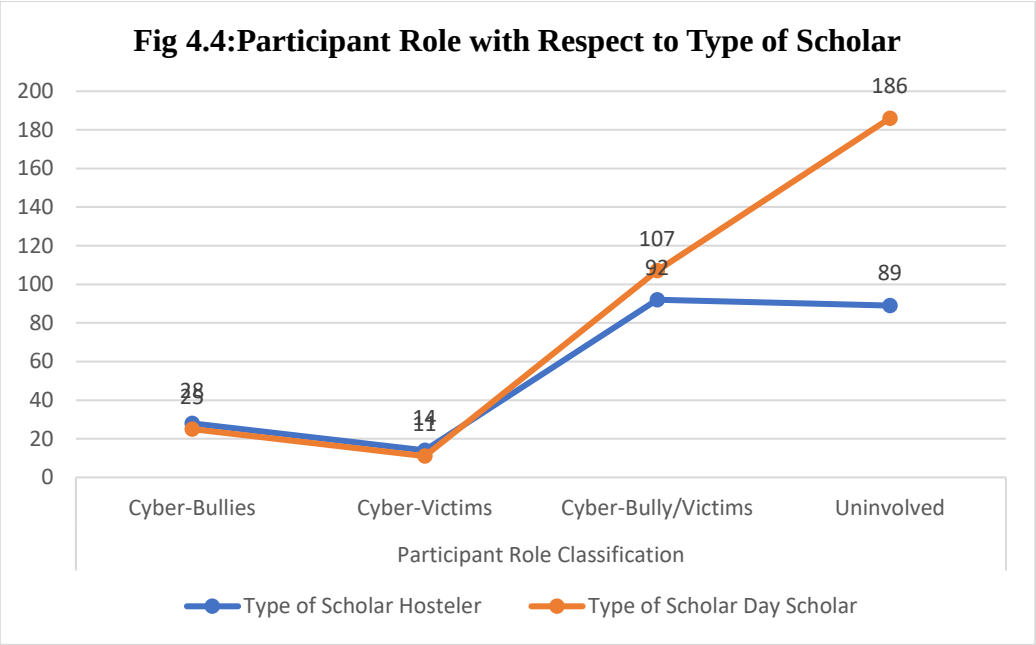
Fig. 4.3: Participant Role with Respect to Type of Institution



The above table depicts the participants' role from type of institutions in cyber bullying. The results show that out of 310 adolescents from government institutions, 29 were found to be cyber bullies, 24 were cyber victims and 99 were found as both cyber bully/victims. However, 158 adolescents from government institutions reported that they had no involvement in cyberbullying incidents. Similarly, out of 242 adolescents from Private institutions, 24 were found as cyber bullies, 1 as cyber victim and 100 were found to be both cyber bully/victims. However, 199 adolescents from private intuitions reported of their un-involvement in cyberbullying activities. Thus, from the above graph it is observed that students from government universities are more prone to be cyber bullies and cyber victims. However fewer students from private universities were found to be less involved.

Table 4.26: Participant Role Classification with Respect to Type of Scholar

Type of Scholar	Cyber-Bullies	Cyber-Victims	Cyber-Bully/Victims	Uninvolved	Total
Hosteller	28	14	92	89	223
Day Scholar	25	11	107	186	329
Total	53	25	199	275	552



The above table shows role of type of scholar in cyber bullying. Thus, the table predicts that out of 223 hostellers, 28 were found as cyber bullies, 14 were cyber victims and 92 were found to be both cyber bullies/ victims however, 89 hostellers were found to be involved. In the same way, out of 329, day scholars 25 were found as cyber bullies, 11 as cyber victims and 107 were found to be both cyber bully/victims. However, 186-day scholars were reported that they had no involvement in online bullying. Thus, from the graph it is observed that day scholar students were more involved in both cyber bully/victims' category as compare to hostellers. However, hostellers were more bullies and victims as compare to day scholars.

Table 4.27: Participant Role Classification with Respect to Stream

Stream	Cyber-Bullies	Cyber-Victims	Cyber-Bully/Victims	Uninvolved	Total
Arts & Humanities	4	4	21	40	69
Law	8	1	25	15	49
Medical & Pharmacy	8	5	41	59	113
Commerce & Management	8	4	29	31	72
Physical & Life Sciences	5	2	19	32	58

Engineering	19	8	60	75	162
Education	1	1	4	23	29
Total	53	25	199	275	552

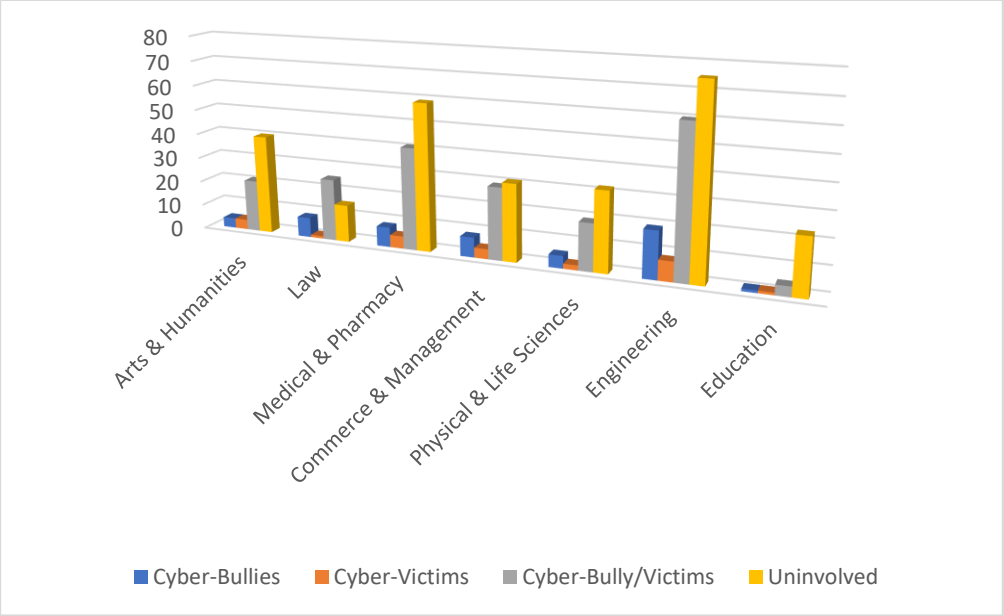


Fig. 4.5: Participant Role with Respect to Stream

The above table depicts the role of participants from different streams in cyber bullying activities. In Arts & Huminites stream, out of 69 adolescents, 4 were found as cyber bullies, 4 as cyber victims and 21 were found to be both cyber bully/victims. However, 40 adolescents from Arts & Humanities stream, were found to be uninvolved. Similarly, from the Law stream, out of 49 adolescents, 8 were found as cyber bullies, 1 as cyber victim and 25 were found to be both cyber bully/victims. However, 15 adolescents from Law stream were found to be uninvolved. In stream of Medical & Pharmacy out of 113, 8 adolescents were found as cyber bullies, 5 as cyber victims and 41 were found to be both cyber bully/victims however, 59 adolescents from Medical & Pharmacy stream, were found to be uninvolved. From Commerce & Management stream, out of 72 adolescents, 8 were found as cyber bullies, 4 as cyber victims and 29 were found to be both cyber bully/victims. However, 31 adolescents from Commerce & Management stream were found to be uninvolved. Similarly, in Physical & Life Sciences out of 58, 5 adolescents were found as cyber bullies, 2 as cyber victims and 19 were found to be both cyber bully/victims. However, 32

adolescents from Physical & Life Sciences stream were reported that they had no involvement in cyber bullying. In the same way from Engineering stream, out of 162 adolescents, 19 were found to be cyber bullies, 8 were cyber victims and 60 adolescents were found to be both cyber bully/victims however 75 adolescents from Engineering stream, were found as uninvolved. However, In Education stream, out of 29 adolescents, 1 was found as cyber bully, 1 as cyber victim and 4 were found as both cyber bully/cyber victims. However, 23 reported of their un- involvement in cyber bullying incidents.

Thus, it is observed that undergraduates from engineering stream were more involved as in the cyber bully/victim's category, followed by students of medical and pharmacy stream. However, under graduates from education and law streams were less involved in online harassment incidents

Table 4.28: Participant Role Classification with Respect to Year of Study

Year of Study	Cyber-Bullies	Cyber-Victims	Cyber-Bully/Victims	Uninvolved	Total
1styear	23	6	64	113	206
2ndyear	20	16	91	121	248
3rdyear	10	3	42	37	92
4thyear	0	0	2	4	6
Total	53	25	199	275	552

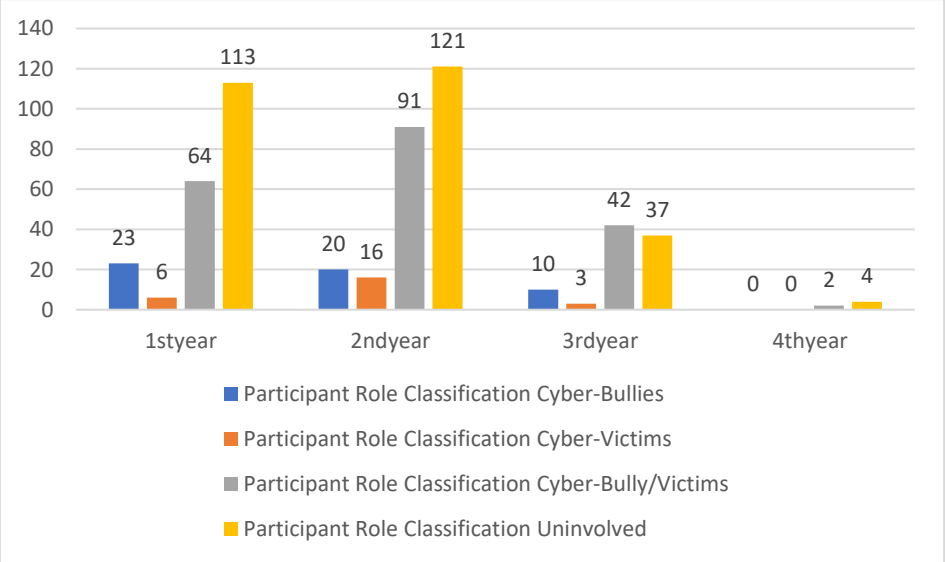


Fig. 4.6: Participant Role with Respect to Year of Study

The above table depicts the role of participants in cyber bulling incidents as per their level of study, out of 206 1st year students, 23 were found as cyber bullies 6 as cyber victims, 64 were found to be both cyber bully/victims however, 113 1st year students were found to be uninvolved. Similarly, from 2nd year, out of 248 students, 20 were found as cyber bullies, 16 were cyber victims and 91 were found to be both cyber bully/victims however, 121 reported of their un-involvement. In the same way out of 92 3rd year students, 10 were found as cyber bullies, 3 as cyber victims and 42 were both cyber/victims however, and 37 were found as uninvolved. From six 4th year students none was cyberbully, none was cyber victim, and 2 were found as both cyber bully/victims however, 4 students from 4th year were found to be uninvolved in cyber bullying incidents. Thus, it is observed that the results with respect to year of study revealed that 2nd year students were more active as bully/victims. While 4th year undergraduates were found to be least involved in cyber bullying. Further, this objective has been analyzed under two headings namely:

4.7.1 Summary of Knowledge of Cyber Bullying Behaviour Among Under Graduates with Respect to Demographic Variables

The data of knowledge of cyber bullying behaviour of undergraduate has been compared on different demographic variable such that gender, type of institution, locale, and stream of study and participant role. To study the significant difference of knowledge of cyber bullying with respect to demographical variables. Levene's test has been used to test the homogeneity of variance between the groups. Wherever, Levene's test has been found to be significant, equal variance not assumed case has been considered to interpret t-test. Wherever, Levene's test has been not found to be significant, equal variance assumed case has been considered to interpret t-test. Knowledge of cyber bullying behaviour was checked with respect to gender. Data was analyzed and presented in the below mentioned tables.

4.7.1.1 Summary of Knowledge of Cyber bullying w.r.t Gender

Table 4.29: Summary of Mean, N and SD on Knowledge of Cyber Buying with respect to Gender

Gender	N	Mean	Std. Deviation
Male	444	3.08	1.594
Female	453	3.11	1.767

Table 4.30: Summary of Independent Samples t-test on Knowledge of cyber–Bullying with Respect to Gender

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances not assumed	4.622	0.032	0.280	888.905	.780

Data inserted in table 4.30 shows that Levene's test with F=4.622, P=0.032 (<0.05) is found to be significant even at 0.05 level of confidence, which shows that equal variance cannot be assumed between the groups. Further, t (df= 888.905) = 0.280, p=0.780 (>0.05) is not found to be significant even at 0.05 level of confidence. This shows that both male and female students do not differ significantly on the score of knowledge of cyber bullying. Thus, the hypothesis 1 (a), "There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t., gender" is not rejected. Hence it can be concluded that male and female students equally possess the knowledge of the cyber bullying. In the next step knowledge of cyber bullying was checked with respect to type of institution. The data was analyzed and presented below.

4.7.1.2 Summary of Knowledge of Cyber bullying w.r.t Type of Institution

Table 4.31: Summary of Mean, N and SD on Knowledge of Cyber Buying with respect to Type of Institution

Type of Institution	N	Mean	Std. Deviation
Government	502	3.27	1.740
Private	395	2.89	1.585

Table 4.32: Summary of Independent Samples t-test on Knowledge of cyber bullying with respect to Type of Institution

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances not assumed	4.028	0.045	3.422	875.972	0.001

Data inserted in table 4.32 shows that Levene's test with F=4.028, P=0 .045 (<0.05) is found to be significant even at 0.05 level of confidence, which shows that equal variance cannot be assumed between the groups. Further, t (df=875.972) = 3.422, P=0.001 (<0.05) is found to be significant at 0.05 level of confidence. This shows that both government and private institutions differ significantly on the score of knowledge of cyber bullying. Thus, the hypothesis 1 (b), "There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t. type of institution" is rejected. Hence, this means that both government and private institution students do not possess similar knowledge of the cyber bullying. Further with respect to type of scholar knowledge of cyber bulling was explored and presented below.

4.7.1.3 Summary of Knowledge of Cyber bullying w.r.t Type of Scholar

Table 4.33: Summary of Mean, N and SD on Knowledge of Cyber Buying with respect to Type of Scholar

Type of Scholar	N	Mean	Std. Deviation
Hosteller	363	2.98	1.587
Day Scholar	534	3.18	1.742

Table 4.34: Summary of Independent Samples t-test on Knowledge of cyber bullying with respect to Type of Scholar

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances not assumed	5.734	0.017	1.730	822.954	0.084

Data inserted in table 4.34 shows that Levene's test with F=5.734, P=0.017 (<0.05) is not found to be significant even at 0.05 level of confidence. Which shows that equal variance cannot be assumed between the groups. Further, t (df=822.954) = 1.730, P=0.084 (>0.05) is not found to be significant even at 0.05 level of confidence. This shows that both hosteler and day scholar do not differ significantly on the score of knowledge of cyber bullying. Thus, the hypothesis 1 (c), "There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t. type of scholar" is not rejected. This means that both hosteller and day scholar students equally possess the knowledge of the cyber bullying. In the next step knowledge was checked with respect to locale. Data was analyzed and presented below table.

4.7.1.4 Summary of Knowledge of Cyber bullying w.r.t Locale

Table 4.35: Summary of Mean, N and SD on Knowledge of Cyber Buying with respect to Locale

Locale	N	Mean	Std. Deviation
Urban	481	3.22	1.733
Rural	416	2.96	1.615

Table 4.36: Summary of Independent Samples t-test on Knowledge of cyber bullying with respect to Locale

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances assumed	3.335	0.068	2.244	895	0.025

Data inserted in table 4.36 shows that Levene's test with F=3.335, P=0.068 (>0.05) is not found to be significant even at 0.05 level of confidence. Which shows that equal variance can be assumed between the groups. Further, t (df=895) = 2.244, P=0.025 (<0.05) is found to be significant even at 0.05 level of confidence. This shows that both urban and rural students differ significantly on the score of knowledge of cyber bullying. Thus, the hypothesis, 1 (d), "There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t. locale" is rejected. This means that both urban and rural students do not possess the similar knowledge of the cyber bullying. Further data was analyzed on with respect to streams. The results are presented in the below mentioned table.

4.7.1.5 Summary of Knowledge of Cyber bullying w.r.t Stream

Table 4.37: Summary of Mean, N and SD on Knowledge of Cyber Buying with respect to Stream

Stream	N	Mean	Std. Deviation
Arts & Humanities	109	2.70	1.500
Law	92	2.63	1.517
Medical & Pharmacy	172	3.01	1.608
Commerce & Management	118	2.98	1.773
Physical& Life Sciences	88	3.08	1.717
Engineering	264	3.33	1.573
Education	54	4.13	2.198
Total	897	3.10	1.683

Table 4.38: Summary of One-way ANOVA on Knowledge of cyber bullying with Respect to Stream

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	112.580	6	18.763	6.885	0.000
Within Groups	2425.589	890	2.725		
Total	2538.169	896			

The effect of stream on the knowledge of cyber bullying was measured by applying one-way Anova on 897 students from different streams like Arts & Humanities, Law, Medical & Pharmacy, Commerce & Management, Physical & Life Sciences, Engineering, Education. The f calculated obtained is 6.885with p = 0.00 indicating that the result is significant at 0.01 level. This implies that student of different streams differs on knowledge of cyber bullying. Hence, the hypothesis 1 (e), “There is no significant difference in the knowledge of cyber bullying among undergraduates w.r.t. stream” is rejected. It implies that undergraduate students from different streams do not possess similar knowledge of cyber bullying. Out of the 897 students the students from the stream of education have been found to be more knowledge of cyber bullying owing to the mean =4.13 and the students from law stream are having the least knowledge of cyber bullying owing to the mean =2.63. Also, the mean score of

knowledge of cyber bullying for different streams in order of awareness is found as 2.70, 3.01, 2.98, 3.08, and 3.33. Further, in order to see the pair wise significant differences Tamhane test has been applied as post hoc test.

Table 4.39: Summary of Post hoc Tamhane Tests

(I) Stream	(J) Stream	Mean Difference (I-J)	Std. Error	Sig.
Arts & Humanities	Law	.067	.234	1.000
	Medical & Pharmacy	.314	.202	.877
	Commerce & Management	.286	.219	.945
	Physical & Life Sciences	.382	.237	.856
	Engineering	.636	.188	.077
	Education	1.432*	.275	.000
Law	Medical & Pharmacy	.381	.213	.784
	Commerce & Management	.353	.230	.884
	Physical & Life Sciences	.449	.246	.766
	Engineering	.703	.200	.055
	Education	1.499*	.283	.000
Medical & Pharmacy	Commerce & Management	.029	.197	1.000
	Physical & Life Sciences	.068	.216	1.000
	Engineering	.322	.162	.683
	Education	1.118*	.258	.005
Commerce & Management	Physical & Life Sciences	.096	.233	1.000
	Engineering	.350	.183	.721
	Education	1.147*	.271	.007
Physical & Life Sciences	Engineering	.254	.203	.955
	Education	1.050*	.285	.036
Engineering	Education	.796	.247	.109

The Pair wise difference of knowledge of cyber bullying among streams was measured. The stream Arts and Humanities has a significant difference in its mean value with that of education with p= 0.00. Similarly, the stream law has a significant difference in its mean value with that of education with p= 0.000. Also, the stream of Medical and Pharmacy, Commerce & Management and Physical & Life Sciences has a significant difference in its mean value with that of education with p= 0.005, 0.007 and 0.36 respectively. The stream of Engineering does not have a significant difference of its mean value with the mean of other streams. Further Attitude of cyber bullying behaviour was checked among undergraduates.

4.7.2 Summary of Attitude Towards Cyber Bullying Behaviour Among Under Graduates with Respect to Demographic Variables

The data of attitude towards cyber bullying has been compared on different demographic variables such that gender, type of institution, locale, and stream of study and participant role. To study the significant difference of attitude towards cyber bullying with respect to demographical variables. Levene's test has been used to test the homogeneity of variance between the groups. Wherever, Levene's test has been found to be significant, equal variance not assumed case has been considered to interpret t-test. Wherever, Levene's test has been not found to be significant, equal variance assumed case has been considered to interpret t-test. Attitude towards cyber bullying was checked with respect to gender. Data was analyzed and presented in the below mentioned tables.

4.7.2.1 Summary of Attitude of Cyber bullying w.r.t Gender

Table 4.40: Summary of Mean, N and SD on Attitude of Cyber bullying with respect to Gender

Gender		N	Mean	Std. Deviation
Harmful Cyberbullying Attitude	Male	444	12.29	3.796
	Female	453	11.21	3.736
General Cyberbullying Characteristics	Male	444	10.37	3.104
	Female	453	9.94	3.107
Attitude of Cyber Bullying	Male	444	22.66	5.975
	Female	453	21.15	5.965

Table 4.41: Summary of Independent Samples t-test on Attitude of Cyber bullying with respect to Gender

Dimensions	SOV	Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Harmful Cyberbullying Attitude	Equal variances assumed	0.661	0.416	4.289	895	0
General Cyberbullying Characteristics	Equal variances assumed	0.048	0.826	2.069	895	0.039
Attitude of Cyber Bullying	Equal variances assumed	0.077	0.782	3.782	895	0

Data inserted in table 4.44 shows that Levene's test with F=0.661, P=0. 0.416 (>0.05) is not found to be significant even at 0.05 level of confidence, which shows that equal variance can be assumed between the groups. Further, t (895) = 4.289, P=0.00 (<0.05) is found to be significant even at 0.05 level of confidence. This shows that both male and female students differ significantly on the score of 'Harmful Cyberbullying Attitude' dimension of Cyber bullying Attitude scale. This means that both male and female students do not possess similar harmful cyber bullying attitude Moreover, the result shows that Levene's test with F= 0.048, P= 0.826 (>0.05) is not found to be significant even at 0.05 level of confidence. Which shows that equal variance can be assumed between the groups. Further, t (895) = 2.069, P= 0.039 (<0.05) is found to be significant even at 0.05 level of confidence This shows that both male and female students differ significantly on the score of 'general cyber bullying characteristics' dimension of Cyber bullying Attitude scale. This means that both male and female students do not possess similar general cyber bullying characteristics. Further, the result shows that Levene's test with F= 0.077, p= 0.782 (>0.05) is not found to be to be significant even at 0.05 level of confidence, which shows that equal variance can be assumed between two groups. Further, t (895) = 3.782, p=0.00 (<0.05) is found to

be significant even at 0.05 level of confidence This shows that both male and female students differ significantly on the score of Cyber bullying Attitude. Thus, the hypothesis 1(f), “There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t gender” is rejected. This means that both male and female students do not possess similar attitude towards cyber bullying.

4.7.2.2 Summary of Attitude of Cyber bullying w.r.t Type of Institution

Table 4.42: Summary of Mean, N and SD on Attitude of Cyber bullying with respect to Type of Institution

Dimensions	Type of Institution	N	Mean	Std. Deviation
Harmful Cyberbullying Attitude	Government	502	11.43	3.933
	Private	395	12.14	3.595
General Cyberbullying Characteristics	Government	502	10.07	3.368
	Private	395	10.25	2.751
Attitude of Cyberbullying	Government	502	21.51	6.464
	Private	395	22.39	5.355

Table 4.43: Summary of Independent Samples t-test on Attitude of Cyber bullying with respect to Type of Institution

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Harmful Cyberbullying Attitude D1 Total	Equal variances not assumed	5.273	0.022	2.807	875.139	0.005
General Cyberbullying Characteristics D2 Total	Equal variances not assumed	16.177	0.000	0.878	893.728	0.380
Attitude of Cyberbullying Scale Total	Equal variances not assumed	16.653	0.000	2.247	892.617	0.025

Data inserted in table 4.46 shows that Levene's test with F=5.273, p =0.022 (<0.05) is found to be significant even at 0.05 level of confidence, which shows that equal variance cannot be assumed between the groups. Further, t (875.139) = 2.807, p =0.005 (<0.05) is found to be significant even at 0.05 level of confidence. This shows that both government and private institution students differ significantly on the score of 'Harmful Cyberbullying Attitude' dimension of Cyber bullying Attitude scale. This means that both government and private institution students do not possess similar harmful cyber bullying attitude. Moreover, the result shows that Levene's test with F= 16.177, p = 0.000 (<0.05) is found to be significant even at 0.05 level of confidence. Which shows that equal variance cannot be assumed between the groups. Further, t (893.728) = 0.878, p =0.380 (>0.05) is not found to be significant even at 0.05 level of confidence. This shows that both government and private institution students do not differ significantly on the score of 'general cyber bullying characteristics' dimension of Cyber bullying Attitude scale. This means that government and private institution students possess similar general cyber bullying characteristics. Further, the result shows that Levene's test with F= 16.653, p = 0.000 (<0.05) is found to be to be significant even at 0.05 level of confidence, which shows that equal variance cannot be assumed between two groups. Further, t (892.617) = 2.247, p=0.025 (<0.05) is found to be significant even at 0.05 level of confidence. This shows that both government and private institution students do not differ significantly on the score of Cyber bullying Attitude. Thus, the hypothesis, 1 (g), "There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t type of institution" is rejected. This means that both government and private institution possess similar attitude towards cyber bullying.

4.7.2.3 Summary of Attitude of Cyber bullying w.r.t Type of Scholar

Table 4.44: Summary of Mean, N and SD on Attitude of Cyber bullying with respect to Type of Scholar

Dimensions	Type of Scholar	N	Mean	Std. Deviation
Harmful Cyberbullying Attitude	Hosteller	363	12.17	3.811
	Day Scholar	534	11.46	3.773
General Cyberbullying Characteristics	Hosteller	363	10.06	3.053
	Day Scholar	534	10.21	3.151
Attitude of Cyberbullying	Hosteller	363	22.23	6.040
	Day Scholar	534	21.67	5.991

Table 4.45: Summary of Independent Samples t-test on Attitude of Cyber bullying with respect to Type of Scholar

		Levene's Test for Equality of Variances		t-test for Equality of Means		
SOV		F	Sig.	t	df	Sig. (2-tailed)
Harmful Cyberbullying Attitude	Equal variances assumed	0.058	0.810	2.734	895	0.006
General Cyberbullying Characteristics	Equal variances assumed	2.038	0.154	0.709	895	0.478
Attitude of Cyberbullying	Equal variances assumed	0.271	0.603	1.356	895	0.175

Data inserted in table 4.48 shows that Levene's test with F=0.058, p=0.810 (>0.05) is not found to be significant even at 0.05 level of confidence, which shows that equal variance can be assumed between the groups. Further, t (895) = 2.734 p=0.006 (<0.05) is found to be significant even at 0.05 level of confidence. This shows that both hosteler and day scholar students differ significantly on the score of 'Harmful

Cyberbullying Attitude' dimension of Cyber bullying Attitude scale. This means that both hosteler and day scholar students do not possess similar harmful cyber bullying attitude. Moreover, the result shows that Levene's test with F= 2.038, p = 0.154 (>0.05) is not found to be significant even at 0.05 level of confidence. Which shows that equal variance can be assumed between the groups. Further, t (895) = 0.709, p =0.478 (>0.05) is not found to be significant even at 0.05 level of confidence This shows that both hosteller and day scholar students do not differ significantly on the score of 'general cyber bullying characteristics' dimension of Cyber bullying Attitude scale. This means that both hosteller and day scholar students possess similar general cyber bullying characteristics. Further, the result shows that Levene's test with F= 0.271, p = 0.603 (>0.05) is not found to be to be significant even at 0.05 level of confidence, which shows that equal variance can be assumed between two groups. Further, t (895) = 1.356, p = 0.175 (>0.05) is not found to be significant even at 0.05 level of confidence. This shows that both hosteller and day scholar students do not differ significantly on the score of Cyber bullying Attitude. Thus, the hypothesis 1(h), "There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t. type of scholar" is not rejected. This means that both hosteller and day scholar students possess similar attitude towards cyber bullying.

4.7.2.4 Summary of Attitude of Cyber bullying w.r.t Locale

Table 4.46: Summary of Mean, N and SD on Attitude of Cyber bullying with respect to Locale

Dimensions	Locale	N	Mean	Std. Deviation
Harmful Cyberbullying Attitude D1 Total	Urban	481	11.42	3.881
	Rural	416	12.12	3.677
General Cyberbullying Characteristics D2 Total	Urban	481	9.81	3.126
	Rural	416	10.55	3.051
Attitude of Cyberbullying Scale Total	Urban	481	21.23	6.181
	Rural	416	22.67	5.727

Table 4.47: Summary of Independent Samples t-test on Attitude of Cyber bullying with respect to Locale

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Harmful Cyberbullying Attitude	Equal variances assumed	2.356	0.125	2.770	895	0.006
General Cyberbullying Characteristics	Equal variances assumed	0.320	0.572	3.541	895	0.000
Attitude of Cyberbullying	Equal variances assumed	3.533	0.060	3.588	895	0.000

Data inserted in table 4.50 shows that Levene's test with F=2.356, p =0.125 (>0.05) is not found to be significant even at 0.05 level of confidence, which shows that equal variance can be assumed between the groups. Further, t (895) = 2.770 p =0.006 (>0.05) is found to be significant even at 0.05 level of confidence. This shows that both urban and rural students differ significantly on the score of 'Harmful Cyberbullying Attitude' dimension of Cyber bullying Attitude scale. This means that both urban and rural students do not possess similar harmful cyber bullying attitude. Moreover, the result shows that Levene's test with F= 0.320, p = 0.572 (>0.05) is not found to be significant even at 0.05 level of confidence, which shows that equal variance can be assumed between the groups. Further, t (895) = 3.541, p= 0.000 (<0.05) is found to be significant even at 0.05 level of confidence This shows that both urban and rural students differ significantly on the score of 'general cyber bullying characteristics' dimension of Cyber bullying Attitude scale. This means that both urban and rural students do not possess similar general cyber bullying characteristics. Further, the result shows that Levene's test with F= 3.533, p = 0.060 (>0.05) is not found to be to be significant even at 0.05 level of confidence, which shows that equal variance can be assumed between two groups. Further, t (895) = 3.588, p = 0.000 (<0.05) is found to be significant even at 0.05 level of confidence

This shows that both urban and rural students differ significantly on the score of Cyber bullying Attitude. Thus, the hypothesis, 1(i), “There is no significant difference in the attitude towards cyber bullying among undergraduates w.r.t. locale” is rejected on the basis of p value significant on the total score. This means that both urban and rural students do not possess similar attitude towards cyber bullying.

4.7.2.5 Summary of Attitude of Cyber bullying w.r.t Stream

Table 4.48: Summary of Mean, N and SD on Attitude of Cyber bullying with respect to Stream

	Streams	N	Mean	Std. Deviation
Harmful Cyberbullying Attitude	Arts & Humanities	109	11.41	3.462
	Law	92	12.41	3.275
	Medical& Pharmacy	172	11.73	3.664
	Commerce & Management	118	12.44	3.873
	Physical & Life Sciences	88	12.09	3.894
	Engineering	264	11.44	4.027
	Education	54	10.78	4.003
	Total	897	11.75	3.802
General Cyberbullying Characteristics	Arts & Humanities	109	10.12	2.892
	Law	92	10.18	3.288
	Medical & Pharmacy	172	10.04	2.962
	Commerce & Management	118	10.69	3.249
	Physical & Life Sciences	88	10.50	3.259
	Engineering	264	9.78	3.089
	Education	54	10.59	3.135
	Total	897	10.15	3.111
Attitude of Cyberbullying	Arts & Humanities	109	21.53	5.284
	Law	92	22.60	5.686
	Medical & Pharmacy	172	21.77	5.652
	Commerce & Management	118	23.14	6.160
	Physical & Life Sciences	88	22.59	6.328
	Engineering	264	21.22	6.299
	Education	54	21.37	6.450
	Total	897	21.90	6.014

Table 4.49: Summary of One-way ANOVA on Attitude of Cyber bullying with respect to Stream

		Sum of Squares	df	Mean Square	F	Sig.
Harmful Cyberbullying Attitude	Between Groups	196.567	6	32.761	2.286	0.054
	Within Groups	12755.479	890	14.332		
	Total	12952.047	896			
General Cyberbullying Characteristics	Between Groups	94.741	6	15.790	1.638	0.133
	Within Groups	8577.335	890	9.637		
	Total	8672.076	896			
Attitude of Cyberbullying	Between Groups	423.424	6	70.571	1.964	0.068
	Within Groups	31982.344	890	35.935		
	Total	32405.768	896			

The effect stream on attitude of cyber bullying was measured by applying one-way Anova on 552 students from different streams like Arts & Humanities, Law, Medical & Pharmacy, Commerce & Management, Physical & Life Sciences, Engineering, Education. The f calculated obtained for Harmful Cyber Bullying attitude, General Cyber bullying Characteristics and Attitude of cyber bullying total is 2.286, 1.638 and 1.964 respectively with p= 0.054, 0.133 and 0.068 respectively indicating that the result is not significant. This implies that stream of the students does not influence the attitude of cyber bullying. Thus, the hypothesis, 1(j) is not rejected. It means that undergraduate students from different streams have similar kind of attitude towards cyber bullying. The above results are in line with the studies of Gupta (2017), Microsoft (2012), McAfee's (2014) who also reported the involvement of gender and locality on extent of cyber bullying practices.

4.8 SUMMARY OF STAGE OF AWARENESS OF CYBER BULLYING BEHAVIOUR AMONG UNDERGRADUATES

Objective 3: To study the stage of awareness of cyber bullying behavior among undergraduates.

In order to check the level of awareness of cyber bullying among undergraduates, Precaution adoption process model (PAPM) (Weinstein 1988) was used. This model is a stage theory, which explains how people take precautionary measures in order to avoid the risk of getting involved into a particular problem. In the present study Precaution Adoption Process Model was adapted to explore undergraduate's level of awareness and way of securing themselves from cyber bullying activities on social networking sites.

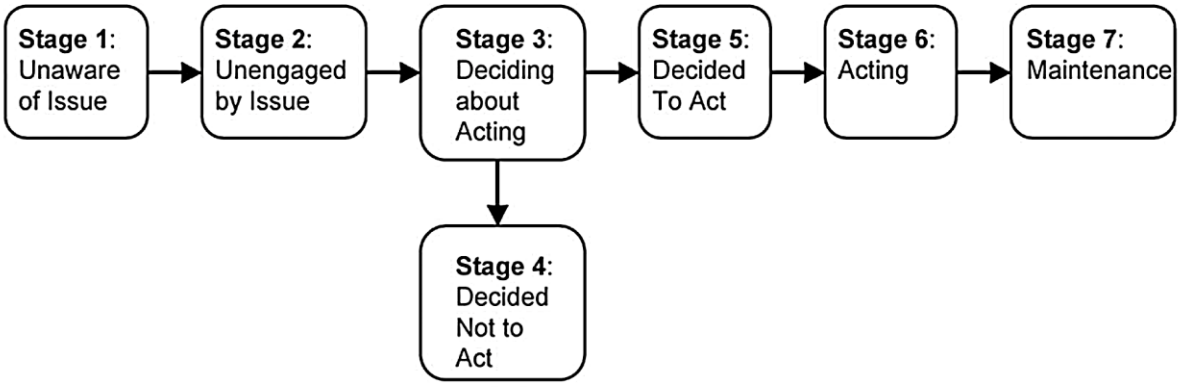


Fig. 4.7: PAPM Model of Awareness

Description of the Awareness Model

In the first stage the person was unaware of the issue of cyber bullying, in the second stage the individual is aware about the issue of online harassment but remains unengaged. In the third stage and forth stage the person is in dilemma weather to act or not to act in the online menace. In the fifth stage the person decided to act and thus take part in the cyberbullying activities, and thus exposed him or herself to the unknown world. In the sixth stage the individual while acting on the issue inform his or her parents and university authorities. Thus, on action of authorities in the seventh

stage the individual started to maintain the record of online harassment in the form of saving comments and posts of others.

4.8.1 Unaware of the Problem of Cyber bullying at University

The first item was related to unawareness of cyber bullying as problem at university. Students were asked a Likert response question. The data was analyzed with the help of frequency and percentage method. The obtained results are presented in the below table.

Table 4.50: Stage Awareness 1 (Unaware of the issue)

Cyber bullying is not a problem at my University		
	Frequency	Percent
Strongly Disagree	119	13.3
Disagree	209	23.3
Somewhat Disagree	72	8.0
Neutral	166	18.5
Some-what Agree	53	5.9
Agree	194	21.6
Strongly Agree	84	9.4
Total	897	100.0

The above table shows that out of total sample 897 undergraduates were found to be using internet through different electronic devices. 119 i.e., 13.3%, 209 23.3% and 72 8% clearly showed their disagreement regarding cyber bullying in their universities. Further 18.5% remained neutral. Only 5.9%, 21% and 9.4% are somewhat agree, Agree and Strongly Agree to the fact that cyber bullying is not a problem. Hence it can be concluded that highest percentage of adolescents i.e. 23% university students are aware about cyber bullying incidents in the university campuses and are in 1st stage of PAPM i.e. un aware about the issue of cyber bullying.

4.8.1.1 Remained unengaged by the issue of cyber bullying

In the second item the students were asked about whether they ever change their number because of online harassment. The data was analyzed with the help of frequency and percentage. The result is presented in the below table.

Table 4.51: Stage Awareness 2 (Unengaged by issue)

Have you ever changed your Number?		
	Frequency	Percent
No	397	44.3
Yes	500	55.7
Total	897	100

In the above table 44.3% undergraduates reported that they were unengaged by the issue and did not changed their number because of cyber bullying incidents. Thus, fall in second stage of precaution adoption process model. Rest 55.7% changed their number because of online activities.

4.8.1.2 Thinking to act and decided not to act on the issue of online harassment.

The third and fourth item was related to thinking to take part in the cyber activities and then decided not to get involve. Frequency and percentage method were employed to analyze the result and obtained result is presented in the below table.

Table 4.52: Stage Awareness 3 and 4 (Deciding about acting and Decided not to act)

Have you ever Deleted or Blocked Friends on Social Networking Sites?		
	Frequency	Percent
No	287	32
Yes	610	68
Total	897	100

In the stage three and four adolescents decided to act and not to act against the online harassment from known or unknown friends thus, 68%undergradutes in stage three thought about deleting or blocking their friends on social media and 32% students reported that they neither blocked nor deleted their friends from social networking sites.

4.8.1.3 Decided to act on the issue of cyber bullying

The fifth item was related to being aware of ill effects of online activities and thus taking decision to quit social media. The data was analyzed with frequency and percentage and the result is presented in the below mentioned table.

Table 4.53: Stage Awareness 5 (Decided to act)

Have you ever quit any of the social network you are on?		
	Frequency	Percent
No	362	40.4
Yes	535	59.6
Total	897	100

In order to make oneself secure from online bullying, 59.6% adolescents which are in stage 5 of PAPM decided to act on the issue and thus, quit the social media.

4.8.1.4 Acting on the Issue

The sixth item was related to taking action on the issue of cyber bullying and informing parents and university officials. This is the most important stage of awareness. The result of frequency and percentage is presented in the below mentioned table.

Table 4.54: Stage Awareness 6 (Acting)

Have you ever told Parents or University official about a Cyberbullying incident?		
	Frequency	Percent
No	555	61.9
Yes	342	38.1
Total	897	100

In the stage six while acting on the issue of cyber bullying 38.1% adolescents informed their parents and university authorities about the cyber bullying incidents. This is the most important stage of taking precaution and securing oneself from digital harassment.

4.8.1.5 Maintaining records of the issue of cyber bullying

The seventh item was related to while acting on the issue by the university authorities and parents the undergraduates started to maintain the record of the abuse comments and other immoral activities shared online. The data was analyzed with help of frequency and percentage method. The result is presented in the below mentioned table.

Table 4.55: Stage Awareness 7 (Maintenance)

Have you ever Saved Comments or Posts to document the abuse?		
	Frequency	Percent
No	538	60
Yes	359	40
Total	897	100

After the acting of university authority's 40% of the adolescents in the stage seven, started to maintain the record of cyber bullying incidents while saving the comments and posts related to cyber bullying.

Thus, from the above findings it can be concluded that large percentage students at university are aware of cyber bullying incidents and also take precautions as per PAPM. The above results are in tune with the findings of John (2016) who found that most of the undergraduates are aware of cyber bullying and its consequences in American context.

4.9 Summary of Influence of Cyber bullying on Personological Factors

Objective 4: To examine the influence of cyber bullying behaviour of bully/victim undergraduates on their personological factors (gender, age, empathy, motivation, internet self-efficacy, internet usage).

4.9.1 Summary of Binary Logistic Regression, Ordinal Logistic Regression and Simple Linear Regression of Cyber bullying behavior (CB) on Personological Factors

The data has been analyzed by employing binary logistic regression, Ordinal logistic regression and simple linear regression. The results obtained are presented in the below mentioned tables.

Table 4.56: Summary of Binary Logistic Regression, Ordinal Logistic Regression and Simple Linear Regression of Cyber bullying behavior (CB) on Personological factors (age, gender, empathy, motivation, internet self-efficacy and Internet Usage)

CB	**Gender - Binary Logistic Regression**		
	Negalkerke R^2	**H-L Test (p-value)**	**Exp Beta (p value)**
	0.046	0.123	0.962 (0.000)
	Internet Usage - Ordinal Logistic Regression		
	MFI – P value	GOF P – Value	Nagelkerke R-Square
	0.000	0.266	0.051
	Age – Simple Linear Regression		
	R	R^2	P-Value
	0.062	0.004	0.077
	Empathy - Simple Linear Regression		
	R	R^2	P-Value
	0.199	0.040	0.000
	Internet Self Efficacy - Simple Linear Regression		
	R	R^2	P-Value
	0.205	0.042	0.000
	Motivation - Simple Linear Regression		
	R	R^2	P-Value
	0.011	0.000	0.758

In order to test the role of CB on gender binary logistic regression was conducted where the Nagelkerke R^2 was found to be 0.046 which means that 4.6% variance in gender is found for a unit variance in CB. The Hosmer and Lemeshow test were desirably non-significant with p value 0.123 which is greater than 0.05. It means that the null hypothesis of the test that CB predicts gender is accepted. The predicted probability is of membership for females. The Exp Beta is less than 1 at 0.962. It implies that as Cyberbullying increases, the probability of females involved in this activity decreases by 1-0.962= 0.038, or 3.8%. Here, the probability of males involved in this activity increases by 1/0.962= 1.039, or for unit change in cyberbullying, the probability of males involved in the act rises by 1.039 times. This result is significant at p= 0.000.

In order to study the role of cyber bullying on Internet Usage, ordinal logistic regression was conducted. Here the model fit information involving cyber bullying predicting internet usage was found to be significant at p value 0.000. The goodness of fit p value was desirably non-significant with p value 0.266, which means that the data fits the model involving the prediction of internet usage by CB. The Nagelkerke R^2 was found to be 0.051 which implies 5.1% change in internet usage for a unit variance in cyber bullying.

The simple linear regression results of cyber bullying with Age and Motivation were found to be non-significant with p values at 0.077 and 0.758 respectively. However, Cyber Bullying significantly predicted Empathy and Internet Self Efficacy. Empathy was significantly predicted by cyber bullying with simple linear regression coefficient R= 0.199 for p value at 0.000 and coefficient of determination R^2= 0.040 which means that 4 % change is found in empathy for unit variance in cyber bullying. Internet Self Efficacy was significantly predicted by cyber bullying with simple linear regression coefficient R= 0.205 for p value at 0.000 and coefficient of determination R^2= 0.042which means that 4.2% change is found in internet self-efficacy for unit variance in the independent variable.

4.9.2 Summary of Binary Logistic Regression, Ordinal Logistic Regression and Simple Linear Regression of Cyber bullying behavior (CV) on Personological Factors

The data has been analyzed by employing binary logistic regression, Ordinal logistic regression and simple linear regression. The results obtained and presented in the below mentioned tables.

Table 4.57: Summary of Binary Logistic Regression, Ordinal Logistic Regression and Simple Linear Regression of Cyber Victimhood behavior (CV) on Personological factors (age, gender, empathy, motivation, internet self-efficacy and Internet Usage)

CV	**Gender - Binary Logistic Regression**		
	Negalkerke R^2	**H-L Test (p-value)**	**Exp Beta (p value)**
	0.016	0.850	0.973 (0.000)
	Internet Usage - Ordinal Logistic Regression		
	MFI – P value	GOF P – Value	Nagelkerke R-Square
	0.000	0.268	0.082
	Age – Simple Linear Regression		
	R	R^2	P-Value
	0.062	0.004	0.077
	Empathy - Simple Linear Regression		
	R	R^2	P-Value
	0.199	0.040	0.000
	Internet Self Efficacy - Simple Linear Regression		
	R	R^2	P-Value
	0.205	0.042	0.000
	Motivation - Simple Linear Regression		
	R	R^2	P-Value
	0.011	0.000	0.758

In order to test the role of Cyber victimhood on gender binary logistic regression was conducted where the Nagelkerke R^2 was found to be 0.016 which means that 1.6% variance in gender is found for a unit variance in Cyber Victimhood. The Hosmer and Lemeshow test were desirably non-significant with p value 0.850 which is greater than 0.05, implying that the null hypothesis gender being predicted by cyber victimhood is accepted. The predicted probability is of membership for females. The Exp. Beta is less than 1 at 0.973. It implies that as Cyber victimhood increases, the probability of females involved in this activity decreases by 1-0.973= 0.027, or 2.7%. Here, the probability of males involved in this activity increases by 1/0.973= 1.027, or for unit change in cyber victimhood, the probability of males involved in the act rises by 1.027 times. This result is significant at p= 0.000.

In order to study the role of cyber victimhood on Internet Usage, ordinal logistic regression was conducted. Here the model fit information involving cyber victimhood predicting internet usage was found to be significant at p value 0.000. The goodness of fit p value was desirably non-significant with p value 0.268, which implies that the data fits the model involving prediction of internet usage by cyber victimhood. The Nagelkerke R^2 was found to be 0.082 which implies 8.2% change in internet usage for a unit variance in cyber victimhood.

The simple linear regression results of cyber victimhood with Age and Motivation were found to be non-significant with p values at 0.077 and 0.758 respectively. However, cyber victimhood significantly predicted Empathy and Internet Self-Efficacy. Empathy was significantly predicted by cyber victimhood with simple linear regression coefficient R= 0.199 for p value at 0.000 and coefficient of determination R^2= 0.040 which means that 4% change is found in empathy for unit variance in cyber victimhood. Internet Self-Efficacy was significantly predicted by cyber victimhood with simple linear regression coefficient R= 0.205 for p value at 0.000 and coefficient of determination R^2= 0.042 which means that 4.2% change is found in motivation for unit variance in cyber victimhood.

From the above discussion it can be concluded that the influence of cyber bullying and victimhood behaviours of bully and victim undergraduates on their

personological factors like gender, empathy, internet self-efficacy and internet usage were found to be significant, except for age and motivation. It means that cyber bullying and victimhood behaviours predict the aspects of personality like the gender, internet self-efficacy, empathy and the extent usage of internet of the individuals associated with this phenomenon. The non-significance of the regression results indicates that cyber bullying and victimhood behaviour do not predict age or motivation of the subjects. The above results are in tune with the results of Erreygers et al. (2016), Brewer and Kerslake (2015), Fernández, Félix and Ruiz (2014), Patchin and Hinduja (2006), Ceyhan and Ceyhan (2008) who also reported that personal factors are influenced by cyber bullying phenomena.

4.10 Summary of Impact of Cyber-Bullying on Relationships of Bullies/Victims with Peers, Parents and Teachers of Undergraduates.

Objective 5: To study the impact of cyber-bullying on relationships of bullies/victims with peers, parents and teachers of undergraduates.

In order to analyze the impact of cyber bullying on social relationships, Simple Linear Regression technique was employed. The obtained results are presented in the below mentioned table no 4.58.

Table 4.58: Summary of Simple Linear Regression of Cyber Bullying Behavior (CB) on Social Relationships i.e. (Peer-Peer Relationship, Parent Child and Teacher Student)

CB	**Peer - Peer Relationship**		
	R	R^2	P-Value
	0.210	0.044	0.000
	Parent - Child		
	R	R^2	P-Value
	0.137	0.019	0.000
	Teacher - Student		
	R	R^2	P-Value
	0.103	0.011	0.003

Peer relationship was significantly predicted by cyber bullying with simple linear regression coefficient R= 0.210 for p value at 0.000 and coefficient of determination

R^2= 0.044 which means that 4.4% change is found in peer relationship for unit variance in cyber bullying. Thus, the hypothesis, 3 (a) “There is no significant impact of cyber bullying on social relationships of bullies with peers of undergraduates” is rejected. It further means that peer relationship is significantly predicted by cyber bullying.

Parent- child relationship was significantly predicted by cyber bullying with simple linear regression coefficient R= 0.137 for p value at 0.000 and coefficient of determination R^2= 0.019 which means that 1.9% change is found in parent child relationship for unit variance in cyber bullying. Thus, the hypothesis, 3 (b) “There is no significant impact of cyber victimhood on social relationships of bullies with Parents of undergraduates” is rejected. It implies that cyber bullies have an impact on parent-child relationship.

Teacher student relationship was significantly predicted by cyber bullying with simple linear regression coefficient R= 0.103 for p value at 0.003 and coefficient of determination R^2= 0.011 which means that 1.1% change is found in parent child relationship for unit variance in cyber bullying. Hence, the hypothesis 3 (c) “There is no significant impact of cyber bullying on social relationships of bullies with Teachers of undergraduates” is rejected. It means that teacher-student relationship is affected by cyber bullying perpetration.

In order to analyze the impact of cyber victimhood on social relationships, Simple Linear Regression technique was employed. The obtained results are presented in the below mentioned table no 4.59.

Table 4.59: Summary of Simple Linear Regression of Cyber Victimhood behavior (CV) on Social Relationships i.e. (Peer - Peer Relationship, Parent Child and Teacher Student)

CV	**Peer – Peer Relationship**		
	R	R^2	P-Value
	0.149	0.022	0.000
	Parent - Child		
	R	R^2	P-Value
	0.057	0.003	0.106
	Teacher - Student		
	R	R^2	P-Value
	0.054	0.003	0.121

Peer relationship was significantly predicted by cyber victimhood with simple linear regression coefficient R= 0.149 for p value at 0.000 and coefficient of determination R^2= 0.022 which means that 2.2% change is found in peer relationship for unit variance in cyber bullying. Thus, the hypothesis, 3 (d) "There is no significant impact of cyber victimhood on social relationships victims with peers of undergraduates" is rejected. It further means that peer relationship is significantly predicted by cyber victimhood. Parent- child relationship and teacher student relationships were found to be non-significant with p value at 0.106 and 0.121repectively. Thus, the hypothesis, 3 (e) "There is no significant impact of cyber victimhood on social relationships of victims with Parents of undergraduates" and 3 (f) "There is no significant impact of cyber victimhood on social relationships of victims with teachers of undergraduates" is not rejected. It implies that a subject can experience victimhood from his or her peers. But, no such instance of victimhood is indicated from the results to exist in the relationships the child has with his or her elders.

From the above results it can be concluded that Cyberbullying is significantly related to all the three groups of social relationships, considered in this presence study. However, cyber victimhood predicts such instance among peer and peer group only. While it is intuitive to come across instances of this menace among peers, the finding involving significant relationship of cyber bullying instances in parents and wards is confusing. It implies the weak fabric of family relationships existing in the

society at present where the students do not hesitate to use their knowledge of the cyber space to mend their base against even their parents. Presenting a subtle instance of failure of the education system in our country, the results involving the instances of cyber bullying predicted in teacher child relationship is a matter of concern. The perception of students about their teachers instead of the sacred relationship plays the deciding role in initiating the instances of cyber bullying in this specific type of relationship. The negligence shown towards the parent-teacher meeting by the parents which forms a platform for closing of gaps of communication between them and the teachers, is also one of the reasons for the perpetuating instances of cyber bullying of the elders like parents and teachers by the students. Certain instances involving the initiation of bullying by the teacher on the students should also be acknowledged. Lack of quality time spent by the parents with their wards and lack of emotional aspects of parenthood, also serves as source of emergence of cyberbullying behaviour of students.

With respect to cyber victimhood predictive role on social relationships, the results obtained, suggest that a student can experience victimhood of cyber bullying from his or her peer, but no such instance of victimhood is found to exist to and from his or her elders like parents and teachers, which is anticipatable. However, parents at home and teachers at educational institutions need to be vigilant and keep track of online activities of their wards. The results of the present study enjoy support from the previous studies conducted by Riebel and Jager (2009), Chang et al. (2015), Kaur and Sandhu (2015), Syahruddin (2015), Fousiani et al. (2016), Larranaga (2016) who also reported that cyber bullying as a phenomenon affects the social relationship of peers, parent child group and teacher student group also.

4.11 Summary of contribution of personological factors (Gender, Internet Usage, Age, Empathy, Internet Self-Efficacy and Motivation) on social relationships of under graduates.

Objective 6: To study the contribution of personological factors on social relationships of undergraduates.

The contribution of personological factors on social relationships was analyzed in two steps. In the first step, multiple linear regression was employed to study the collective influence of categorical variables of personological factors like gender and internet usage on three groups of social relationships. In the next step multiple linear regression was employed to study the collective influence of continuous personological factors variables on social relationships. The obtained results are presented in the below table no 4.60 and table no 4.61 respectively.

Table 4.60: Summary of Multiple Linear Regression Results of Categorical variables of Personological Factors on Social Relationships

Gender/Internet usage	Peer Relationship	
R	R^2	p
0.105	0.011	0.011
gender/Internet usage	Parent-Child Relationship	
R	R^2	p
0.120	0.015	0.003
Gender/Internet usage	Teacher- Students Relationship	
R	R^2	p
0.039	0.001	0.544

The categorical variables, gender and internet usage of personological factors together were found to predict peer relationship with multiple linear regression coefficient R= 0.105 for p value at 0.011 and coefficient of determination R^2= 0.011which means that 1.1% change is found in peer relationships for a unit variance in two categorical personological factors. Similarly, gender and internet usage together significantly predicted social relationship between parent child with weak multiple linear regression coefficient R= 0.120 and coefficient of determination 0.015 for p value 0.003 which is less than 0.05. It implies for a unit change in the two personological factors there is 1.5% change in parent child social relationship. However, both these

personological factors together were not found to predict the teacher student relationship since the p value is 0.544, which is greater than 0.05.

Table 4.61: Summary of Multiple Linear Regression Results of Continuous variables of Personological Factors on Social Relationships

Age/ Empathy/ISE/Motivation		Peer Relationship
R	R^2	p
0.434	0.188	0.000
Age/ Empathy/ISE/Motivation		Parent-Child Relationship
R	R^2	p
0.227	0.052	0.000
Age/ Empathy/ISE/Motivation		Teacher-Students Relationship
R	R^2	p
0.192	0.037	0.000

The continuous personological factors age, empathy, Internet self-efficacy and motivation were found to be collectively predicting significant social relationship in peer group for a moderate multiple linear regression coefficient 0.434 with p value 0.000 and coefficient of determination 0.188 implying 18.8% change in peer relationships for unit variance in the mentioned personological factors taken collectively. These personological factors significantly predicted social relationship in parent child group too with multiple linear regression coefficient 0.227 with p value 0.000 and coefficient of determination 0.052 implying 5.2% change in the relationships for unit variance in age, empathy, Internet self-efficacy and motivation. These factors also significantly predicted social relationship in teacher student relationship as well with multiple linear coefficient 0.192 with p value 0.000 and coefficient of determination 0.037 implying 3.7% change in relationships for unit change in continuous personological factors.

Thus, from the results, it can be concluded that when the contributions of personological factors on social relationship of undergraduates was studied, it was found that the categorical personological factors, gender and internet usage, were not

significantly predicting teacher student relationship in the context of cyber bullying phenomena. However, they did significantly predict the peer-peer and parent child relationships. All the continuous variables of personological factors significantly contributed to the three groups of social relationships associated with cyber bullying.

From the above discussion it can be concluded that while no significant effect of gender and internet usage exits on student teacher relationship, significant influence of these variables is seen on peer-peer and parent child relationship. It means that boys and girls during their presence in the cyber space, for any extent of time, can initiate or experience cyber bullying and extend this vice on their friends and parents. However, no such significant predictive role of this menace is suggested by the data, on the teacher-child relationship.

The continuous personological factors, age, empathy, Internet self-efficacy and motivation, were found to be significantly predicting social relationship in peer group, parent child and teacher student group in the context of cyber-bullying phenomena. So, the age of the subject, his or her self-belief with respect to the use of the internet resource, extent of feelings for the fellow beings and the purpose are the deciding factors behind instances of cyber bullying in all the considered groups of social relationships. The results of the present study are in line with findings of Brahme and Mundhe (2014), Gupta and Aparajita (2014), Srivastava (2012) who reported that using internet for long period of time leads to indulgence in online harassment activities. Singh and Sonkar (2013), Lavanya and Parsad (2014 reported that gender of the students does play a role in cyber activities and thus impact their relationships. Van Riel Gallagher (2008), Riebel and Jager (2009) found the in order to get social recognition youngers from both the gender participate in cyber bullying activities.

4.12 Summary of Mediating Role of Personological Factors (Gender, Age, Empathy, Motivation, Internet Self-Efficacy, Internet Usage) Between Cyber Bullying and Social Relationships with Peers, Parents and Teachers Among Bullies/Victims' Undergraduates.

Objective 7: To study the mediating role of personological factors (gender, age, empathy, motivation, internet self-efficacy, internet usage) between cyber bullying occurrence and awareness and relationships with peers, parents and teachers among bullies/victims' undergraduates**.** Further, this objective has been analyzed under two headings namely:

4.12.1 Summary of mediation analysis of CB-Personological Factors -Social Relationships

4.12.2 Summary of mediation analysis of CV-Personological Factors -Social Relationships

4.12.1 Summary of mediation analysis of Cyber Bullying-Personological Factors -Social Relationships

The following Mediation analysis of Continuous personological variables was done by using Hayes Process macro version 3.2.01 software.

Table 4.62: Mediation Analysis of Cyber Bullying-Personological Factors -Peer to Peer Relationship

CB (IV); Age, Empathy, Internet Self Efficacy, Motivation (MVs) and Peer Relationships (DV)						
R	R^2	MSE	F	df1	df2	p
0.4516	0.2039	222.7944	41.7595	5.0000	815.0000	0.0000

The mediating role of continuous personological factors variables like age, empathy, internet self-efficacy and motivation, on the predictive relationship between cyber bullying and peer group of social relationships was estimated using PROCESS macro in SPSS as per Hayes (2012). It was found to be significant (with F-calculated = 41.759519 and p=0.0000) and of moderate strength at 0.4516.

Table 4.63: Mediation Analysis of Cyber Bullying-Personological Factors – Parent Child Relationship

CB (IV), Empathy, Internet Self Efficacy, Motivation (MVs) and Parent Child Relationships (DV)						
R	R^2	MSE	F	df1	df2	p
0.2421	0.0586	102.6441	10.1465	5.0000	815.0000	0.0000

The mediating role of continuous personological factors variables like age, empathy, internet self-efficacy and motivation, on the predictive relationship between cyber bullying and parent child group of social relationships was found to be significant (with F-calculated = 10.1465 and p=0.0000) and of weak strength at 0.2421.

Table 4.64: Mediation Analysis of Cyber Bullying-Personological Factors – Teacher Student Relationship

CB (IV), Empathy, Internet Self Efficacy, Motivation and Teacher Student Relationships						
R	R^2	MSE	F	df1	df2	p
0.2016	0.0406	81.4915	6.9025	5.0000	815.0000	0.0000

The mediating role of continuous personological factors variables like age, empathy, internet self-efficacy and motivation, on the predictive relationship between cyber bullying and teacher student group of social relationships was found to be significant (with F-calculated = 6.9025 and p=0.0000) and of weak strength at 0.2016.

Hence, from the above discussion, it can be concluded that all the three groups of social relationship are predicted significantly by cyber bullying when mediated by the continuous variables of personological factors.

The following Mediation analysis of Categorical personological variables was done by using Baron & Kenny method.

Table 4.65: Summary of Mediation Analysis of categorical variables between Cyber Bullying and Social Relationships

<table>
<tr><td rowspan="15">CB</td><td colspan="2">STEP 1</td><td colspan="3">STEP 2</td><td colspan="3">STEP 3</td></tr>
<tr><td colspan="2">C</td><td colspan="3">A</td><td colspan="3">B</td></tr>
<tr><td colspan="2">X-Y</td><td colspan="3">X-M</td><td colspan="3">X&M-Y</td></tr>
<tr><td colspan="2">PEER RELATIONSHIP</td><td colspan="3">GENDER</td><td colspan="3">CB, GENDER/IU-PEER</td></tr>
<tr><td>R</td><td>P</td><td>NEGALKERKE R2</td><td>H-L Test</td><td>Exp B</td><td>R</td><td>R²</td><td>P</td></tr>
<tr><td rowspan="3">0.210</td><td rowspan="3">0.000</td><td>0.046</td><td>0.123</td><td>0.962</td><td rowspan="3">0.238</td><td rowspan="3">0.057</td><td rowspan="3">0.000</td></tr>
<tr><td colspan="3">INTERNET USAGE</td></tr>
<tr><td>MFI - Pvalue</td><td>GOF P - Value</td><td>Nagelkerke R-Sqaure</td></tr>
<tr><td colspan="2">PARENT-CHILDREN RELATIONSHIP</td><td colspan="3" rowspan="6"></td><td colspan="3">CB, GENDER/IU-PARENT-CHILD RELATIONSHIPS</td></tr>
<tr><td>R</td><td>P</td><td>R</td><td>R²</td><td>P</td></tr>
<tr><td>0.137</td><td>0.000</td><td>0.162</td><td>0.026</td><td>0.000</td></tr>
<tr><td colspan="2">TEACHER-STUDENTS RELATIONSHIP</td><td colspan="3">CB, GENDER/IU-PARENT-TEACHER STUDENTS RELATIONSHIP</td></tr>
<tr><td>R</td><td>P</td><td>R</td><td>R²</td><td>P</td></tr>
<tr><td>0.103</td><td>0.003</td><td>0.111</td><td>0.012</td><td>0.017</td></tr>
<tr><td>X</td><td colspan="8">CYBER BULLY</td></tr>
<tr><td>Y</td><td colspan="8">SOCIAL RELATIONSHIP (PEER, PARENT-CHILD, TEACHER-STUDENT)</td></tr>
<tr><td>M</td><td colspan="8">PERSONOLOGICAL FACTORS</td></tr>
</table>

The mediating role of categorical variables of personological factors like gender and internet usage on the predictive relationship of cyber bullying on the peer group of social relationships is studied in steps. First, the direct effect of cyber bullying on peer

relationship was estimated, using simple linear regression. It was found to be significant (p=0.000) but weak at 0.210.

Then, in order to test the role of CB on gender, binary logistic regression was conducted where the Nagelkerke R^2 was found to be 0.046, which means that 4.6% variance in gender is found for a unit variance in CB. The Hosmer and Lemeshow test were desirably non-significant with p value 0.123 which is greater than 0.05. It means that the null hypothesis that cyber bullying predicts gender is accepted. The predicted probability is of membership for females. The Exp Beta is less than 1 at 0.962. It implies that as cyberbullying increases, the probability of females involved in this activity decreases by 1-0.962= 0.038, or 3.8%. Here, the probability of males involved in this activity increases by 1/0.962= 1.039, or for unit change in cyberbullying. The probability of males involved in the act rises by 1.039 times. This result is significant at p= 0.000.

Similarly, to study the role of CB on Internet Usage, ordinal logistic regression was conducted. Here, the model fit information involving cyber bullying predicting internet usage was found to be significant at p value 0.000. The goodness of fit p value was desirably non-significant with p value 0.266, which implies the data fits the model involving cyber bullying predicting internet usage. The Nagelkerke R^2 was found to be 0.051, which implies 5.1% change in internet usage for a unit variance in cyber bullying.

Since the results of both binary and ordinal logistic regression were significant, the mediating role of gender and internet usage is proven. Finally, to estimate the collective influence of cyberbullying and the categorical variables of personological factors on peer group, multiple linear regression was conducted with R value= 0.238 which is significant (p= 0.000) with coefficient of determination R^2= 0.057. It implies 5.7% variance in peer relationship when there is a unit variance in cyber bullying mediated by categorical variables of personological factors.

Then, the mediating role of categorical variables of personological factors like gender and internet usage on the predictive relationship of cyber bullying on the parent child group of social relationships is studied in steps. First, the direct effect of

cyber bullying on parent child relationship was estimated, using simple linear regression. It was found to be significant (p=0.000) but weak at 0.137.

Then, in order to test the role of CB on gender, binary logistic regression was conducted where the Nagelkerke R^2 was found to be 0.046, which means that 4.6% variance in gender is found for a unit variance in CB. The Hosmer and Lemeshow test were desirably non-significant with p value 0.123 which greater than 0.05. The predicted probability is of membership for females. The Exp. Beta is less than 1 at 0.962. It implies that as Cyberbullying increases the probability of females involved in this activity decreases by 1-0.962= 0.038, or 3.8%. Here, the probability of males involved in this activity increases by 1/0.962= 1.039, or for unit change in cyberbullying, the probability of males involved in the act rises by 1.039 times. This result is significant at p= 0.000.

Similarly, to study the role of CB on Internet Usage, ordinal logistic regression was conducted. Here the model fit information involving cyber bullying predicting internet usage was found to be significant at p value 0.000. The goodness of fit p value was desirably non-significant with p value 0.266. The Nagelkerke R^2 was found to be 0.051, which implies 5.1% change in internet usage for a unit variance in cyber bullies.

Since the results of both binary and ordinal logistic regression were significant the mediating role of gender and internet usage is proven. Finally, to estimate the collective influence of cyberbullying and the categorical variables of personological factors on parent child relationship, multiple linear regression was conducted with R value= 0.162 which is significant (p= 0.000) with coefficient of determination R^2= 0.026. It implies 2.6% variance in parent child relationship, when there is a unit variance in cyber bullying, mediated by categorical variables of personological factors.

The mediating role of categorical variables of personological factors like gender and internet usage, on the predictive relationship of cyber bullying on the Teacher-student group of social relationships is studied in steps. First, the direct effect

of cyber bullying on Teacher-student relationship was estimated, using simple linear regression. It was found to be significant (p=0.003) but weak at 0.103.

Then, in order to test the role of CB on gender binominal logistic regression was conducted where the Nagelkerke R^2 was found to be 0.046 which means that 4.6% variance in gender is found for a unit variance in CB. The Hosmer and Lemeshow test were desirably non-significant with p value 0.123 which greater than 0.05. The predicted probability is of membership for females. The Exp. Beta is less than 1 at 0.962. It implies that as Cyberbullying increases, the probability of females involved in this activity decreases by 1-0.962= 0.038, or 3.8%. Here, the probability of males involved in this activity increases by 1/0.962= 1.039, or for unit change in cyberbullying. The probability of males involved in the act rises by 1.039 times. This result is significant at p= 0.000.

Similarly, to study the role of CB on Internet Usage, ordinal logistic regression was conducted. Here, the model fit information involving cyber bullying predicting internet usage was found to be significant at p value 0.000. The goodness of fit p value was desirably non-significant with p value 0.266. The Nagelkerke R^2 was found to be 0.051, which implies 5.1% change in internet usage for a unit variance in cyber bullying.

Since the results of both binary and ordinal logistic regression were significant, the mediating role of gender and internet usage is proven. Finally, to estimate the collective influence of cyberbullying and the categorical variables of personological factors on Teacher-student relationship, multiple linear regression was conducted with R value= 0.111 which is significant (p= 0.017) with coefficient of determination R^2= 0.012. It implies 1.2% variance in teacher-student relationship when there is a unit variance in cyber bullies mediated by categorical variables of personological factors.

Hence, from the above detailed discussion, it can be concluded that all the groups of social relationships, peers, parent child and teacher student are predicted significantly by cyber bullying, when mediated by the categorical variables of personological factors.

4.12.2 Summary of mediation analysis of CV-Personological Factors -Social Relationships

Table 4.66: Mediation Analysis of Cyber Victimhood -Personological Factors - Peer to Peer Relationship

CV (IV); Age, Empathy, Internet Self Efficacy, Motivation (MVs) and Peer Relationships (DV)						
R	R^2	MSE	F	df1	df2	p
0.4480	0.2007	228.7189	40.9319	5.0000	815.0000	0.0000

The mediating role of continuous personological factors variables like age, empathy, internet self-efficacy and motivation, on the predictive relationship between cyber victims and peer group of social relationships was estimated using PROCESS macro in SPSS as per Hayes (2012). It was found to be significant (with F-calculated = 40.9319 and p=0.0000) and of moderate strength at 0.4480.

Table 4.67: Mediation Analysis of Cyber Victimhood -Personological Factors – Parent-Child Relationship

CV (IV), Empathy, Internet Self Efficacy, Motivation (MVs) and Parent Child Relationships (DV)						
R	R^2	MSE	F	df1	df2	p
0.2286	0.0523	103.3357	8.9876	5.0000	815.0000	0.0000

The mediating role of continuous personological factors variables like age, empathy, internet self-efficacy and motivation, on the predictive relationship between cyber victims and parent child group of social relationships was found to be significant (with F-calculated = 8.9876 and p=0.0000) and of weak strength at 0.2286.

Table 4.68: Mediation Analysis of Cyber Victimhood -Personological Factors – Teacher-Student Relationship

CV(IV), Empathy, Internet Self Efficacy, Motivation (MVs) and Teacher Student Relationships (DV)						
R	R^2	MSE	F	df1	df2	p
0.1947	0.0379	81.7214	6.4245	5.0000	815.0000	0.0000

The mediating role of continuous personological factors variables like age, empathy, internet self-efficacy and motivation, on the predictive relationship between cyber victims and teacher student group of social relationships was found to be significant (with F-calculated = 6.4245 and p=0.0000) and of weak strength at 0.1947.

Hence, from the above discussion, it can be concluded that all the three groups of social relationship are predicted significantly by cyber victimhood when mediated by the continuous variables of personological factors.

The following Mediation analysis of Categorical personological variables was done by using Baron & Kenny method.

Table 4.69: Summary of Mediation Analysis of categorical variables between Cyber Victimhood and Social Relationship

<table>
<tr><td rowspan="11">CV</td><td colspan="2">STEP 1</td><td colspan="3">STEP 2</td><td colspan="3">STEP 3</td></tr>
<tr><td colspan="2">C</td><td colspan="3">A</td><td colspan="3">B</td></tr>
<tr><td colspan="2">X-Y</td><td colspan="3">X-M</td><td colspan="3">X&M-Y</td></tr>
<tr><td colspan="2">PEER RELATIONSHIP</td><td colspan="3">GENDER</td><td colspan="3">CV, GENDER/IU-PEER</td></tr>
<tr><td>R</td><td>P</td><td>NEGALKERKE R2</td><td>H-L Test</td><td>Exp B</td><td>R</td><td>R²</td><td>P</td></tr>
<tr><td rowspan="3">0.149</td><td rowspan="3">0.000</td><td>0.016</td><td>0.850</td><td>0.973</td><td rowspan="3">0.191</td><td rowspan="3">0.037</td><td rowspan="3">0.000</td></tr>
<tr><td colspan="3">INTERNET USAGE</td></tr>
<tr><td>MFI - Pvalue</td><td>GOF P - Value</td><td>Nagelkerke R-Sqaure</td></tr>
<tr><td colspan="2">PARENT-CHILDREN RELATIONSHIP</td><td>0.000</td><td>0.268</td><td>0.082</td><td colspan="3">CV, GENDER/IU-PARENT-CHILD RELATIONSHIPS</td></tr>
<tr><td>R</td><td>P</td><td colspan="3" rowspan="3"></td><td>R</td><td>R²</td><td>P</td></tr>
<tr><td>0.057</td><td>0.106</td><td>0.123</td><td>0.015</td><td>0.006</td></tr>
<tr><td colspan="2">TEACHER-STUDENTS RELATIONSHIP</td><td colspan="3">CV, GENDER/IU-PARENT-TEACHER STUDENTS RELATIONSHIP</td></tr>
</table>

	R	**P**		**R**	**R^2**	**P**
	0.054	0.121		0.063	0.004	0.348
X	CYBER VICTIMS					
Y	SOCIAL RELATIONSHIP (PEER, PARENT-CHILD, TEACHER-STUDENT)					
M	PERSONOLOGICAL FACTORS					

The mediating role of categorical variables of personological factors like gender and internet usage on the predictive relationship of cyber victimhood on the peer group of social relationships is studied in steps, as per Barron and Kenny method. First, the direct effect of cyber victimhood on peer relationship was estimated, using simple linear regression. It was found to be significant (p=0.000) but weak at 0.149.

Then, in order to test the role of CV on gender, binary logistic regression was conducted where the Nagelkerke R^2 was found to be 0.016, which means that 1.6% variance in gender is found for a unit variance in CV. The Hosmer and Lemeshow test were desirably non-significant with p value 0.850 which greater than 0.05. The predicted probability is of membership for females. The Exp. Beta is less than 1 at 0.973. It implies that as Cyber victimhood increases, the probability of females involved in this activity decreases by 1-0.973= 0.027, or 2.7%. Here, the probability of males involved in this activity increases by 1/0.973= 1.027, or for unit change in cyber victimhood, the probability of males involved in the act rises by 1.027 times. This result is significant at p= 0.000.

Similarly, to study the role of CV on Internet Usage, ordinal logistic regression was conducted. Here, the model fit information involving cyber bullying predicting internet usage was found to be significant at p value 0.000. The goodness of fit p value was desirably non-significant with p value 0.268. The Nagelkerke R^2 was found

to be 0.082 which implies 8.2% change in internet usage for a unit variance in cyber victimhood.

Since the results of both binary and ordinal logistic regression were significant, the mediating role of gender and internet usage is proven. Finally, to estimate the collective influence of cyber victimhood and the categorical variables of personological factors on peer group, multiple linear regression was conducted with R value= 0.191 which is significant (p= 0.000) with coefficient of determination R^2= 0.037. It implies 3.7% variance in peer relationship, when there is a unit variance in cyber victimhood mediated by categorical variables of personological factors.

The mediating role of categorical variables of personological factors like gender and internet usage on the predictive relationship of cyber victimhood on the parent child group of social relationships is studied in steps. First, the direct effect of cyber victimhood on parent child relationship was estimated, using simple linear regression. It was found to be non-significant (p=0.106).

Then in order to test the role of CV on gender, binary logistic regression was conducted where the Nagelkerke R^2 was found to be 0.016 which means that 1.6% variance in gender is found for a unit variance in CV. The Hosmer and Lemeshow test were desirably non-significant with p value 0.850 which greater than 0.05. The predicted probability is of membership for females. The Exp. Beta is less than 1 at 0.973. It implies that as Cyber victimhood increases, the probability of females involved in this activity decreases by 1-0.973= 0.027, or 2.7%. Here, the probability of males involved in this activity increases by 1/0.973= 1.027, or for unit change in cyber victimhood. The probability of males involved in the act rises by 1.027 times. This result is significant at p= 0.000.

Similarly, to study the role of CV on Internet Usage, ordinal logistic regression was conducted. Here the model fit information involving cyber bullying predicting internet usage was found to be significant at p value 0.000. The goodness of fit p value was desirably non-significant with p value 0.268. The Nagelkerke R^2 was found to be 0.082 which implies 8.2% change in internet usage for a unit variance in cyber victimhood.

Since the results of both binary and ordinal logistic regression were significant, the mediating role of gender and internet usage is proven. Finally, to estimate the collective influence of cyber victimhood and the categorical variables of personological factors on parent child relationship, multiple linear regression was conducted with R value= 0.123 which is significant (p= 0.006) with coefficient of determination R^2= 0.015. It implies 1.5% variance in parent child relationship when there is a unit variance in cyber victimhood mediated by categorical variables of personological factors.

The mediating role of categorical variables of personological factors like gender and internet usage on the predictive relationship of cyber victimhood on the Teacher-student group of social relationships is studied in steps. First, the direct effect of cyber bullying on Teacher-student relationship was estimated, using simple linear regression. It was found to be non-significant (p=0.121).

Then in order to test the role of CV on gender, binary logistic regression was conducted where the Nagelkerke R^2 was found to be 0.016 which means that 1.6% variance in gender is found for a unit variance in CV. The Hosmer and Lemeshow test were desirably non-significant with p value 0.850 which greater than 0.05. The predicted probability is of membership for females. The Exp. Beta is less than 1 at 0.973. It implies that as Cyberbullying increases, the probability of females involved in this activity decreases by 1-0.973= 0.027, or 2.7%. Here, the probability of males involved in this activity increases by 1/0.973= 1.027, or for unit change in cyberbullying, the probability of males involved in the act rises by 1.027 times. This result is significant at p= 0.000.

Similarly, to study the role of CV on Internet Usage, ordinal logistic regression was conducted. Here the model fit information involving cyber bullying predicting internet usage was found to be significant at p value 0.000. The goodness of fit p value was desirably non-significant with p value 0.268. The Nagelkerke R^2 was found to be 0.082 which implies 8.2% change in internet usage for a unit variance in cyber victimhood.

Since the results of both binary and ordinal logistic regression were significant, the mediating role of gender and internet usage is proven. Finally, to estimate the collective influence of cyber victimhood and the categorical variables of personological factors on Teacher-student relationship, multiple linear regression was conducted with R value= 0.063 which is non-significant (p= 0.348). It means that personological factors like, the gender and Internet usage information of the subjects, do not have any significant impact on teacher-student relationships, in the context of cyber victimhood.

Hence, from the above detailed discussion, it can be concluded that only two of the groups of social relationships i.e., peer-peer and parent-child groups are predicted significantly by cyber victimhood when mediated by the categorical variables of personological factors. Teacher student group was not found to be predicted under cyber victimhood, when mediation role of the categorical variables of personological factors is taken into consideration.

Gender and internet usage were found to play a vital role in initiating cyber bullying on peer to peer, parent child and teacher-student relationships. This further drive home the point that boys and girls require specific kind of parenting to ensure their non-involvement with the menace of online harassment. Factors like age, empathy, internet self-efficacy and motivation are deciders of cyber bullying in all the three groups of social relationship. It implies that the specific age groups, particular motivation profiles, empathy and internet usage history further the instances of cyber bullying in all the three groups of social relationships, irrespective of the nature of the relationship.

While exploring the mediating role of the categorical personological factors variables like gender and Internet usage, in the relationship of cyber victimhood on social relationships, it was found that the mediation significantly existed for peer-peer and parent-child relationships. Because of the probable formalness of the relationship of teacher and student, the gender and internet usage variables were found not to mediate the instance of cyber victimhood in the mentioned group of social relationship. However, the continuous personological factors, played significant

mediation role in the predictive relationship of cyber victimhood on all the three groups of social relationships. It implies that the specific age groups, empathy, particular motivation profiles and internet usage history further the instances of cyber victimhood too, in all the three groups of social relationships, irrespective of the nature of the relationship. The results of the present study enjoy the supported from previous findings by Xiao and Wong (2013), Festl and Quandt (2013), Casas, Del-Rey, and Ortega, (2013) who reported that personal factors like empathy, internet self-efficacy, internet usage plays a mediating role between cyber bullying phenomenon and social relationship. Faucher, Jackson and Cassidy (2014), Wolak, Mitchell, and Finkelhor (2007), Varjas et al. (2010), Fernández, Félix and Ruiz (2014) reported that gender of the adolescents also plays a role in the occurrence of cyber bullying and thus impacting their relationships.

CHAPTER-V

CONCLUSIONS, EDUCATIONAL IMPLICATIONS, LIMITATIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER STUDY

The last chapter in any PhD thesis elaborates the outcomes of the research enterprise. The areas of education impacted by the research results are identified and the ways of impact are explained along with the role of the stake holders involved with these areas. The aspects left out in the present study are also mentioned here along with the new avenues where the existing research can be extended. Since research is an ongoing process. The present chapter deals with the aspect of, conclusions, educational implications, limitations, and recommendations and suggestions for future research.

5.1. OVERVIEW OF THE STUDY

The researcher is an avid social media user and had personal experiences of cyber bullying instances. This led to the germination of the seed of curiosity to explore the topic 7scientifically. Literature review was conducted to develop an understanding of the factors which are associated with cyber bullying and the impact of this online crime on social relationship was identified as the broad topic, owing to the prevalence of cyber bullying among undergraduates the research was targeted at them being the population. Appropriate tools to quantitatively measure the involved variables that are identified adopted or developed as per the state of affairs. Descriptive research design was adopted and data was gathered from nearly thousand undergraduate students. The results obtained were as per the framed objectives. The implications of the findings are being discussed below.

5.2. CONCLUSIONS OF THE STUDY

In this section the researcher tries to convey the objective wise conclusion of the findings of the study.

Objective 1: To study the extent of cyber-bullying and its forms among undergraduates.

a) It has been found that 52% of the undergraduates reported to have knowledge of cyber bullying as a phenomenon. 42% among them reported to be aware of its ill effects. Further 37.3%, 40%, 42% reported to have the knowledge of various forms of cyber bullying and their occurrence.
b) The results also revealed that less percentage of undergraduates are having knowledge of Trickery, Flaming and Impersonation as forms of cyber bullying being used for online harassment.

Objective 2: To study the knowledge and attitude towards cyber bullying behaviour among undergraduates.

a) Male and female students equally possess the knowledge of the cyber bullying. However, government and private universities students' do not have similar knowledge of the cyber bullying phenomena.
b) Hosteler and day scholar students have similar knowledge of the cyber bullying. However, urban and rural undergraduate students do not possess similar knowledge of the cyber bullying.
c) Students from different streams do not possess similar knowledge of cyber bullying. However, students from the stream of education have more knowledge of cyber bullying and students from Law stream have least knowledge of online harassment.
d) Male and female students do not possess similar attitude towards cyber bullying. Similarly, both government and private institution's students also do not possess similar attitude towards cyber bullying. However, in case of hosteller and day scholar students both the groups have similar level of attitude towards cyber bullying.
e) Urban and rural students do not possess similar attitude towards cyber bullying. However, students from different streams have similar attitude towards cyber bullying.

Objective 3: To study the stage of awareness of cyber bullying behaviour among undergraduates.

a) It has been found that large number of students i.e. 23% reported that they are unaware about the problem of cyber bullying in their university thus fall in 1st stage of Precaution adoption process model of awareness. 44% undergraduates were in 2nd stage as they were unengaged by the issue. 68% students were in stage three reported that they thought about deleting or blocking their friends on social media and 32% who were in stage 4 reported that they neither blocked nor deleted their friends from social networking sites.
b) The studies also found that large percentage of undergraduates were in stage 5 decided to act on the issue and thus quit the social media. 38.1% adolescents were in stage 6 have taken action on the issue and informed their parents and university authorities. After the action of authority's 40% students who were in stage 7 started to maintain the record of online harassment.

Objective 4: To examine the influence of cyber bullying behaviour of bully/victim undergraduates on their personological factors (gender, age, empathy, motivation, internet self-efficacy, internet usage).

a) The influence of cyber bullying behavior of undergraduates on their personological factors like gender, empathy, internet self-efficacy and internet usage were found to be significant.
b) However, the influence of cyber bullying behavior of undergraduates on their personological factors like age and motivation were found to be non-significant.
c) The influence of cyber victimhood behavior of undergraduates on their personological factors like gender, empathy, internet self-efficacy and internet usage were found to be significant, except for age and motivation.

Objective 5: To study the impact of cyber-bullying on relationships of bullies/victims with peers, parents and teachers of undergraduates.

a) It has been found that the impact cyber bullying has on social relationships of undergraduate peers, parents and the child, and the teacher and the student, was found to be significant, on all the groups, implying that Cyber bullying as crime, effects all the three groups of social relationships considered in the study.
b) Cyber victimhood only impacts the relationship in peer-peer group only. No such instance of victimhood is found to exist to and from the child's elders like parents and teachers.

Objective 6: To study the contribution of personological factors on social relationships of undergraduates

a) It has been found that the categorical personological factors like gender and internet usage, did not significantly predict the teacher student relationships, in the context of cyber bullying phenomena. However, the peer-peer and parent child relationships were significantly predicted by these variables.
b) Continuous variables of personological factors significantly contributed to the three groups of social relationships in the context of cyber bullying phenomena.

Objective 7: To study the mediating role of personological factors (gender, age, empathy, motivation, internet self-efficacy, internet usage) between cyber bullying occurrence and awareness and relationships with peers, parents and teachers among bullies/victims' undergraduates**.**

a) It has been found that the continuous personological factors variables, mediated the predictive relationship of cyber bullying significantly for all the considered social relationship groups like peer to peer, parent child and teacher student.

b) In the case of the categorical variables, it significantly mediated the relationship of cyber bullying with all the groups of social relationships i.e. peer to peer and parent to child and teacher students.
c) Thus, social relationship is found to be mediated by personological factors like age, gender, empathy, internet self-efficacy, motivation and internet usage in the context of cyber bullying.
d) It has been found that that all the three groups of social relationship are predicted significantly by cyber victimhood when mediated by the continuous variables of personological factors.
e) Only two of the groups of social relationships i.e. peer-peer and parent-child groups are predicted significantly by cyber victimhood when mediated by the categorical variables of personological factors.
f) Teacher student group was not found to be predicted under cyber victimhood, when mediation role of the categorical variables of personological factors is taken into consideration.

In the light of above findings, it can be concluded that the study intended to establish the mediatory role of personological factors of cyber bullying perpetrators and its victims with certain types of social relationships in the Indian context. The findings are in keeping with the framed objectives and prove the significance of personological factors in the influence cyber bullying has on social relationship. The growing prevalence of rise in cyber bullying cases are owing to the incessant use of information and communication technology in education. The findings of this research are highly contextual though preliminary in nature. It is hoped that the research community and education administrators would take cognizance of the outcomes of this study in their individual capacities to extend the envelope of research on cyber bullying and in framing effective cyber bullying laws for safe guarding the interest of undergraduate students in India.

5.3 EDUCATIONAL IMPLICATIONS OF THE STUDY

a) Social relationship is found to be mediated by personological factors like age, gender, empathy, internet self-efficacy, motivation and internet usage in the context of cyber bullying phenomena. As a result, when the instance of cyber bullying is found in the social relationships like peer-peer, student-teacher and parent-child, aspects like the age, gender, level of empathy, extent of internet self-efficacy, motivation levels and hours of internet usage of the subjects must be the factors involved in deciding the successive course of action by the concerned authorities like the head of family or educational institution towards the bully and the victim respectively.

b) The awareness of each of the personological factors mediatory role on the relationship cyber bullying as a phenomenon, has on social relationship type, can help the administrators in being judicious towards the initiator and the victim of cyber bullying. Parents too must be made aware about the role personological factors play in perpetrating cyber bullying in the age group of their children. In this way they would be enabled to take appropriate corrective actions towards their child if he or she is the bully and can take effective steps to rehabilitate their child if he or she is the victim.

c) The role of continuous personological factors should also be taken into account by parents when their child is either the bully or the victim, and when they are victimized by their child. The successive course of action by the parents to correct their ward must be taken in the light of these factors. The same factors must form the basis for the teachers to counsel their students if an instance of cyber bullying takes place in their relationship.

d) The role of gender and internet usage hours in spreading cyber-bullying instances in peer-peer and child-parent groups, and non-existence of any such relationship in the context of student-teacher, should draw the attention of the elders of the family towards the significance of ambient home environment and spending quality time with their wards, in curbing cyber bullying menace.

e) The findings that cyber bullying influences personological factors significantly, except age and motivation, has instructive implications for parents and teachers. The parents at home and teachers in the classroom should be vigilant towards their students by constantly monitoring the traffic of messages generated from the social media accounts of their ward, in the context of personological factors like gender, internet usage hours, internet self-efficacy and empathy.

f) Cyber bullies and its victims use internet for any number of hours. It means that teachers and parents should expect their wards get exposed to cyberbullying even for small duration of time on internet. This is why the practice of eternal vigilance by the elders on the social media activities of their wards is necessary.

g) Bullies and victims of cyber bullying can be from both the genders. It implies parents of both male and female undergraduates should not get impressed by social miss conceptions like less involvement of girls in this act and boys being its perpetrators often. Teachers should not be partial in dealing with cyberbullying instances by getting swayed away towards a specific gender.

h) A vital human trait is empathy whose absence in an individual makes him or her evil. Since bullying as an evil act and its online variant is no exception. This research found that bullies involved in and or experiencing it do differ in the event to which this trait is presenting them. Parents and teachers should take note of this finding when disciplining their wards with respect to moral values and cyber etiquettes related teachings. Friends, guardians and instructors of cyber bully / victims should not develop any misconception with regard to instances of this activity happening to their dear one and the level of empathy in them.

i) Cyber bulling is promoted by internet self-efficacy. It is the confidence an individual has while browsing. This finding indicates that parents and teachers can expect instances of cyber bullying and victimhood from students of varying individual difference of internet self-efficacy. In an effort to curb the menace of cyber bullying among the students, the

teachers can appoint the subjects with high internet self-efficacy as watch dogs who would judiciously utilize their confidence of browsing and protecting the interests of victims and identifying the initiators of cyber bullying.

j) Motivation level to be involved or experience cyber bullying is not purpose specific. It implies that subjects can initiate cyberbullying for mere fun or entertainment. This finding for a parent or a teacher or a loyal friend means eternal vigilance of the social media activities of the dear ones.

k) Cyber bullying is significantly found to affect all the groups of social relationship. As an online menace it disrupts friendship, parenthood and teacher student relationships. On one side, it develops a sense of mistrust between the bully and his relatives, and on the other hand it burdens the relatives of victim with the psychological and emotional challenges at home and at classroom, to bring their ward back to normal mental health.

l) Since Cyber victimhood only impacts the relationship in peer group only, and no such instance of victimhood is found to exist to and from his or her elders, like parents and teachers, the significance of teaching moral values to the younger generation, gets highlighted and the transmission of this eternal culture is warranted.

5.4. LIMITATIONS OF THE STUDY

a) Research on Cyber bullying in the Indian context is in its nascent stage. As a result, there is a scarcity of quality literature review to present the state of the art on this subject.

b) Two scales namely Parent Child and teacher student relationship did not display good psychometrics. As a result, the inferences drawn based on the data through these scales need to be relooked.

c) The presently available scales measuring allied variables of cyber bullying are not context specific. For instance, the motivation scale measures the construct towards an activity in general. A scale measuring motivation to be specifically associated with cyber bullying is not available yet.

5.5.RECOMMENDATIONS

a) The stakeholders should get encouraged to arrange workshops, seminars for all age group students and their parents on regular basis in their educational institution premises on cyber bullying, its forms and the steps to follow on realizing that any instance of cyber victim hood is experienced by their dear ones.

b) The findings of girls to be less involved in both the activities of cyber bullying and victimhood, relatively more involvement of boys, and prolonged usage of Internet being a deciding factor, calls for the parents at home and teachers in the educational institutions to be persistently aware and remain vigilant in detecting the instances of this undesirable phenomenon.

c) Since the literature of cyber bullying on the Indian context is scarce, it is recommended that the limited works on this subject can be shared and decimated into the research community by the investigators of cyber bullying by forming an online plat form for this purpose for instance a Facebook group of research scholar on cyber bullying can be formed.

d) As it was found that cyber bullying impacts all the three groups of social relationships (peer, parents, teachers), the motivators of cyber bullying, like excessive online presence, unfair social desirability and online retribution should be kept under check through counselling, promotion of self-esteem and proper implementation of existing cyber laws to prevent online harassment.

e) Parent at home and teachers at school should ensure promotion of empathy in the wards for fellow beings, and make use of the internet self-efficacy in constructive manner instead of directing these factors towards cyber bullying instances.

f) The group of teachers-student of social relationships, is not impacted by the gender and internet usage categorical personological factors, owing to the formality and decorum of the relationship, which further burdens the teachers to be additionally responsible in teaching their students good cyber etiquettes.

g) Parents and teachers should be made aware that the personological factors like age, motivation, empathy and Internet self-efficacy are the deciding factors, in unearthing the instances of cyber bullying in all the three types of social relationships, which can enable them to take judicious decisions.

5.6 SUGGESTIONS FOR FURTHER STUDY

a) Qualitative studies on cyber bullying in Indian context must be conducted to develop the edifice of literature on cyber bullying theories and allied variables. This will lead to instance of further empirical research studies on this subject.

b) Tools measuring the construct of cyber bullying and its associated variables must be constructed and validated across multiple contexts.

c) The relationship of cyber bullying with other types of social relationships like teacher-to-teacher group can be studied.

d) Inclusion of self-esteem and social networking utilization components of personological factors and their mediator role on social relationship group types in the context of cyber bullying can be explored.

e) The study should be replicated in Indian cities which are information technologies wise advanced and have adequate infrastructure to provide online education like Bangalore, Chennai, Hyderabad, NCR.

f) The study can be extended to explore the impact of cyber bullying on students at secondary and higher secondary level.

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APPENDIX - I

Demographic Information

Please fill up the following information

1. **Contact no:** _____
2. **Mail id:** _____
3. **Age:** _____
4. **Gender:** Male ☐ Female ☐
5. **Locale:** Urban ☐ Rural ☐
6. **Name of the University/College**_____
7. **Type of Institution:** Government ☐ Private ☐
8. **Type of Scholar:** Day Scholar ☐ Hostler ☐
9. **Stream: Arts &Humanities** ☐ **Law** ☐ **Medical and Pharmacy** ☐ **Commerce & Management** ☐ **Physical and Life Sciences** ☐ **Engineering** ☐ **Education** ☐
10. **Level of Study:** UG ☐ PG ☐
11. **Year of Study:** 1st year ☐ 2nd year ☐ 3rd year ☐ 4th year ☐
12. **Monthly parental income:** Up to 10000/ 10001-20000/ 20001-30000/ 30001-40000/ 40001-50000, 50001 and above.

Choose appropriate option from the given statements.

STATEMENTS	YES	NO
Do you have a smart phone?		
Do you use internet?		
Do you use social networking sites?		
Do you have your personal active profile on social networking sites		

APPENDIX - II

Cyber-Awareness Scale

Instructions

This questionnaire is a part of investigation in an effort to bring out reforms in educational system. The success of the research depends on your cooperation. I am sure that your useful contribution will be very helpful in the research. The information supplied by you will be kept completely confidential. Hence, give your responses frankly and fearlessly. There is no right or wrong answer to the statements. You are requested to read each statement carefully and tick **(**√**)** mark the most appropriate option against the statement honestly and truthfully.

S no	**Statement**	**1-2 hrs.**	**3-4 hrs.**	**5-6 hrs.**	**More than 6hrs**
1.	How much time you spent on internet per day? (Facebook, twitter, Orkut, WhatsApp, link din, Instagram, chat rooms, snap chat,)?				

S.no	**Statements**	**0**	**1**	**2**	**3**	**4**	**5**	**6**
		Not at all						**Daily**
2	How often do you use social networking sites?							
		0	**1**	**2**	**3**	**4**	**5**	**6**
		Not at all						**I Love it**
3	How much do you enjoy social networking?							

How much do you agree with the following statement? Please encircle from the option given.

1	Cyber bullying is not a problem at my University.	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Some-what Agree	Agree	Strongly agree

Have you ever thought about or done any of the following to reduce or prevent cyber bullying? Tick the correct one.

	Statements	**YES**	**NO**
2	Have you ever changed your number?		
3	Have you ever deleted friends or blocked someone from your social network?		
4	Have you ever quit any of the social networking sites you are on?		
5	Have you ever told parent or university official about a cyber-bullying incident?		
6	Have you ever saved comments or posts to document the abuse?		

APPENDIX - III
Knowledge of Cyber Bullying Measure

Dear student, cyber bullying is a serious problem in the society, which is affecting the life of the adolescents. Therefore, you're requested to test your knowledge of cyber bullying on the following questions. **Please mark any one of the options given below.**

1. Cyber Bullying is
    a) A man and women arguing while Skyping to one another on an issue of their personal interest.
    b) An Individual speaking to a person face to face that can be offensive or threatening.
    c) Use of internet and other electronic devices to harm people, in a deliberate, repeated and hostile manner.
    d) A play date.
2. What are effects of cyber bullying?
    a) You feel happy
    b) You feel sad and lonely
    c) You feel excited
    d) It affects you physically
3. Deliberately removing someone from an online group such as instant messaging, friend sites or other online group activities is an example of?
    a) Impersonation
    b) Exclusion
    c) Flaming
    d) None of the above
4. When a person is repeatedly threatened by being followed or sending intimidating messages is an example of?
    a) Outing
    b) Tricking
    c) Cyber stalking
    d) Gossip
5. Sharing secrets about someone online including private information, pictures and videos is an example of?
    a) Flaming
    b) Cyber threat
    c) Outing
    d) None of the above
6. Revealing someone's personal information and then sharing online is an example of?
    a) Trickery
    b) Gossip
    c) Harassment
    d) Impersonation

7. Online fights where angry and rude comments are exchanged through email, instant messaging or chat rooms are an example of?
    a) Cyber threat
    b) Flaming
    c) Outing
    d) None of the above
8. Pretending to be someone else when sending or posting mean or false messages online is an example of?
    a) Impersonation
    b) Gossip
    c) Harassment
    d) Trickery
9. Repeatedly sending malicious messages to someone online is an example of?
    a) Gossip
    b) Outing
    c) Harassment
    d) Trickery
10. Which are the common resources used by you for bullying online? (You can tick more than one).

    Email ☐ Chat rooms ☐ Instant messaging ☐
    Picture messages ☐ Text messages ☐ None ☐
11. Which are the common resources used by others to bully you? (You can tick more than one).

    Email ☐ Chat rooms ☐ Instant messaging ☐
    Picture messages ☐ Text messages ☐ None ☐

APPENDIX -I V
Cyber Bullying Attitude Measure

How much do you agree with the following statements? Tick **(√)** the appropriate space in front of each statement on the questionnaire.

S no	**Statements**	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
1	Teasing or making fun of others with harmful comments online is fun to me	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
2	It is alright to send harmful online messages/posts to another.	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
3	It makes me feel good to attack others online when they deserve it	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
4	I have no reservations about using technology to hurt others when they deserve it	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
5	Harming others via electronic media is acceptable to do.	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
6	School/University rules will be ineffective at stopping cyber bullying	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
7	Sending mean electronic messages to others is less harmful than face-to face communication.	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
8	Attacking others online can be justifiable	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
9	Because I am not face-to-face with another person while online, I feel I can say whatever I want, even if it is mean or harmful.	**Strongly disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**

APPENDIX - V
Cyber Bully/Victim Scale

	Rate your personal level of involvement of social networking from last one year. After carefully reading each statement, please tick **(√)** the option that indicates your frequency of statements on weekly basis.					
S.no.	**Statements**	**Never 1**	**1-2 times 2**	**Sometimes 3**	**Many times 4**	**Everyday 5**
CV-1	Has anybody sent you a message (via cell phone or the Internet) in order to mock you, or talk badly to you?	1	2	3	4	5
2	Has anybody sent you a message (via cell phone or the Internet), pretending to be somebody else, in order to treat you badly?	1	2	3	4	5
3	Has anybody sent others a message (via cell phone or the Internet) in order to mock you, speak badly about you, or say things about you that are not true?	1	2	3	4	5
4	Has anybody sent photos or videos of you to others, without your permission, in order to mock you?	1	2	3	4	5
5	Has anybody shown your messages to others (via cell phone or the Internet), without your permission, in order to mock you, speak badly about you, or say things about you that are not true?	1	2	3	4	5
6	Has anybody purposely sent you a file containing a virus?	1	2	3	4	5
7	Has anybody taken your cell phone, and used it without your permission in order to pretend she/he is you and sent messages or make calls to your friends and acquaintances?	1	2	3	4	5
8	Has anybody written or uploaded something on your social network profile (e.g., Facebook, Twitter) in order to mock you, or talk badly to you?	1	2	3	4	5
9	Has anyone said bad things about you on the Internet in order to make your friends un-friend, "block" or dislike you?	1	2	3	4	5
10	Has anybody sent you a message (via cell phone or the Internet) in order to threaten you?	1	2	3	4	5
11	Has anybody logged into a personal account of yours (e.g., e- mail, social network site) without your permission?	1	2	3	4	5

CB-1	Have you sent a message to someone (via cell phone or the Internet) in order to mock her/him or talk badly to her/him?	1	2	3	4	5
2	Have you sent a message to someone (via cell phone or the Internet), pretending you're somebody else in order to treat her/him badly?	1	2	3	4	5
3	Have you sent others a message (via cell phone or the Internet) in order to mock a third person, speak badly about her/him, or say things about her/him that are not true?	1	2	3	4	5
4	Have you sent photos or videos of someone to others, without her/his permission, in order to mock her/him?	1	2	3	4	5
5	Have you sent or shown messages of someone to others (via cell phone or the Internet), without her/his permission, in order to mock her/him, speak badly about her/him, or say things about her/him that are not true?	1	2	3	4	5
6	Have you purposely sent someone a file containing a virus?	1	2	3	4	5
7	Have you taken the cell phone of another person, and used it without her/his permission in order to pretend you are her/him and sent messages or made calls to her/his friends and acquaintances?	1	2	3	4	5
8	Have you written or uploaded something on someone's social network profile (e.g., Face book, Twitter) in order to mock her/him, or talk badly to her/him?	1	2	3	4	5
9	Have you said bad things about someone on the Internet in order to make her/his friends' un-friend, "block" or dislike her/him?	1	2	3	4	5
10	Have you sent someone a message (via cell phone or the Internet) in order to threaten her/him?	1	2	3	4	5
11	Have you written something about someone on the Internet, that she/he didn't want others to see?	1	2	3	4	5
12	Have you logged into someone's personal account (e.g., e-mail, social network site) without her/his permission?	1	2	3	4	5

APPENDIX - VI

Peer-Peer Relationship Scale

Following are the given statements concerning your Social relationship. Choose the appropriate option from the given.							
SOCIAL RELATIONSHIP WITH PEERS							
Sr. No	**Statements**	**High strongly disagree 1**	**Strongly disagree 2**	**Disagree 3**	**Agree 4**	**Strongly agree 5**	**High strongly agree 6**
1	I believe all the information given by my friends.	1	2	3	4	5	6
2	My friends never break a promise.	1	2	3	4	5	6
3	I am confident that my friends will not leak my secret.	1	2	3	4	5	6
4	My friends never lie to me.	1	2	3	4	5	6
5	I always listen to my friends' advice.	1	2	3	4	5	6
6	I feel safe when the precious belongings are kept by my friends.	1	2	3	4	5	6
7	I inform my friends immediately if he or she encounters problems in school.	1	2	3	4	5	6
8	I feel safe when accompanied by my friends.	1	2	3	4	5	6
9	I always joke with my friends.	1	2	3	4	5	6
10	I understand my friends' mood.	1	2	3	4	5	6
11	I always chat with my friends even if we are from different classes.	1	2	3	4	5	6
12	My friends and I always share our life experience.	1	2	3	4	5	6
13	I understand the background of my friends.	1	2	3	4	5	6
14	I would not feel shy when performing something humorous in front of my friends.	1	2	3	4	5	6
15	My friends forgive me easily.	1	2	3	4	5	6
16	My friends and I can overcome differences in our opinion immediately.	1	2	3	4	5	6
17	My friends treat me well.	1	2	3	4	5	6
18	My relationships with my friends are like brothers and sisters.	1	2	3	4	5	6
19	My friends correct my mistakes in my homework.	1	2	3	4	5	6
20	My friends always help me when I have problems in completing my homework.	1	2	3	4	5	6
21	My friends help me to solve problems.	1	2	3	4	5	6

APPENDIX - VII
Parent-Child Relationship Scale

	SOCIAL RELATIONSHIP of PARENTS with CHILDREN						
S.no	**STATEMENTS**	**Yes, I strongly feel That It Is True**	**Yes, I feel it is true**	**Yes, I feel that it is probably true, or more true than untrue**	**No, I feel that it is probably untrue, or more true than untrue**	**No, I feel it is not true**	**No, I strongly feel that it is not true**
1	My parents feel a true liking for me.	+1	+2	+3	-1	-2	-3
2	My parents may understand my words, but he/she does not see the way I feel.	+1	+2	+3	-1	-2	-3
3	I feel that my parents put on a role or front with me.	+1	+2	+3	-1	-2	-3
4	My parents are impatient with me.	+1	+2	+3	-1	-2	-3
5	My parents nearly always know what I am thinking.	+1	+2	+3	-1	-2	-3
6	Depending on my behavior, my parents have a better opinion of me sometimes than he/she does at other times.	+1	+2	+3	-1	-2	-3
7	I feel that my parents are real and genuine with me.	+1	+2	+3	-1	-2	-3
8	My parent's looks at what I do from their own point of view.	+1	+2	+3	-1	-2	-3
9	My parent's feelings towards me don't depend on how I am feeling towards them.	+1	+2	+3	-1	-2	-3
10	It makes my parents uneasy when I ask or talk about certain things.	+1	+2	+3	-1	-2	-3
11	My parents want me to think that they like or understand me more than they really do.	+1	+2	+3	-1	-2	-3
12	Sometimes my parents think that I feel a certain way, because that's the way they feel.	+1	+2	+3	-1	-2	-3
13	My parents like certain things about me, and there are other things they do not like in me.	+1	+2	+3	-1	-2	-3
14	My parents do not avoid anything that is important for our relationship.	+1	+2	+3	-1	-2	-3
15	I feel that my parents disapprove of me.	+1	+2	+3	-1	-2	-3
16	My parent's attitude towards me stays the same: they are not pleased with me sometimes and critical or disappointed at other times.	+1	+2	+3	-1	-2	-3

17	Sometimes my parents are not at all comfortable but we go on, outwardly ignoring it.	+1	+2	+3	-1	-2	-3
18	My parents just tolerate me.	+1	+2	+3	-1	-2	-3
19	My parents usually understand the whole of what I mean.	+1	+2	+3	-1	-2	-3
20	If I show that I am angry with my parents, they become hurt or angry with me too.	+1	+2	+3	-1	-2	-3
21	My parents express their true impressions and feelings with me.	+1	+2	+3	-1	-2	-3
22	My parents are friendly and warm with me.	+1	+2	+3	-1	-2	-3
23	My parents just take no notice of some things I think or feel.	+1	+2	+3	-1	-2	-3
24	How much my parents like or dislikes me is not altered by anything that I tell them about myself.	+1	+2	+3	-1	-2	-3
25	My parents don't like me for myself.	+1	+2	+3	-1	-2	-3
26	At times my parents think that I feel a lot more strongly about a Particular thing than I really do.	+1	+2	+3	-1	-2	-3
27	Whether I happen to be in good spirits or feeling upset does not make my parents feel any more or less appreciative of me.	+1	+2	+3	-1	-2	-3
28	My parents are open in our relationship.	+1	+2	+3	-1	-2	-3
29	Whether the ideas and feelings I express are "good" or "bad" seem to make no difference to my parent's feeling towards me.	+1	+2	+3	-1	-2	-3
30	There are times when I feel that my parent's outward response to me is quite different from the way they feel underneath.	+1	+2	+3	-1	-2	-3
31	My parents understand me.	+1	+2	+3	-1	-2	-3
32	My parent's response to me is usually so fixed and automatic that I don't really get through to him/her.	+1	+2	+3	-1	-2	-3
33	I don't think that anything I say or do really change the way my parents feel towards me.	+1	+2	+3	-1	-2	-3
34	What my parents say to me often gives a wrong impression of their total thoughts or feelings at the time.	+1	+2	+3	-1	-2	-3
35	My parents feel deep affection for me.	+1	+2	+3	-1	-2	-3

36	When I am hurt or upset my parents can recognize my feelings exactly, without becoming upset too.	+1	+2	+3	-1	-2	-3
37	What other people think of me does affect the way my parents feel toward me.	+1	+2	+3	-1	-2	-3
38	I believe that my parents have feelings they do not tell me about thatare causing difficulty in our relationship.	+1	+2	+3	-1	-2	-3

APPENDIX - VIII
Teacher-Student Relationship Scale

SOCIAL RELATIONSHIP OF TEACHERS WITH STUDENTS							
1	My instructor wants to understand how I see things.	+1	+2	+3	-1	-2	-3
2	My instructor feels a true liking for me.	+1	+2	+3	-1	-2	-3
3	My instructor may understand my words, but he/she does not see the way I feel.	+1	+2	+3	-1	-2	-3
4	Whether I am feeling happy or unhappy with myself makes no real difference to the way my instructor feels about me.	+1	+2	+3	-1	-2	-3
5	I feel that my instructor puts on a role or front with me.	+1	+2	+3	-1	-2	-3
6	My instructor is impatient with me.	+1	+2	+3	-1	-2	-3
7	My instructor nearly always knows what I am thinking.	+1	+2	+3	-1	-2	-3
8	I feel that my instructor is real and genuine with me.	+1	+2	+3	-1	-2	-3
9	My instructor looks at what I do from his/her own point of view.	+1	+2	+3	-1	-2	-3
10	My instructor wants me to be a particular kind of person.	+1	+2	+3	-1	-2	-3
11	I feel that what my instructor says expresses exactly what he/she is feeling and thinking at that moment.	+1	+2	+3	-1	-2	-3
12	I can be (could be) openly critical or appreciative of my instructor without making him/her feel differently about me.	+1	+2	+3	-1	-2	-3
13	My instructor cares for me.	+1	+2	+3	-1	-2	-3
14	Sometimes my instructor thinks that I feel a certain way, because that's the way he/she feels.	+1	+2	+3	-1	-2	-3
15	My instructor likes certain things about me, and there is other thing he/she does not like in me.	+1	+2	+3	-1	-2	-3
16	My instructor does not avoid anything that is important for our relationship.	+1	+2	+3	-1	-2	-3
17	I feel that my instructor disapproves of me.	+1	+2	+3	-1	-2	-3
18	My instructor realizes what I mean even when I have difficulty saying it.	+1	+2	+3	-1	-2	-3
19	My instructor's attitude towards me stays the same: he/she is not pleased	+1	+2	+3	-1	-2	-3

	with me sometimes and critical or disappointed at other times.						
20	Sometimes my instructor is not at all comfortable but we go on, outwardly ignoring it.	+1	+2	+3	-1	-2	-3
21	My instructor just tolerates me.	+1	+2	+3	-1	-2	-3
22	My instructor expresses his/her true impressions and feelings with me.	+1	+2	+3	-1	-2	-3
23	My instructor just takes no notice of some things I think or feel.	+1	+2	+3	-1	-2	-3
24	At times I sense that my instructor is not aware of what he/she is really feeling with me.	+1	+2	+3	-1	-2	-3
25	I feel that my instructor really values me.	+1	+2	+3	-1	-2	-3
26	My instructor is willing to express whatever is actually in his/her mind with me, including personal feelings about him/her or me.	+1	+2	+3	-1	-2	-3
27	My instructor doesn't like me for myself.	+1	+2	+3	-1	-2	-3
28	Whether I happen to be in good spirits or feeling upset does not make my Instructor feels any more or less appreciative of me.	+1	+2	+3	-1	-2	-3
29	My instructor is open in our relationship.	+1	+2	+3	-1	-2	-3
30	There are times when I feel that my instructor's outward response to me is quite different from the way he/she feels underneath.	+1	+2	+3	-1	-2	-3
31	My instructor understands me.	+1	+2	+3	-1	-2	-3
32	Sometimes I am more worthwhile in my instructor's eyes than I am at other times.	+1	+2	+3	-1	-2	-3
33	My instructor doesn't hide from himself (herself) anything that he (she)feels with me.	+1	+2	+3	-1	-2	-3
34	My instructor is truly interested in me.	+1	+2	+3	-1	-2	-3
35	I don't think that anything I say or do really change the way my instructor feels toward me.	+1	+2	+3	-1	-2	-3
36	My instructor feels deep affection for me.	+1	+2	+3	-1	-2	-3
37	What other people think of me does affect the way my instructor feels	+1	+2	+3	-1	-2	-3

	toward me.						
38	I believe that my instructor has feelings he/she does not tell me about that are causing difficulty in our relationship.	+1	+2	+3	-1	-2	-3

APPENDIX - IX

MOTIVATION SCALE

Read each item carefully; please tick the correct option that best describes the reason why you are currently engaged in the social network activity. Answer each item according to the following scale: 1: *corresponds not all*; 2: *corresponds a very little*; 3: *corresponds a little*; 4: *corresponds moderately*;5: *corresponds enough*; 6: *corresponds a lot*; 7: *corresponds exactly*.

SNo	**Statements**	**Corresponds not all**	**corresponds a very little**	**corresponds a little**	**corresponds moderately**	**Corresponds enough**	**corresponds a lot**	**Corresponds exactly**
		1	**2**	**3**	**4**	**5**	**6**	**7**
WHY ARE YOU CURRENTLY ENGAGED IN THIS ACTIVITY OF CYBER BULLYING								
1	Because I think that this activity is interesting	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
2	Because I am doing it for my own good	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
3	Because I am supposed to do it	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
4	There may be good reasons to do this activity, but personally I don't see any	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
5	Because I think that this activity is pleasant	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**

6	Because I think that this activity is good for me	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
7	Because it is something that I have to do	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
8	I do this activity but I am not sure if it is worth it	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
9	Because this activity is fun	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
10	By personal decision	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
12	I don’t know; I don’t see what this activity brings me	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
13	Because I feel good when doing this activity	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
14	Because I believe that this activity is important for me	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**
15	Because I feel that I have to do it	**Corresponds not all 1**	**corresponds a very little 2**	**corresponds a little 3**	**corresponds moderately 4**	**Corresponds enough 5**	**corresponds a lot 6**	**Corresponds exactly 7**

APPENDIX - X

INTERNET SELF-EFFICACY SCALE

Following are given statements concerning **our Internet Self Efficacy (ISES).** You are requested to read each statement carefully and tick mark **(√)** the most appropriate option.

S. No	Statements	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Some-what Agree	Agree	Strongly agree
		1	2	3	4	5	6	7
1	I feel confident visiting a Web site by entering its address (URL) in the browser.	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7
2	I feel confident going backward and forward to previously visited Webpages without being lost in the hyperspace (cyberspace).	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7
3	I feel confident finding information byusing a search engine.	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7
4	I feel confident looking for information by querying a Web database.	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7
5	I feel confident saving the files attached to e-mail.	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7
6	I feel confident attaching files to e-mail.	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7
7	I feel confident posting messages in a Web bulletin board	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7
8	I feel confident downloading files and software.	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7
9	I feel confident uploading files to a Website or FTP site.	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Neutral 4	Some-what Agree 5	Agree 6	Strongly agree 7

APPENDIX - XI

Following are given statements concerning **Empathy** You are requested to read each statement carefully and tick mark **(√)** the most appropriate option.						
S.No	**STATEMENTS**	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
		1	**2**	**3**	**4**	**5**
1	I pay attention to the worries and concern of others	**Strongly Disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
2	I can listen to someone without the urge to say something.	**Strongly Disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
3	I try to see the other person's point of view.	**Strongly Disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**
4	I am able to stay focused even under pressure	**Strongly Disagree 1**	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly agree 5**